

Cairns City Council

Coastal Risk and Safety Signage Audit Report



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Version One**

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Cairns City Council

Bramston Beach
Green Island
Fitzroy Island
Ellis Beach
Buchans Point
Machans Beach
Holloways Beach
Yorkeys Knob
Trinty Beach
Kewarra Beach
Clifton Beach
Palm Cove

Developed by Surf Life Saving Queensland

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Sections and references have been taken to or referred to from:

- National Aquatic and Recreational Signage Style Manual, Third Edition (Surf Life Saving 2006)
- Australian Standards
 - ASNZS 4360-1999 – Risk Management
 - ASNZS 2416-2002 – Water Safety Signage

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1. EXECUTIVE SUMMARY



Jetty access to Green Island



Mechans Beach



Fitzroy Island



Existing signage at Palm Cove

Cairns City is the gateway to Tropical North Queensland, located 400km for the north eastern part of the State of Queensland. Cairns is continuing to be a favoured destination for thousands of tourists each year. The Cairns City Council is responsible for the management of the majority of Cairns foreshores and waterways.

Cairns City is an extremely popular holiday destination, attracting numerous interstate and international visitors throughout the year. Many of people visiting Cairns City and surrounding areas may be unaware of the local coastal hazards. It is the responsibility of the coastal management authority in charge of the foreshore and waterways to take preventative actions in attempt to avoid foreseeable loss of life and injury to locals and visitors.

Within this report recommendations based on current standards and best practices have been made regarding risk management and signage at selected areas within the Cairns City Council. Implementation of the risk management and signage recommendations details within this report will assist the Cairns City Council to meet their duty of care obligations to the public and inform users of the major dangers associated with the individual locations.

Where necessary recommendations have also been made regarding existing signage and maintained and non maintained beach accesses.



2. INTRODUCTION

Coastal and foreshore areas attract a wide range of visitors and provide a variety of active and passive recreational opportunities, in addition to being a habitat for flora and fauna. Nationally there is an increasing pressure of risk management and safety issues associated with such coastal locations. In response to this increased pressure it has become necessary for coastal management authorities to take preventative actions in an attempt to avoid foreseeable loss of life and injury to members of the public visiting the coastal locations they manage.

Surf Life Saving Australia and the individual state associations, including Surf Life Saving Queensland, have taken a proactive approach to reducing risk, and therefore liability, by working closely with a variety of risk management bodies and State and Local Government authorities to develop a standardised signage and risk management system for all aquatic environments, the implementation of which is helping to promote safer usage of the aquatic environment.

As the key stakeholder responsible for the management of the coastal foreshores and beaches within the boundaries of Cairns City Council, the Council have requested that Surf Life Saving Queensland complete a Coastal Risk and Safety Signage Audit Report for selected swimming and recreational areas.



3. AUTHORITY

This Coastal Risk and Safety Signage Audit Report is based on inspections conducted at selected locations within the Cairns region, which falls under the authority of the Cairns City Council.



4. SCOPE

Conduct a Coastal Risk and Safety Signage inspection at selected location, as detailed below, on Cairns City Council beaches and foreshores. Based on the findings of the site inspections this report has been prepared for use of the Cairns City Council. This report provides recommendations about how to improve risk and safety management (within the defined area) in line with the current risk management, signage standards and best practice guidelines.

The following beaches and foreshores fall within the scope of this Coastal Risk and Safety Signage Report (refer also to Figure 1):

- Bramston Beach
- Green Island
- Fitzroy Island
- Ellis Beach
- Buchans Point
- Machans Beach
- Holloways Beach
- Yorkeys Knob
- Trinity Beach
- Kewarra Beach
- Clifton Beach
- Palm Cove

Recommendations regarding the implementation of risk management signage within these areas incorporate the following:

- Access signage requirements advising the public of potential hazards, regulations and lifesaving services
- Car park signage requirements advising the public of potential hazards, regulations and lifesaving services
- Individual hazard signs for high risk areas
- Siting locations and production specifications for all recommended signage
- Removal of existing signage that does not meet current standards or is unnecessary

In addition, recommendations regarding existing maintained and informal access tracks have been made where appropriate.



