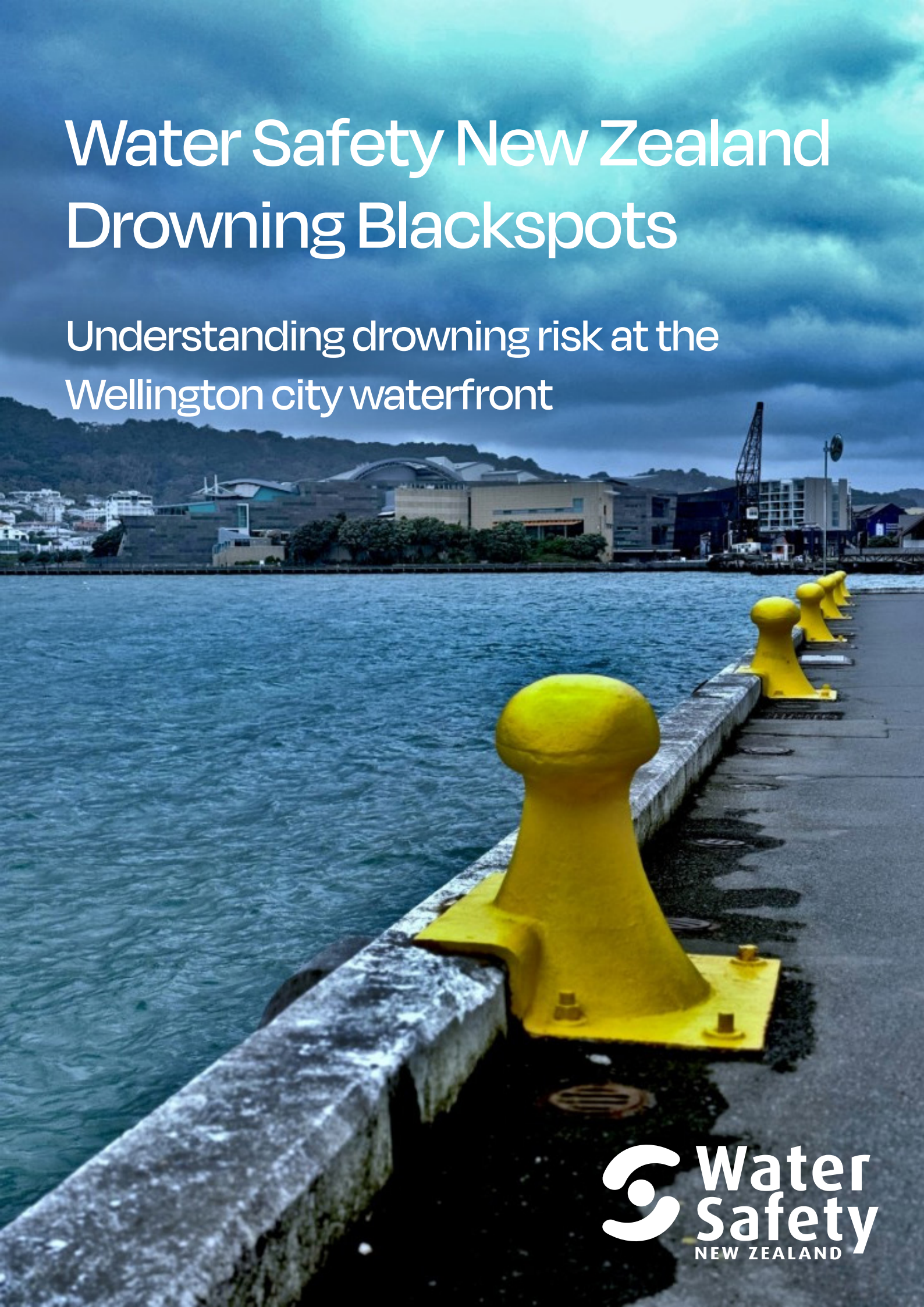
Water Safety New Zealand Drowning Blackspots

Understanding drowning risk at the Wellington city waterfront



Water Safety NEW ZEALAND

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1 EXECUTIVE SUMMARY

The Wellington waterfront is one of the capital's most distinctive and dynamic urban spaces. It's a space where people walk, work, socialise, and move between land and sea as part of their everyday work and play. Its wharves, promenades, bars and public venues draw steady foot traffic, and the inner-city shoreline is especially lively in the evenings and on weekends.

