ACT Drowning Prevention Plan 2024-2028

Draft for Consultation

ACT Government

ROYAL LIFE SAVING
AUSTRALIAN CAPITAL TERRITORY

About Royal Life Saving

Royal Life Saving is focused on reducing drowning and promoting healthy, active and skilled communities through innovative, reliable, evidence-based advocacy; strong and effective partnerships; quality programs, products and services; underpinned by a cohesive and sustainable organisation.

Royal Life Saving is a public benevolent institution dedicated to reducing drowning and turning everyday people into everyday community lifesavers. We achieve this through advocacy, education, training, health promotion, aquatic risk management, community development, research, sport, leadership and participation and international networks.

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Authorisation

Prepared By:	[redacted]	**__ Feb 2024**
Endorsed By:	[redacted]	TBA

Distribution

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Preface

Drowning remains a tragic and preventable loss of life, casting a shadow over communities worldwide. Every year, countless families are shattered by the devastating consequences of water-related accidents. Among the various settings where these incidents occur, inland waterways and backyard pools stand out as focal points demanding urgent attention.

The creation of the ACT Drowning Prevention Plan underscores a commitment to confronting this pressing issue head-on. Inland waterways, including rivers, lakes, and dams, present unique challenges due to their diverse environments and recreational uses. Meanwhile, backyard pools, often seen as places of leisure and relaxation, can quickly become sites of peril without proper safeguards in place.

This comprehensive plan represents a collaborative effort between government agencies, community organizations, healthcare professionals, educators, and concerned citizens. It draws upon extensive research, data analysis, and input from experts in the field to develop targeted strategies aimed at reducing drowning incidents in both inland waterways and backyard pools.

Central to the ACT Drowning Prevention Plan is the recognition that prevention is multifaceted and requires a multifaceted approach. Education and awareness initiatives play a crucial role in empowering individuals with essential water safety knowledge and skills. Furthermore, the plan emphasizes the importance of implementing and enforcing regulations, such as fencing requirements for backyard pools and boating safety measures for inland waterways.

Moreover, this plan prioritizes collaboration and partnerships at all levels. By fostering strong relationships between stakeholders and fostering a culture of shared responsibility, we can amplify our impact and work towards a future where drowning incidents are rare occurrences rather than tragic realities.

As we embark on this vital journey to safeguard our communities against the threat of drowning, let us remain steadfast in our commitment to saving lives. Together, through diligence, innovation, and unwavering dedication, we can turn the tide on this preventable tragedy and create safer environments for all to enjoy the water responsibly.

[redacted]
Chief Executive Officer
Royal Life Saving ACT |NSW

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Introduction

The waterways of the Australian Capital Territory (ACT) encompass a diverse array of natural and man-made features, providing residents and visitors with ample opportunities for recreation and relaxation. While the ACT itself is landlocked, it benefits from its proximity to the Molonglo and Murrumbidgee Rivers, which meander through the region, offering picturesque settings for activities such as fishing, kayaking, and canoeing. These rivers also serve as vital water sources for the ACT, supporting both urban and agricultural needs.

In addition to the natural waterways, the ACT boasts several swimming pools that cater to the community's aquatic leisure and fitness needs. These swimming facilities vary in size and amenities, ranging from large public pools with lap lanes and diving boards to smaller, neighbourhood-based pools perfect for families and children. Many of these pools are maintained by local government authorities and offer swimming lessons, aqua aerobics classes, and recreational programs throughout the year.

These venues are especially popular during the warmer months when residents seek refuge from the heat and humidity. Overall, whether enjoying the tranquillity of a riverbank or the excitement of a water park, the ACT's waterways and swimming pools offer something for everyone to enjoy year-round.

Unfortunately, however, these environments present a higher risk of drowning due to a variety of factors including changeable conditions, remoteness, lack of supervision, cultural diversity and alcohol.

The ACT Drowning Prevention Plan has been developed with and on behalf of the ACT community. Led by Royal Life Saving and ACT Parks and Wildlife Service, with an extensive range of stakeholders is designed to help our whole community to better manage the risk associated with using the water in our region.

It provides a long-term approach for the community to reducing drowning (fatal and non-fatal) in the area with a focus on ‘Building Safer Aquatic Environments’, ‘Developing Safer Aquatic Users’ and ‘Designing Safer Aquatic Activity’.

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Integrating the ACT Drowning Prevention Plan

This ACT Drowning Prevention Plan is designed to work hand in hand with other ACT strategies and plans to support the communities’ vision and priorities. These include but are not limited to:

- ACT Home Swimming Pool and Safety Reforms
- ACT City Plan
- ACT Backyard Lifeguard Strategy
- EPSDD Strategic Plan 2022-2025
- Inclusion and Belonging Strategy 2022-2024

Safe System Approach to Drowning Prevention

The ACT Drowning Prevention Plan has adopted the Royal Life Saving's Safe System Approach to Drowning Prevention.

This approach is underpinned by these principles:

- Deaths and serious injuries are unacceptable
- People are human and sometimes make mistakes – a simple mistake shouldn't cost anyone their life
- People are vulnerable
- Aquatic environments and activity should be designed to minimise the likelihood or severity of an aquatic incident if an accident happens
- Drowning prevention is a shared responsibility – everyone needs to make safe decisions in, on and around the water to prioritise safety

- Initiatives to ensure safer aquatic environments, users and activities need to be implemented together so that the community can enjoy our aquatic environments when recreating or working.

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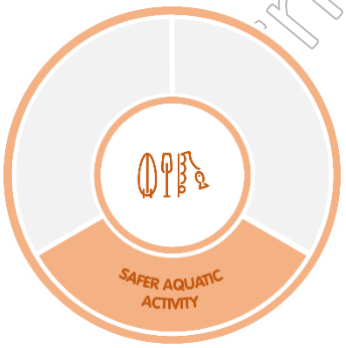
Safe System Outcomes

Safer Aquatic Users

This is achieved through drowning prevention strategies that seek to change behaviour through a combination of context-appropriate information, education and enforcement activities.

Safer Aquatic Environments

This is achieved through drowning prevention strategies that seek to improve the physical or natural environments in, on and around waterways which individuals participate in recreational or work-related activity.



Safer Aquatic Activity

This is achieved through drowning prevention strategies that seek to change the methods or process in which an activity is being undertaken or performed through such things as policy, funding, planning or procedures

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Our Drowning Prevention Plan

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The ACT Drowning Prevention Plan has been developed based on the desires and priorities of our community. It demonstrates leadership by valuing and progressing the Safe Systems Approach to Drowning Prevention and it represents a commitment of working together for a future free from drowning.

While Royal Life Saving will play a leading role in facilitating and delivering some of the strategies, it fosters a shared responsibility for its implementation using relevant data to monitor and evaluate drowning prevention strategies.

Using the Safe Systems Approach to Drowning Prevention model, the strategy describes four key action areas each with key outcomes that the community seeks to achieve through the development and implementation of a drowning prevention strategy. These include:

- Facilitating Collaboration
- Building Safer Aquatic Environments
- Designing Safer Aquatic Activity
- Developing Safer Aquatic Users

The role of Governments

This is the ACT's Drowning Prevention Plan for the community, the goals and objectives outlined will help to deliver on the vision of a community free from drowning. It will however require a team effort.

The ACT has many partners in the community that must work together to make sure this strategy is a success. We thank the ACT Government and their associated departments, emergency services as well as businesses, health providers, education providers, community organisations, recreational groups, and our residents for the contribution they make now and into the future in reducing drowning.

In the delivery of this ACT Drowning Prevention Plan, Government or Government agencies may act as a:

Leader - Responsible for leading a range of activities throughout the region. Ensuring that this legislation and the administration of it is done in a way that is supporting the community vision.

Advocate – Advocating on behalf of the community to other levels of government and various other decision makers to deliver the best possible outcomes for the ACT.

Provider – Directly providing services and/or infrastructure in ways that achieve the aims of its adopted actions.

Supporter – Partnering across the community to deliver services, infrastructure and events and supports them in doing so.

Facilitator – Bringing groups of people and organisations together to support collaborations and new partnerships to create new opportunities and solve problems for the community.

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Our Aquatic Profile

Natural Waterways

The Australian Capital Territory (ACT) features a network of open waterways, spanning approximately 33 kilometres in total length, comprising primarily the Molonglo and Murrumbidgee Rivers, which provide scenic beauty and recreational opportunities for residents and visitors alike.

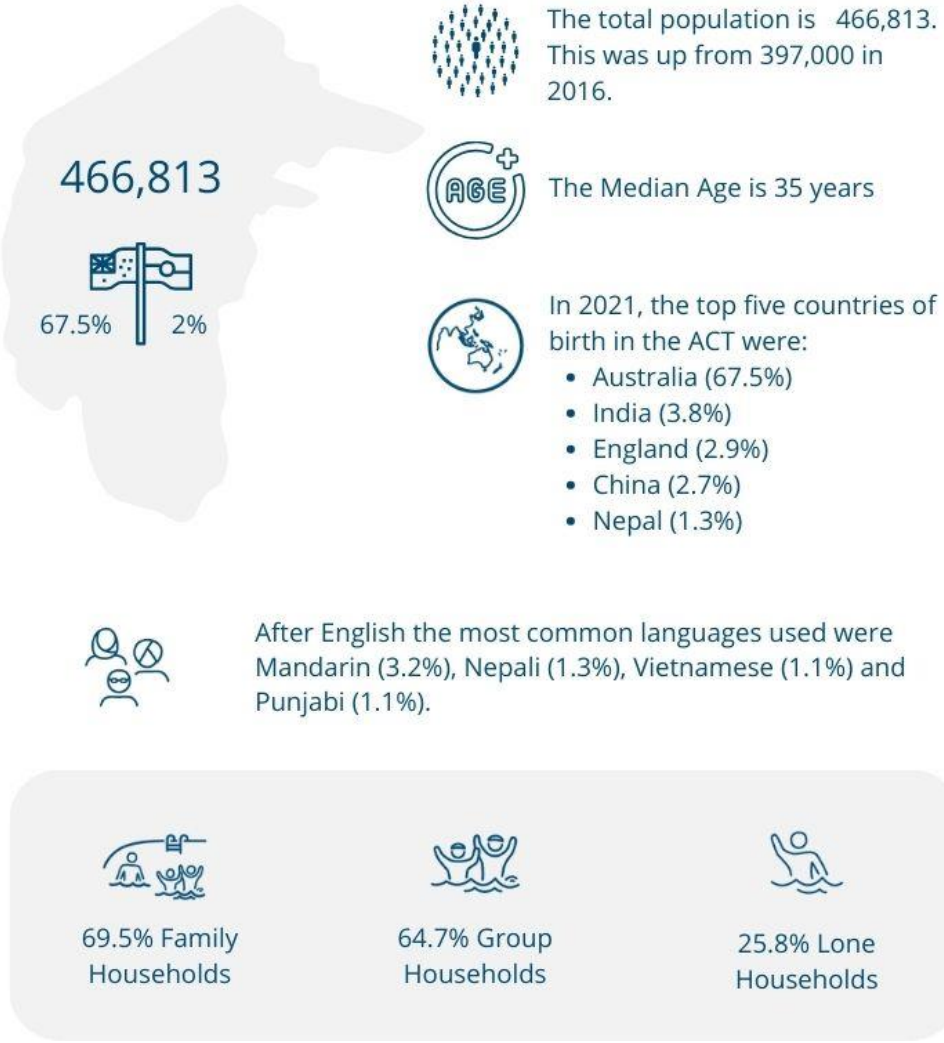
Built Aquatic Environments

The Australian Capital Territory (ACT) boasts a total of 15 public swimming pools and numerous home swimming pools, offering residents and visitors a wide range of aquatic facilities for leisure, fitness, and relaxation.

