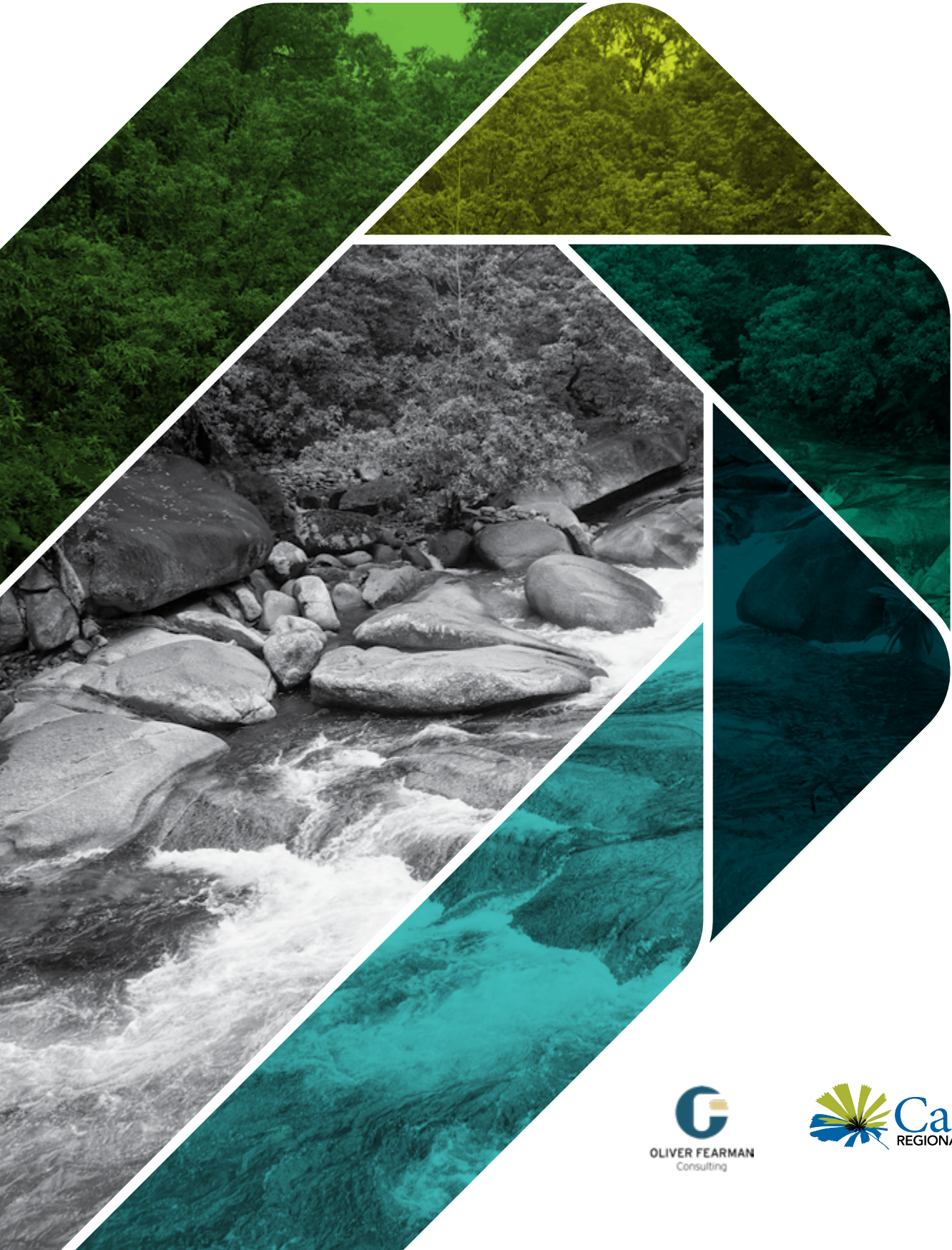


Report on Management of Drowning Risks

# Babinda Boulders





SECTION OF BABINDA BOULDERS, QLD AUSTRALIA  
| PHOTO BY JOHNA\_FOTOGRAFIERT / SHUTTERSTOCK

Babinda Boulders is an exuberant natural area, managed by Cairns Regional Council. It is situated in the foothills of the Bellenden Ker range in tropical North Queensland. This location is a popular swimming and picnic spot for locals and tourists, and a place of spiritual significance for Aboriginal people.

As well as being the location of many happy recreational memories for visitors, this site also has a tragic history of drownings.

This report seeks to shine a light on this history and recommend improvements for public safety in this beautiful location.



# Acknowledgement of Country

We start this report by acknowledging the Traditional Custodians of the land on which the Babinda Boulders site is located. We would also like to pay our respects to elders past and present, and extend that respect to all Aboriginal and Torres Strait Island people and their culture.



WILD ORANGE-FOOTED SCRUBFOWL  
(MEGAPODIUS REINWARDT) IN UNDERGROWTH  
| PHOTO BY KRISTIAN BELL / SHUTTERSTOCK

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# Executive Summary

Cairns Regional Council has invested significant resources and effort in to the management of public safety at the Babinda Boulders site. However, recent drowning events indicate a need to further examine drowning hazards and associated risks on site.

**This assessment uses data analysis, stakeholders' engagement, site observations and interactions and bench marking to better understand the drowning hazards and the management of associated risks on site.**

## **DROWNING HAZARDS AND ASSOCIATED RISKS FINDINGS:**

- Persons most at risk of drowning at Babinda Boulders are those 18-34 years of age.
- The average rainfall in the catchment area for Babinda Boulders is the highest average rainfall in Australia (7,950mm) and travels through steep terrain into the site.
- The No Go Zone (NGZ) at Babinda Boulders contains a combination of high consequence drowning hazards that create a unique and constantly dangerous section of waterway.
- These hazards create conditions that records, and stakeholder accounts indicate have prevented rescue for persons caught in these hazards.
- Community survey results, stakeholders' feedback, current site signage and online content all indicate a mixed perception of risks on the site.
- There is a significant problem with intentional entry into the NGZ.
- Difficulty identifying hazards, mixed messaging in online and print media and peer group dynamics are contributing factors.



**18-34**

Age of persons most at risk of drowning



**7,950**mm

Annual average rainfall in the catchment area



**CURRENT STATE OF RISK CONTROLS KEY FINDINGS:**

- Significant effort and investment have been put into the implementation of a suite of site controls that are consistent with external advice and compliance standards.
- Fencing and platforms can demonstrate compliance and appear to prevent unintentional access.
- Signage and messaging for visitors provides a limited understanding of the site hazards and inadequate deterrent from intentional entry into the NGZ.
- There is no evidence of enforcement activities resulting in fines for intentional access to the NGZ.
- Evidence of regular intentional entry into the NGZ observed on site as well as in online images indicate the current suite of controls require improvement.
- Waterflow and terrain, combined with environmental considerations indicate limited opportunity for implementation of higher order controls.

**The priority issue for drowning risk at Babinda Boulders identified in this assessment is intentional entry into the NGZ by persons swimming and recreating with inadequate understanding of the hazards in this location and associated risks.**

**THIS REPORT PROVIDES THREE KEY CATEGORIES OF RECOMMENDATIONS:**



Corrective actions to address identified gaps in existing risk control measures.



Implementing an education and engagement campaign to develop increased understanding of the thinking and habits of visitors, while providing greater understanding of site hazards and the consequences of exposure to these hazards.



Implementation of a Risk Management Framework in line with the recommendations of the Guidelines for Inland Waterways Safety (2021).

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**IT IS CLEAR THE COUNCIL, AND THE BROADER COMMUNITY ARE DEEPLY COMMITTED TO PREVENTING FURTHER TRAGIC DROWNINGS AT BABINDA BOULDERS AND IT IS THE INTENT OF THIS REPORT TO SUPPORT THIS COMMITMENT WITH GUIDANCE ON OPPORTUNITIES TO TAKE FURTHER ACTION IN LINE WITH THIS.**



# Acknowledgements

The author of this report would like to acknowledge the effort and contribution made by a number of community stakeholders, including but not limited to:

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Traditional Owners of the country on which this project was conducted

Community members

Cairns Regional Council

Cairns Historic Society

Cassowary Coast Council

New Zealand Rivers Association

NSW National Parks and Wildlife Service

Queensland Ambulance Service

Queensland Fire and Emergency Services

Queensland Parks and Wildlife Service

Queensland Police Service

State Coroner's Office of Queensland

State Emergency Services

Tasmania Parks and Wildlife Service

TasNetworks

Tourism bodies

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DEVIL'S POOL AT BABINDA BOULDERS, QLD AUSTRALIA  
| PHOTO BY JOHNA\_FOTOGRAFIERT / SHUTTERSTOCK

# Background and Purpose

With 21 recorded drownings since 1916 there is a long history of tragedies at this site that must be understood in order to make informed decisions about risk on site.

Babinda Boulders is a popular picnic, bushwalking and swimming area located at Babinda, approximately 65 kilometres from Cairns. This location is managed by Cairns Regional Council for scenic purposes. The Boulders area is named after a series of outcrops of granite boulders that form spectacular sections of Babinda Creek.

With an average rainfall of approximately 8 metres flowing down the foothills of the Bellenden Ker Range into Babinda Creek, the surge of water and the paths it has

carved through the granite add to the attraction of this beautiful location. Names have been given to a number of sections of the creek based on how the water and granite interact (e.g. The Chute, The Washing Machine and Devil's Pool).

The traditional custodians of this location, the Yindinji, refer to the section of the creek near Devil's Pool as a story place. They share a dreaming story in which young men who disappear apparently succumb to the woman's spirit that dwells in the water, who pulls

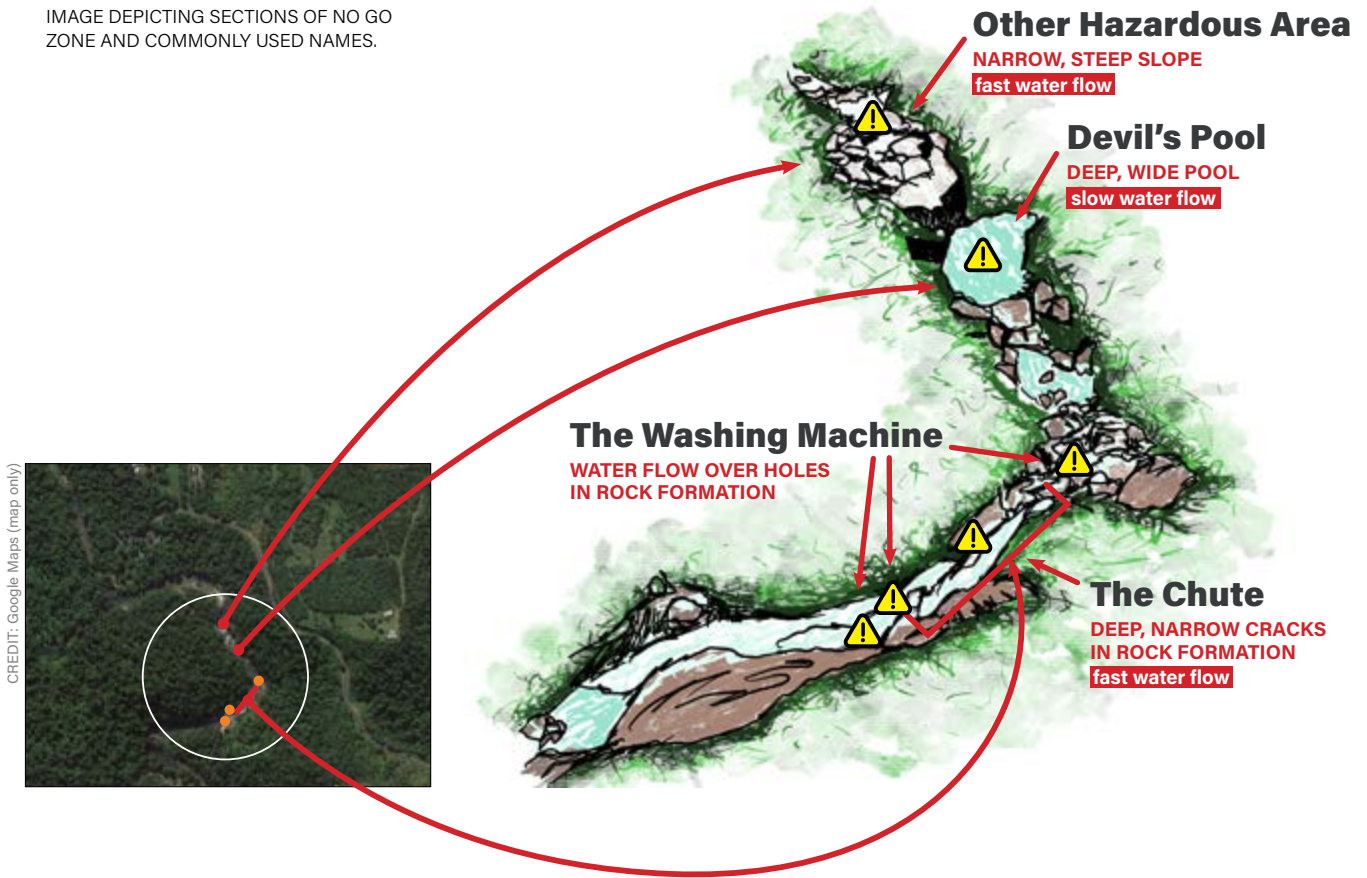
them in, thinking they are her lost lover. The Yindinji consider it inappropriate to enter this area out of respect for the spirits in this location.

Recent history further adds to the location's tragic story. Records indicate that, since 1916, 21 people have drowned at this location. Since April 2020 three drownings have occurred at this location prompting Cairns Regional Council to revisit their approach to the management of this site.

---

**RECENT HISTORY FURTHER ADDS TO THE LOCATIONS TRAGIC STORY. RECORDS INDICATE THAT SINCE 1916, 21 PEOPLE HAVE DROWNED AT THIS LOCATION. SINCE APRIL 2020 THREE DROWNINGS HAVE OCCURRED AT THIS LOCATION PROMPTING CAIRNS REGIONAL COUNCIL TO REVISIT THEIR APPROACH TO THE MANAGEMENT OF THIS SITE.**

IMAGE DEPICTING SECTIONS OF NO GO ZONE AND COMMONLY USED NAMES.