But behind this energy sits a more sobering reality. Between 1980 and 2025, 22 people lost their lives to preventable drowning along a concentrated two-kilometre section of the waterfront. These incidents were not random nor evenly distributed. They show persistent patterns: alcohol impairment, accidental falls into the water, and a lack of self-rescue opportunities where the edge is open, unprotected, and easily accessed.

We believe there are three main risks associated with the waterfront. **Open unprotected edges** with limited opportunities for self-rescue; **Proximity of alcohol** consumption to unfenced water; and, **Night-time exposure**: darkness, isolation, and impaired decision-making.

There are many mitigation strategies for these risks, but the most effective focus on reshaping the conditions that repeatedly lead to fatalities. Targeted edge protection in high-risk areas, improved night-time lighting, and stronger alcohol-related safety measures near the waterfront all reduce the likelihood of accidental immersion. Supporting actions such as encouraging people to stay together after drinking and ensuring visible self-rescue points all reinforce these core measures. Together, they provide a practical, evidence-based approach to keeping Wellington's waterfront both vibrant and safe.

2 INTRODUCTION

This report examines those patterns of drowning on the Wellington waterfront. It analyses the environmental, social, and behavioural factors that have contributed to loss of life in a space that sits at the heart of Wellington's identity, and, asks how this iconic shoreline can remain vibrant while becoming safer for everyone who uses it.

This work was commissioned as part of Water Safety New Zealand's (WSNZ) Drowning Blackspot initiative, which identifies locations across NZ/Aotearoa with heightened drowning risk. The Wellington waterfront was included due to the number, nature, and repetition of preventable fatalities over time. While national statistics show a gradual decline with 74 and 78 preventable drownings in 2024 and 2025 respectively, the overall burden remains significant (Water Safety New Zealand, 2025). The 10-year average of 85 deaths per year highlights the persistent and systemic nature of drowning risk in Aotearoa (Water Safety New Zealand, 2026). Around 1 in 5 of these fatalities continue to occur in recognised blackspot locations. The Wellington city waterfront remains one of the most concerning urban coastal zones in the country, given its deep water, high foot traffic, unrestricted access, and close proximity to the CBD and its bars, restaurants, and transport links.

This report draws on coronial and police records in conjunction with DrownBase data to provide a detailed analysis of the 22 cases that occurred within this defined area. The aim is to identify shared risk factors, highlight opportunities for targeted prevention, and contribute to a broader understanding of how urban environments can either heighten or reduce risk. These insights are designed to support practical, place-based safety responses that honour those who have been lost and reduce the likelihood of future harm.

The methodology outlines how Wellington's inner-city waterfront was identified as a high-risk drowning location and describes the data sources used in this analysis, including coronial and police files and DrownBase records. The results section then highlights the key patterns that emerge from this evidence — who is most affected, when incidents occur, and how environmental and behavioural factors combine to heighten risk. These insights directly inform the recommendations, which present targeted, practical actions that build on coronial findings and reflect safety needs. Together, they underscore the urgent importance of place-based research and coordinated response, not only for Wellington but for other high-risk urban waterfronts across Aotearoa.

3 METHODOLOGY

This report draws on a detailed quantitative review of preventable drowning fatalities in Wellington, using data from two key sources: WSNZ's national drowning database DrownBase, and coronial and police records. These datasets offer a layered, evidence-informed understanding of what is occurring along the inner-city waterfront edge, who is most affected, and the types of circumstances in which fatal incidents tend to happen. The goal is to identify clear patterns and systemic risk factors that can guide both immediate responses and longer-term safety planning.