ACT Demographic Profile

The Australian Capital Territory (ACT) reflects a diverse and multicultural community. With a population of approximately 450,000 people, the ACT is characterized by its relatively high levels of education and income, attributed in part to the presence of government institutions and universities in the region. The territory's population comprises individuals from various cultural backgrounds, with a significant proportion born overseas. Substantial communities from countries such as the United Kingdom, China, India, and New Zealand contribute to the cultural fabric of the ACT, enriching its social landscape.

English remains the predominant language spoken in the ACT, serving as the primary mode of communication in both official and informal settings. However, the territory's multicultural makeup is evident in the multitude of languages spoken within its borders. Alongside English, Mandarin, Cantonese, Italian, Greek, and Hindi are among the most spoken languages, reflecting the diverse linguistic heritage of the ACT's residents.



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Executive Summary

20 year analysis of Drowning Deaths in the ACT

129*

43 Drowning Deaths

86 Non-Fatal Drownings*

Avg 2.03 Drownings per year

0.56 Drownings per 1000

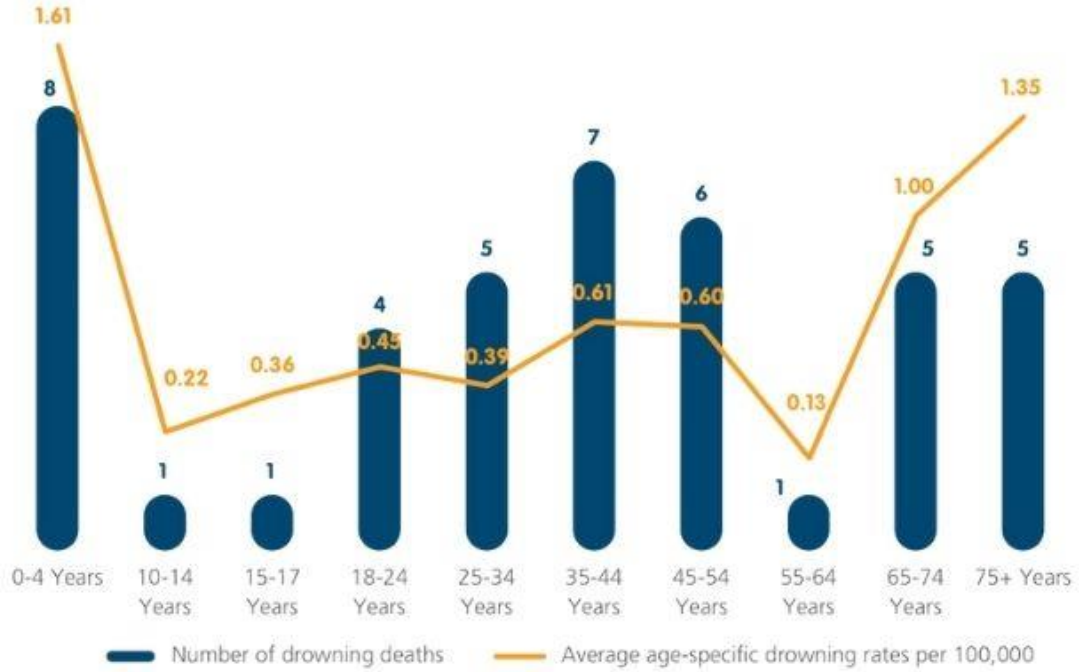
Who is drowning?

81% Male
19% Female

98% Born in Australia
2% Born Overseas

84% Drowned within 0-20km of where they lived

19% Children 0-4
51% Mature Adults
23% Older Adults



*Figures are based on modelling approaches to non fatdrowning and the economic costs of drowning rath than definitive figures

Our Engagement Journey

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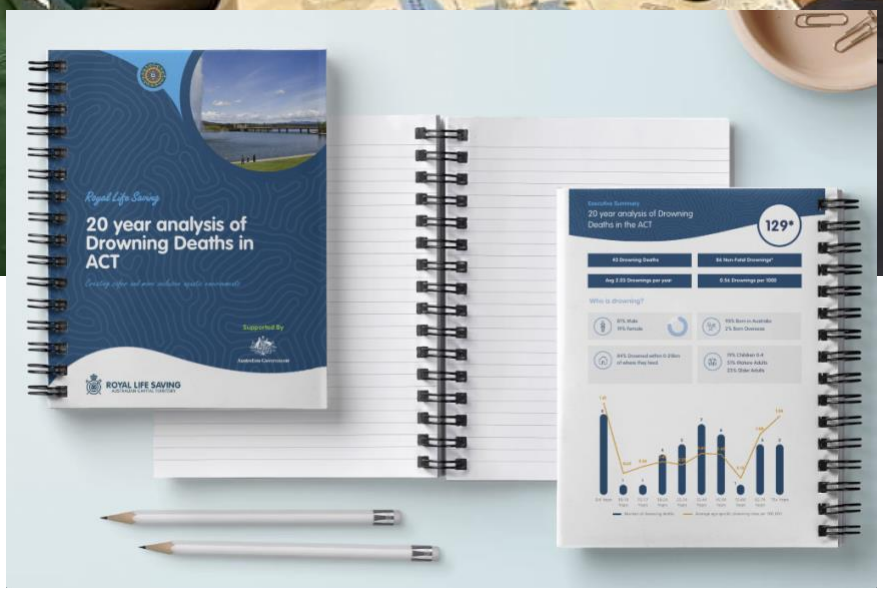
Engagement for the ACT Drowning Prevention Plan commenced in April 2023 with an extensive Drowning Research piece undertaken by Royal Life Saving and subsequently an inquest by the ACT Coroner which examined the death of four people within 16 months in ACT Rivers.

Royal Life Saving ACT also facilitated a community drowning prevention workshop with the support of ACT Parks in which community leaders, families of victims of drowning and local emergency agencies and key stakeholders explored the issues surrounding drowning in the ACT. This was followed by 1 on 1 draft consultations with key agencies and the production of the consultation draft of this document.



Key Drowning Groups

Following the analysis into Fatal and Non-Fatal Drownings in the ACT and the existing programs and the community consultations, the following identifies the Key Target Groups for Drowning Prevention which need most attention in the ACT.

LOCAL MALES

- Males 18-54, ACT Born Residents, who live within 0-20km of their local waterway
- Swimming in River systems throughout the year but particularly in Summer
- Due to under estimating the risk, over estimating their abilities, wind and poor weather conditions, alcohol and drug consumtption and poor decision making

CALD VISITORS

- Males 18-54, from a CALD background temporary living or living within 10 years in the ACT, who reside within 0-20km of their local river
- Swimming in River systems throughout the year but particularly in Summer
- Due to under estimating the risk, over estimating their abilities, poor swimming and water safety abilities and education

PARENTS AND POOL OWNERS

- Parents 18-34, ACT Born Residents, who own a backyard swimming pool and/or Owner or operators of temporary accomodation with swimming pools
- Who have children under 10 Swimming and Recreating in their pools who are drowning due to;
- A lack of water safety education and/or Poor or lack of restriction of children, slipping,truipping and falling and/or inadequate supervision, children with a lack of swimming and surival skills and may have a lack of resuscitation skills

OLDER AUSTRALIANS

- Males 65+, ACT Born Residents, who live within 0-20km of their local waterway
- Recreating near or Swimming in River systems throughout the year but particularly in Summer
- Due to under estimating the risk, over estimating their abilities, poor swimming and water safety abilities and pre existing medical conditions who are slipping, tripping and falling

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What can I do

As a community member there is so much you can do to help achieve the vision of an ACT Free from Drowning, this may be individually, part of a community group or with friends and family.

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Facilitating Collaboration

- Get involved. Take an interest in the drowning prevention and what is planned in your community
- Have your Say – It is important that you give feedback. Your opinion is imporntant to us
- Share the love – make sure you tell others about the strategy and what they should do in, on or around Inland Waterways
- Communicate – don't be afraid to share the Drowning Prevention message and help others in need
-

Safer Aquatic Environments

- Read the safety signs and know what they mean before entering the water
- Avoid ignoring or disregarding the safety messages. They are there for a reason
- Always check the conditions of the water before you enter
- Make sure you have a safe entry and exit location before you go in the water
- Avoid swimming and recreating in isolated areas

Safer Aquatic Activity

- Ensure you have enough safety equipment on board for you and your passengers
- Wear a Lifejacket when boating or fishing
- Log on/off with Deckee, or tell someone where you're going and when you'll return
- Avoid alcohol and arugs when in on or around the water
- Enrol yourself in a Learn to Swim Program
- Always keep a proper lookout as the skipper of your vessel
- Always drive at a safe speed when the skipper of a vessel

Safer Aquatic Users

- Educate yourself about the dangers and strategies to stay safe in all waterways
- Avoid swimming or recreating in the water after dark or when alone
- Look after your mates and speak up if they are making poor decisions
- Visit your doctor to get a check up
- Supervise your children at all times when around water
- Enrol yourself or your children in a CPR, First Aid or Lifesaving Course
- Know your limits and avoid taking risks. If in doubt, don't go out.
- Keep yourself fit and healthy
- Know what to do in an emergency and who to call
-

Our Action Plan

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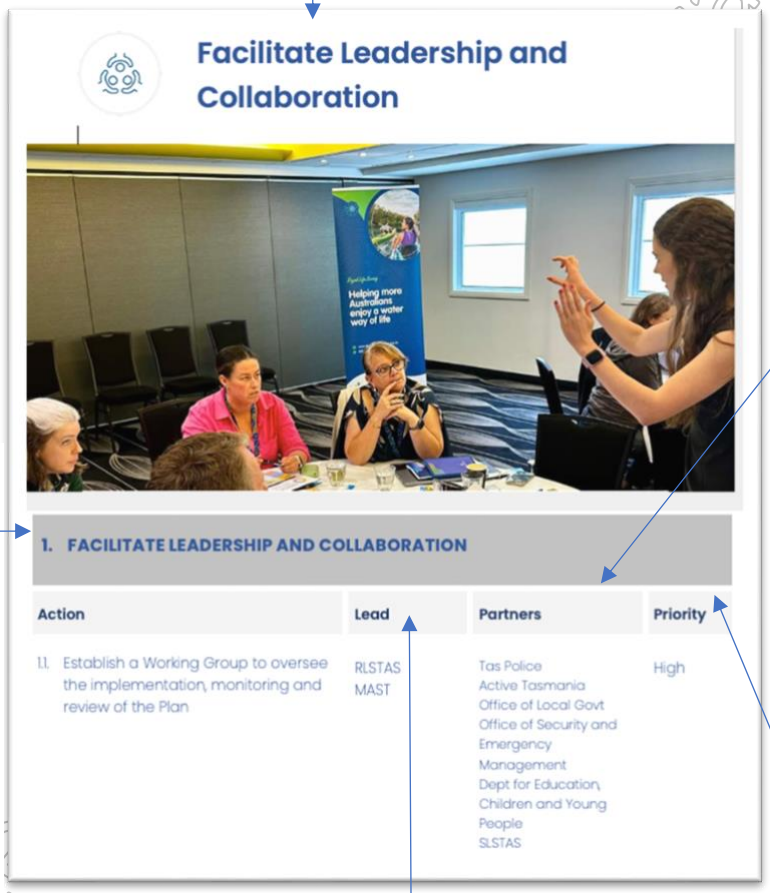
How to read the Strategies

Focus Areas

Our four focus areas are based on addressing the safe systems approach to drowning prevention



Actions

These outline the method or approach to achieve the outcomes of the Strategy.
These strategies cascade down with specific and measurable actions, priorities and responsibilities.