Location Map

Figure 1. Location of areas inspected



5. COMPLIANCE STANDARDS & REFERENCES

The compliance standards and references used within this report were:

Compliance Standards:

- Australian Standards
 - ASNZS 4360 – 2004 Risk Management
 - AS 2416 – 2002 Water Safety Signage

Resources:

- National Aquatic and Recreational Signage Style Manual, Third Edition (Surf Life Saving 2006)
- Best Practice Manual – Signs as Remote Supervision 1999. Civic Mutual Plus.
- Aquatic Risk and Safety Auditing of the Coastal Environment – Resource Guide
- Beaches of the Queensland Coast – Cooktown to Coolangatta: A guide to their nature, characteristics, surf and safety. 1996. Australian Beach Safety and Management Program (ABSAMP – A joint project of the University of Sydney Coastal Studies Unit and Surf Life Saving Australia Ltd.)

Qualifications of the SLSQ Audit Personnel:

Personnel that completed the inspection have experience within the coastal environment and hold specific qualifications, such as:

- Training in Occupational Health and Safety
- Qualifications in Quality Auditing
- Extensive experience in beach safety and aquatic management matters
- Highly qualified Surf Lifesavers

The SLSQ audit team consisted of:

- Byron Mills: Sunshine Coast Lifesaving Services Coordinator
- Amanda Hinkley: Sunshine Coast Training, Education & Membership Services Coordinator
- Ebony Keating: North Queensland Lifesaving Services Coordinator

The audit team obtained expert advice on the local area and hazards from relevant key stakeholders.



6. METHODOLOGY

The methodology used to determine the recommended signage locations, layout and content was based on the following:

- Review of ABSAMP Database
- Site Inspections
- Hazard Identification & Risk Assessment
- Review of Incidents
- Stakeholder Interviews
- Population Usage & Frequency of Use

6.1 Review of ABSAMP Database

ABSAMP (Australian Beach Safety and Management Program) was developed by Professor Andrew Short from the University of Sydney Coastal Studies Unit, in conjunction with Surf Life Saving Australia and State Associations. The program has identified coastal hazards that affect bathers and rates the safety of the beach on a scale of one to ten, where one is the least hazardous and ten is the most hazardous (refer to Table 1)

Table 1. The ABSAMP hazard rating scale applied to beaches

Hazard Rating	Details
1 - 3	Least Hazardous: Low Danger posed by water depth and / or weak currents; however supervision is still required, in particular for children and poor swimmers.
4 - 6	Moderately Hazardous: The level of hazard depends on the wave and weather conditions, with the possibility of strong rips and currents posing a moderate risk.
7 - 8	Highly Hazardous: Experience in strong surf, rips and currents required, with beaches in this category considered dangerous.
9 - 10	Extremely Hazardous: Identifies beaches that are considered extremely dangerous due to strong rips and currents, and large breakers.



6.2 Site Inspections

Detailed inspections of the aquatic environment and adjoining associated sites were conducted by Byron Mills (SLSQ Sunshine Coast Lifesaving Services Coordinator), Amanda Hinkley (SLSQ Sunshine Coast Training, Education and Membership Services Coordinator) and Ebony Keating (SLSQ North Queensland Lifesaving Services Coordinator) on the 3rd June to the 7th June and the 25th June to 29th June 2007. For the purpose of this report it was necessary to inspect all beach access points, walking tracks and car parks at locations within the scope of this report.

6.3 Hazard Identification and Risk Assessment

During the site inspection hazards were identified within the areas inspected and assessed in terms of their individual risk to public safety (high, medium, low) using a risk assessment matrix (refer to Appendix A). The risk assessment matrix considers both the type of harm that could be sustained as a result of an individual hazard and the likelihood of this harm actually occurring.

6.4 Review of Incidents

A detailed review of previous incidents, which have caused major harm, serious injury or death was conducted and considered for the recommendations outlined in this report. A detailed incident review can be found in each location summary (refer to section 9).