The council has, on numerous occasions, conducted external and internal compliance focussed audits of the sites' safety measures and sought to improve risk control measures based on the findings of these audits. This has included implementing changes to signage, walkways, platforms, fencing and the implementation of a No Go Zone (NGZ) in the area considered most hazardous (see above).

In November 2009, coroner's inquest findings commended the council for taking the action of declaring a NGZ.

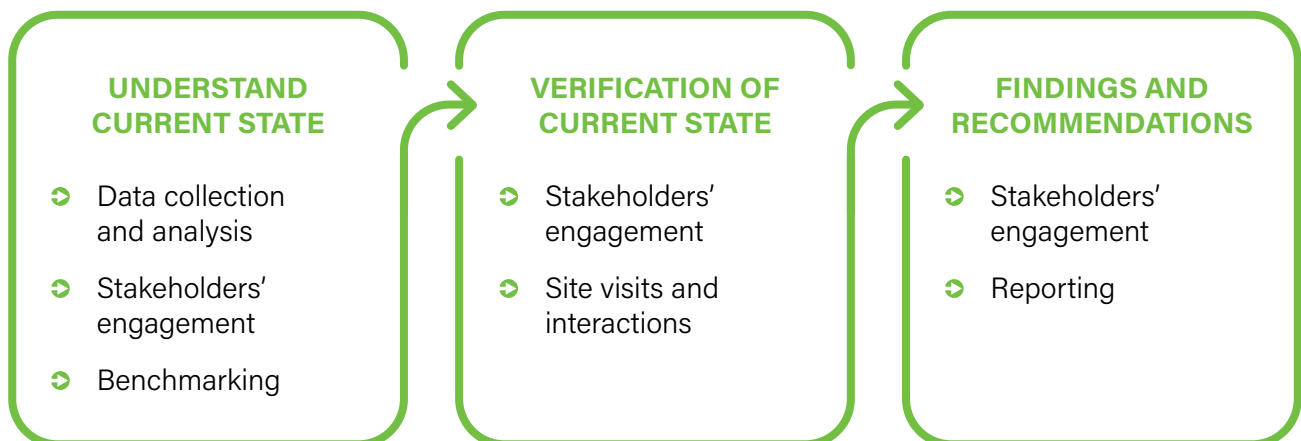
The council has sought to take a different approach with their most recent assessment of the site. This assessment draws on analysis of available data and stakeholder engagement to further understand the drowning hazards and associated risks at Babinda Boulders and the reliability of

the current controls on site. Recommendations made are focussed on improving the reliability of risk control measures in supporting safe outcomes for visitors and the community.

# Approach

In order to provide recommendations appropriate to this unique location, a structured approach to stakeholders' engagement and problem solving was applied.

This assessment was conducted using the approach depicted below:



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**DURING THIS PROJECT, AS PART OF A WIDER ENGAGEMENT PROGRAM, A COMMUNITY SURVEY WAS AVAILABLE FOR 4 WEEKS, CLOSING ON THE 31ST OF JULY 2022. THE SURVEY WAS SENT TO SCHOOLS, TOURISM GROUPS, BUSINESSES, UNIVERSITIES, SPORTING CLUBS AND COMMUNITY GROUPS. IT WAS AVAILABLE ON BOTH THE CAIRNS REGIONAL COUNCIL AND CASSOWARY COAST COUNCIL WEBSITES. THE SURVEY RECEIVED 339 RESPONSES WITH A RELATIVELY EVEN DISTRIBUTION ACROSS THE IDENTIFIED AGE COHORTS. HOWEVER, THERE WERE SIGNIFICANTLY MORE FEMALES THAN MALES THAT RESPONDED AND THE AGE COHORT THAT HAD THE LOWEST RESPONSE RATE WAS THE AGE COHORT THAT IS MOST AT RISK OF DEATH.**

The results of the survey are discussed more broadly further within this report.

## Key Project Activities:

### DATA COLLECTION

Data relating to past incidents was collected from coroner’s reports, council records, news articles, online media and witnesses statements. It is worth noting that historical records were difficult to verify and in some instances the data available was incomplete (e.g. missing ages, specifics regarding timing and location, etc.).

Other data relevant to the site risk factors were sought from the same sources and other relevant bodies such as the Bureau of Meteorology.

### DATA ANALYSIS

Basic data analysis was applied to the collected data to support the consultant in identifying any relevant trends regarding at risk groups, periods of increased risk at the site and other relevant factors as outlined further into this report.

### BENCHMARKING

The Australian Water Safety Strategy 2030 was referenced during data analysis to benchmark site data against

national data. This was also referenced when considering the Recommendations Section in this report.

The assessment team approached stakeholders across Queensland, New South Wales, Western Australia and New Zealand in an attempt to identify sites for benchmarking of current risk control measures. General feedback from all parties was that control measures, like those in place at Babinda, were currently in place (e.g. signage, walkways and fences). As such, Josephine Falls, which has a similar history, rainfall, geology, and location to Babinda Boulders, was used as a benchmarking site. Josephine Falls is located approximately 20km south of Babinda Boulders in Wooroonooran National Park.

### STAKEHOLDER ENGAGEMENT

The assessment team sought to gain insight from key stakeholders such as traditional landowners, Queensland Fire and Emergency Services (QFES), community members,

State Emergency Services, Queensland Police, Queensland Ambulance Service, and members of the Cairns Regional Council team (including councillors, the executive, management and site-maintenance team). This report seeks to acknowledge and reference the inputs of stakeholders who were able to contribute to this project where appropriate.

### SITE OBSERVATIONS AND INTERACTIONS

To verify the current state of risk control measures and to further understand key risk factors site, observations were conducted (July 18th-21st 2022). Key stakeholders participated in these site visits and provided further insight and understanding of site specifics during observations and interactions on site. These inputs are referenced in this report. Interactions with at risk groups were also conducted during site visits where the opportunity was available and valuable insights were gained.

# Data Analysis and Comparison

As part of this assessment, available data for incidents on site and data relevant to the site's drowning risk factors (such as rainfall and road traffic data) was sought out and analysed to support a deeper understanding of the drowning hazards and associated risks present on site.

The AWSS 2030 was used as a reference point for analysis of the available data. This allowed for a comparison point to identify where the drowning risks at Babinda align with national water safety issues.

## DATA SOURCES

The data used for analysis in this report was made available from coroners' reports, council records, a project specific community survey, input from stakeholders and research of relevant news, historical documents, and online content.

## LIMITATIONS OF DATA

The project team were unable to obtain near miss or injury data for Babinda Boulders, in part due to privacy issues associated with medical records and in part due significant under reporting of near miss data for the site.

Site-specific visitor data, as well as survey and water flow data for Babinda Boulders were unavailable for this project. This presented some challenges to the project as it was not possible to compare drowning rates against visitors' numbers. Making it difficult to verify what impact existing controls have had.

## DATA ANALYSIS

The AWSS 2030 framework is structured into five priority areas:

- ➔ People
- ➔ Places
- ➔ Activities
- ➔ Populations
- ➔ Risk Factors

For the purposes of this report, data analysis has been reported in line with these priority areas.

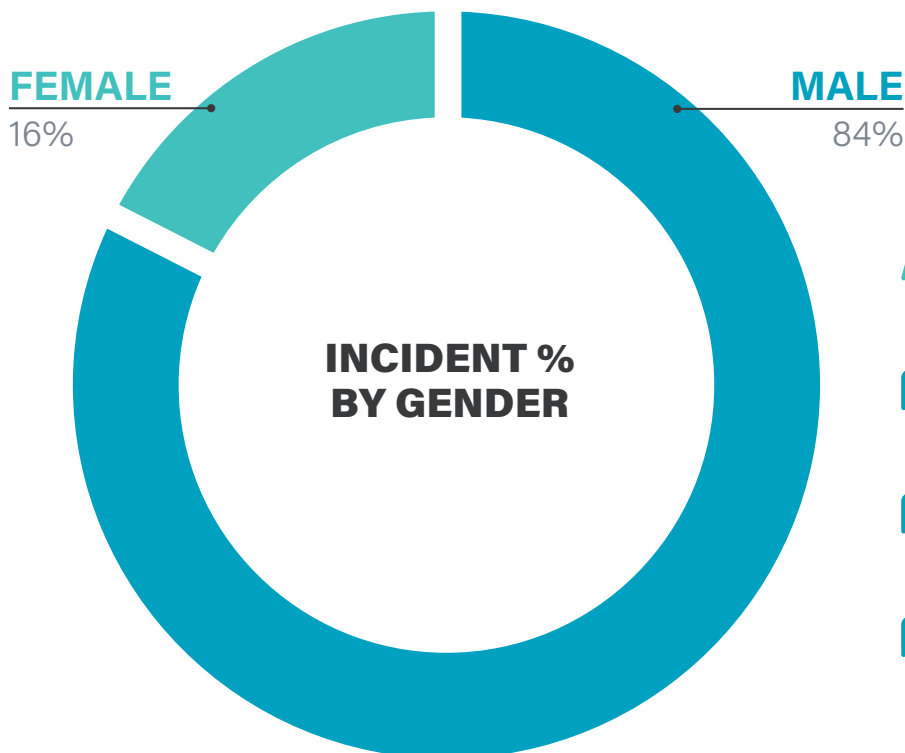
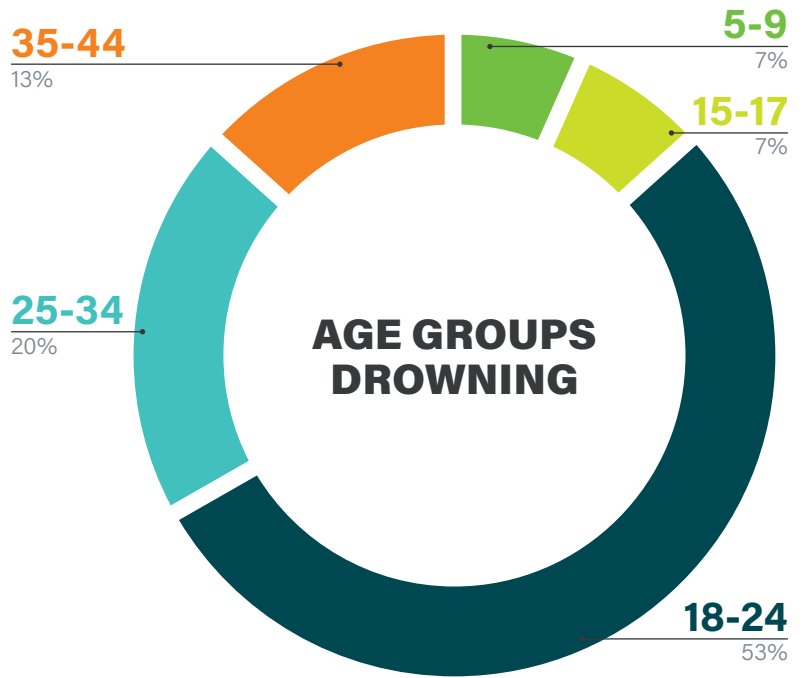


### PEOPLE FACTORS

The AWSS 2030 identified the following groups to be at increased risk of drowning:

- Children (0-4 years)
- Young Males (15-29 years)
- Older People (65+ years)

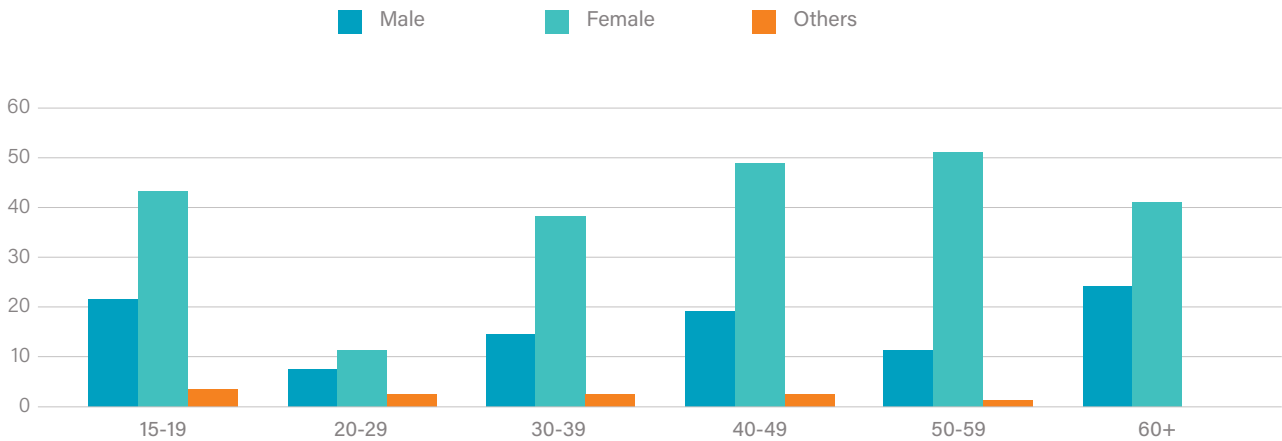
Analysis of data available for Babinda Boulders identified that 73% of drownings were individuals between the age of 18 and 34 and 84% were male. This indicates that the most at-risk group is males between the ages of 18 and 34. This aligns with the AWSS 2030, with males 15-29 years of age identified as a group of increased drowning risk.



However, two of the three most recent drownings at Babinda were females in the same at risk age group. As such, both males and females within the at risk age group can be identified as being at increased risk of drowning at Babinda Boulders.

The community survey conducted during this project showed the following response rates, by age and gender (see graph below). These response rates are not indicative of visitor's age and gender data (visitor data was not available at the time of this assessment), however they provide insight into who responded to the community survey.