3.1 FATALITY DATA: DROWNBASE

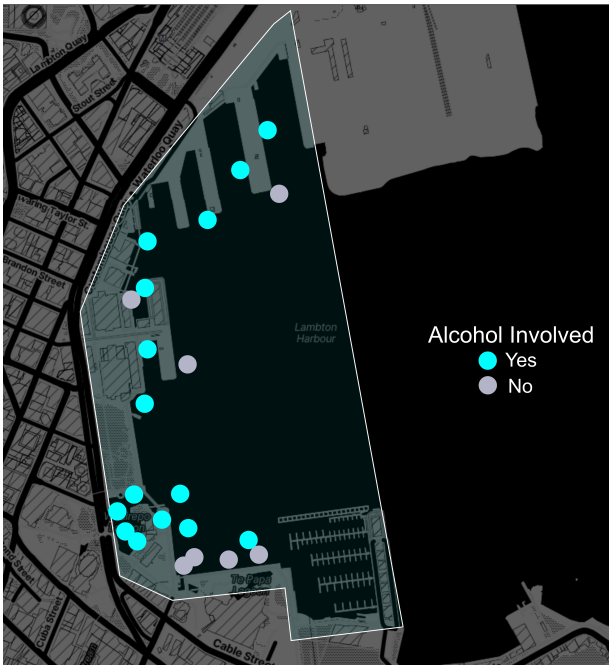
Wellington City was identified as a national Drowning Blackspot through WSNZ's spatial mapping of fatal incidents recorded in DrownBase. Geocoded fatality data from January 1980 to December 2025 was used to highlight locations with persistent drowning risks. Wellington's central waterfront stood out due to the frequency and clustering of incidents within a concentrated two-kilometre area. This mapping approach provides a clearer picture of where risk is most acute and where targeted interventions are most needed. DrownBase was then used to examine key variables across the 22 recorded fatalities between 1980 and 2025. These include age, gender, temporal aspects, activity type, alcohol involvement, and reported cause of entry. While the database cannot capture the full complexity of each case, this type of data review enables recurring themes to be identified. These include behavioural risk factors, environmental triggers, and gaps in protective measures. Each fatality represents a significant loss, and the aim of this work is to ensure those patterns are translated into practical efforts to protect others in the future.

3.2 POLICE AND CORONIAL FILE ANALYSIS

To complement the database findings, a full review of coronial and police files was undertaken for 20 of the 22 cases (2 remain under investigation at the time of reporting). These reports provided deeper insight into the conditions at the time of each incident; such as lighting, weather, intoxication, location of fall, access to help, and attempts at rescue. Each case was examined using a consistent set of criteria to build a clearer picture of common contributing factors and situational risks. While the details of each are unique, the accumulation of evidence across cases provides a strong foundation for identifying where improvements in safety practice, urban design, and public awareness could reduce future harm.

Although this report is focused on quantitative findings, it is intended to support further engagement and prevention. Future work could involve speaking with those who live near, work on, or frequently visit the waterfront to explore how risk is understood and navigated in everyday life. These conversations would add valuable context and ensure that safety strategies are informed not only by data but also by lived experience.

Figure 1: Preventable drowning fatalities 1980-2025 along the Wellington waterfront.



3.3 LITERATURE REVIEW

The literature consistently identifies five key domains of drowning risk that are highly applicable to the urban setting of the Wellington waterfront. These include alcohol use, social and peer dynamics, cold water immersion, unsafe water entry behaviours, and gender-linked vulnerability. Each of these domains interacts with the physical environment of the harbour, where open access to water, poor night-time visibility, and proximity to nightlife create a high-risk setting for unintentional immersion.

3.3.1 ALCOHOL-RELATED DROWNING RISK

Alcohol use is one of the most well-established contributors to drowning worldwide. Research highlights how intoxication impairs judgment, motor coordination, and reaction time, while also suppressing critical protective responses such as breath control and gag reflex (Driscoll et al., 2004; Martin et al., 1977; Franks et al., 1997). In the New Zealand context, Warner et al. (2000) found that approximately one-third of drowning fatalities involved alcohol, and Croft and Button (2015) identified alcohol as a key factor in adult male drowning incidents. In Wellington, this risk is amplified by the spatial design of the waterfront. Alcogenic environments, where alcohol is consumed close to unfenced water, have been identified as particularly dangerous (Carey et al., 2024; Leavy et al., 2022). Many fatalities in Wellington involved individuals who had been drinking in bars or social spaces that were directly adjacent to the water's edge, often at night when visibility was reduced. These environmental and behavioural conditions combine to create a setting where the effects of alcohol dramatically increase the risk of drowning.

As shown in Figure 1, alcohol was identified as a major factor in 15 of the 22 (68% which is more than *double* the prevailing one-third rate mentioned in the literature) waterfront drowning fatalities. These environmental and behavioural conditions combine to create a setting where the effects of alcohol dramatically increase the risk of drowning.

3.3.2 GROUP DYNAMICS, ISOLATION, AND DROWNING RISK

Social settings and peer influence also play a critical role in shaping drowning risk. Studies have shown that the presence of peers can increase risk-taking behaviours, especially among young adults, who may engage in unsafe jumping, swimming, or drinking near water in group contexts (Abercromby et al., 2021; Carey et al., 2024). Group dynamics can reinforce bravado and impulsivity, particularly in male-dominated settings. At the same time, many drowning fatalities occur when individuals are alone, without the possibility of assistance or intervention (Moran & Stanley, 2013). Even when others are present, a lack of rescue training or access to safety equipment can limit the effectiveness of bystander response (Barcala-Furelos et al., 2021; Brander et al., 2019). The Wellington waterfront's physical layout enables open socialising at the water's edge, but at night this environment becomes particularly dangerous. Several coronial cases involved individuals who had started the night in groups but became separated, entering the water alone without being noticed until it was too late.