6.5 Stakeholder Interviews

Consultation with a number of stakeholders was undertaken to ensure the report process was transparent and to gain local knowledge and background about the areas inspected. Stakeholders interviewed included:

- Peter Roulston, SLSQ North Queensland Regional Manager
- Lawrance Green, SLSQ North Queensland Branch President
- Tanya Rutherford, Cairns City Council
- Richie Barker, Marines & Transport Manager, Raging Thunder
- Peta Zietsch, Sales & Marketing Manager, Raging Thunder
- Darren Cordingly, Local Resident, Member of Yorkey's Knob Boat Club
- Cara Morgan, Island Manager, Hunt Island Management
- Various Australian Lifeguard Service Lifeguards
- Various staff of Raging Thunder, Fitzroy Island
- Local residents and business owners

6.6 Population Usage and Frequency of Use

The beaches within the Cairns City Council are popular recreational and tourism destinations for local residents, interstate and international visitors. Visitors to the area are provided with numerous facilities and activities to enjoy. The warmer Cairns climate attracts visitors throughout the entire year; however population usage and frequency of use expand during the holiday periods and on weekends throughout the year, which makes for relatively high beach populations at these times.



There are approximately 130,000 permanent residents within the Cairns City Council region, population swells considerably during peak holiday periods. It is estimated that over people visit the Cairns City each year.



7. GENERAL FINDINGS

The following section details general findings only of Cairns City Council Beaches and Islands. Detailed findings for each of the individual beaches and associated areas are provided within section 9 of this report.

7.1 Characteristics of Cairns City Council Beaches Inspected

- **General:** Majority of the Cairns City Council beaches have well maintained parking which makes beaches easily accessible for all beach users. Defined beach accesses enable a safe the transition from car parks and walkways to the foreshore and ocean, with limited impact on persons and the environment.
- **Swimming:** Generally swimming conditions on all beaches are safe to moderate depending on winds and currents, which can produce small swells (wind chop) causing some flash rips. Generally swimmers are not in a threatening environment; however there is always the risk of hazardous marine creatures, particularly marine stingers during the high risk stinger season (September to May).
- **Surfing:** Due to the calm conditions surfing is generally not an issue or option in the Cairns region, however with the introduction of skim boarding this could potentially be a problem for those wishing to use such craft in between the flags and stinger resistant enclosures. Surf Life Saving Queensland has developed a policy to deal with this issue. Kite Surfing is very popular in certain areas, SLSQ data indicates numerous kite surfers have required assistance, be it rescue or recovery, from Lifeguards and Lifesavers in the past.

7.2 Characteristics of Cairns City Council Islands Inspected

- **General:** Cairns Island is only accessible via vessels which are generally operated by tourist operators. Some private owned vessels visit the islands but most stay aboard and only use the islands as shelter or to collect basic supplies. All islands visited have well maintained jetty's, walking tracks leading to the beach are well maintained at Green Island however due to construction on Fitzroy Island access tracks to beaches were over grown and required maintenance.
- **Swimming:** Conditions on both islands seemed calm however due to extreme water movement with tides in around islands currents can become very dangerous. With Islands having no shelter wind can cause further hazard to those using craft, snorkelers and reef visitors.



7.3 Existing Signage

There are a variety of different signs located within the areas inspected. The signs deal with a number of issues relating to the reserve management and general public information. Examples of some of the existing signage identified are given in Figures 2-7.



Figure 2. Welcome signage at Clifton Beach



Figure 3. Information signage / safety signage at Green Island



Figure 4. Warning signage at Bramston Beach



Figure 5. Hazard / Regulation signage at Buchans Point



Figure 6. Hazard signage at Trinity Beach



Figure 7. Hazard & regulation signage at Holloways Beach

7.4 Beach Access

Within the inspected areas both defined and open maintained accesses and non-maintained beach accesses were identified. Descriptions and locations of maintained and non-maintained accesses are details within section 9 of this report. Signage Production, Layout and Location Descriptions are summarised within the site profiles for the individual areas inspected.

7.5 Hazardous Marine Life Assessment

An assessment of hazardous marine life that frequent waters at Cairns City beaches were conducted utilising the following:

- Information provided via local knowledge (conversations / interviews with local residents)
- Review of publications
- Review of historical evidence (shark attacks, crocodile attacks, marine sting injuries and fatalities)
- Personal knowledge and awareness of beaches and islands, including frequency of use.