### COMMUNITY SURVEY RESPONDENTS Gender by Age Cohort



### PLACE FACTORS

The AWSS 2030 identified the following places to be locations of increased drowning risk:

- Beaches, ocean and rocks
- Rivers and lakes
- Aquatic facilities

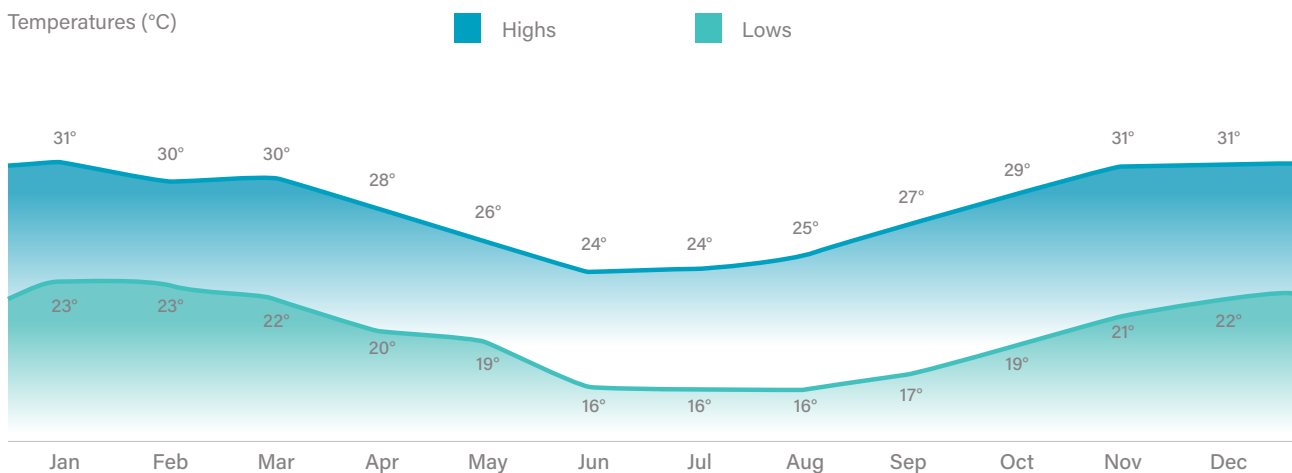
Place related data provides more precise information regarding Babinda Boulders site, than the AWSS 2030 categories.

As a section of Babinda Creek, Babinda Boulders, is one of many waterways in the Cairns region that provide pathways for water from catchments along the Great Dividing Range to the coast. The catchment for Babinda Creek includes streams running off Mount Bellenden Ker (from the north) and Mount Bartel Frere (from the south).

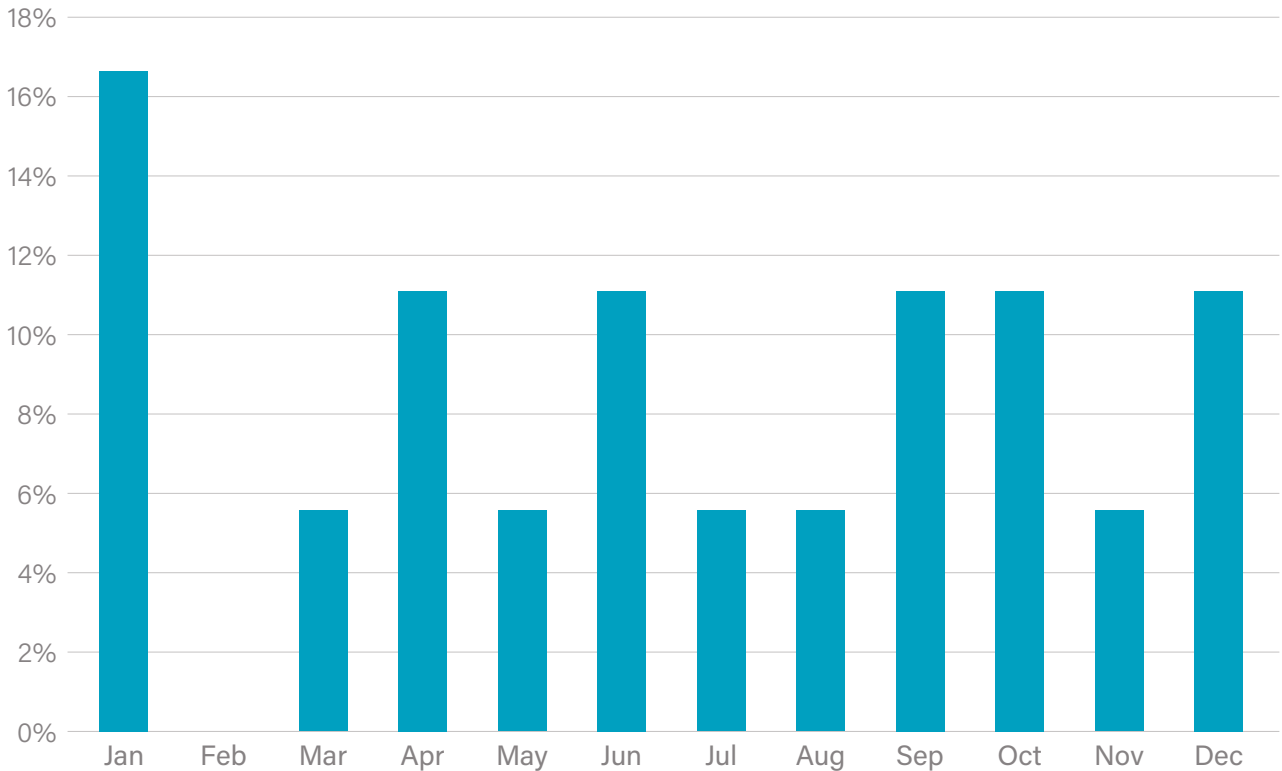
Climate data for Babinda indicates temperature averages consistent with being

in the wet tropics region of Far North Queensland. This climate leads to a significant number of days during the year where visitors to the site will intend to go swimming. Data analysis of months and drownings indicate that drownings occur in both the warmest (November, December, January) and coolest months (June, July) of the year.

### WEATHER AVERAGES | Babinda Boulders



### DROWNING BY MONTH



While flooding is listed in the AWSS 2030 report as a significant factor for drownings in rivers and lakes, it is important to note that only two of the drownings at Babinda Boulders indicate flooding as a factor. Data on timing of drownings also indicates that months with the highest rainfall have had fewer drowning events (see graph on page 21).

The Bellenden Ker range is listed by Geoscience Australia as having the highest

average rainfall in Australia at 7,950mm (the Bureau of Meteorology Australia records indicate 8,073mm) and the highest ever annual rainfall in Australia at 12,461mm (year 2000). The long term average rainfall for Queensland is 616mm ([www.stateoftheenvironment.des.qld.gov.au](http://www.stateoftheenvironment.des.qld.gov.au)), making the annual rainfall for Bellenden Ker over 12 times higher than the state average.

Elevation at Bellenden Ker top station is 1,545m. The

elevation in the creek drops approximately 35 metres as water travels through the Boulders' site from the main swimming area to the bottom end of the site.

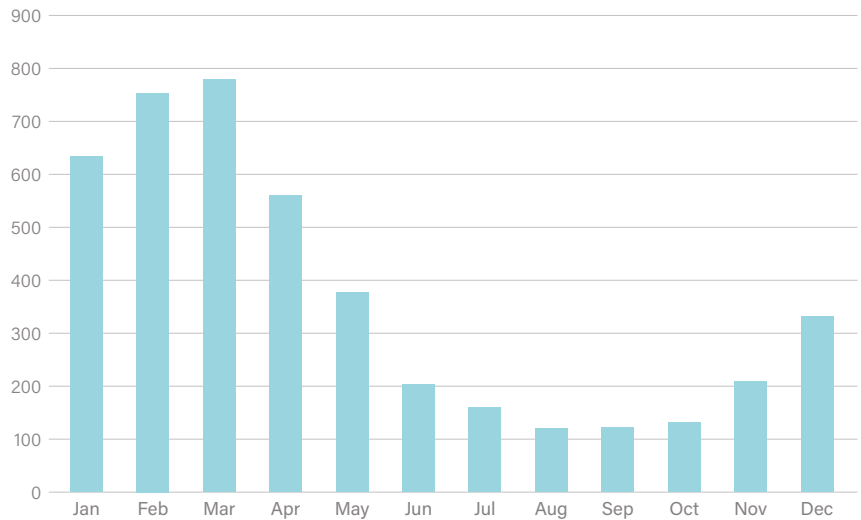
Width of Babinda Creek changes significantly through the Boulders site. The widest section of the creek, under normal circumstances, appears to be the public swimming area (C2, C3 on Map 1 – page 21), which is part of a wide (>15m), flat, slower moving section of the creek,

safe for swimming. There are two sections of the site where the creek narrows significantly (<2m), both are in the NGZ. The first above Devil's Pool (C4 on Map 1) and the second below (D4 on Map 1).

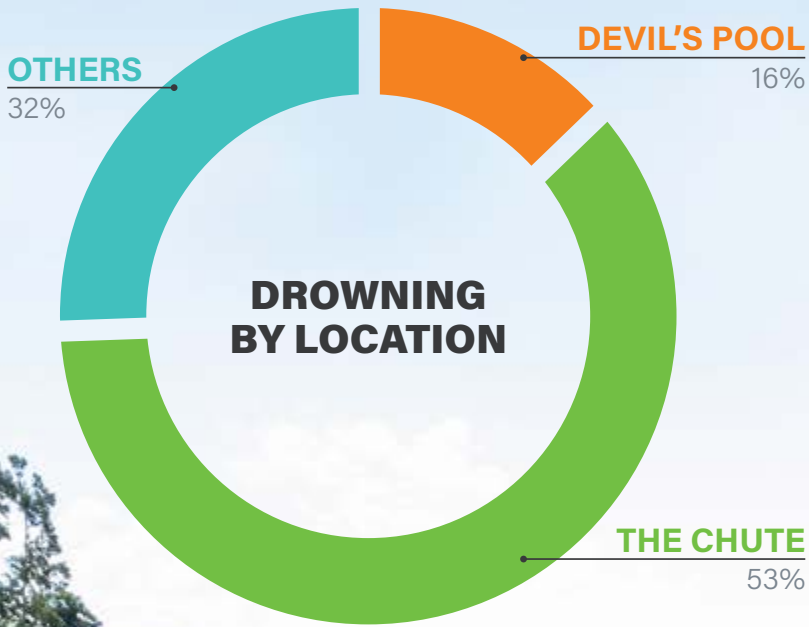
Fifty three percent of drownings at the site have been listed as occurring in the second of these two sections of the creek, often referred to as "The Chute" (see Map 2 on page 30).

No specific data for water flow rates on site or survey data identifying the structure of the creek bed and rock formation were available at the time of this report. The quantity of water falling on the catchment for Babinda Boulders and the elevation this travels from suggests water flow through the site is significant, particularly in narrower sections of the creek. This water flow over time has created site specific drowning hazards that are discussed further in this report.

### MONTHLY AVERAGE RAINFALL 1959-2022 (in mm)



AERIAL IMAGE OF SITE SHOWING THE LOCATION OF THE NGZ.



### ACTIVITY FACTORS

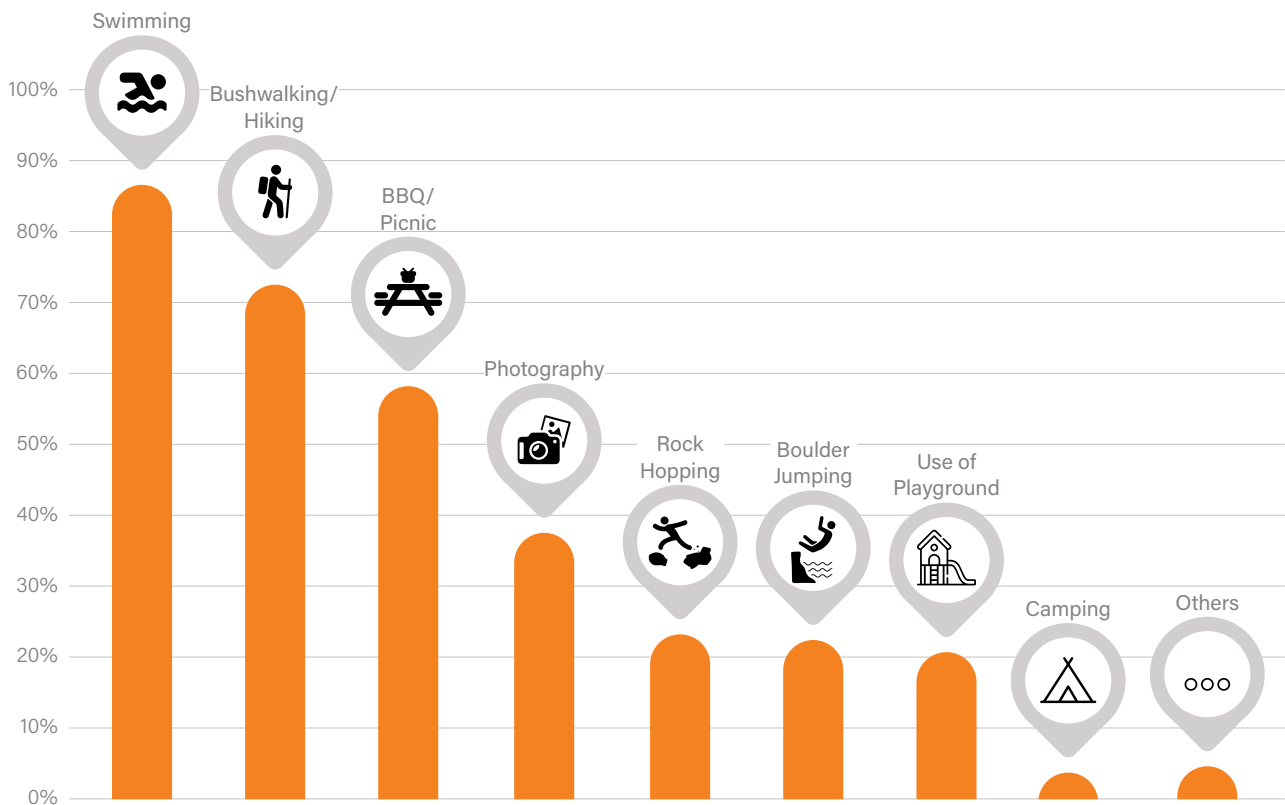
The AWSS 2030 identified the following activities to have a strong correlation with drowning risk:

- Boating and watercraft
- Fishing and rock fishing
- Diving and snorkelling

The available data and stakeholders' engagement did not show any significant link to these activities. The community survey shows the following response rates for participation in activities known to occur on site from stakeholders' engagement and online visitors' feedback (see graph below).