3.3.3 COLD WATER IMMERSION AND PHYSIOLOGICAL RISK

Cold water immersion presents another significant hazard in Wellington. Water temperatures typically range from 11 to 15 degrees Celsius, placing individuals at high risk of cold shock upon entry. The immediate physiological response includes gasping, hyperventilation, and loss of breath control, which can incapacitate even experienced swimmers (Tipton et al., 2017; Golden et al., 1997). Barwood et al. (2013, 2017) found that cold shock symptoms are exacerbated by anxiety and alcohol, both of which feature prominently in the Wellington cases. In cold conditions, time to exhaustion and loss of muscle function can occur rapidly, making self-rescue almost impossible. These effects are particularly dangerous at night when water entry may go unwitnessed and response times are delayed.

3.3.4 HIGH-RISK ENTRY

High-risk water entry behaviours, including jumping or diving into water from height, have been closely linked to drowning fatalities. Moran (2014) and Moran et al. (2021) observed that these behaviours are often unplanned, peer-influenced, and carried out without awareness of the risks. Wellington Harbour includes several structures, such as cranes, piers, and wharves, from which people can easily enter the water, either intentionally or accidentally. The lack of fencing or signage in many of these locations provides little deterrent. These risks are magnified by alcohol use, which reduces inhibition and contributes to impulsive decision-making (Leavy et al., 2022; Carey et al., 2024). A small number of drowning cases in Wellington involved individuals jumping from a height into the water while intoxicated, often misjudging the impact, water depth, or their ability to resurface and self-rescue.

3.3.5 GENDERED PATTERNS IN DROWNING RISK

Male overrepresentation in drowning is a global pattern that is strongly reflected in Wellington. Males, particularly those aged 15 to 34, are consistently overrepresented in drowning data both in Aotearoa and internationally (Peden et al., 2019; McDonald et al., 2005). Behavioural factors such as sensation-seeking, peer pressure, and overconfidence in swimming ability contribute to this gendered risk profile (McCool et al., 2008; Croft & Button, 2015). These behaviours often intersect with the other risk domains, such as alcohol consumption and peer-influenced entry behaviours. In Wellington, *all but one* of recorded drowning fatalities involved men, often occurring in situations where the presence of risk may have been underestimated or not fully recognised.

Together, these five domains offer a coherent framework for understanding why fatalities continue to occur in urban waterfront environments such as we have in Wellington. The interplay of alcohol use, social behaviour, cold water immersion, impulsive water entry, and male risk-taking creates a persistent risk profile that is shaped as much by the built environment as by individual choices. These insights offer an important foundation for interpreting the coronial data that follows and for informing prevention strategies that are context-specific, targeted, and grounded in evidence.

4 RESULTS

This section presents the key findings from the data review and case analysis. The results are structured into four areas: demographic and activity patterns; temporal and environmental patterns; behavioural and situational risk factors; and a targeted comparison between Wellington's Queen's Wharf area and the Auckland waterfront around Princes Wharf.
Together, these findings illustrate the recurring characteristics of drowning on the Wellington city waterfront and highlight where safety efforts could have the greatest impact. The Auckland–Wellington comparison is particularly instructive: despite near-identical inner-city waterfront settings—busy, alcohol-oriented, and active late into the night—the risk patterns diverge in ways that point to specific, addressable factors rather than broad environmental conditions.

4.1 DEMOGRAPHIC AND ACTIVITY PATTERNS

Primarily, this is a problem affecting young adult males. Fatalities in Wellington Harbour occurred almost exclusively among adult men: of the 22 cases reviewed, 21 involved male victims and one involved a female. The median age was 31, and adults aged 19–34 accounted for 64 percent of all deaths, with those aged 25–34 forming the single largest group (36 percent). This pattern aligns closely with national and international drowning data, where adult males in their mid-twenties to mid-thirties are consistently the most represented (Peden et al., 2019; Croft & Button, 2015). The over-representation of this group underscores the influence of social and behavioural factors rather than swimming ability alone.

Ethnicity data showed that New Zealand European victims accounted for 41 percent of cases, Māori for 18 percent, and Asian for 14 percent. Ethnicity was unrecorded in five cases. The majority of victims were residents of the Wellington region (59 percent), with others visiting from neighbouring areas or overseas. Locally based victims often encountered risk during routine social activities, indicating a degree of familiarity and complacency with the waterfront environment.