7.6 Evaluation of Existing Aquatic Safety Measures

The detailed site inspection of selected Cairns City beaches and islands indicated that the Cairns City Council have been proactive in minimising risk to residents and visitors by implementing a number of aquatic safety measures, including but not limited to:

- Providing a full time lifeguard services at Palm Cove, Trinity Beach, Yorkey's Knob and Green Island.
- Providing seasonal lifeguard services at Ellis Beach, Clifton Beach, Bramston Beach, Kewarra Beach and Holloways Beach
- Implementation of stinger resistant enclosures during high risk marine stinger season at Ellis Beach, Clifton Beach, Kewarra Beach, Palm Cove, Trinity Beach, Yorkey's Knob, Holloways Beach and Bramston Beach.
- Installation of advisory warning and regulation signage at main access points to beaches, however these signs are do not comply with Australian Standard requirements for aquatic signage.
- Implementation of maintained walkways at majority of the beaches
- Some tourist information publications include Surf Safety information.
- Implementation of marine stinger vinegar stations at some access points to beaches, however these stations do not comply with Australian Standard requirements for marine stinger stations.

8. SIGNAGE LAYOUT GUIDELINES

The following section provides general recommendations only to include an overview of the different types of signs and general guidance of colour, design and siting of signs. A summary of signage recommendations and signage requirements are detailed within section 9.

8.1 Signage

It is recommended that signs be erected at all maintained access points within the inspected area. Signs should be checked regularly for damage and / or theft e.g. quarterly. The completion of such inspections should be recorded by the land manager or the delegate. At locations where vandalism could be a problem the land manager may wish to complete inspections more frequently. Furthermore, during inspections any foliage overgrowth around signs should be checked and trimmed as necessary to ensure that signage information is not obscured.

8.1.1 Sign Type and Use

Car Park / Open Access

The car park / open access sign has been designed to attract attention and to display important information to visitors so that an informed decision on the suitability of the location can be made prior to undertaking activities.

The height of the sign will depend on the amount of information that is required to be displayed. *(Dimensions and shapes are shown as a guide only)*