Partners

Collaboration and partnerships are crucial to achieving our long-term goals. This Strategy identifies some of our key partners in delivery, however, the list is not exhaustive and we always welcome new partners.

Priorities

Priorities have been established rather than timelines as many strategies are reliant or coexist with another

Lead

A single organisation must champion this strategy while responsibility rests with everyone including other levels of government, businesses, industry groups, community organisations and individuals.

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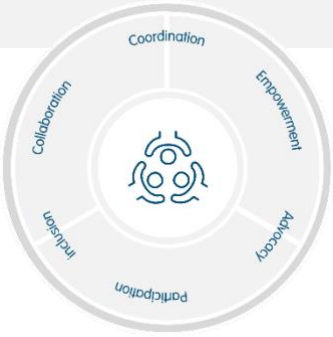
Facilitate Leadership and Collaboration

Only

Reducing Drowning is a whole of community responsibility. Engaging with the community and involving them in key decision-making promotes collaboration, coordination, and a shared sense of responsibility.

It also ensures that leaders within the community are ethical and transparent and committed to the cause through the provision of adequate resources to implement the strategies.



1. FACILITATE LEADERSHIP AND COLLABORATION

Action	Lead	Partners	Priority
1.1. ACT Government establish a Drowning Prevention Advisory Council to provides strategic advice to the ACT Government on issues relating to drowning prevention and oversee the implementation, monitoring and review of this Plan	CMTEDD	AFP ACT Parks Royal Life Saving ACT Emergency Services Agency ACT Health ACT Community Services ACT Coroner Community Representation	High
1.2. Develop a specific budget and resources for the term of the strategy to support the Advisory Council and the implementation of strategies and initiatives	CMTEDD	Drowning Prevention Advisory Council	High
1.3. Annually review the performance against the ACT Drowning Prevention Plan and communicate this accordingly with the community and ACT Government	RLSACT	Drowning Prevention Advisory Council	High
1.4. Strengthen the reporting and investigation of fatal and non fatal drowning incidents and rescue incidents to better inform causal analysis and future drowning prevention strategies	AFP	ACT Coroner's Office ACT Health Royal Life Saving ACT Emergency Services Agency South Care	Medium

Build Safer Aquatic Environments

Only

Inland Waterways provide significant value to the local community however Drowning occurs in all types of aquatic environments and each environment poses unique risks.

Conditions can change rapidly, particularly in and around natural waterways, and visitors may be unfamiliar with local hazards. Visitors need to be able to identify these hazards and respond appropriately.

2. BUILD SAFER AND INCLUSIVE AQUATIC ENVIRONMENTS

Action	Lead	Partners	Priority
2.1. The ACT Government work with the aquatic industry to regulate the implementation and compliance of aquatic facilities with best practice safety, inclusivity and health guidelines for Learn to Swim and Public Swimming Pools			Medium
2.2. Undertake Aquatic Risk Assessments at Key Inland Waterway Drowning Locations throughout ACT	ACT Parks Royal Life Saving		High
2.3. Undertake Signage Assessments at Key Boating, Watercraft and Fishing access points as a key reminder of safety information			High
2.4. Introduce emergency help points, public rescue equipment and emergency communications at High Risk / Frequented Inland Waterway Locations			Medium
2.5. Explore training and equipping full time Emergency service personnel with inland waterways Basic Water Rescue Training and use of public safety equipment in hig risk locations			Medium

2.6.	Continue to implement an Asset Managment Strategy that seeks to, redesign, repair, remove or reduce the likelihood of incidents from slips, trips and falls around key Inland waterway locations	Land Managers		
2.7.	Increase surviellance of swimmers and kayackers, recreating in isolated areas without appropriate PPE or Lifesaving Equipment			Medium
2.8.	Develop a positive campaign and source of information for owners of backyard pools aound the changes to Pool Fencing Legislation in the ACT			

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Develop Safer Aquatic Users

Only

Drowning risk changes throughout a person's lifespan. As young children become more mobile, the risk of drowning increases. As teenagers reach adulthood, legal drinking age and gain greater independence, their risk of drowning also increases.

Males are known to be at higher risk of drowning than females, particularly during adolescence and early adulthood as risk-taking behaviour bec[illegible]s more apparent.

3. DEVELOP SAFER AQUATIC USERS

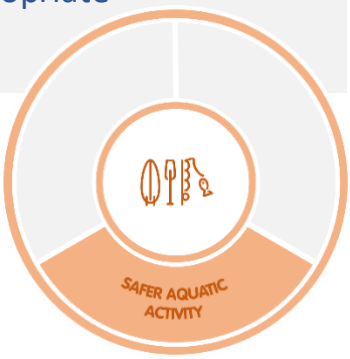
Action	Lead	Partners	Priority
3.1. Implement a ACT Water Safety campaign. The campaign should use local ambassadors and focus on changing behaviour associated with adult males swimming in open waterways, knowing their physical limits, and alcohol consumption in, on and around open waterways	Royal Life Saving ACT	Community Leaders Aquatic Facilities Media Agencies Ethnic Media ACT Government ACT Parks	High
3.2. Develop a campaign toolkit that is readily available to community organisations and business who regularly engage with adult males and communities within Tasmania	Royal Life Saving ACT	Community Royal Life Saving Boating and Fishing Industry High School Tertiary Institutes	Medium
3.3. Expand School Lifesaving and Water Safety Education into High Schools focussing on long term generational change to at-risk aquatic activities in Inland Waterways	ACT Education	Royal Life Saving Community Leaders Boating and Fishing Industry	High
3.4. Incentivise or regulate learn to swim operators to provide greater services for groups at higher risk of drowning and for older children who have not achieved the National Swimming and Water Safety benchmarks	Aquatic Facility operators		Medium
3.5. Collaborate with the Canberra Times, Canberra Daily, Act Tourism and Swimming Hole Heaven to improve safety information around ACT's best swimmihng locations	ACT Parks		

Design Safer Aquatic Activity

Only

People undertake a range of activities in, on and around the water, with many of these pursuits increasing in popularity in recent years. However, there are inherent risks associated with many of these activities.

Often, the risks are exacerbated by inexperience, poor or inadequate equipment, poor weather conditions and failing to take appropriate safety precautions.



4. DESIGN SAFER AQUATIC ACTIVITY

Action	Councils Role	Partners	Priority
4.1. Facilitate a range of inland waterway education events with, outdoor recreation groups, community groups, ACT Parks and CALD leaders	ACT Parks and Royal Life Saving		High
4.1. Explore the feasibility of conducting preventative in-water patrolling activity through December and January to educate	ACT Police and Emergency Services		Medium
4.2. Conduct feasibility studies on the creation of designated swimming locations within Key Inland Waterways across ACT			Medium

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ACT Home Swimming Pool and Safety Reforms

ACT City Plan

ACT Backyard Lifeguard Strategy

EPSDD Strategic Plan 2022-2025

Inclusion and Belonging Strategy 2022-2024

Guidelines for Inland Waterways Safety
Royal Life Saving Society – Australia

Australian Water Safety Strategy
Australian Water Safety Council 2020

Australian Policy and Case Law for Public Safety in Inland Waterways
Schiavone, C., Houston, R., Cherfils, B. & Pidgeon, S. (2022) Australian Policy and Case Law for Public Safety in Inland Waterways – A Review and Recommendations. Royal Life Saving Society - Australia, Sydney.

Guidelines for Managing Risks in Recreational Water
Australian Government – National Health and Medical Research Council

Public Rescue Equipment Guide – Inland Waterways
Royal Life Saving NSW

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Thank You

Royal Life Saving ACT prepared this strategy on behalf of the ACT Government and the ACT community and would like to thank:

The Australian Government for funding part of this initiative.

Members of the community who participated in community engagement processes and provided valuable input during the development of this strategy.

Councillors, council employees, and members of the community who participated in the engagement opportunities including forums, meetings and surveys.

ACT Drowning Prevention Plan

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Aquatic Safety Assessment

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Cotter Recreation Reserve

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AQUATIC RISK SERVICES

Royal Life Saving works with the Australian aquatics industry to improve industry safety and risk management standards.

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VERSION CONTROL

Title	Version Number	Amendment Summary	Date
Aquatic Safety Assessment – Cotter Recreation Area	V1.0	Original Draft	1st March 2023

Foreword

Royal Life Saving Society – Australia (RLSSA) is a specialist service provider in the field of aquatic risk management. Since its inception in 1894, RLSSA has worked to harness the strengths of the communities we work with to reduce drowning and aquatic related injuries in, on and around water.

Throughout Australia, inland water environments continue to experience a dramatic increase in patronage, climate change, and the rise in temperature throughout the summer periods have driven people to seek out aquatic locations. The global push for responsible use of natural resources and environments have also led to an increase in natural inland recreational locations.

These contributing factors highlight the need for a greater understanding of inland water environments. The flat, still surface of an inland waterway can give a false sense of security and often hide features and conditions such as currents, undertows, or submerged objects, making them potentially dangerous. Conditions in our inland water environments can change unexpectedly, and it can lead to severe consequences for the unprepared. Therefore, the formulation and implementation of risk management policies are essential to maintaining an efficient and safe aquatic environment for the community.

Through the Aquatic Risk Services team, Royal Life Saving Society Australia (RLSSA) can assess inland water environments such as lakes, rivers, and dams proposed or currently utilised by the community for recreational activities and assist in developing risk management strategies. In doing so, RLSSA aims to mitigate potential loss and provide recommendations to ensure public safety in, on, and around inland waterways.

Disclaimer

The RLSSA Aquatic Safety Assessment aims to provide clear advice regarding good practice for water safety and is based upon existing standards and risk management principles. Treatment options included in this report are guiding recommendations only and represent the opinion of RLSSA in relation to water safety at the Cotter Creek Recreation Area.

The Australian Capital Territory (ACT) Government should determine what additional risk mitigation strategies may be required at Cotter Recreation Area and should also evaluate the recommendations made within this report to determine their appropriateness and feasibility based on their own assessment of risk. RLSSA accepts no duty of care or liability to the land managers or any other third party for any loss suffered in relation to the use of this report.

AQUATIC RISK SERVICES

Royal Life Saving works with the Australian aquatics industry to improve industry safety and risk management standards.

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Contents

Executive Summary

This report identifies, analyses, and evaluates the current risks involved with recreational swimming and other aquatic activities at the following locations:

- Casuarina Pool
- Casuarina Sands Reserve
- Cotter Family Campground
- Cotter Bend

Many of the site's visitors may be unaware of hazards specific to the environment and swimming areas. By allowing RLSSA to undertake this risk assessment and treatment plan, ACT Government is taking a proactive approach in determining appropriate risk mitigation actions to help prevent foreseeable loss of life and injury to visitors recreating at Cotter Recreation Area.

This report contains recommendations specific to current standards and best practice regarding risk management and signage pertinent to the characteristics and designed applicative use of the identified sections of Cotter Recreation Area.