The AWSS 2030 indicates that swimming and recreating are the leading activities being undertaken prior to drowning in most locations, this is consistent with information in the coroners' reports reviewed as part of this project. Based on the significance of swimming skill and ability in drowning events swimming is addressed as a risk factor in the AWSS 2030.

### ACTIVITIES



### POPULATIONS FACTORS

The AWSS 2030 identified the following populations to be at increased risk of drowning:

- Aboriginal and Torres Strait Islander peoples
- Multicultural communities
- Regional and remote communities

Available data indicates people drowning at Babinda Boulders are of diverse cultural backgrounds. However, no data relating to cultural background was available for this analysis.

Analysis of the home locations for persons who drowned at Babinda Boulders shows no clear trend, with almost identical numbers of local (<100km from home), Intrastate, Interstate and international persons drowning on site.

The Cairns region has experienced an average annual population growth rate of 1.9% over the last 10 years ([www.cairns.qld.gov.au](http://www.cairns.qld.gov.au)), suggesting an increased number of potential visitors to Babinda Boulders.

### HOME LOCATION of drowned persons



**7 people from QLD**

(4 locals <100k from site)



**7 people unknown origin**



**4 people from interstate**



**4 people from overseas**



## RISK FACTORS

The AWSS 2030 identified the following risk factors as contributing to an increased risk of drowning:

- Alcohol and drugs
- Swimming and water safety skills
- Risk-taking

Of the coroner’s reports observed during this project, three indicated alcohol and/or cannabis to be present in the drowned persons systems. This, combined with the known frequency of BBQs and picnics at the location, indicate that alcohol and drugs are a risk factor for Babinda Boulders. Observed online and social media content also suggest these risk factors to be relevant to the site (see image above). The most likely impact being impaired cognitive function, decision-making and risk perception for those under the influence of these substances while at Babinda Boulders.



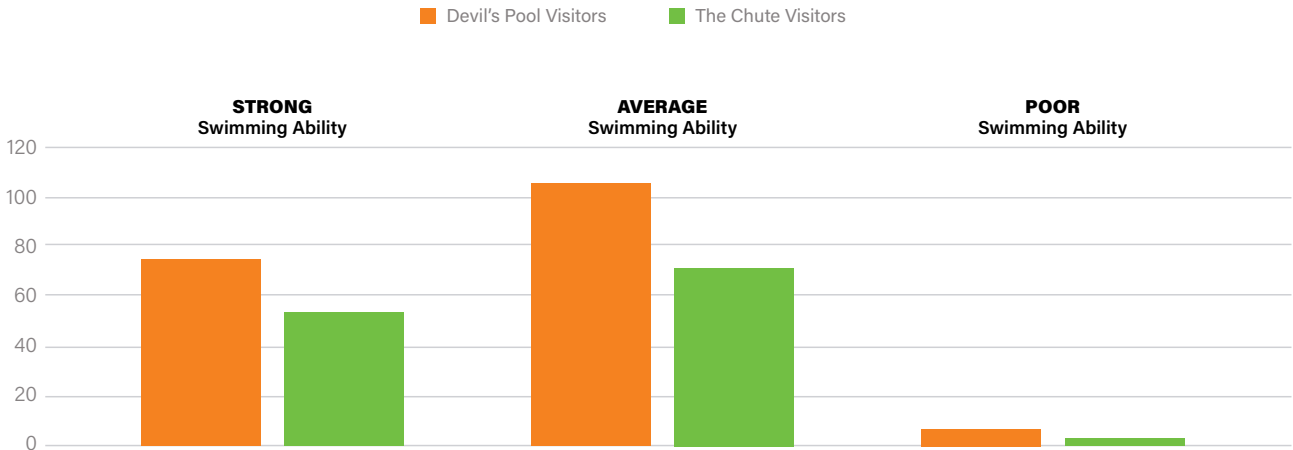
CREDIT: Unknown Author

IMAGE FROM SOCIAL MEDIA TAKEN WITHIN THE NGZ.

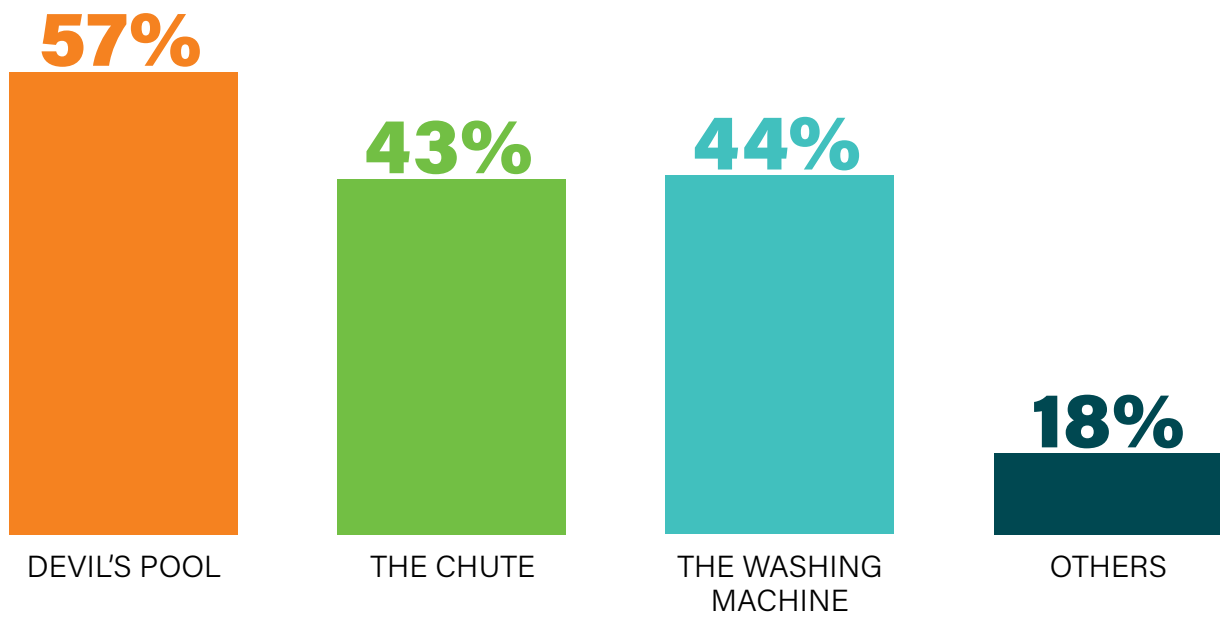
“Swimming and water safety skills are widely recognised as the key to preventing drowning, with a lack of swimming skills and water safety knowledge considered to be a major risk factor for drowning” (AWSS 2030). Data on the swimming ability of persons who have drowned at Babinda Boulders was not possible to obtain in most cases. It is worth noting that at least two of these persons were known to be

strong swimmers, with one being a serving member of the Navy. Some of the drowning hazards identified during this assessment (see pages 31 to 37) that exist at Babinda Boulders make swimming physically impossible for those trapped in these hazards. Community survey respondents provided the following insight into the swimming ability of respondents who had visited the NGZ of site.

### “NO GO ZONES” and SWIMMING ABILITY



### AREAS CONSIDERED MOST DANGEROUS (339 Respondents)



Risk-taking is considered as a focus area in the AWSS 2030 based on the significance of people’s risk perception in making choices regarding water safety. The strategy identifies peer pressure and a lack of understanding as factors that can impair risk perception (additional to the previously identified alcohol and drugs).

The community survey provides some insight into risk perception at Babinda Boulders.

Eighty two percent of respondents indicated they visited the site in groups (2-5). This response is significant when considering the potential for peer pressure to influence decision-making.

Respondents indicated a mixed perception of the most dangerous section(s) of the site, as did online content and stakeholders’ feedback

during interactions. Available drowning data indicates that 53% of drownings occurred at The Chute and 32% at Devil’s Pool, with some coroner’s reports for drownings listed at Devil’s Pool indicating victims were pulled into hazards above the pool, rather than drowning specifically in the pool.

This mixed perception combined with inconsistent application of naming such as “the chute” and “the washing machine” by visitors and the community suggests an inaccurate risk perception within the community and visitors to the site.

More than 90% of respondents indicated feeling safe while visiting the high-risk area of the site. Many respondents indicated they observed the location from a safe distance (e.g., platforms)

### RESPONDENTS RISK ASSESSMENT



and had observed others passing beyond the fences.

For 60% of respondents, signage on site and an understanding of the site’s tragic history had not changed their perception of the risk at the high-risk areas.

### CHANGE IN RISK PERCEPTION (339 Respondents)



## Data Analysis and Comparison Summary



### PEOPLE FACTORS

The people most at risk of drowning at Babinda Boulders appear to be males, 18-34 years of age. Two of the three most recent drownings are females within this age group suggesting a focus on the age group as being most at risk rather a focus on gender.



### PLACE FACTORS

The average rainfall in the catchment area for Babinda Boulders is the highest average rainfall in Australia (7,950mm) and travels through steep terrain into the site. The NGZ, from above Devil's Pool through to the end of The Chute, includes the narrowest sections of the creek (<2m) and steep terrain, with the same volume of water passing through this narrow section as in the wider sections of the creek. This contributes to the high-risk nature of this section of the creek.



### ACTIVITY FACTORS

The community engagement survey indicates that most of the visitors to the site do so for swimming and recreating. These activities are the leading activities being undertaken prior to drowning, according to the AWSS 2030 and data for this site.



### POPULATION FACTORS

No specific populations were identified as being of increased risk of drowning for this site. However, an increasing population in the Cairns region suggest an increased frequency of persons visiting sites such as Babinda Boulders.



### RISK FACTORS

There is evidence of alcohol and/or cannabis use being a factor in three of the 21 known drownings.

While swimming ability can support survival in drowning events, it does not appear to be a significant factor in event outcomes for this site. This is based on the nature of the specific hazards mentioned further into this report, which create conditions that can make swimming physically impossible.

Community survey results, stakeholder's feedback, current site signage and online content all indicate a mixed perception of risks on the site.

This is significant when considering risk perception and decision-making regarding risk-taking at Babinda Boulders.



SECTION OF THE BABINDA BOULDERS IN QLD AUSTRALIA  
| PHOTO BY JOHN WYLES / SHUTTERSTOCK

# Site Specific Drowning Hazards

This section of the report outlines information regarding the site specific drowning hazards that were identified during site visits with relevant stakeholders. These include Traditional Owners, Queensland Fire and Emergency Services team members, Cairns Regional Council team members who work at the site, retired paramedics involved in retrievals on site, members of the local community who have swum in the high-risk areas and site visitors present at the time.

During site visits with stakeholders, it was identified that the “common names” for sections of Babinda Boulders, particularly The Washing Machine and The Chute, are applied to a number of different locations in the NGZ. For these reasons we will use Map 2 (see beside) and reference points from this to discuss the site-specific drowning hazards.

THE NGZ AT BABINDA BOULDER.



## WATER FLOW HAZARDS

While specific data for waterflow and rock formation for the Babinda Boulders site was not available, it is clear, based on rainfall data for the catchment and slope leading into and through the area, that significant water flow occurs through the Boulders. This water flow is a significant risk factor for the site. The hazards listed below all occur in the NGZ and contribute to this section of the site's high-risk of drowning. The sudden narrowing of Babinda Creek that occurs in the NGZ and the high annual rainfall in the catchment lead to a constant high-risk of drowning in this area.

Emergency services personnel who provided insight into the water flow hazards, conveyed very clearly that these hazards create conditions, where those caught, will not be able to survive long enough to be rescued. A clear and saddening shift in the energy of these committed professionals was observed when talking about their experience of retrieving bodies from Babinda Boulders: "We don't get to do rescues here. When we get the call, it's already a retrieval".

Some examples of near miss events, where persons had entered the water near these

hazards and survived, were conveyed during community engagement activities. These events typically involved individuals being incredibly lucky and being forced away from or out of the hazards by random surges of water. One example of a successful rescue was conveyed, this involved a bystander being fortunate enough to reach the drowning person with a branch before the drowning person was pushed into a sieve hazard by water flow. QFES personnel conveyed that this would result in forces of water that would make rescue with a branch physically impossible.



CREDIT: Imogen Warren / Shutterstock

RED ARROW SHOWS CONVEYED LOCATION OF AERATION AND REDUCED BUOYANCY HAZARD.



PERSONS IN IMMEDIATE PROXIMITY OF SECTION OF CREEK WHERE AERATION AND UNDERCUT HAZARDS HAVE CLAIMED NUMEROUS LIVES.



## AERATION AND REDUCED BUOYANCY

There are sections of the site (D3 and E3 – Map 2) where the path of waterflow and rock formation leads to a significant increase in bubble formation in the water. This reduces the density of the water and causes floating items, such as logs and people to sink/fall to the bottom.

The video in the link that follows demonstrates how aeration causes this hazard:

<https://youtu.be/VPmTgsWFtSA>

Emergency Response personnel conveyed that this hazard is known to occur in the location shown in the image above. Standard practice for QFES teams working near this hazard is being secured to fall prevention equipment to manage the extreme risk associated with entering the creek here.

Online images and tracks in vegetation beyond the fencing indicates this area is also where many visitors who enter the NGZ cross the creek, given the narrower distance to jump and the perception that this is a lower risk section of the creek than Devil's Pool.





## SIEVES OR SIPHONS

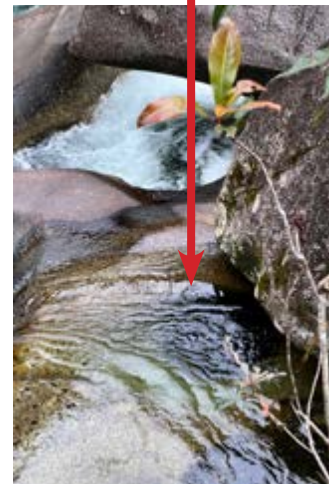
There are several locations on site (B2, C2, C3 and E3 – Map 2) where rock formation, caves and channels allow water to flow through but block larger items from passing through, such as logs and people. Gaps between rocks or caves in rocks force water through a smaller hole, creating the equivalent of a plug – a person can get sucked in, plug the gap and then not move out again because they are pinned by the weight of the water. These hazards are referred to as “sieves” or “siphons”. It was conveyed by numerous stakeholders that the areas above and below Devil’s Pool contain networks of such caves and crevices.