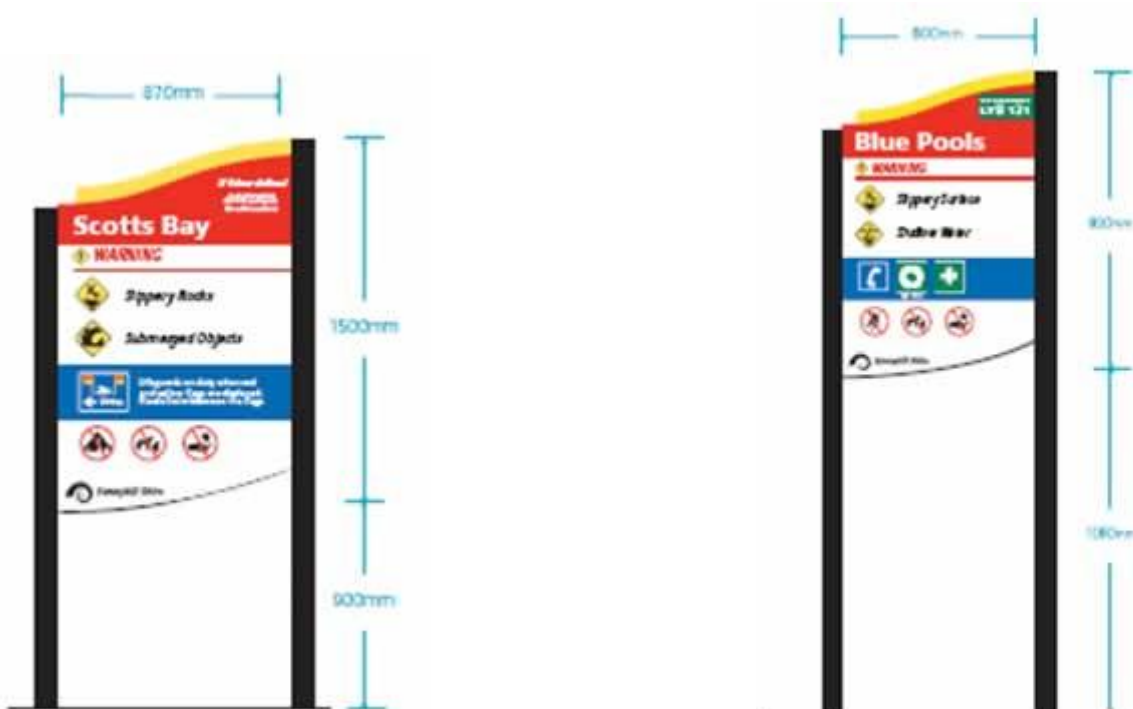


Figure 8. Example of the design of a car park / open access sign. Note the hierarchy of information presented. Also note the oblong numbers and letters relates to a Beach Access Numbering System.

Defined Access Sign

Defined access signs follow the same principles as those of the car park / open access signs. A defined access sign, examples of which as shown below is for use where access to the reserve is controlled via a narrow pathway (*dimensions are shown as a guide only*)



Individual Hazard / Regulation Sign



Individual hazard signs are to be used where a hazard has been identified as a level of risk that warrants sign posting e.g. rough surf and slippery rocks. Individual signs may also be used for displaying regulations at known trouble spots or to indicate regulation boundaries such as 'Fires Prohibited'.

For other examples and the display of multiple hazards, refer to Australian Standards AS2416-2002.



Patrolled Beach Road Sign

Patrolled beach road signs are used to direct traffic to the nearest beach patrolled by lifesavers / lifeguards.



Marine Stinger Signs / Stations

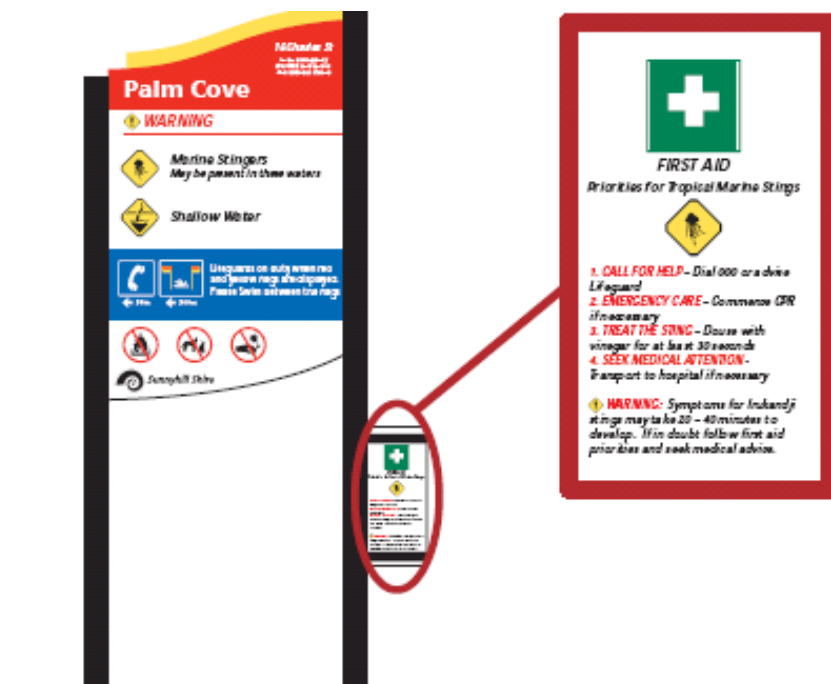


In Australian tropical waters dangerous marine stingers are commonly found in onshore and offshore lacerations and sometimes washed up on shore. Stingers are more common during the warmer months.

Marine stingers can be fatal, and signage to warn public about their presence is an important part of a risk and safety management plan.

Marine Stinger Vinegar Station

Bottles of vinegar are placed in a holder attached to the sign, for use in case of a marine sting emergency.



9.1.2 Sign Colour and Design



In order for signs to meet best practice standards they should follow the National Aquatic and Recreational Signage Style Manual, 3rd Edition, 2006. Most important is the hierarchy of information displayed on signs. Hazards are displayed below the reserve name and the information is then listed below the hazards with regulatory information in the lower section. Corporate logos can be placed on the bottom of the sign *i.e.* below the regulatory information.