Falls into water were the most common mechanism of entry, accounting for 45 percent of confirmed cases and a further 23 percent where a fall was likely but unconfirmed. These were followed by swimming-related incidents (14 percent) and jumping or diving (14 percent). Nearly all incidents were associated with alcohol consumption. The predominance of falls emphasises the need for prevention strategies focusing on environmental design — such as improved lighting, protective barriers, and visual cues — rather than education alone.

4.2 TEMPORAL AND ENVIRONMENTAL PATTERNS

Over the 46-year period examined (1980–2025), fatalities averaged approximately one every two years. However, the frequency has increased over the past decade, with one fatality occurring every 15 months since 2019. This persistence over time confirms that the pattern is not random

but systematic.

Most incidents occurred between January and April, with 36 percent of cases in autumn and 32 percent in summer. While seasonality reflects increased activity around the waterfront, fatalities were recorded in every season, confirming that risk is present year-round. Night-time was the dominant period for fatal incidents: 68 percent occurred between evening and early morning hours, 23 percent in daylight, and 9 percent with unknown timing. Fridays and Saturdays accounted for 59 percent of deaths, and when Sundays are included, the weekend total reached 68 percent. These temporal patterns correlate strongly with alcohol consumption and social activity peaks.

Environmental conditions in many cases were dark, cold, and quiet, reducing both self-rescue capacity and the chance of detection. Several victims entered the water unobserved, with delayed discovery until daylight hours. Even moderate wind or current can exacerbate cold-shock effects and fatigue, highlighting how physical conditions and human behaviour interact in creating fatal outcomes.

4.3 BEHAVIOURAL RISK AND DECISION MAKING

Alcohol was implicated in 68 percent of all fatalities. Most victims had been drinking socially prior to the incident and were alone at the time of immersion. The sequence of events in many coronial files shows individuals leaving bars or social gatherings late at night, walking alone along the waterfront, and accidentally entering the water via unguarded edges. These scenarios were rarely witnessed, and emergency response was delayed.

A small number of cases involved deliberate entry into the water from structures such as cranes or wharves. These often reflected thrill-seeking behaviour and were nearly always associated with alcohol. In several instances, peer influence played a part in encouraging risk-taking.

The overarching behavioural theme is one of impaired decision-making and the absence of protective factors. Solo movement near water while intoxicated, combined with poor visibility and cold temperatures, creates conditions where a simple misstep or loss of balance can be fatal. Behavioural change campaigns need to address not only the individual but also the social context that normalises risky behaviour around urban waterfronts. Changing this culture will require both environmental redesign and sustained public messaging that challenges the acceptability of drinking near open water.

Together, these results reveal a consistent pattern across four decades: the people most at risk are adult males under the influence of alcohol, most incidents occur at night or on weekends, and the mechanism is most often an accidental fall from the urban waterfront edge. The environment amplifies these risks through open access, low lighting, and limited rescue opportunities.

4.4 AUCKLAND VERSUS WELLINGTON: A CASE FOR BARRIERS

This section compares drowning patterns at the Wellington CBD waterfront and the Auckland waterfront around Princes Wharf—two broadly similar inner-city environments with high levels of pedestrian activity and sustained night-time use. Both locations are characterised by close proximity to bars, restaurants, and hospitality venues, and attract a young, mobile population. They also serve as focal points for major sporting and cultural events, resulting in periods of intensified activity extending into the early hours.

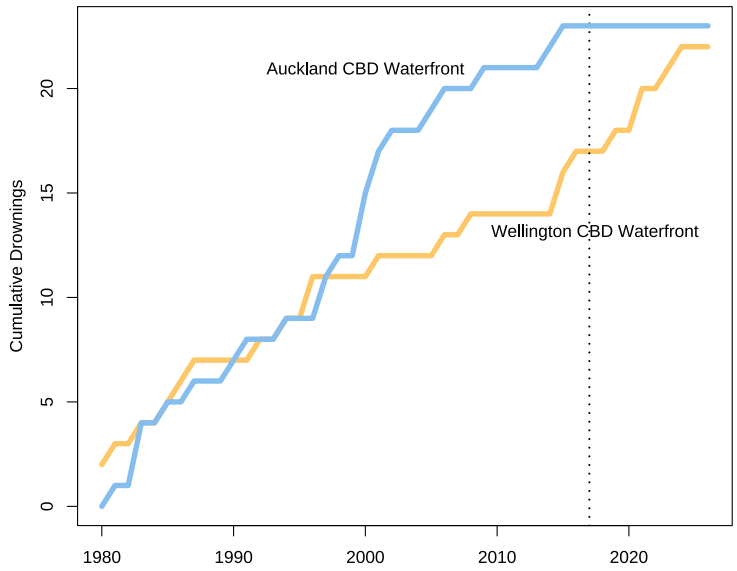
In each setting, the interface between the built environment and open water is immediate and largely unmediated, with high public accessibility and frequent interaction with the waterfront edge. These shared characteristics create comparable exposure to drowning risk, particularly in the presence of alcohol, reduced visibility, and late-night movement through the area.