While the forces involved may vary depending on flow rates at the time, Emergency Response personnel conveyed that removing objects from such hazards can be physically impossible for a group of adults with retrieval equipment. A swimmer sucked into such a hazard will not be able to escape.

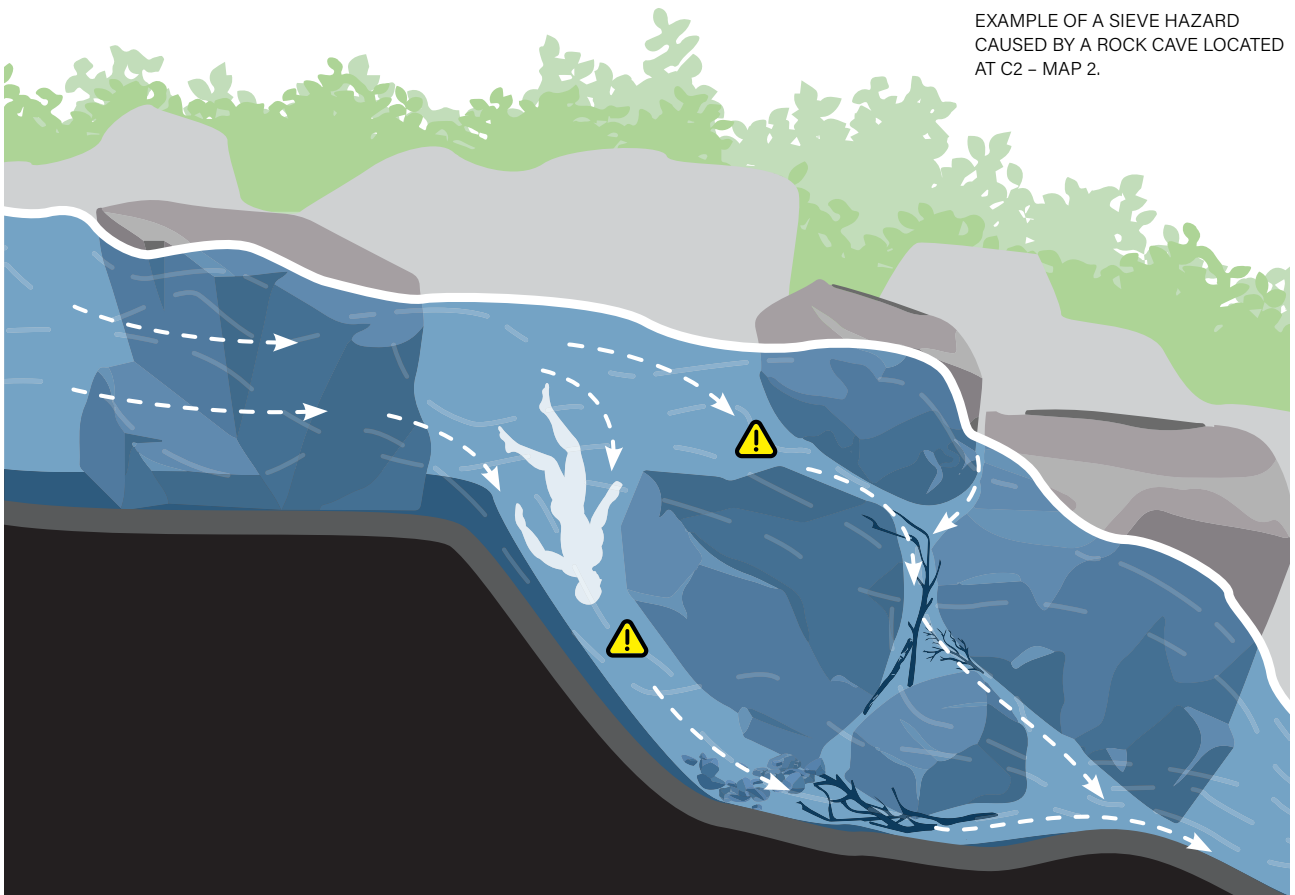
These hazards do not look dangerous to the untrained eye, and can only be recognised with knowledge of the rock formation. Visitors who were observed entering the NGZ during a site visit were swimming near such hazards, while avoiding the perceived risk of the “big drop off” into Devil’s Pool section of the creek.



CREDIT: Oliver Fearman



EXAMPLE OF A SIEVE HAZARD CAUSED BY A ROCK CAVE LOCATED AT C2 – MAP 2.





## STRAINERS

There are several locations on site (B2, C2, C3, D3 and E3 – Map 2) where obstructions such as logs and trees allow water to flow through but block larger items from passing through, such as logs and people. As with sieves, the forces involved may vary, and objects/persons stuck in such a hazard can be impossible to be physically removed.



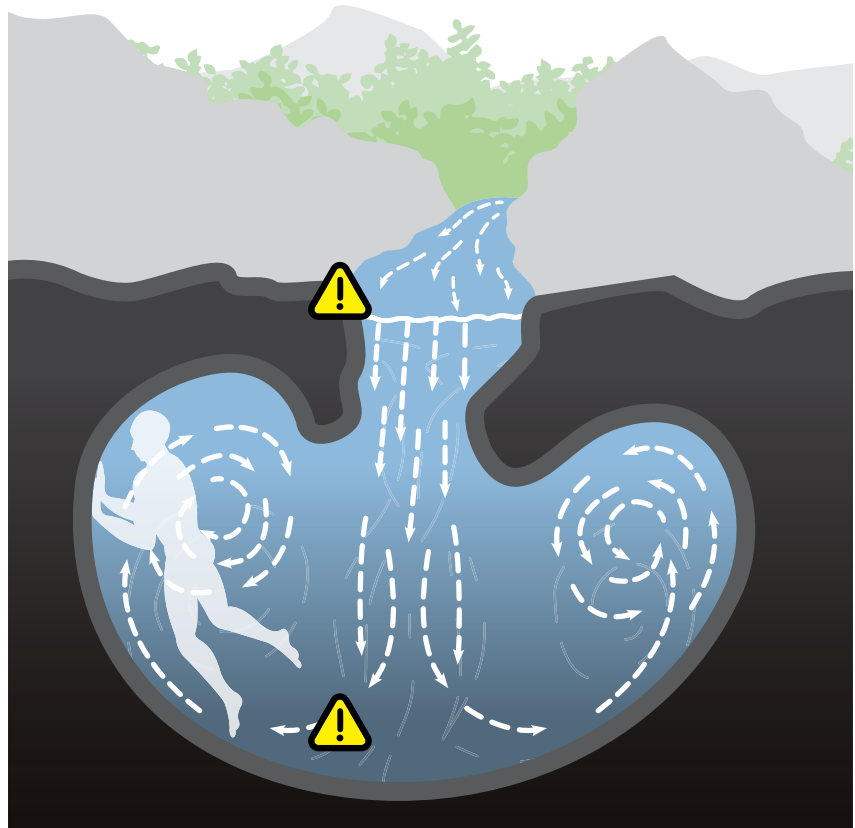
STRAINERS: CURRENT PUSHES VICTIM/OBJECT INTO UNDERWATER SIEVE-LIKE OBSTACLES.



## UNDERCUTS

Particularly in the section of the creek referred to as “The Chute” (D3 and E3 – Map 2), the path of the water has created undercuts where water flows underneath the rock. Emergency Response personnel observed the chute channel using underwater cameras while attempting to locate and retrieve bodies. They reported that The Chute is approximately eight metres in depth and significantly wider in the deeper parts than near the surface. In such undercut hazards, once an object or person is pulled underwater, they are unable to get to the surface. Much like a person trapped under ice, they are trapped under a ceiling of rock, unable to find or move towards the open part of the channel.

It was conveyed that The Chute (see section depicted on photo beside) is approximately eight metres deep with significant undercut hazards where water flows through and under the rock forming the creek bed. All of the water passing through this creek must pass through the chute or the rock caves and undercuts below.



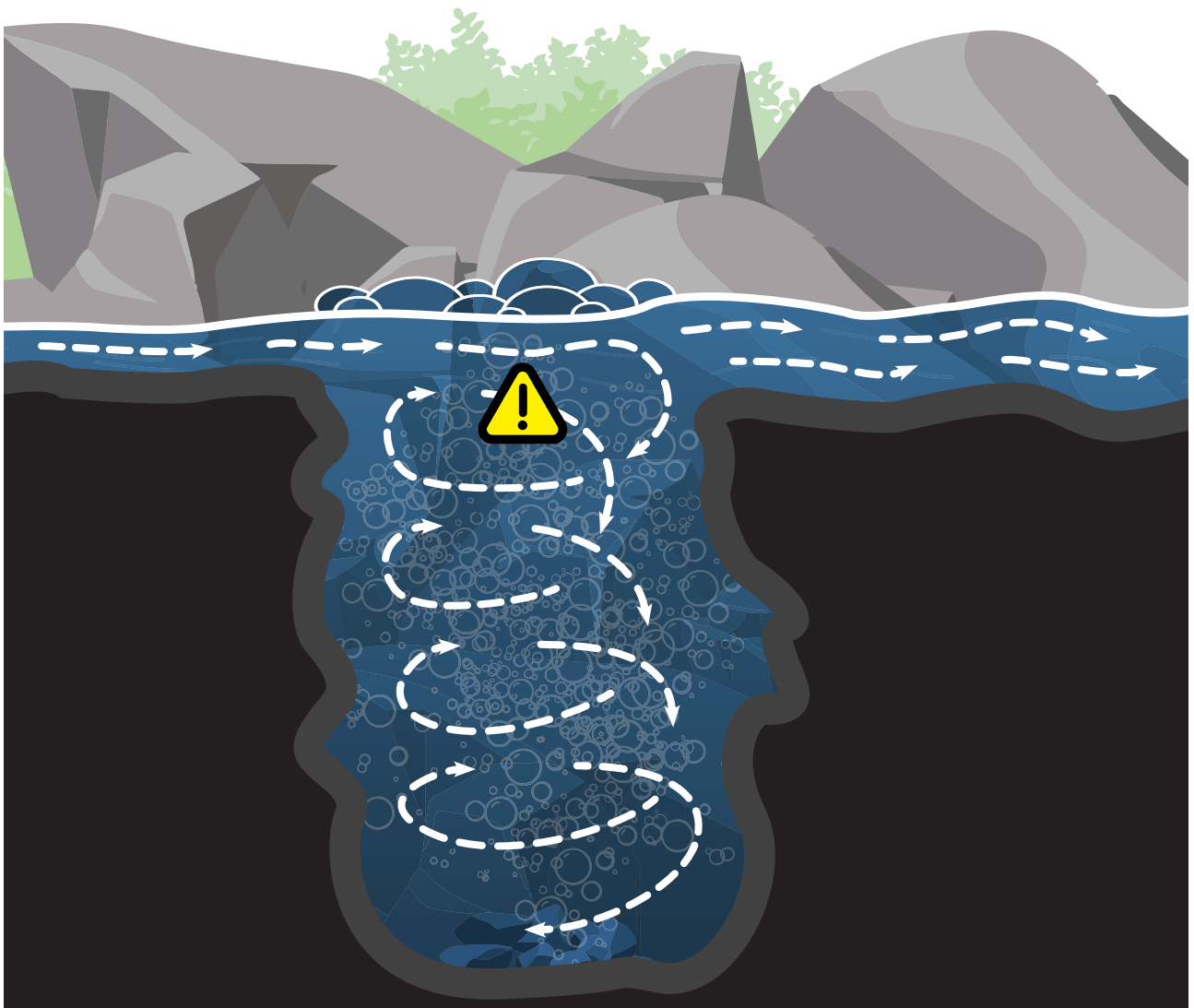
CREDIT: Aaran\_P / Shutterstock

THE CHUTE SECTION (MARKED IN RED).

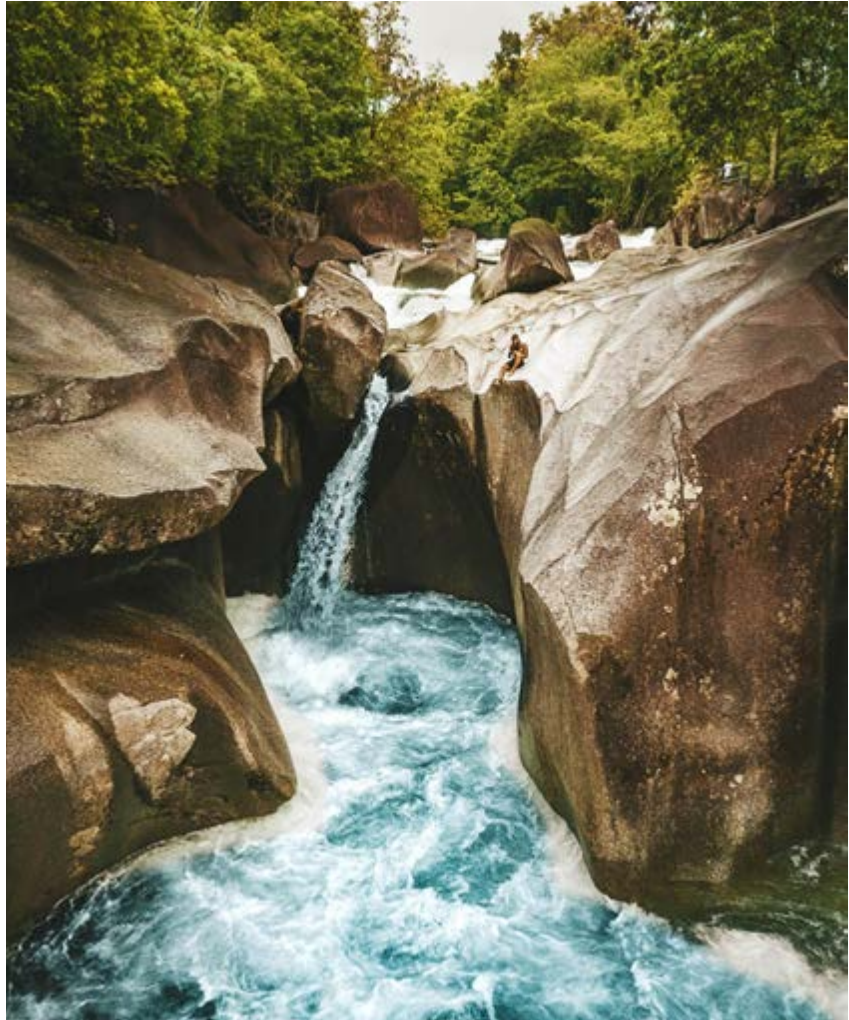


## HOLES

There are several locations on site (B2, E3 – Map 2 –, and likely other sections in the high-risk area) where water flow over the rocks has created holes stakeholders refer to as “The Washing Machine”. Turbulent flow in these holes can be difficult to exit from. Swimmers trapped in the spinning water movement can be unable to reach the surface.