Activities/Facilities

Cotter Recreational Area is located 23kms from the Canberra CBD and offers a diverse range of activities to locals and visiting tourists throughout the year. Popular activities and facilities include barbeque and picnic areas, children's play equipment, public amenities, walking tracks and trails, various swimming areas, fishing spots and limited camping.

Casuarina Pool is situated within the Casuarina Sands Reserve. The area is popular for visitors and offers a variety of natural swimming areas. The most popular location is the deeper water area created by the adjoining downstream weir of the Murrumbidgee River.

Casuarina Sands Reserve is located on the banks of the Murrumbidgee River within the heart of the Cotter Recreation Area. It is known for its ideal location for recreational activities such as launching water craft, swimming, picnics, fishing and general walking and hiking. Features include children's play equipment, public amentities, barbques, picnic shelters and tables.

Cotter Family Campground is located on the banks of the Cotter River. The site offers a wide range of camping accommodation options with features including barbeques, public amenities, picnic shelters and tables.

Cotter Bend is located where the nearby Paddys River meets the Cotter River and offers a range of attractions including grassed areas, a wide natural swimming pool and sandy beachfront. The area additionally offers various walking tracks, barbeques, picnic areas and public amenities.

Hazards/Risks

The Murrumbidgee River under assessment has several consistent hazards due to the area's geography and high-energy nature. These are outlined in detail in the Risk Register *(pg.40)*.

Based on the risk assessments, the following hazards have been rated with the greatest inherent risk for Cotter Recreation Area:

- Shallow water
- Sudden changes in depth (shallow water/deep water)
- Strong current
- Heavy rain fall/ flooding
- Vegetation
- Snags/ submerged objects and obstacles
- Water temperature
- Water quality/condition
- Changing weather conditions
- Slippery/uneven surfaces
- Risk-taking behaviour
- Steep banks
- Overhanging branches
- Alcohol and drug consumption
- Lack of swimming ability/water safety
- Inadequate parental supervision
- Collison/impact between swimmers and watercraft

It has been identified that the hazards listed above pose a risk to the following recreational users:

- Children
- Young Males (15-29 years)
- People aged 18-44 years
- Older People (55+ Years)
- CALD groups
- Tourists
- Bystanders/walkers
- Swimmers
- Inexperienced swimmers
- Non/weak swimmers wading through the water
- Watercraft users
- Pedestrians

Existing Risk Treatments

The ACT Government has previously implemented the following risk treatment initiatives for the Cotter Recreation Area:

- General Safety and Warning signage

Summary of Key Recommendations

- Establishment of a Public Water Safety Management Plan
- Establishment of Emergency Response Plan
- Emergency Response Systems and Equipment
- Designated Swimming Area
- Targeted Public Awareness and Education Strategy
- Water Quality
- Provision of Publicly Accessible Rescue Equipment
- Provision of Supervision
- Systems of Safety Signage
- Monitor and Review

Introduction and Scope

Recreational activities, such as swimming, is a popular pastime in Australia. With the rise of warmer weather over past summers due to global climate change, more Australians are seeking out water environments to escape the heat. Additionally, inland waterways used for recreation such as rivers, lakes and creeks provide users with the opportunity to experience an array of physical and social benefits. However, enjoying inland waterways has risks and the need to maximise user safety is of the utmost importance.

In 2020/21 river locations were ranked as the top location for drowning in Australia and accounted for 26% of overall drownings. Of the 75 drowning deaths that occurred in river locations, 21% of drownings involved swimming and recreation, 12% involved boating and 11% involved an unintentional fall into water. By focusing on reducing the probability of aquatic recreation injury and unintentional fatal drownings, ACT Government is taking a proactive approach to maintaining safe and efficient aquatic environments across the Cotter Recreation Area.

This Aquatic Safety Assessment has been prepared following on-site risk assessments across the four (4) locations. RLSSA undertook the site visits on the 7th, 9th and 10th of September 2022. The assessment identifies hazards and the associated risks of the locations under assessment, including but not limited to signage, car parks, access tracks, service provision, geographical and geological hazards, user groups, conflicting activities, and usage. The report also identifies facilities and activities that encourage people to visit the locations.

RLSSA assessed the following in detail:

- Access locations, classifying these as formal or informal access tracks and recommending treatment options.
- Signage that should be implemented in conjunction with an audit of current signage.
- Hazards, potential risks, risk groups, risk scores and treatment options.

- Public rescue equipment that should be implemented, in conjunction with an audit of current public rescue equipment.
- Facilities and points of interest that may attract members of the public to the location.

This report provides treatment recommendations on how to improve risk and safety management in line with current risk management best practice and signage standards. Risk treatments are guiding recommendations only and represent the opinion of RLSSA in relation to water safety at Cotter Recreation Area. Recommendations reflect the observations on the date of inspection. The ACT Government should observe the recommendations of RLSSA over an extended period, to ensure a complete understanding of the Murrumbidgee River and the activities undertaken. The ACT Government should determine which Risk Treatments are implemented to create safer recreational water environments in consultation with key stakeholders.

Situational Analysis

A situational analysis was conducted to develop a broader understanding of the Cotter Recreation Area. The analysis aimed to collect data on how the river and reserves are used, the intended purpose of each site, previous and proposed developments, and previous incident history at the sites. The situational analysis and risk register are limited to observations and information made available to RLSSA at the time of assessment.

Reserve and River Identification

Cotter Recreation Area is located approximately 23kms west of the city of Canberra, ACT and approximately 300km southwest of Sydney, Australia. The Casuarina Recreation Area is located on the banks of the Murrumbidgee River.

The Cotter Recreation Area and surrounding areas feature a tranquil river setting that provides the local community and tourists with various recreational activities and settings throughout all seasons of the year. Some of the recreational activities and features on offer within the Cotter Recreation Area include; childrens play equipment, public amenities, barbeques, picnic areas, camping facilites, walking tracks and trails, swimming, beach access areas, cycling, canoeing, standup paddle boarding, boating, fishing, and special events. The surrounding area is abundant with local fauna, native birds and wildlife that appeal to all visitors.

The geographical scope of this assessment is indicated in the image below:

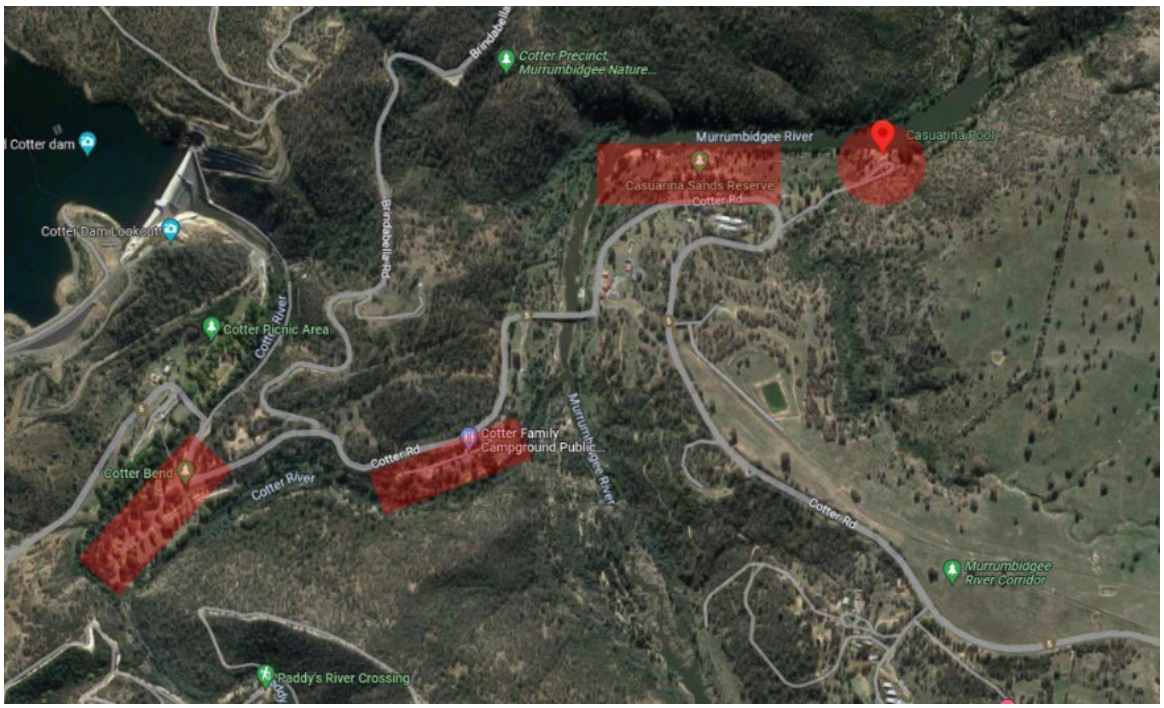


Figure 1 – Cotter Recreation Area - Overview of the Assessment Area

The Murrumbidgee River is a significant waterway that flows through the ACT, as well as New South Wales and Victoria. In the ACT, the river serves as a natural boundary between the territory and New South Wales, passing through the southern region for approximately 65 kilometers.

As the largest river in the ACT, the Murrumbidgee River plays a vital role as a source of water, providing up to 85% of the region's water supply. It also offers various recreational opportunities such as fishing, kayaking, canoeing and swimming. Parks and reserves like Kambah Pool, Pine Island, Uriarra Crossing and Point Hut Crossing include picnic areas and walking trails along the river.

Apart from its functional and leisurely uses, the Murrumbidgee River also serves as a habitat for numerous plant and animal species, including threatened species like the Trout Cod and Murray Cod. The river has been significant in the history of the region, used for transportation, agriculture and industry. It was also a significant site for early European exploration in the area.

The river is crossed by several bridges in the ACT, including the iconic Cotter Dam Bridge located at the site of the Cotter Dam. The Murrumbidgee River is also part of the wider Murray-Darling Basin, a crucial area for agriculture and the environment that covers a large part of eastern Australia. Moreover, the river holds great cultural and historical importance for local Indigenous communities, who have lived in the region for thousands of years, making it an integral part of their heritage and culture.

Cotter River is a river located in the ACT. The river flows from it's source in the Brindabella Ranges, through the Cotter River Valley and eventually into the Murrumbidgee River. The Cotter River is an important source of water for the ACT, with the Cotter Dam located on the river.

The Cotter Dam is a large concrete dam that was completed in 1912 and has been expanded several times. The dam is a major source of water for the ACT, and also provides recreational opportunities such as fishing, swimming and picnicking. The area surrounding the Cotter River and Cotter Dam is a popular destination for outdoor activities such as hiking, bushwalking and camping.

In addition to its practical uses, the Cotter River is also a significant cultural and spiritual site for the Ngunnawal people, who have inhabited the region for tens of thousands of years. The Ngunnawal people have a deep connection to the land and waterways in the area, and the Cotter River is an important part of their history and culture.