As such, the two sites provide a useful basis for comparison, allowing differences in observed outcomes to be considered in the context of specific environmental and structural factors rather than broader demographic or usage patterns.

Figure 2 shows that cumulative drowning totals at the two sites are broadly similar over the full period, despite Wellington having a population of around one-third that of Auckland. Notably, the Auckland series exhibits an uptick in incidents from around 2000 onwards, followed by a clear cessation after the installation of physical barriers during the Viaduct precinct upgrade (2017–2020), undertaken in preparation for the 2021 America's Cup.

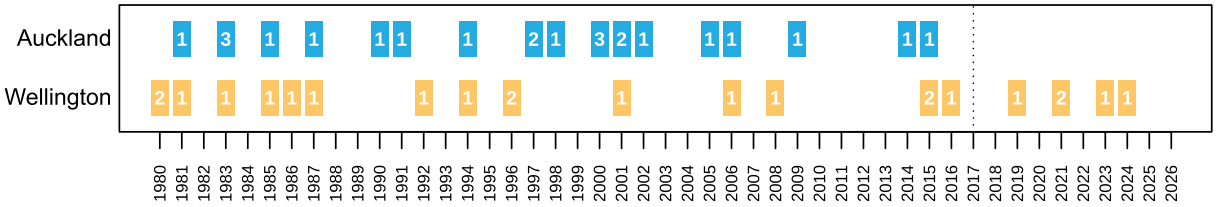
This shift provides a natural point of comparison for assessing how edge protection may influence drowning risk in otherwise comparable environments.

Figure 2: Cumulative drownings at Wellington and Auckland waterfronts.



As shown in Figure 3, no fatalities are recorded at the Auckland site following 2017, whereas five further fatalities (three involving alcohol) occur in Wellington over the same period. While this comparison is observational, the divergence in outcomes is consistent with edge protection acting as a mitigating factor.

Figure 3: A timeline of drownings at Wellington and Auckland waterfronts.



5 FINDINGS

This section consolidates the key insights from the data analysis and file review. While each drowning incident is unique, the convergence of behavioural, environmental, and situational factors reveals a clear and repeating pattern. The findings below summarise the main contributors to preventable drowning fatalities in the harbour and the implications for safety interventions.

5.1 KEY FINDINGS

1. **Alcohol as a dominant risk factor.** Alcohol was identified as a contributing factor in 15 of the 22 fatalities (68 percent). In most cases, the victim had consumed alcohol in bars or social settings located near the waterfront. Impaired balance, judgment, and reaction time were common contributing elements, consistent with findings from international research. Alcohol-related impairment was typically combined with low visibility, isolation, and lack of protective barriers.
2. **Accidental falls as the most common cause.** Ten cases involved confirmed falls into water, with a further five cases likely to have involved an accidental fall. These incidents typically occurred near the water's edge where no fencing or protective structures were in place. Many of these sites remain freely accessible today. The predominance of falls demonstrates that drowning risk in Wellington is largely an issue of environmental design rather than deliberate risk-taking or intentional water-based activity.

6 RECOMMENDATIONS

This section consolidates the practical actions required to reduce preventable drowning risk along Wellington's inner-city waterfront. While multiple contributing factors exist, the evidence from four decades of fatalities points overwhelmingly to three systemic issues:

(a) Open, unprotected edges with limited opportunities for self-rescue.
(b) Proximity of alcohol-serving venues to unfenced water.
(c) Night-time exposure: darkness, isolation, and impaired decision-making.

These three domains form the basis of the primary recommendations (with added examples of practical suggestions) that follow. Additional, lower-impact opportunities are included afterwards for completeness, but should be considered secondary to the immediate changes required.

6.1 PRIMARY RECOMMENDATIONS

6.1.1 INSTALL DISCREET EDGE PROTECTION AT HIGH-RISK LOCATIONS

The strongest pattern in the evidence is clear: exposed edges lead to accidental falls, and falls lead to fatalities. Most victims did not intend to enter the water.