STEEP ROCK LEDGES SURROUNDING DEVIL'S POOL.



CREDIT: Image sourced from Instagram

## TERRAIN HAZARDS

The terrain between the water and the fence intended to prevent access to the NGZ has several hazards specific to the site. These are listed below and can contribute to persons being caught in these drowning hazards and inhibit their ability to swim and/or self-rescue.



The Devil's Pool section of the creek is relatively slow moving and deep compared to sections above and below. However, to enter this pool, you must jump from surrounding rock ledges. The sides of the pool are steep leading to difficulty in exiting the pool and requiring swimmers to swim towards the higher risk sections of the creek in order to get out, increasing their risk of being caught in the previously mentioned water flow hazards.



When wet, the rock surfaces forming the creek bed at Babinda Boulders are slippery. Locals also indicated that some types of algae growing on the rocks are particularly slippery when wet and others loose and crumbly when dry, leading to slip, trip, fall hazards that change with the conditions.

Site observations and input from traditional owners and Emergency Response personnel indicate that these hazards occur frequently throughout the NGZ contributing to entry into this area being high-risk.

## CONTRIBUTING FACTORS

As well as the above site-specific drowning hazards, there were a number of factors that were identified during this project that contribute to the likelihood of persons being exposed to increased risk of drowning.

## ONLINE CONTENT, SOCIAL MEDIA AND OTHER MEDIA MESSAGING

During this project, online content, social media and other media was reviewed for content relevant to Babinda Boulders site. As a very popular recreational and tourist destination, there is significant content relating to the site, this information assisted in developing an understanding of community risk perception and behaviours.

Online content provides some consistent messages regarding the site:

- It is a beautiful location that is a must see for the region
- There is a tragic history to this location
- That flash flooding and slippery surfaces are the main hazards on site (see Site Specific Drowning Hazards on pages 31 to 37).

Messaging regarding what is safe and appropriate behaviour on site is much less consistent. Some articles and content indicate it is dangerous to enter the NGZ (<https://www.anomadspassport.com/babinda-boulders-devils-pool/>), while others share their experience of entering the NGZ (<https://www.weseektravel.com/babinda-boulders-devils-pool-cairns/>), and others state that "Devil's Pool is a perfect place to take a dip" (<https://www.msn.com/en-au/lifestyle/travel/aussies-flock-to-magical-swimming-hole-in-cairns-rainforest/ar-AAS0kMs>). With many visitors likely to research the location online prior to their trip to site this messaging will influence the choices individuals make on arrival at the site.

## HAZARD AWARENESS AND RISK PERCEPTION

Of the online articles and content observed, no article communicated the site-specific drowning hazards mentioned in this report, with the nearest observed account being strong currents. The combination of hazards present at Babinda Boulders is as unique as the landscape that draws visitors to the

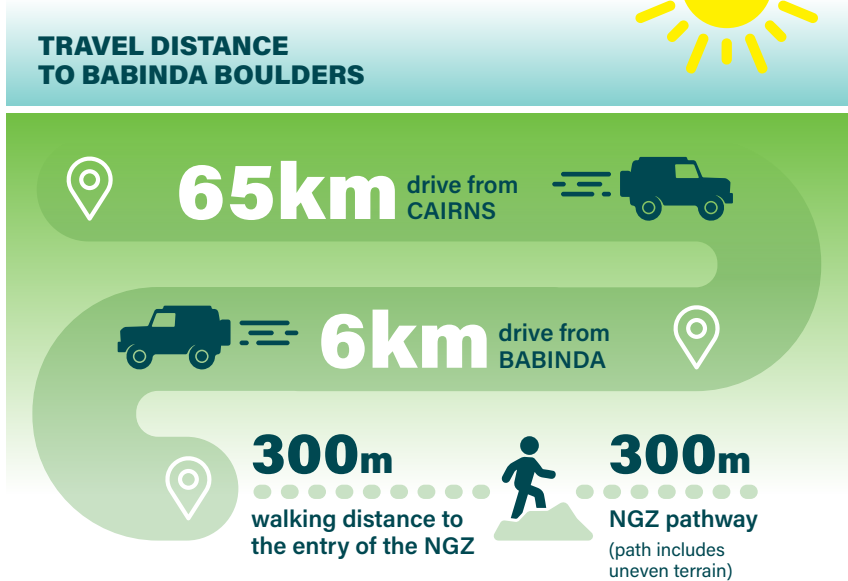
site and, as such, it is not surprising that awareness of these specific hazards is limited to those with immediate experience of these and their tragic impact.

The clear water, varied flow rates and visual obstruction provided by the boulders and debris stuck between them further inhibit people's ability to identify and respond to the hazards on site, with witness statements and coroners' reports indicating that in many cases, drowned persons went from swimming or sitting comfortably in the water to suddenly being pulled under. Likely the impact of proximity to sieve or siphon hazards. A number of witness statements for these events indicate those drowned choosing to sit in these locations based on a perception of this being a "safer spot".



### CLIMATE AND DISTANCE TO LOCATION

The combination of a warm tropical environment and the distances associated with both travel and walking distance (which include uneven terrain) leads to individuals perceiving an increased reward in swimming when they reach the NGZ, a crucial factor in decision-making regarding risks.



### PEER PRESSURE

The Community survey response indicates that many visitors to the site travel in groups rather than as individuals. This is an important consideration in terms of risk-taking behaviours as research suggests peer influence increases the likelihood of individuals to take risks. (<https://pubmed.ncbi.nlm.nih.gov/16060809/>).

### DECREASING NUMBER OF “SAFE SWIMMING HOLES”

The population of saltwater or estuarine crocodiles has increased by 2.2 per cent since 2018 ([www.abc.net.au](http://www.abc.net.au)). It has been conveyed that this increase has made several previously popular swimming locations in the region unsafe for swimming.

The increase in both human and crocodile population numbers in the region lead to a likely increase in visitor numbers at locations such as Babinda Boulders which are considered “safe swimming holes”.

## Site Specific Drowning Hazards Summary

The NGZ at Babinda Boulders contains a combination of significant drowning hazards that create a unique and constantly dangerous section of waterway.

These hazards include (and are not limited to) reduced buoyancy as a result of aeration, sieve or siphon hazards created by cave networks and crevices in the rock formation and other high-risk hazards that are created by the waterflow and terrain existing on site. These hazards create conditions that records and stakeholder accounts indicate have prevented rescue for persons caught in them.

Hazards in the surrounding terrain (such as steep, slippery rock surfaces) and other contributing factors (mixed messaging, peer group dynamics and difficulty identifying hazards) further increase the likelihood of intentional entry into the NGZ and therefore the risk of drowning on site.

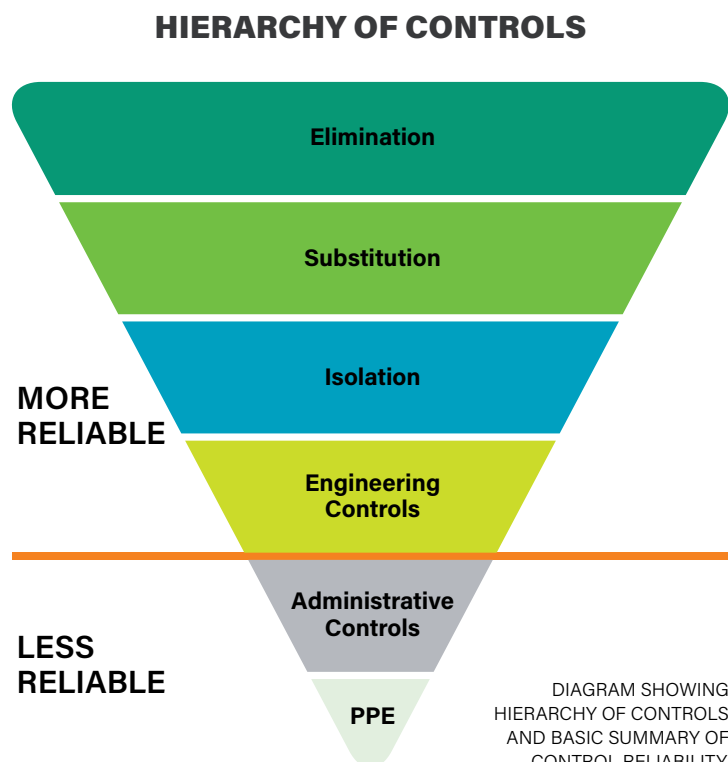
# Assessment of Current Controls

This section of the report will focus on assessment of the current controls in place at Babinda Boulders. This assessment was conducted using site observations, online images and interactions with key stakeholders. These inputs and the hierarchy of control were used to identify the reliability of current controls in managing the risk of exposure to drowning hazards on site.

Entering the NGZ is considered a failure of controls to effectively manage the risk, as once a person enters this location (unless applying risk controls such as those used by Emergency Services personnel) they are reliant on luck to exit this area safely.

Controls have been assessed in two key groups:

1. Those that seek to manage risk prior to an incident (person entering the NGZ) – these are referred to as “prevention controls”
2. Those that seek to reduce risk after an incident – these are referred to as “recovery controls”





## PREVENTION CONTROLS

### FENCES AND PLATFORMS (Mixed Reliability)

There has been a significant number of fences and platforms installed to prevent unintentional entry into the NGZ. Cairns Regional Council has previously had these controls assessed for compliance with results being that fencing and platform are compliant and prevent unintentional access into the NGZ. This is consistent with observations on site.

The sheer size of the site and the desire to make sections of the creek available to recreational users lead to completely fencing off the NGZ being impractical. It is also likely that those seeking to enter the NGZ will not adjust from this course of action in response to a fence, as observed by current indicators of persons bypassing fencing on site.



CREDIT: Images sourced from Instagram

SOCIAL MEDIA IMAGES SHOWING PERSONS IN THE NO GO ZONES.

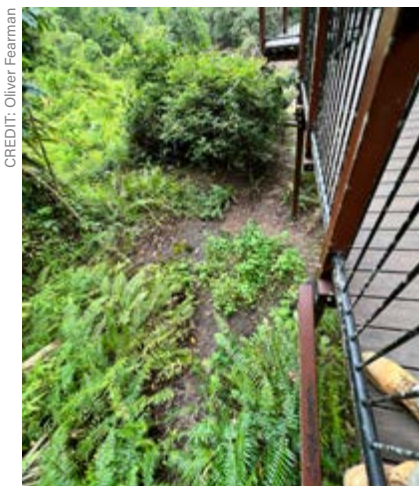
### NO GO ZONE (Mixed to Low Reliability)

Online content and observations on site indicate that many visitors comply with the NGZ, likely due to the fences, platforms and signage supporting visitors to stay out of this area. However, a group of four persons within the most at-risk age group were observed entering this area during site observations and stakeholders' input, as well as unofficial pathways into the NGZ at

several points indicating regular access by visitors.

Significant online content can be observed of persons entering the NGZ, with some online and social media accounts providing personal insights that could suggest this is acceptable behaviour.

It was identified that persons entering this area can receive financial penalties, however evidence of this having occurred could not be located.



CREDIT: Oliver Fearman

TRACKS WORN INTO VEGETATION AND TERRAIN IN THE NGZ, INDICATING REGULAR USE.

## CURRENT CONTROLS



### PROVISION OF SAFER ALTERNATIVES (Mixed Reliability)

Cairns Regional Council has invested significant time and resources into providing a safe and easily accessible swimming area at the main pool (shown above) for visitors to Babinda Boulders. This area provides visitors with a safer swimming location when visiting the site and is both more visible and easily accessible than entering the NGZ. The mixed reliability of this control relates to the impact of more swimmers in

the main pool area on those seeking a quiet spot to swim or a “more exciting” experience. Individuals in the most at-risk group (aged 18-34) are more likely to seek risk-taking opportunities such as cliff jumping into Devil’s Pool and are more physically capable of navigating the terrain between the pathway and the NGZ. There is no clear signage or information showing safer alternatives to the NGZ for swimmers looking to avoid crowds, and a small amount of online content could be found suggesting heading upstream.

-  Danger Signage with Generic Hazards
-  Swimming Permitted Locations
-  Other Pathways on Site
-  Pathways to Devil's Pool
-  No Go Zones (NGZ)

CREDIT: Oliver Fearman



SIGNAGE LEADING INTO A PLATFORM FOR VIEWING THE NGZ. ICONS VERY SIMILAR TO THOSE OBSERVED AT THE ENTRY AND ALL ACCESS AREAS. KEY RISK MESSAGES IN RED AND WHITE ARE HARD TO READ ON PASSING.



CREDIT: Wikimedia Commons

SIGNAGE OBSERVED WHEN ENTERING THE SITE. SIMILAR SIGNAGE IS LOCATED AT ALL ACCESS SWIMMING AREAS.

### OBSTRUCTION OF UNOFFICIAL PATHWAYS (Low Reliability)

Across the site, maintenance team members have sought to obstruct unofficial pathways that are identified on site for entering the NGZ. This has been done by placing “wait a while” cuttings (a thorny plant) across any such pathways. During site visits it was identified that cuttings placed two days prior had been

trampled down by pathways users, indicating limited impact from the placement of cuttings. It is anticipated that, over time, the seeds from these cuttings will germinate, and growing plants will present a more significant deterrent.