Cotter Recreation Area - Zone Description	GPS Overhead Zone Mapping Image
Zone 1: Casuarina Pool On the banks of the Murrumbidgee River lies Casuarina Pool, a well-known swimming destination that can be found to the east of Casuarina Sands reserve. This picturesque spot is perfect for picnics, fishing and launching kayaks or canoes. It features a shaded beach on the river, as well as a carpark and toilet facilities for the convenience of visitors.	 *Image Ref: Google Maps*

Cotter Recreation Area - Zone Description	GPS Overhead Zone Mapping Image
Zone 2: Casuarina Sands Reserve Situated along the banks of the Murrumbidgee River, Casuarina Sands is an idyllic destination for picnics, swimming, fishing and launching kayaks or canoes. The location features a variety of amenities, including shady riverside beaches, a playground, electric barbecues, picnic tables and shelters and toilets. With its panoramic 360-degree views of the surrounding hills, Casuarina Sands offers a fantastic vantage point to fully appreciate the natural beauty of the Cotter Recreation Area. Additionally, Casuarina Sands marks the starting point of the Murrumbidgee Discovery Track, a 27-kilometre trail that offers visitors an immersive experience of the region's breathtaking landscapes.	 *Image Ref: Google Maps*
Zone 3: Cotter Family Campground Located at the confluence of the Cotter River and Murrumbidgee River, Cotter Campground offers a picturesque setting for campers. The campground accommodates various camping styles, from swags to camper-trailers and large vans, and is also wheelchair accessible. Visitors can enjoy the provided amenities, including electric and gas barbecues, fireplaces, shelters and picnic tables, as well as hot showers, potable water, flushing toilets and dishwashing facilities. In addition to these conveniences, Cotter Campground also provides easy access to a range of outdoor activities, such as walking tracks, fishing, swimming, and canoeing.	 *Image Ref: Google Maps*

Cotter Recreation Area - Zone Description	GPS Overhead Zone Mapping Image
Zone 4: Cotter Bend The Cotter Bend is the point where the Paddys River and Cotter River converge, creating a spacious pool and sandy beach. Paddys River originates from the north of Mount Tennent near Tharwa, and it's clear, fresh waters beautifully complement those of the Cotter River at this picturesque spot. Visitors to the Cotter Bend can take advantage of the ample grassy areas that provide shade on sunny days. The location is perfect for swimming, splashing and fishing. Electric barbecues and toilets are readily available for campers and visitors.	 *Image Ref: Google Maps*

Land/Water Manager, and other Key Stakeholders

ACT Government

The ACT is managed by a self-governing local government headed by the Chief Minister and a unicameral Legislative Assembly with 25 elected members. The government is responsible for providing a range of services and infrastructure to residents and visitors, including health, education, transport, housing, environment, planning, and local parks and recreational facilities. It also collaborates with the Australian Government to administer federal programs and services effectively within the territory.

The ACT Government is committed to promoting a sustainable and inclusive community and encourages public participation in decision-making processes. Its aim is to provide high-quality services and infrastructure that meet the needs of the community, including the Cotter Recreation Reserve community and the wider area, which has an estimated population of 456,652.

The Cotter Recreation Reserve is considered a regional-level facility and the government provides a reasonably high level of maintenance services, including gardening, mowing, rubbish collection, cleaning of public amenities, playground safety inspections and repairs. A roving maintenance team is responsible for carrying out these activities.

Moreover, the ACT Government manages the water quality monitoring program for Cotter River. Water samples are collected and tested monthly and records are kept within the

government's Water Quality Data Management Software to ensure that the water quality is safe for visitors to enjoy.

ACT Parks and Conservation

The ACT Parks and Conservation Service is a government agency responsible for managing parks, reserves, and conservation areas in the ACT. The agency's mandate is to protect and conserve the ACT's natural and cultural heritage, including its parks, reserves, forests, and waterways.

The ACT Parks and Conservation Service is responsible for a range of activities, including:

- Managing the ACT's national parks and nature reserves, including the management of visitor facilities, walking tracks and campgrounds.
- Implementing conservation programs to protect threatened species and ecosystems.
- Undertaking research and monitoring of the ACT's natural and cultural heritage.
- Developing policies and strategies for the sustainable management of the ACT's natural and cultural resources.
- Providing education and interpretation services to help visitors understand and appreciate the ACT's natural and cultural heritage.
- Working with other agencies and stakeholders to ensure the sustainable management of the ACT's natural and cultural resources.

Overall, the ACT Parks and Conservation Service plays an important role in protecting the natural and cultural heritage of the ACT and ensuring that these resources are managed in a sustainable and responsible manner.

Population, Tourism and Visitation

Population, tourism, and site usage data are important considerations when evaluating and predicting visitation trends. Increased visitation to the river and lake under assessment relates to an increase in the probability of an event occurring and should be considered when determining suitable risk treatment options.

Visitation analytics relevant to the site under assessment are not only useful for estimating future planning, environmental conservation, and commercial revenue, but they can also assist with public safety and education. Collecting and analysing visitation data such as visitor demographics (international/domestic tourists, locals); reason for the visit; activities undertaken; frequency of visit/s; and average time spent at/on the river, may help identify appropriate risk treatment strategies to improve visitor safety in, on, and around the water.

The following tables give a snapshot of the population growth, domestic and international overnight visitors, domestic day-trippers within the ACT.

Total Population: Canberra

Year	Population (ERP)	Growth to 2022	% Growth to 2022
2001	308,764	124,986	
2012	371,065	62,685	
2017	398,785	34,965	
2022	433,750	NA	23.3%

***Table 1** – Total population – Persons, Australian Bureau of Statistics*

Estimated Resident Population (By Age Group): Canberra

Description	2016	2018	2021
Persons aged 0-4	11,531	14,780	13,925
Persons aged 5-14	22,585	26,810	29,026
Persons aged 15-24	27,629	29,910	30,834
Persons aged 25-34	29,169	34,557	39,343
Persons aged 35-44	26,261	31,044	34,170
Persons aged 45-54	27,001	25,885	27,624
Persons aged 55+	51,879	45,334	48,955

***Table 2** – Estimated resident population – Persons, Australian Bureau of Statistics*

School Attendants

Type of educational institution attending	Canberra	Australian Capital Territory
Preschool	2,165	8,841
Primary	9,509	38,255
Secondary	7,872	27,966

***Table 3** – Type of educational institution attending, All People (Census 2021), Australian Bureau of Statistics*

Country of Birth (Top Responses)

Country	Canberra	Australian Capital Territory
Australia	96,546	306,896
England	5,037	13,245
China	4,713	12,149
India	3,608	17,203
New Zealand	1,874	5,122
United States of America	1,647	3,371

***Table 4** – Country of Birth (Top Responses), All People (Census 2021), Australian Bureau of statistics*

Language Used at Home (top responses other than English)

Language	Canberra	Australian Capital Territory
Mandarin	5,528	14,397
Nepali	1,500	5,859
Vietnamese	1,478	5,028
Cantonese	1,401	4,230
Spanish	1,248	4,122

Table 5 – Language used at home, top responses (other than English), All People (Census 2021), Australian Bureau of Statistics

Internal and Overseas Migration: Canberra

Description	2017	2018	2019	2020
Internal arrivals	660	600	-190 (net loss)	-700 (net loss)
Overseas arrivals	3,964	10,920	9,800	9,500

Table 6 – Internal and Overseas Migration, Australian Bureau of Statistics

Speaks a Language other than English at Home: Canberra

Description	2011	2016	2021
Speaks a language other than English at home (%)	5.0%	5.7%	6.6%

Table 7 – Speaks a Language other than English at Home (Census), Australian Bureau of Statistics

Tourism Visitor Summary for Canberra

Year	International Visitor Numbers	Domestic Overnight Visitor Numbers	Domestic Day Visitor Numbers
2020/21	4,000	1,700,000	1,400,000
2019/20	39,000	1,700,000	1,700,000
2016	242,975	2,750,000	1,950,000

Table 8 – Tourism In the ACT, Tourism Research Australia International & National Visitor Surveys.

Tourism Visitor Summary for Canberra (2019/2020)

Reason for Visit	International Visitors	Domestic Overnight Visitors	Domestic Day Visitors
Holiday	43%	23%	38%
Visiting friends or relatives	33%	42%	21%
Business	13%	28%	19%
Other	11%	7%	23%

Table 9 – Tourism In the ACT, Tourism Research Australia International & National Visitor Surveys

By reviewing Census data, combined with research conducted by RLSSA on drowning, the ACT Government may be able to profile match high risk user groups, which will assist in developing future drowning prevention and water safety strategies.

Cultural Diversity

Based on the 2021 Census data, the ACT has a diverse cultural population across the territory. As the capital city of Australia, the ACT attracts people from all over the world, who come to work, study or live in the region. Given the growing population, it is crucial to employ a variety of approaches to enhance water safety knowledge and skills, and to ensure that the residents have access to secure environments for swimming and water safety activities.

People may come from countries or families where their interaction in and around water has largely been for work, everyday life, household activities or religious ceremonies and not for leisure, as is the norm in Australia.

Additionally, there may be a gap in understanding of swimming and water safety skills and knowledge between children born and growing up in Australia, and their parents, who may have had less exposure or opportunity to engage with aquatic locations and activities.

Research has reported that adult migrants know the importance of swimming and water safety lessons for their children however, many adults do not prioritise swimming for themselves, especially if they are already paying for their children to attend lessons.

It is therefore important the ACT Government raise awareness and knowledge of water safety education for all communities and ensure that everyone can access and understand safety messages.

Facility Visitation Rate – Calculation

The Facility Visitation Rate (FVR) is a quantitative assessment system developed by State-wide Mutual as 'Best Practice' for Signage as Remote Supervision (2007). The FVR can be used by Local Government to determine the most appropriate signage schedule for a facility (venue or location).

The FVR is calculated using data collected during the assessment process and includes site population use and frequency of use. Since the FVR calculation is used to determine aquatic recreational warning signage requirements, the figures used are those of the peak period of river usage.

The following information is used to calculate the FVR:

1. Stakeholder observation, consultation, and feedback
2. Historical statistical data
3. Observational data collected during the site assessment; (observational data should be collected during peak summer period).

The Facility Visitation Rate is calculated using the following formula:

- **Facility Visitation Rate = (Development x Population) + Frequency**

Development* = the level of facilities and infrastructure that exist within or about the facility.

Population = the average number of people that use the facility at any point in time**.**

Frequency = the number of times that the facility is used by patrons**.**

Using this formula, a FVR rating of **24** was devised for the assessed site.

Name of Site	FVR
Cotter Recreation Reserve	24

*Note: *Development ratings were calculated with reference to appendix B on page (pg.72).*

FVR	General Sign Description	Location
2-3	No sign required	
4-6	The sign should contain: • The name of the facility • A general warning message • All Council regulations that apply to the facility should appear on the sign as prohibition pictograms • Any information symbols relevant to the facility NB. Given the low rating of or absence of risk the sign does not require the depiction of warning symbols.	A sign should appear in a prominent position within the facility.
7-10	The sign should contain: • The name of the facility • A general warning message • All Council regulations that apply to the facility should appear on the sign as prohibition pictograms • Any information symbols relevant to the facility • All potential hazards identified within the facility that have a risk rating of HIGH should appear on the sign as warning symbols. If no HIGH's, then the top hazard should appear.	A sign should appear at all entrances to the facility provided by Council.
11-15	The sign should contain: • The name of the facility • A general warning message	A sign should appear at all entrances to the

	• All Council regulations that apply to the facility should appear on the sign as prohibition pictograms • Any information symbols relevant to the facility • All potential hazards identified within the facility that have a risk rating of HIGH should appear on the sign as warning symbols. If no HIGH's, then the top two hazards should appear.	facility provided by Council.
16-20	The sign should contain: • The name of the facility • A general warning message • All Council regulations that apply to the facility should appear on the sign as prohibition pictograms • Any information symbols relevant to the facility • All potential hazards identified within the facility that have a risk rating of HIGH should appear on the sign as warning symbols. If no HIGH's then the top three hazards should appear.	A sign should appear at all entrances provided by Council to the facility. Consideration should be given to placing signs in other areas of high use.
20-26	The sign should contain: • The name of the facility • A general warning message • All Council regulations that apply to the facility should appear on the sign as prohibition pictograms • Any information symbols relevant to the facility • All potential hazards identified within the facility that have a risk rating of HIGH should appear on the sign as warning symbols. If no HIGH's, then the top four hazards should appear.	A sign should appear at all entrances provided by Council to the facility. Consideration should be given to placing signs in other areas of high use.
27-30	Council should consider full time supervision whilst the facility is occupied, as well as the display of warning symbols. The level of risk is such that the installation of a sign alone warning people of the hazards would not be the most appropriate risk reduction technique. A combination of both supervision and signage is the most appropriate approach. Whatever level of supervision Council elects, the supervisory body must be experienced and trained for the activity.	In addition to supervision consideration should be given to placing signs at the entrance and in other highly visible areas within the facility.