There should be:

- Targeted installation of low-profile fencing or balustrades at locations with repeated fatal incidents.
- Prioritisation of sections adjacent to bars, night-time foot traffic, and narrow pathways.
- Use of aesthetic, transparent, or heritage-aligned materials that maintain public sightlines while preventing accidental entry.

- Improved spacing and visibility of rescue ladders to support self-rescue where immersion still occurs.

Figure 4 indicates high-risk sections of the Wellington waterfront, characterised by repeated fatal incidents, unrestricted access to deep water, high night-time pedestrian activity, and close proximity to hospitality precincts.

Edge protection remains the *single most effective intervention* for preventing unintentional immersion.

Figure 4: Priority Zones for Edge Protection Measures

6.1.2 REDUCE ALCOHOL-RELATED RISK AT THE WATERFRONT EDGE

Alcohol impairment is the most dominant and consistent factor in Wellington waterfront fatalities. Water Safety New Zealand should collaborate with Wellington City Council, hospitality operators, and nightlife precinct managers to:

- Develop a localised alcohol-near-water safety strategy specific to high-risk zones along the waterfront.
- Encourage hospitality venues to adopt "safe dispersal" practices that direct intoxicated patrons away from exposed edges after dark.
- Implement co-branded public messaging across bars, transport hubs, and public spaces promoting safe movement near water at night.
- Work with Council to review licensing conditions where necessary in areas where bars open directly onto unfenced waterfront edges.

These coordinated actions address the circumstances that appear repeatedly in coronial files and DrownBase case histories.

6.1.3 STRENGTHEN NIGHT-TIME SAFETY ACROSS THE WATERFRONT

Most incidents occur in darkness, when visibility, detection, and response capacity are lowest. Water safety New Zealand should partner with Wellington City Council to:

- Improve night-time lighting in high-risk areas such as narrow walkways, wharves, and pier edges.
- Integrate Crime Prevention Through Environmental Design (CPTED) principles (or *incident* prevention) into after-dark design audits, including sightlines, illumination, and route clarity.
- Support a "Stay Together Near Water" national message for nightlife zones, emphasising peer presence and safer movement home.

Enhancing the night-time environment is essential given the timing of most fatalities.

6.2 SECONDARY RECOMMENDATIONS

The following actions provide additional safety benefits but should not detract or take resource from the primary recommendations above.

Develop National Urban Waterfront Safety Guidelines. A longer-term initiative to support councils with consistent minimum standards for lighting, edge design, and rescue equipment in urban coastal spaces.

Improve Non-Fatal Incident and Near-Miss Reporting. Creating a coordinated reporting framework would strengthen early warning systems and support proactive hazard identification. Integration with DrownBase would be advantageous but requires cross-agency adoption.

Promote Safe Diving and Jumping Behaviours. Relevant for a minority of cases involving deliberate entry. These efforts should be delivered through partnerships with aquatic clubs and seasonal public campaigns.

Discourage Thrill-Seeking at High Platforms and Structures. Includes signage, modest barriers, or design changes at cranes, piers, and wharves known for unauthorised jumping. A low-frequency but preventable risk.

7 CONCLUSION

The analysis of preventable drowning fatalities on the Wellington waterfront over the past four decades reveals a clear and persistent pattern of risk. While each case is deeply individual, the convergence of behavioural, environmental, and systemic factors tells a consistent story: most victims were adult males, often under the influence of alcohol, alone, at night, and in close proximity to open water edges. These deaths are not random accidents but preventable events arising from predictable interactions between human behaviour and the built environment. The persistence of these factors highlights that the risks are systemic, not incidental.

The physical environment, including open edges, poor lighting, and proximity to nightlife, amplifies these risks and demonstrates how urban design and social behaviour intersect to create high-risk conditions for drowning. This report confirms that urban waterfronts require the same level of safety planning and design consideration as other high-risk public spaces. In Wellington, repeated coronial investigations have identified the same core issues, including alcohol use near water, unfenced edges, and limited rescue options, yet progress has been uneven. Implementing the recommendations outlined in this report would directly respond to

these recurring findings and demonstrate leadership in evidence-based drowning prevention.

Effective prevention requires a coordinated, systems-based approach involving councils, police, emergency services, design professionals, hospitality operators, and the public. Integrating behavioural insight, environmental design, and strong governance will deliver the most meaningful impact. The lessons learned extend beyond Wellington; similar conditions exist across Aotearoa where people gather near water for work, recreation, and social connection. A national framework for urban waterfront safety would enable a proactive, consistent, and informed response.