### SIGNAGE (Low Reliability)

Signage across site was installed to meet conveyed compliance requirements for water safety. Hazard depictions on the current signage do not include prohibition symbols, but rather advisory symbols that can be interpreted as advisory information, which is not the nature of the intended message.

Observations of current signage and discussions with key stakeholders, including persons observed entering the NGZ, indicates that current signage does not adequately convey the hazards associated with the NGZ or the potential for financial penalties. “I just ignored that. I’ll be careful not to slip, and, I won’t dive in a shallow spot”, quoted a person observed entering NGZ. Discussion with four persons observed entering the NGZ, in which more accurate hazard information and an understanding of previous incidents was provided, led to three persons from the group choosing to change their behaviour. The fourth person changed their behaviour in response to their peers change of behaviour.

CREDIT: Oliver Fearman



“WAIT A WHILE” CUTTINGS THAT HAD BEEN TRAMPLED BY PERSONS ENTERING THE NGZ. THIS WAS 24 HOURS AFTER PLACEMENT SUGGESTING SIGNIFICANT USE OF THIS UNOFFICIAL TRACK.

## RECOVERY CONTROLS

### COMMUNICATIONS FROM SITE

#### (Low Reliability)

Mobile reception at the site is inconsistent, during observations on site no mobile reception was available. This significantly impacts the timeliness of notification when an incident occurs on site and, as such, influence response times. Reliable mobile reception was observed at Babinda town approximately 6 kilometres from the site. Reception may be available closer to site, however, this was not consistently observed during the site observations.

### EMERGENCY RESPONSE PERSONNEL PARKING AND ACCESS TRACKS

#### (Mixed Reliability)

The current space for off-street parking along the side of Boulders Road was conveyed by Emergency Response personnel to be adequate space for their vehicles and equipment unloading.

The pathway from this location to the main track was observed, at the time of the site visits (July 2022), to be in reasonable condition for fit capable individuals to access the site. It was conveyed ongoing maintenance is required.

The access point for Emergency Response personnel to the retrieval points (most routinely at the

bottom end of the NGZ) was, at the time of observation, through climbing and passing equipment over a fence, this leads to unnecessary manual handling and delays for Emergency Response teams.

### EMERGENCY RESPONSE PRACTICES

These practices were not assessed as part of this project. However, site observations of (QFES) practices and interactions with Emergency Response personnel, particularly those from QFE and SES, demonstrated professionalism and commitment that deserves acknowledgement.

## Current Controls Summary

Significant effort and investment has been put into the implementation of a suite of site controls that are consistent with external advice and compliance standards against which they have been previously assessed. These controls include prevention (preventing exposure to hazards) and recovery (recovery once exposed to hazards) controls.

Evidence of regular entry into the NGZ could be observed at several locations across site as well as online images indicating the current suite of controls have a mixed level of reliability. While fencing and platforms are compliant and appear to adequately prevent unintentional access it is clear there is an issue with intentional access to the NGZ. Visitors' interactions, the community survey and online content indicate a mixed perception of drowning hazards and associated risks on site. Signage and messaging for visitors provides a limited understanding of the site hazards and inadequate deterrent from unsafe behaviours. There is no evidence of enforcement activities resulting in fines for intentional access to the NGZ.



SECTION OF THE BABINDA BOULDERS IN QLD AUSTRALIA  
| PHOTO BY NAVIGATOR-TOUR

# Benchmarking Site Practices

While several organisations and individuals across Australia and New Zealand were consulted with to identify appropriate benchmarking sites, only one site was identified for benchmarking.

Josephine's Falls was selected as a benchmarking site based on having a similar tragic history, proximity of catchments (similar rainfall volumes) and similar geology to Babinda Boulders. Site benchmarking focussed on conducting a site visit and interactions and observations with members of the Queensland National Parks team working at this site.

The reliability of the site controls was not assessed in detail.

Significant resources and effort have been invested at Josephine's Falls in response to a similar tragic history. Insights from Josephine's Falls and the controls applied for this location are listed ahead.

## **SITE SPECIFIC DROWNING HAZARDS**

It was conveyed by National Parks personnel that the main drowning hazard associated with this site has been flash flooding, which has happened with limited warning and intense force. This hazard has been the focus of the major risk controls implemented on site. However, it was also conveyed that slippery surfaces, heights (particularly at the top pool, NGZ) and submerged rocks at the base of fast flowing sections of the creek had contributed to deaths and recent significant injuries.

## **FENCES AND PLATFORMS**

Fences and platforms of similar standard to those installed at Babinda Boulders were observed on site. As with

Babinda Boulders fences and platforms have been installed to prevent unintentional access to the NGZ. It was conveyed that similar challenges were observed for this location as at Babinda with risk takers willing to bypass or jump fences and platforms in order to access the sites NGZ.

## **FLASH FLOOD WARNING SYSTEM**

A flash flood warning system has been installed at Josephine's Falls and is activated by water flow in the catchment above the site on Mt. Bartle Frere. This warning system triggers flashing lights that are located at access points to the swimming area, signage conveys the meaning of the lighting and timeframes for exiting the water. It was conveyed that this system

has significantly improved the management of flash flooding risk at the site.

This system required significant catchment rainfall and waterflow studies in order to be effectively implemented.

### NO GO ZONE

A NGZ has been implemented at Josephine’s Falls, this area is primarily focussed on the top pool located at the base of the falls. This area was identified as significant risk due to slippery surfaces, heights, potential for strainer hazards and an inability to quickly and safely exit this area in the event of a flood warning.

Site personnel conveyed that annually they issue between 6-12 infringements for persons entering this area. It was also conveyed that these penalties are believed to have some impact on behaviour when those penalised stay

in the area long enough to share that they were penalised with others.

During the site visit a young adolescent was observed attempting to scale rocks and enter this location when informed by the site personnel this was not permitted.

It was also conveyed that entry into this area is believed to be a regular occurrence and would be a full time job to monitor. Guided tour groups were identified as the most consistently safe visitors to the location regarding not entering the NGZ.

### SIGNAGE

Signage across the Josephine’s Falls site was observed to include signage similar to Babinda Boulders (though stated hazards appeared more relevant to the location), as well as signage aimed at emphasising

the consequences of entry into the NGZ and the risk of flash flooding. This signage was located as entry points to high-risk areas, as with Babinda as well as in the toilets and high traffic areas, to help emphasise the message prior to reaching the NGZ.

### REGULAR STAKEHOLDER ENGAGEMENT

The Josephine’s Falls Working Group has been established as a quarterly opportunity for stakeholders (National Parks, QFES, SES, Police and others) to share insights regarding current site issues, opportunities for improved practices and support needs for stakeholders. It was conveyed by a number of stakeholders that this working group has greatly assisted stakeholder relationships and interaction in regards to managing risks at the site.

## Benchmarking Summary

Several improvement opportunities for Babinda Boulders can be identified from practices relating to Josephine’s Falls, in particular regular stakeholders’ engagement and more risk relevant signage with consideration of placement for emphasising messaging (discussed further in the Recommendations section on page 50).

While the flash flooding warning system at Josephine’s falls is a risk relevant control for that site, data for Babinda Boulders suggests limited value in such measures at Babinda Boulders.

# Consultation Regarding Control Options

As part of this project, several stakeholders were consulted to identify potential control options for the site and understand the challenges or limitations regarding these control options. The information below summarises the key findings of this consultation.

## **BLOWING UP THE HAZARDS**

Several references to blowing up the hazardous sections of Babinda Boulders can be found across previous reports and community engagements. While elimination of a hazard is considered the most reliable form of risk control, this suggested solution is unlikely to achieve that outcome.

The hazards at Babinda Boulders are the result of Australia's highest annual rainfall travelling from a significant height into this narrow section of Babinda Creek through rock formation that has developed the current path of water flow over thousands of years.

Consultation with engineers with relevant expertise suggests that "blowing up" the existing hazardous sections of the creek would most likely

create new hazards of a similar nature to the existing hazards, "the water has chosen that path for a reason".

## **RIVER DIVERSION OR DAM CONSTRUCTION**

River diversion or dam construction in order to manage the hazards in this area would require survey and study of the rock formation and waterflows to identify if these controls would be possible. Based on rainfall in the area it is likely that a large dam would be required, and this would have substantial negative environmental impact on this beautiful location.

## **MORE FENCES AND PLATFORMS**

A small number of stakeholders have suggested increased or improved fencing on the site.

Observations on the location and previous assessments of the area suggest that there are currently sufficient barriers in place to prevent unintentional entry into the NGZ.

It does not appear to be possible to completely prevent intentional access to the NGZ.

## **SIGNAGE**

Many stakeholders, particularly those with direct knowledge of the risks present at this site, have conveyed a need for signage that is more consistent with the risks specific to this site.

This is consistent with observations on-site that indicate that current signage can be improved, particularly messaging for the NGZ.



### EDUCATION AND AWARENESS

Stakeholders with immediate experience of the site's significant risk indicated there is opportunity for improved education and awareness for visitors and community members regarding drowning hazards on site.

This view is consistent with observations and online content and media articles relevant to the site.

### INCREASED ENFORCEMENT ACTIVITY

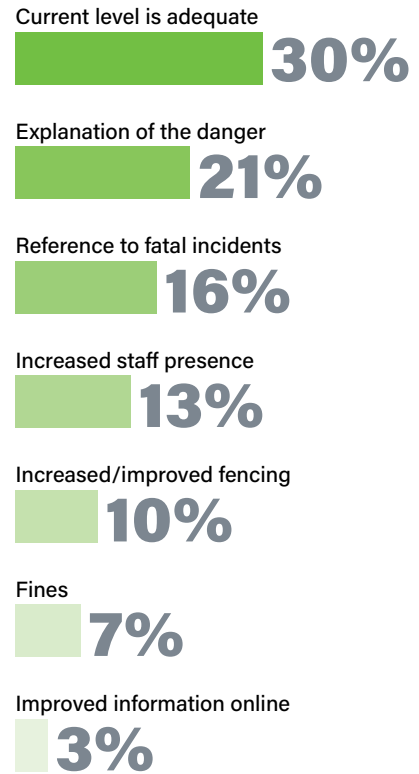
Some stakeholders indicated increased enforcement activities as a desired control for the site. Based on being unable to locate any evidence of persons entering the NGZ being penalised for this activity, this appears to be an area for improvement. The National Road safety strategy suggests enforcement is an important element of deterring unsafe behaviours and also identifies that such measures are far more effective when combined with complimentary education programs.

### INSTALLATION OF SELF RESCUE EQUIPMENT

Some stakeholders have suggested the implementation of equipment intended to support those caught in the drowning hazards on site to self rescue. Examples of such

equipment can include egress ladders and other items that support effective and efficient rescue. Engineering advice indicated that there is currently inadequate information on rock formation and flow rates to be confident of installing such equipment. Additionally, it was conveyed that equipment such as ladders or grates would likely become strainer hazards themselves in changing water flows and more than likely be removed or obstructed by debris being taken down stream. Descriptions from Emergency Services personnel regarding conditions within hazards such as the aeration hazard (no visibility due to mix of air and water) also suggest that locating such equipment would be almost impossible for a trapped person.

### WAYS TO IMPROVE RISK MESSAGING



## Consultation Summary

Stakeholders from across the community and Emergency Response have demonstrated a keenness to support safer outcomes at Babinda Boulders and have suggested several potential improvements to risk controls measures on site that are worthy of consideration.

A number of these are further discussed in the Recommendations section that follow.

# Recommendations

This section of the report summarises recommendations for improving the reliability of risk controls at Babinda Boulders. These recommendations provide guidance on actions that can be taken to support existing measures and to address the key identified problem of persons intentionally entering the NGZ.

The recommendations are divided into four key groupings:

**1 MEASURING SUCCESS**  
Recommendations to support verification of existing and new controls on site.

**2 CORRECTIVE MEASURES**  
Recommendations intended to address identified gaps in existing risk controls.

**3 EDUCATION AND ENGAGEMENT CAMPAIGN**  
Recommendations focussed on engaging with site visitors and providing increased understanding and awareness of hazards present on site and the consequences of exposure to these hazards.

**4 RISK MANAGEMENT FRAMEWORK**  
Recommendations focussed on the management of drowning risks on site and potentially across the region.

## MEASURING SUCCESS

### Visitor Data Collection Improvements

It is recommended that the council investigate methods for collection of relevant visitor and near miss data for the site and in particular the NGZ. This will be important data for continuing to better understand the frequency of persons entering the NGZ. This data will also validate any control measures implemented, such as those listed below.

Options in order of priority include:



1

**Installation of basic surveillance equipment** such as movement activated cameras to monitor activity within the NGZ, this would need to be installed with particular focus on the highest risk sections of the NGZ (above and below Devil's Pool).



2

**Installation of a visitor counter** (like that used at Josephine's Falls) with a beam intersecting the main track at a suitable location on site.



3

**Installation of a vehicle counter** near the entry to the site.

### Visitor Engagement Improvements

It is recommended the council identify and implement a targeted approach to visitor engagement focussing on understanding the thinking and habits of the most at risk age group 19-34 year olds.

Research indicates that a preventative approach to search and rescue in wilderness environments requires engagement with wilderness users to understand their decision-making and habits (Schwarz 2022, Malcolm and Heinrich 2017) and identify opportunities to interrupt unsafe thinking and habits. The survey conducted as part of this project provided some insight into visitor risk perception and decision-making. However there was limited engagement from the target age group.

## CORRECTIVE MEASURES

### Signage Improvements

- 1 It is essential that signage in the immediate vicinity of the NGZ have a clear visual difference to the signage that is communicating manageable risks at all the access swimming areas.  
This needs to be a danger sign in line with compliance requirements for life threatening conditions.

The message needs to be clear, concise, easily understood and convey:

**“No Entry in to the No Go Zone”:** No swimming suggests to some readers it is okay to enter the area. The prohibition symbol must be used to communicate this message.

**“No climbing on/ or over fences”** (where signs are located on fences). This needs to be a prohibition sign.

**“High-risk of death beyond this point”,** or similar wording.

It is important this signage is **not crowded with information**, causing cognitive overload for the reader, and losing important messages.