Proposed Developments

Specific information associated with existing and future development plans for Cotter Recreation Reserve was not made available to RLSSA during the situational analysis.

Any existing and future development plans should consider the impact of increased visitation usage and public safety around the aquatic environment. Possible treatment options such as water safety advocacy campaigns, accessible rescue/communication equipment and water safety signage should be considered part of the planning process.

Incident History

The recently released RLSSA report, *Drowning in Rivers, Creeks, Lakes and Dams – A 10 Year Analysis 2011/2012 to 2020/2021,* found 2726 people fatally drowned in Australia between 2011/12 – 2020/21. 34% or 924 of those drowning deaths were at an Inland Waterway, (a river, creek, lake or dam).

The following summary relates specifically to the ACT.

- 15 drowning deaths occurred in Inland Waterways, accounting for 63% of total drowning deaths in the ACT
- 93% were male
- 20% were aged 18-24 years
- 27% were aged 45-54 years
- 87% occurred in the afternoon 12:01pm – 6:00pm
- 67% occurred in Summer
- 54% were swimming and recreating at the time of the incident
- 73% occurred in a River (53% in the Murrumbidgee River)
- 27% occurred in a Lake/Dam
- 67% of drowning deaths occurred 0-20km from where the person lived.

Past incident history is not always indicative of future incident prediction. However, a review and assessment of incident data may identify environmental trends which may encourage/discourage recreational activities; impact hazard/risk perception and risk-taking behaviour; identify higher-risk conditions for types of localities and specific ‘Black spot’ locations; and provide a quantifiable measure of the effectiveness of the current and proposed safety systems for Cotter Recreation Reserve.

Flood History

The Murrumbidgee River corridor in Canberra, Australia has a history of flooding, with several significant flood events occurring over the years.

The ACT Government has implemented several measures to mitigate the impact of flooding in the Murrumbidgee River corridor, including constructing levees and floodways and regulating development in flood-prone areas.

Specific information relating to flood levels and damage sustained at Cotter Recreation Reserve was not made available to RLSSA during the situational analysis.

Considering the region's vulnerability to flooding, any proposed upgrades to the reserve and foreshore areas must consider future flood events from both a safety and financial perspective.

Existing Safety Controls and Education Campaigns

Safety measures such as signage, supervision, public rescue, communication equipment, and community engagement are essential to the success of water safety management. The following information summarises existing safety controls and education campaigns implemented by ACT Government for Cotter Recreation Reserve.

Signage System

ACT Government has installed a water safety signage system across Cotter Recreation Reserve with the aim of imparting specific site information to the public. The water safety signage for both sites identify the hazards, associated risks and information needs of potential and actual patrons visiting the sites. During the situational analysis, it was unclear what process ACT Government took to determine the signage needs for Cotter Recreation Reserve. Furthermore, no information was provided to RLSSA regarding asset management or routine inspections of the signage systems.

The following table, on the pages following, provides a summary of existing safety signage.

Casuarina Pool	Sign Information
	**Sign Type:** Public Access **Latitude:** 35.31943 **Longitude:** 148.95858 **Location Description:** Adjacent to Casuarina Pool carpark. **Siting Information:** Above 1500mm clear visibility. **Emergency Identification Number or Address**: Nil **Hazards**: Strong Currents, Shallow Water, Submerged Objects, Deep Water, Slippery, Uneven Ground, Steep Access, Wildlife. **Regulations:** Nil **Information: Additional Symbols/ Information:** Warning message which outlines; 'Be advised that there are no lifesaving services, facilities or resource is available at this location. Visitors intending to swim are reminded that although your well-being is our concern, it is your responsibility please take care.' Warning message which outlines; 'Nearest emergency phone is located on toilet block at Casuarina Sands BBQ area'. Public Notice – 'Rivers may look safe but are often dangerous. Cold water in rivers can be lethal. Watch the flow! Flying water is stronger than you may think. Check for submerged objects. Never dive into any part of the river. Always supervise children'.

Casuarina Pool	Sign Information
	**Sign Type:** Public Access **Latitude:** 35.31966 **Longitude:** 148.95826 **Location Description:** Adjacent to Casuarina Pool carpark. **Siting Information:** Above 1500mm clear visibility. **Emergency Identification Number or Address**: Nil **Hazards**: Strong Currents, Shallow Water, Submerged Objects, Deep Water, Slippery, Uneven Ground, Steep Access, Wildlife. **Regulations:** Nil **Information: Additional Symbols/ Information:** Warning message which outlines; 'Be advised that there are no lifesaving services, facilities or resource is available at this location. Visitors intending to swim are reminded that although your well-being is our concern, it is your responsibility please take care.' Warning message which outlines; 'Nearest emergency phone is located on toilet block at Casuarina Sands BBQ area'.

Casuarina Pool	Sign Information
	**Sign Type:** Public Access **Latitude:** 35.319291 **Longitude:** 148.959242 **Location Description:** Adjacent to Casuarina Pool boardwalk. **Siting Information:** Above 1500mm clear visibility. **Emergency Identification Number or Address**: Nil **Hazards**: Strong Currents, Shallow Water, Submerged Objects, Deep Water, Slippery, Uneven Ground, Steep Access, Wildlife **Regulations:** Nil **Information: Additional Symbols/ Information:** Warning message which outlines; 'Be advised that there are no lifesaving services, facilities or resource is available at this location. Visitors intending to swim are reminded that although your well-being is our concern, it is your responsibility please take care.' Warning message which outlines; 'Nearest emergency phone is located on toilet block at Casuarina Sands BBQ area'.

Casuarina Sands Reserve	Sign Information
	**Sign Type:** Public Access **Latitude:** 35.320094 **Longitude:** 148.954930 **Location Description:** Entry gate to Casuarina Sands Reserve carpark. **Siting Information:** Above 1500mm clear visibility. **Emergency Identification Number or Address**: Nil **Hazards**: Strong Currents, Shallow Water, Submerged Objects, Deep Water, Slippery, Uneven Ground, Steep Access, Wildlife. **Regulations:** Nil **Information: Additional Symbols/ Information:** Warning message which outlines; 'Be advised that there are no lifesaving services, facilities or resource is available at this location. Visitors intending to swim are reminded that although your well-being is our concern, it is your responsibility please take care.' Public Notice – 'Rivers may look safe but are often dangerous. Cold water in rivers can be lethal. Watch the flow! Flying water is stronger than you may think. Check for submerged objects. Never dive into any part of the river. Always supervise children'.

Cotter Campground	Sign Information
	**Sign Type:** Public Access **Latitude:** 35.32541 **Longitude:** 148.94856 **Location Description:** Cotter Campground carpark. **Siting Information:** Above 1500mm clear visibility. **Emergency Identification Number or Address**: Nil **Hazards:** Nil. **Regulations:** Fishing Prohibited, Fire Prohibited, Camping Prohibited, Dogs Prohibited **Information: Additional Symbols/ Information:** Sign identifies areas where; Swimming Permitted, Canoeing Permitted. Swimming Public Notice – "Crystal Clearwater and sandy beaches make swimming one of the most popular activities at The Cotter during summer. Visitors intending to swim are reminded that although your well-being is our concern, it is your responsibility. Please note that there are no lifesaving services, facilities or resource is available. Please observe swimming safety signage and take care".

Cotter Campground	Sign Information
	**Sign Type:** Public Notice **Latitude:** 35.32855 **Longitude:** 148.948035 **Location Description:** Cotter Campground. **Siting Information:** Above 1500mm clear visibility. **Emergency Identification Number or Address**: Nil **Hazards:** Nil **Regulations:** Nil **Information: Additional Symbols/ Information:** Public Notice – 'Rivers may look safe but are often dangerous. Cold water in rivers can be lethal. Watch the flow! Flying water is stronger than you may think. Check for submerged objects. Never dive into any part of the river. Always supervise children'. Public Notice – 'River Closed for Swimming'.

Cotter Campground	Sign Information
	**Sign Type:** Public Access **Latitude:** 35.326336 **Longitude:** 148.947678 **Location Description:** River foreshore, Cotter Family Campground. **Siting Information:** Above 1500mm clear visibility. **Emergency Identification Number or Address**: Nil **Hazards**: Strong Currents, Shallow Water, Submerged Objects, Deep Water, Slippery, Uneven Ground, Steep Access, Wildlife. **Regulations:** No Camping **Information: Additional Symbols/ Information:** Warning message which outlines; 'Be advised that there are no lifesaving services, facilities or resource is available at this location. Visitors intending to swim are reminded that although your well-being is our concern, it is your responsibility please take care.' Warning message which outlines; Flash Flooding Zone, No Camping.

Cotter Campground	Sign Information
	**Sign Type:** Public Access **Latitude:** 35.32554 **Longitude:** 148.94902 **Location Description:** River foreshore, Cotter Family Campground. **Siting Information:** Above 1500mm clear visibility. **Emergency Identification Number or Address**: Nil **Hazards**: Strong Currents, Shallow Water, Submerged Objects, Deep Water, Slippery, Uneven Ground, Steep Access, Wildlife. **Regulations:** No Camping **Information: Additional Symbols/ Information:** Warning message which outlines; 'Be advised that there are no lifesaving services, facilities or resource is available at this location. Visitors intending to swim are reminded that although your well-being is our concern, it is your responsibility please take care.' Warning message which outlines; Flash Flooding Zone, No Camping. Public Notice – 'Rivers may look safe but are often dangerous. Cold water in rivers can be lethal. Watch the flow! Flying water is stronger than you may think. Check for submerged objects. Never dive into any part of the river. Always supervise children'. Public Notice – 'River Closed for Swimming'

Cotter Campground	Sign Information
	**Sign Type:** Public Access **Latitude:** 35.32612 **Longitude:** 148.94814 **Location Description:** River foreshore, Cotter Family Campground. **Siting Information:** Below 1500mm clear visibility. **Emergency Identification Number or Address**: Nil **Hazards**: Flash Flooding **Regulations:** No Camping **Information: Additional Symbols/ Information:** Nil
	**Sign Type:** Public Access **Latitude:** 35.325601 **Longitude:** 148.949046 **Location Description:** River foreshore, Cotter Family Campground. **Siting Information:** Below 1500mm clear visibility. **Emergency Identification Number or Address**: Nil **Hazards**: Flash Flooding **Regulations:** No Camping **Information: Additional Symbols/ Information:** Nil

Cotter Campground	Sign Information
	**Sign Type:** Warning Sign **Latitude:** 35.325484 **Longitude:** 148.949064 **Location Description:** River foreshore, Cotter Family Campground. **Siting Information:** Above 1500mm clear visibility. **Emergency Identification Number or Address**: Nil **Hazards**: Submerged Rocks, Floodway. **Regulations:** No Diving **Information: Additional Symbols/ Information:** Nil

Cotter Bend	Sign Information
	**Sign Type:** Public Access **Latitude:** 35.32654 **Longitude:** 148.94025 **Location Description:** Entry gate to Cotter Bend. **Siting Information:** Above 1500mm clear visibility. **Emergency Identification Number or Address**: Nil **Hazards**: Strong Currents, Shallow Water, Submerged Objects, Deep Water, Slippery, Uneven Ground, Steep Access, Wildlife. **Regulations:** Nil **Information: Additional Symbols/ Information:** Warning message which outlines; 'Be advised that there are no lifesaving services, facilities or resource is available at this location. Visitors intending to swim are reminded that although your well-being is our concern, it is your responsibility please take care.'