- The sign layout consists of four key sections in the following hierarchal order:
 - Location Identification
 - Hazards
 - Risk Management Information
 - Regulations
- This sign should be placed on a white background.
- The name of the reserve shall be in white with a red signal (PMS 186C/1795U) background.
- The wording "IN CASE OF EMERGENCY DIAL 000" should be located in the upper right hand corner of the sign adjacent to the reserve name. The wording shall be in white on a background of signal red (PMS 186C/1795U)
- Hazard symbols shall be of sunflower yellow (PMS 136C/115U) diamond with a black border.
- Regulation prohibition symbols should consist of signal red (PMS 186C/1795U) annulus and bar on white background.
- Black pictograms and writing must be used for all hazard and regulation prohibition symbols.
- The logo of Cairns City Council can be in corporate colours but must be of a size that is not going to distract from the message on the sign below the regulation prohibition symbols.
- Lifesaving information and pictogram must be encompassed in a thin white square. Wording and any directional arrow shall be in white.
- The patrol flags in any pictogram, warning or information must be in signal red (PMS 186C/1795U) and sunflower yellow (PMS 136C/115U) horizontally halved with the red being above the yellow.

8.1.3 Siting of Signs



The importance of effectively placing risk management and safety signage in a reserve cannot be underestimated. Location, height and existing visual distractions are major factors which can contribute to the effectiveness of a sign when installed. To assist with the sign placement, signs discussed within this report can be classified as primary or secondary.

Primary Signage

Primary signage is safety orientated and used for risk and safety management purposes. Within this report all the signage that has been recommended to be installed is classified as primary signage. It is important that all primary signage be installed in positions which allow the best opportunity to capture the attention of the visitors and thus improve safety and risk management, hence:

- Signs should be sited to promote readability
- Signs should be mounted as close as practical to an adult observer's line of sight. For a standing adult this will be approximately 5 degrees up or down from a point 1500m above the ground level in front of the observers (approximately 1700m above the ground.)
- Care should be taken to ensure that the placement of the sign would not become a hazard and that other physical features e.g. vegetation, would not obscure the sign or views distract from the sign.
- Care should be taken to ensure that signs are not placed close to other signs i.e. secondary signage (see below), which may limit the ability from the information being processed or understood.

Furthermore, access signage should be located to encourage the public to read and recognise the sign therefore be:

- Located near or at the start of an access track
- In a location where the width of the track is minimal
- Placed at consistent locations (e.g. on the left hand side of the access), where possible for recognition purposes

Secondary Signage

Secondary signage is used for general information purposes and may include information boards, sponsorship acknowledgements, interpretive and directional signage. As mentioned previously it is important that such secondary signage does not distract from the safety orientated primary signage which is used for risk management.

Car Park / Open Access Signs

Siting should be central to the car parking area as visitors drive in and placed where parked vehicles will not obscure the sign. Open access signs should be spaced at regular intervals, with the distance between individual signs dependant upon the visitation levels for the beach.

Defined Access Signs

Defined access signs should be sited as close as practical to the access point, or other appropriate location, and need to be consistent where possible e.g. on the left hand side of the track.

8.1.4 Signage Removal



To effectively capture the attention of visitors, avoid confusion as a result of too many signs being present and to improve overall visual amenity, all signs displaying repetitive or unnecessary information should be removed. Furthermore, any secondary signage that is present at a location should not 'compete' for attention and should be re-located as appropriate so as not to impact on the recognition of the safety orientated primary risk management signage.

8.1.5 Emergency Beach Location Numbers

Where allocated the, Emergency Beach Location Number should be placed on risk management signs in the top right hand corner. The Emergency Beach Location Number will comprise of three letters (usually the first three letters of the location) and two numerals (with the provision of a third, if in the instance where additional accesses and signs are installed between existing signs) and will be displayed on a green background with white text. Once the signs are installed the Emergency Beach Location Number is added to a state-wide emergency services database, the number displayed is quoted over the phone so that emergency services can respond to the location of the distress call and deploy the most relevant services.

8.2 Non-Maintained Access Tracks

It is recommended that any no maintained access tracks by closed or, if it is not appropriate, formalised, maintained and signed as defined access. Closure of non-maintained accesses will more effectively manage public access to beach / reserve areas, promote public safety and abate coastal erosion and due damage.