- 2 It is also recommended signage be placed at the viewing platforms above and below Devil’s Pool to communicate the types and locations of drowning hazards present in the immediate vicinity of these platforms. Information regarding the underwater cave network and aeration hazards is educational as well, improving the risk perception of those engaging with this information.

**3** There is a need for signage targeting the most at-risk age group (19-34) that focusses on improving risk awareness prior to reaching the NGZ. This signage must be noticeable and easily understood.

Memorial plaques in remembrance of those who have drowned on site that communicate the number of young, fit and healthy persons drowning is worth consideration.

Ensure families and traditional owners are consulted on signage content and placement.

Some further examples for consideration below:



SIGNAGE INSTALLED IN QUEENSLAND NATIONAL PARKS TARGETING THE MOST AT RISK AGE GROUP.



SIGN SHARING A PERSONAL STORY RELEVANT TO THE TARGET AUDIENCE.

**4** Signage communicating a safe alternative for swimming outside of the “all access swimming hole”, such as the “Hippy Pools” upstream of the main swimming hole. (E.g. “Looking for a quiet spot for a swim? Head up stream. We want you to leave with your friends today.”). Note risks located in safer alternative swimming holes will need to be communicated using similar signage to the “all access swimming area”

**NOTE: Review planned signage improvements against the QPWS Sign Manual 2016.**

**5** Review signage communicating the cultural significance of this site (existing signage is difficult to read) and consider how to further emphasise the element of respect for culture that is also part of staying out of the NGZ. It is important this signage is developed in consultation with traditional owners, to ensure placement and content respect culture.



CREDIT: Oliver Fearman

### NGZ Emergency Response Access Improvements

It is recommended that the council install a lockable gate or removable section of fence near the Boulders Gorge Lookout, allowing more efficient access for Emergency Response personnel. The local QFES team will need to be provided with a key for unlocking this.

(ABOVE) SUITABLE LOCATION OF LOCKABLE ACCESS POINT FOR EMERGENCY SERVICES PERSONNEL.



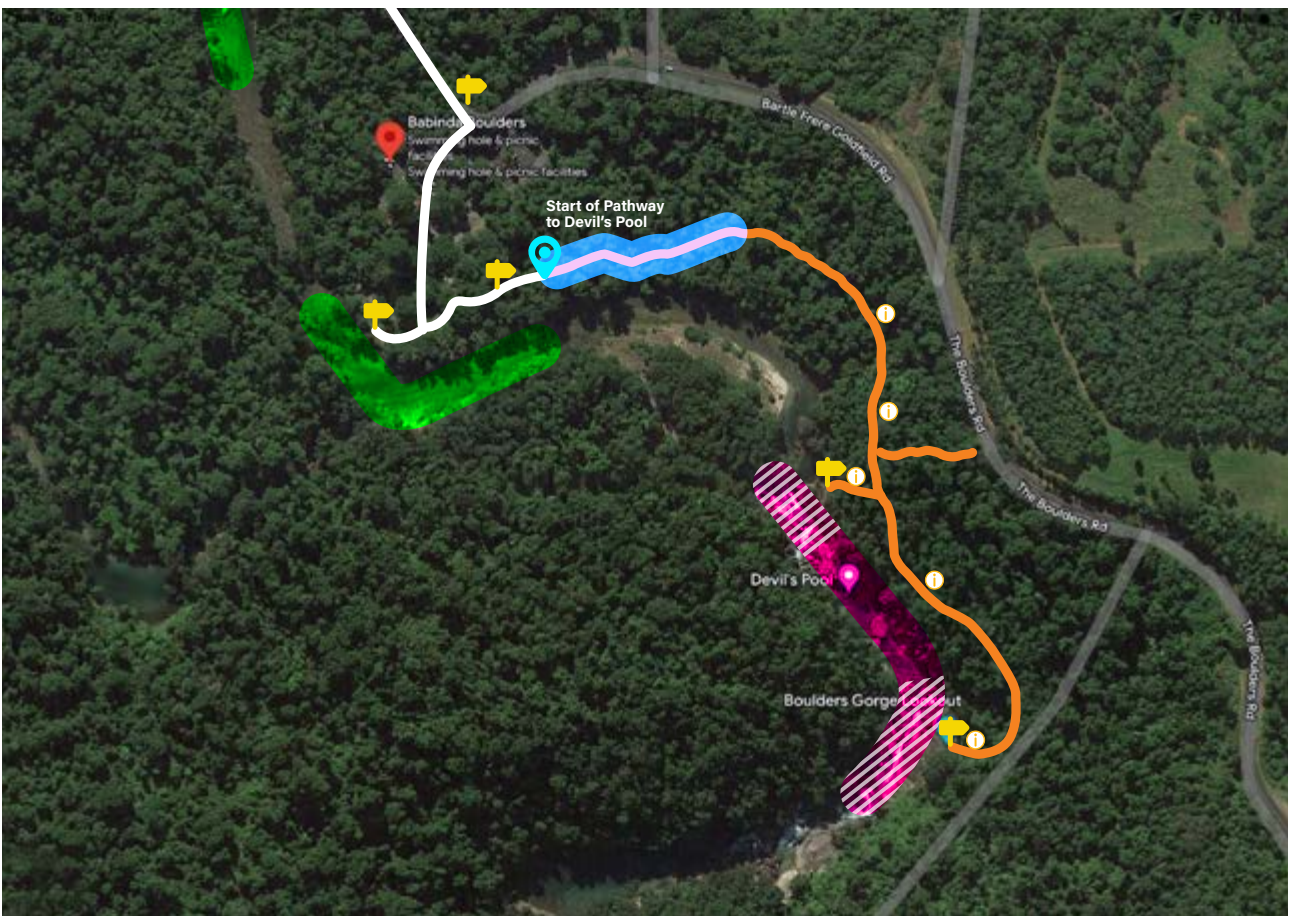
CREDIT: Cairns Regional Council



(ABOVE) IMAGES SHOW THE GATES INSTALLED SINCE ASSESSMENT.









### Site Communications Improvements

It is recommended that the council revisit previous investigations into the feasibility of establishing reliable communications service at the Babinda Boulders site. This may be through extension of mobile network coverage, installation of a signal booster or installing an emergency communications (landline) phone at a suitable location on site.



CREDIT: Google Images

(ABOVE) IMAGE OF SITE LAYOUT WITH RECOMMENDED CONTROLS AND PLACEMENTS.

<ul style="list-style-type: none"> <li> Site Signage</li> <li> Swimming Permitted Locations</li> <li> Other Pathways on Site</li> <li> Pathway to Devil's Pool</li> <li> No Go Zones (NGZ)</li> </ul>	<p><b>RECOMMENDED CONTROLS</b></p> <ul style="list-style-type: none"> <li> Memorial Walk</li> <li> Surveillance Area</li> <li> Information regarding unique geography and associated hazards</li> </ul>
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# EDUCATION AND ENGAGEMENT CAMPAIGN

There is a need to actively engage with visitors as part of delivering clear and consistent safety messaging for this site. This needs to be focussed on the most at-risk audience (19-34 year old persons) and those soon to be in that age group, with a focus on providing insight into the drowning risks present at the site and that these are a constant high-risk. Delivery must be through as many mediums as feasible (e.g. in person and digital media).

Consider how the stories and culture of the traditional owners can be used to further emphasise reasons for respecting the NGZ.

*The guidance below breaks this down into phases of opportunity to engage with the audience.*



## IN THE COMMUNITY

Safety messaging campaign using technology to increase access to the target audience, this must include digital and social media content. There is also a need to engage with other stakeholders communicating “what to do at Babinda Boulders”, such as tourism operators, online travel guides and “influencers” to support consistent and accurate information regarding the drowning hazards and associated risks on site.

Successful campaigns on other topics (such as drink driving and cane train safety) have included:



Short video messages from persons involved in/impacted by the issue providing insight into a personal story.



Short video messages conveying key risk issues and consequences of exposure to these risks. All persons informed of the drowning hazards at this site were confronted by what it would be like to end up trapped in such conditions.



Television commercials with the content detailed above.



Those who have provided input into this report demonstrated a willingness to provide clear and accurate information regarding the drowning hazards and associated risks on site.

## TRAVELLING TO SITE

Clear messaging in Babinda township and relevant tourism information centres on how to safely enjoy this beautiful location and respect the tragic history and cultural significance associated with the NGZ.





## AT SITE

It is recommended that the unique conditions which created this beautiful location and the significant drowning hazards within the NGZ are communicated to site visitors in a location that they will travel through to reach the NGZ (potentially at the entry to the trail). It is recommended that this information is conveyed in an interactive manner that demonstrates to visitors:

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The nature of the various drowning hazards located on site. This could include a model similar to the experiment in this link <https://youtu.be/VPmTgsWFtSA>

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The difficulties associated with identifying these hazards even when in close proximity.

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The quantity of water landing in the catchment and likely travelling through the site.

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The elevation changes of this volume of water and the likely forces generated as a result.

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This information will assist visitors to better understand the risk entering the NGZ and provide greater meaning to the messaging they will observe when in proximity of the NGZ.

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## ENFORCEMENT IMPROVEMENTS

There is a need for the council to investigate opportunities for supporting enforcement activities at this location to be more regular and effective. This needs to focus on education of the community as much as it does traditional enforcement activities.

Unfortunately, lack of site specific visitor data meant this assessment was unable to identify peak periods of activity to target.

## RISK MANAGEMENT FRAMEWORK

### Consultation, Collaboration and Coordination

There is a need to implement an ongoing structure for consultation, collaboration, and coordination between key stakeholders to support the ongoing management of water safety at Babinda Boulders and across the region.

The existing working group for Josephine's Falls appears to include appropriate stakeholders and has conveyed a willingness to expand their scope to include the Babinda Boulders site.

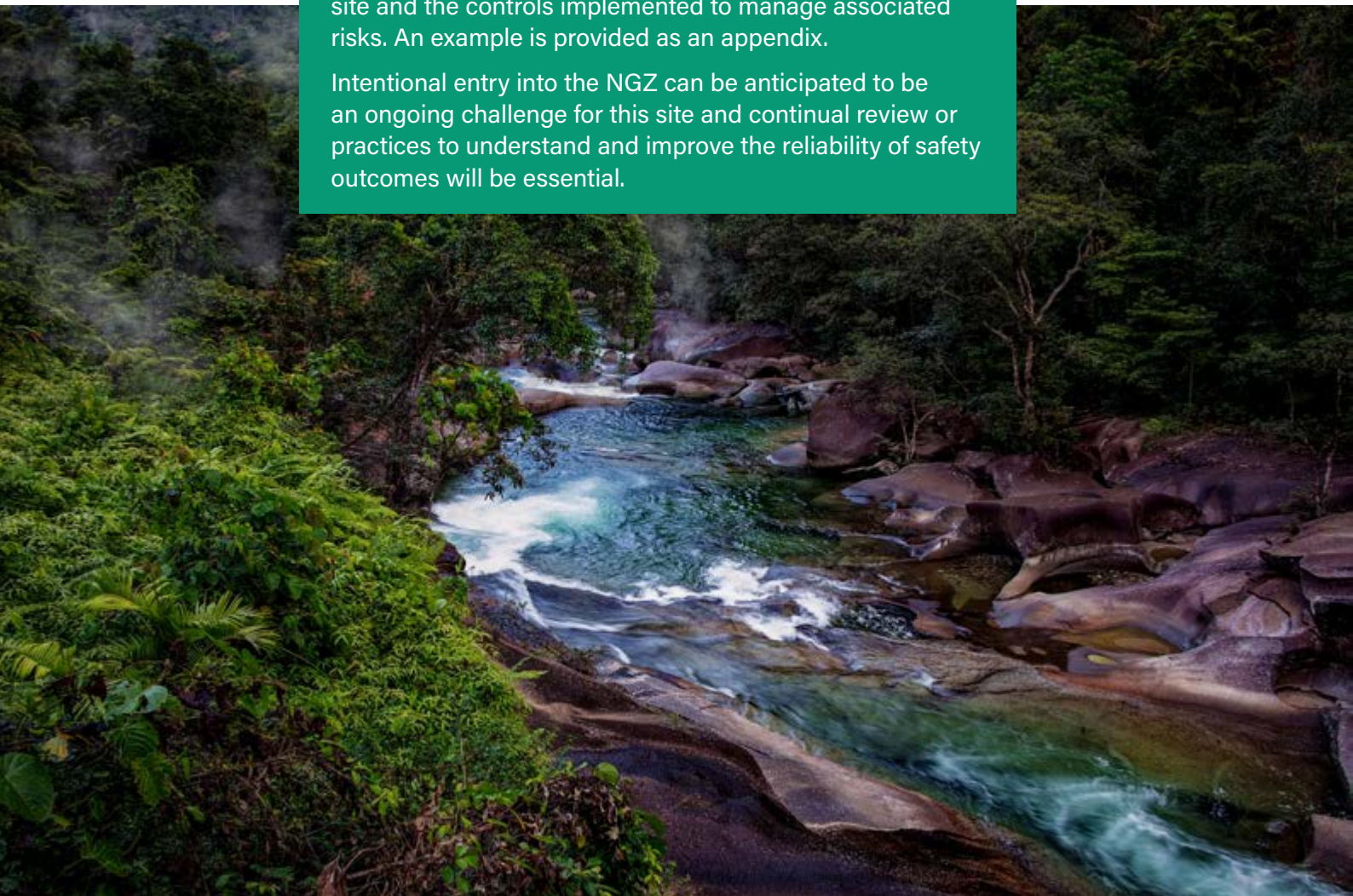
### Site Risk Register

It is recommended that a Babinda Boulders Site Risk Register is developed in line with the recommendations within the Guidelines for Inland Waterways Safety (2021). This will provide the council and relevant stakeholders with a documented reference point for hazards identified on the site and the controls implemented to manage associated risks. An example is provided as an appendix.

Intentional entry into the NGZ can be anticipated to be an ongoing challenge for this site and continual review or practices to understand and improve the reliability of safety outcomes will be essential.



SECTION OF THE BABINDA  
BOULDERS IN QLD AUSTRALIA  
| PHOTO BY NAVIGATOR-TOUR



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