Cotter Bend	Sign Information
	**Sign Type:** Public Access **Latitude:** 35.32692 **Longitude:** 148.94037 **Location Description:** Cotter Bend Reserve **Siting Information:** Above 1500mm clear visibility. **Emergency Identification Number or Address**: Nil **Hazards**: Strong Currents, Shallow Water, Submerged Objects, Deep Water, Slippery, Uneven Ground, Steep Access, Wildlife **Regulations:** No Camping **Information: Additional Symbols/ Information:** Warning message which outlines; 'Be advised that there are no lifesaving services, facilities or resource is available at this location. Visitors intending to swim are reminded that although your well-being is our concern, it is your responsibility please take care.' Public Notice – 'Rivers may look safe but are often dangerous. Cold water in rivers can be lethal. Watch the flow! Flying water is stronger than you may think. Check for submerged objects. Never dive into any part of the river. Always supervise children'. Public Notice – 'River Closed for Swimming'

Cotter Bend	Sign Information
	**Sign Type:** Public Access **Latitude:** 35.32819 **Longitude:** 148.93847 **Location Description:** Cotter Bend Reserve **Siting Information:** Above 1500mm clear visibility. **Emergency Identification Number or Address**: Nil **Hazards**: Strong Currents, Shallow Water, Submerged Objects, Deep Water, Slippery, Uneven Ground, Steep Access, Wildlife. **Regulations:** No Camping **Information: Additional Symbols/ Information:** Warning message which outlines; 'Be advised that there are no lifesaving services, facilities or resource is available at this location. Visitors intending to swim are reminded that although your well-being is our concern, it is your responsibility please take care.'

Cotter Bend	Sign Information
	**Sign Type:** Public Access **Latitude:** 35.325883 **Longitude:** 148.939746 **Location Description:** Cotter Bend Reserve walking path. **Siting Information:** Under 1500mm clear visibility. **Emergency Identification Number or Address**: Nil **Hazards:** Submerged Rocks, Floodway **Regulations:** No Diving **Information: Additional Symbols/ Information:** Warning message which outlines; 'Do not cross if water is above bridge; Water may be fast flowing'.

Emergency Equipment

The ACT Government has installed emergency communication equipment at Cotter Recreation Reserve with the aim of providing the visiting public and user groups with immediate access to general emergency equipment.

During the situational analysis, it was not clear what process ACT Government took to determine the type, number, and location of the emergency communication equipment at Cotter Recreation Reserve. Furthermore, no information was provided to RLSSA regarding the asset management/regular inspection process for the rescue equipment.

The following table provides a summary of existing rescue equipment at Cotter Recreation Reserve.

Casuarina Sands Reserve	Equipment Description
	**Equipment Type:** Emergency Phone **Latitude:** 35.319894 **Longitude:** 148.953671 **Equipment Description**: To account for the limited mobile phone reception at Cotter Recreation Reserve, an emergency phone has been installed at Casuarina Sands Reserve. This phone operates using either metal wire or optical fibre for transmission and it is restricted to only allow triple zero calls for emergencies.
Cotter Family Campground	**Equipment Description**
	**Equipment Type:** Emergency Phone **Latitude:** 35.325853 **Longitude:** 148.947932 **Equipment Description**: To account for the limited mobile phone reception at Cotter Recreation Reserve, an emergency phone has been installed at Cotter Family Campground. This phone operates using either metal wire or optical fibre for transmission, and it is restricted to only allow triple zero calls for emergencies.

Hazard Identification and Risk Assessment

A river is characterised as a natural stream of significant water flowing in a definite course or channel/s across the land into the sea or lake. The morphology of a river often relates to factors such as environmental conditions and processes like erodibility, which gives each river its own characteristics.

Many rivers often appear gentle and peaceful and give a false sense of security. Currents, undertows, submerged objects can often go unnoticed when observing from the water's edge. The shape of the river and the length can usually indicate the type of hazards. For example, winds often pick up greater speed over open water areas than in enclosed bays and surrounding protected areas. Currents caused by wind and varying water temperatures can produce unpredictable results in the behaviour of water movement throughout different sections of a river. As water moves through the channels and into inlets such as bay, or cove, the currents generally slow, causing sediments and materials carried by the river to settle, creating turbidly.

River width and gradient play a dominant role in the velocity of water. Commonly narrow river channels allow a faster flow of water. Higher gradients lead to dominance in erosion, particularly of the river bottom. As the gradient decreases, erosion occurs laterally, forming meanders. The erosion of the riverbanks gives each shoreline its characteristics. The more the riverbanks erode, the more the river is affected by inputs from the surrounding land. Eroding riverbanks can cause dislodged rocks, falling trees and branch debris to enter the river providing a source of harm to the unsuspected bather.

These generalised characteristics are a simple snapshot of the overall complex nature and evolving composition of rivers. From this brief summary of generic characteristics of rivers, hazards that become apparent are:

- Currents
- Variable water depths
- Variable water temperatures
- Unstable (eroding) riverbanks and foreshores
- Turbidity
- Submerged objects and obstacles
- Uneven surfaces
- Water quality
- Size of River
- Isolation
- Dangerous marine life

In order to localise generic waterway hazards reflective of the location under assessment, site inspections of Cotter Recreation Reserve were carried out on the 7th, 9th and 10th of

September 2022 by RLSSA. The purpose of each site inspection was to see if the general waterway characteristics outlined above applied to the assessable site and to what extent. Furthermore, the site inspection provided an opportunity to observe additional localised hazards not characterised by the generic waterway description above.

During each site inspection, hazards were identified within the area inspected and assessed in terms of their individual risk to public safety using the risk assessment matrix (Table 1 below). The risk ratings were based on agreed levels of likelihood and consequence for each safety hazard and environmental impact.

Based on the assessment of risk to public safety at Cotter Recreation Reserve should focus on the *Moderate* and *High* risk ratings, which are deemed significant. A hierarchy of controls has been developed to minimise these risks. These include:

Elimination: The most effective control measure involves eliminating the hazard and associated risk. By designing in or designing out certain features, hazards may be eliminated. If it is not reasonably practicable to eliminate a hazard the following control measures should be considered:

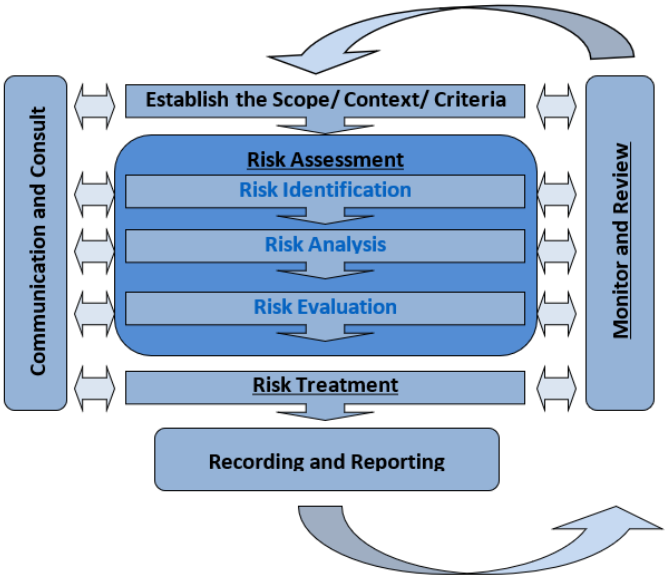
- **Substitution** – Replace a hazardous process or material with one that is less hazardous to reduce the risk (create a path or bridge).
- **Isolation** – Separate the hazard from people, for example by designing the waterfront layout so that sufficient barriers are in place to prevent unintentional entry into the waterway.
- **Engineering controls** – Use engineering control measures to minimise the risk, for example, including adequate lighting around waterfronts and/or reducing the gradient of waterfronts.
- **Administrative controls** – If engineering controls cannot reduce the risk sufficiently, then administrative controls should be used, for example using warning signs or exclusion zones where a hazardous activity is carried out.
- **Personal protective equipment** – For example PFDs, wetsuits, helmets and/or other equipment. PPE is the least effective control measure as it relies on the worker's / user's behaviour and therefore requires thorough training and a high level of supervision to be effective.

		Consequences				
		Insignificant (1) No injuries / minimal financial loss	**Minor (2)** First aid treatment / medium financial loss	**Moderate (3)** Medical treatment / high financial loss	**Major (4)** Hospitable / large financial loss	**Catastrophic (5)** Death / massive financial loss
Likelihood	**Almost Certain (5)** Often occurs / once a week	Moderate (5)	High (10)	High (15)	Catastrophic (20)	Catastrophic (25)
	Likely (4) Could easily happen / once a month	Moderate (4)	Moderate (8)	High (12)	Catastrophic (16)	Catastrophic (20)
	Possible (3) Could happen or known it to happen / once a year	Low (3)	Moderate (6)	Moderate (9)	High (12)	High (15)
	Unlikely (2) Hasn't happened yet but could / once every 10 years	Low (2)	Moderate (4)	Moderate (6)	Moderate (8)	High (10)
	Rare (1) Conceivable but only on extreme circumstances / once in 100 years	Low (1)	Low (2)	Low (3)	Moderate (4)	Moderate (5)

Table 1 – *Risk Assessment Matrix*

The risk framework and descriptors used in this report are based on RLSSA Risk Management Framework and draw on the application of the following Australian-New Zealand and International Standards:

- AS ISO 31000:2018 Risk Management – Guidelines.



It may be necessary for ACT Government to translate these ratings to their own risk management framework in order to align assessed risks with their existing enterprise risk management framework.

Risk Assessment – Cotter Recreation Reserve

RISK REGISTER SUMMARY

A risk register is a table summarising the identified risk. It includes information on the location, why it has been identified as a risk, what current measures/controls (treatments) are in place to lessen the risk and an overall hazard rating. The risk register summary provides a snapshot of identified risks specific to Cotter Recreation Reserve.