Above all, each drowning represents not only a statistical loss but a profound personal tragedy for families, friends, and communities. Honouring those lost means learning from their stories and committing to change. The evidence is clear, the risks are known, and the tools for prevention already exist. What remains is collective resolve to apply that knowledge, strengthen our systems, and ensure the spaces where we live and socialise are genuinely safe for all.

REFERENCES

Abercromby, M., Moran, K., & Stanley, T. (2021). Risk-taking, gender, and peer influence: A study of young adults' behaviours around water. *International Journal of Aquatic Research and Education*, 12(1), 1–17.

Barcala-Furelos, R., Szpilman, D., & Abelairas-Gómez, C. (2021). Drowning prevention: A new imperative for resuscitation science. *Resuscitation*, 160, 119–121.

Barwood, M. J., Bates, V., Long, G. M., & Tipton, M. J. (2013). "Float first": Trapped air between clothing layers significantly improves buoyancy after immersion. *Aviation, Space & Environmental Medicine*, 84(4), 385–390.

Barwood, M. J., Long, G. M., & Tipton, M. J. (2017). Pulmonary responses to cold water immersion. *Respiratory Physiology & Neurobiology*, 239, 39–47.

Brander, R. W., Warton, D. I., Dominey-Howes, D., & Hart, R. (2019). Bystander rescue of drowning victims in Australia, 2000–2017. *Safety Science*, 118, 43–51.

Carey, M., Leavy, J., & Lee, J. (2024). Drowning in place: Alcohol-related risk at urban waterfronts. *Health Promotion Journal of Australia*, 35(1), 88–96.

Croft, J. L., & Button, C. (2015). Adult male drowning: Hidden impacts of environmental and behavioural risk. *Journal of Community Health*, 40(4), 760–767.

Driscoll, T. R., Harrison, J. E., & Steenkamp, M. (2004). Alcohol and drowning in Australia. *Injury Control and Safety Promotion*, 11(3), 175–181.

Franks, H. M., Hensley, V. R., Starmer, G. A., & Teo, R. K. C. (1997). The effect of alcohol on human performance. *Journal of the Royal Society of Medicine*, 90(11), 656–660.

Golden, F. S. C., & Tipton, M. J. (1997). *Essentials of Sea Survival*. Human Kinetics.

Leavy, J., Carey, M., & Kroon, J. (2022). Risk-taking at the water's edge: Social influences on alcohol-related drowning. *Health Sociology Review*, 31(2), 178–193.

Martin, J. L., Laing, R., & Lynch, M. (1977). Alcohol, hypothermia and fatal accidents. *British Medical Journal*, 1(6053), 123–125.

McCool, J., Ameratunga, S., Moran, K., & Robinson, E. (2008). New Zealand beachgoers' swimming behaviours, abilities, and perception of risk. *International Journal of Aquatic Research and Education*, 2(1), 7–15.

McDonald, G., Webster, J., & Fawcett, J. (2005). Unintentional drowning deaths in New Zealand: 1980–1994. *Australian and New Zealand Journal of Public Health*, 29(2), 128–134.

Moran, K. (2014). Jumping in: The influence of peers on aquatic risk-taking. *International Journal of Aquatic Research and Education*, 8(4), 325–338.

Moran, K., & Stanley, T. (2013). Parental perceptions of toddler water safety. *International Journal of Injury Control and Safety Promotion*, 20(3), 209–214.

Moran, K., Webber, J., & Stanley, T. (2021). Water competence and safe entry behaviours. *International Journal of Aquatic Research and Education*, 12(2), Article 3.

Peden, A. E., Franklin, R. C., & Pearn, J. H. (2019). The prevention of child drowning. *International Journal of Environmental Research and Public Health*, 16(14), 2595.

Tipton, M. J., Barwood, M. J., & Clethero, R. M. (2017). Cold water immersion: Kill or cure? *Experimental Physiology*, 102(11), 1335–1355.

Warner, M., Smith, G. S., Langley, J. D., & Feyer, A. M. (2000). Drowning and alcohol in New Zealand: What do coronial files tell us? *Australian and New Zealand Journal of Public Health*, 24(4), 387–390.

Water Safety New Zealand. (2026). National Drowning Prevention Report 2025. ISSN 2463-4441

He mihi mutunga ki a rātou kua whetūrangitia, kua ngaro i te wai — e mau tonu nei te mamae. Āpiti hono, tātai hono, te hunga mate ki te hunga mate; te hunga ora ki te hunga ora.

In remembrance of those lost to the water, now among the stars. The pain endures; connections remain between those who have passed and those who live on.