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Site Management										
Is swimming promoted at the site by the Land/Water Manager?	✓			The ACT Gov website for Cotter Recreation Reserve permits swimming. Water can pose various risks depending on the context. Drowning: Water can be a significant risk to human life when it is deep enough to cause drowning. This is especially true for non-swimmers and children who do not have adequate water safety skills. Waterborne illnesses: Water can contain harmful bacteria, viruses, and parasites that can cause illnesses like cholera, typhoid, and hepatitis. These pathogens can enter the body through drinking, swimming, or even bathing in contaminated water. Flooding: Excessive water from heavy rain or other natural causes can cause flooding, which can damage homes and other infrastructure. Flooding can also cause landslides and other natural disasters that pose a risk to life and property. Water pollution: Human activities such as industrialisation, agriculture, and waste disposal can contaminate water sources, leading to water pollution. Consuming polluted water can cause serious health problems such as cancer, neurological disorders, and reproductive problems.	Possible (3)	Catastrophic (5)	**High 15**	Weak and Non-Swimmers Inexperienced Swimmers Children Specific User Groups Users with underlining medical conditions or disabilities Tourists CALD User Groups Young Males aged 15 to 29 years of age People aged 18 to 44 years of age	Water Safety Signage System	1. Prohibit/warn against swimming. 2. Identify and implement a passive recreation area for designated swimming at Cotter Recreation Reserve. 3. Investigate the feasibility of a supervision system. 4. Review and update safety signage system at Cotter Recreation Reserve. 5. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 6. Development of a Public Emergency Management/Response Plan Cotter Recreation Reserve. 7. Targeted RLS /ACT Gov Water Safety campaigns and Inland Waterways programs to promote safe behaviour around water within the local community. 8. Investigate the feasibility of additional emergency help points, including rescue equipment, communication system.

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Has a designated swimming area/enclosure been identified		✓		Visitors/bathers can access the Murrumbidgee River from various points along the Cotter Recreation Reserve, this may lead to bathers; - Unintentionally entering deep water resulting in drowning. - Swimmers may be tempted to swim out further than their skill level would normally allow, placing them at greater risk of drowning due to the length and width of the river. - Strong currents may lead to weak swimmers being swept downstream or pulled under the water, leading to swimmer fatigue and drowning or near drowning.	Possible (3)	Catastrophic (5)	**High 15**	Children Young Males (15-29 years) People aged 18-44 years Older People (55+ Years) Swimmers Event patrons/visitors Non/Weak swimmers wading through the water Watercraft users CALD Groups	Water Safety Signage System Public Rescue Equipment	1. Prohibit/warn against swimming. 2. Identify and implement a passive recreation area for designated swimming at Cotter Recreation Reserve. 3. Implement a regular program for checking and removing transitory hazards, mainly if Cotter Recreation Reserve is a recognised swimming location. 4. Investigate the feasibility of a supervision system. 5. Review and update safety signage system at Cotter Recreation Reserve. 6. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 7. Development of a Public Emergency Management/Response Plan Cotter Recreation Reserve. 8. Targeted RLS / ACT Gov Water Safety campaigns and Inland Waterways programs to promote safe behaviour around water within the local community. 9. Investigate the feasibility of additional emergency help points, including rescue equipment, communication system.

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Is water quality data easily available and accessible for the site?	✓			ACT Government manages the water quality monitoring program for Cotter River. Water samples are collected and tested monthly, and records are kept within the government's Water Quality Data Management Software. Health effects of contact with water pollution particularly after rainfall, flooding. Water clarity can be a hazard, and is closely associated with water quality, shallow water, and submerged objects. Water clarity may not pose a significant risk by itself, but it may impede search and rescue, as well as hide submerged objects and shallow water.	Possible (3)	Major (4)	**High 12**	All Water Users	Regular updates via ACT Gov website (Cotter River only) Water Safety Signage System	1. Prohibit/warn against swimming. 2. Extend the regular monitoring and testing of water quality at Cotter Recreation Reserve and along the Murrumbidgee River to help minimise the risk of waterborne illness. 3. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 4. Develop and implement a means of communicating with users about the suitability of water conditions. 5. Development of a Public Emergency Management/Response Plan for Cotter Recreation Reserve which includes management plans for water quality. 6. Investigate adequate measures for closure of the reserve following water pollution notification. 7. Targeted RLS / ACT Gov Water Safety campaigns and Inland Waterways programs to promote safe behaviour around water within the local community.

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Is there a system in place for the management of group hire or event use of the location?			✓	Group gatherings in proximity to water, may lead to children/weak swimmers unintentionally/intentionally entering the river which may lead to aquatic related incidents. Crowding during community events, heatwaves, or public holidays such as Australia Day may increase exposure or the likelihood of exposure to hazards for people visiting Cotter Recreation Reserve. A popular location that is inundated with crowds of people, can become a hazard to safety and may lead to higher risk of injury illness, accidental immersion and/or weak/non swimmers entering water out of their depths.	Possible (3)	Catastrophic (5)	High 15	Children Young Males (15-29 years) People aged 18-44 years Older People (55+ Years) Swimmers Event patrons/visitors Non/Weak swimmers wading through the water Watercraft users CALD Groups	Water Safety Signage System	1. Prohibit/warn against swimming within the hirer agreement. 2. Booking system to include water safety messaging. 3. Visitation management and utilisation of ratios for organised activities at Cotter Recreation Reserve. 4. Investigate the feasibility of a supervision system during planned events and large group gatherings. 5. Review and update safety signage system at Cotter Recreation Reserve, noting the importance of visual and multilingual information. 6. Targeted RLS / ACT Gov Water Safety campaigns and Inland Waterways programs to promote safe behaviour around water within the local community. 7. Develop a Public Water Safety Management Plan Cotter Recreation Reserve, factoring in events and crowd control. 8. Development of a Public Emergency Management/Response Plan for Cotter Recreation Reserve which includes emergency action plans for large groups and events. 9. Hirer provided with a copy of an emergency action plan for the park. 10. Investigate the feasibility of additional emergency help points, including rescue equipment, communication system.
Has a safety management plan been developed for the park/reserve?		✓		Difficultly in raising the alarm, finding and accessing the site which may leading to personal injury/death.	Possible (3)	Catastrophic (5)	**High 15**	All Park Visitors	Water Safety Signage System Limited Emergency Comms Equipment	1. Develop a Public Water Safety Management Plan Cotter Recreation Reserve. 2. Development of a Public Emergency Management/Response Plan for Cotter Recreation Reserve. 3. Investigate the feasibility of additional emergency help points, including rescue equipment, communication system.

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Is a lifesaving service provided at the proposed location?		✓		Public partaking in water-based activities alone/unsupervised and outside of peak times may lead to aquatic-related injuries resulting in drowning. Bystanders attempting to provide assistance, putting themselves and the casualty at risk of personal injury/drowning.	Likely (4)	Catastrophic (5)	**Catastrophic 20**	Weak and Non-Swimmers Inexperienced & Experienced Swimmers Children Users with underlining medical conditions or disabilities Tourists CALD User Groups Young Males aged 15 to 29 years of age People aged 18 to 44 years of age Older People 55+ years of age Users affected by drugs or alcohol	Water Safety Signage System warning - *No Lifesaving Service provided* Limited Emergency Comms Equipment	1. Prohibit/warn against swimming. 2. Develop a supervision strategy for Cotter Recreation Reserve, which considers the deployment of a lifeguarding service. 3. Investigate the feasibility of additional emergency help points, including rescue equipment, communication system.

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Has the ACT Gov promoted water safety awareness and education programs to local members of the community and user groups?		✓		The presence of children and adults of all ages with varying levels of swimming experience/water familiarity may lead to aquatic related injuries. CALD communities can be at higher risk of misinterpreting or misunderstanding risk due to English being a second language (ESL); lack of proficient swimming abilities; variety of understanding with general water safety. CALD groups and tourists unfamiliar with the environment and general water safety. Risk taking behaviour - Person over-estimates their swimming ability. Underestimation of hazards and lack of familiarity with the environment. Risk taking behaviour - Person partaking in water-based activities alone and outside of peak times may lead to aquatic related injuries/drowning. Education and awareness programs for residents and visitors (tourists) alike, have been shown to be effective in controlling risks at aquatic recreation waterways.	Likely (4)	Catastrophic (5)	**Catastrophic 20**	All Park Visitors	Water Safety Signage System	1. Recommend Public education and safety awareness programs outlining known and likely to occur hazards be developed in consultation with RLS and other key agencies/ organisations. 2. Targeted RLS / ACT Gov Water Safety campaigns to promote safe behaviour around water within the local community. 3. Develop a standardised and coordinated drowning prevention campaign and toolkit that can be accessed across the community. 4. Investigate the feasibility of a supervision system during peak periods. 5. Implement a signage strategy that is culturally and linguistically appropriate. 6. Investigate the feasibility of emergency help points, including communication system. 7. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve in consultation with community/CALD groups and leaders. 8. Develop an Emergency Management/ Response Plan for Cotter Recreation Reserve. 9. Develop a standardised and coordinated drowning prevention campaign and toolkit that can be accessed across the community. 10. Promote adult swimming and water safety programs at the local pools. 11. ACT Gov consider investing in subsidised swimming lessons for CALD and at-risk community groups. 12. Disseminate safety information through community groups and tourism operators. 13. Implement water safety messaging across Cotter Recreation Reserve and other popular aquatic locations within the ACT. 14. ACT Gov include water safety messaging across their website/s and park booking systems.

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Access										
Is the site easily accessible? (Appropriate defined pathways and signage).		✓		The reserve is easily accessible however, some sections of the river foreshore, particularly around Cotter Campground and Casuarina Reserve are difficult to access due to erosion and undefined access. Steep banks with a sudden edge pose a risk of accidental falls. Diving from the banks into the water may lead to major injuries/drowning.	Possible (3)	Catastrophic (5)	**High 15**	All Park Visitors		1. Installation of barriers. 2. Removal of any undefined pathways. 3. Prohibit/warn against swimming. 4. Improve access to the water's edge (engineering controls such as defined pathway/steps). 5. Investigate beach (river sand) nourishment. 6. Identify and implement a passive recreation area for designated swimming at Cotter Recreation Reserve.
Are there clearly identified parking areas at the proposed location?	✓			Parking spaces are provided throughout Cotter Recreation Reserve. Participants and families required to park away from the location, during peak times (summer, weekends, events) may lead to vehicle on person collisions causing severe injury or death.	Unlikely (2)	Catastrophic (5)	**High 10**	All Park Visitors	Designated parking spaces provided	1. Consider additional parking spaces in any future planning for Cotter Recreation Reserve. 2. Additional speed limit and shared zone signage installed in carpark areas.
Is pedestrian access separated from vehicle access?		✓		Limited pedestrian pathway provided at Cotter Campground. This may lead to vehicle on vehicle or vehicle on person collision causing severe injury or death.	Unlikely (2)	Catastrophic (5)	**High 10**	All Park Visitors Children		1. Consider additional pedestrian pathways in any future planning at Cotter Recreation Reserve. 2. Review and update speed limit signage at Cotter Recreation Reserve. 3. Implement a signage system that encourages active parental supervision in areas where young children are recreating at Cotter Recreation Reserve.

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Can emergency services access the site easily?		✓		The reserve is easily accessible however, given the accessibility to the river foreshore throughout Cotter Recreation Reserve, some areas may be difficult to access due to steep banks/erosion and undefined access. Current access conditions may lead to a prolonged response in an emergency.	Possible (3)	Catastrophic (5)	**High 15**	Water Users		1. Prohibit/warn against swimming. 2. Identify and implement a passive recreation area for designated swimming at Cotter Recreation Reserve. 3. Improve access to the water's edge (engineering controls such as defined pathway/steps). 4. Investigate beach (river sand) nourishment and installation of barriers to prevent access to the river in certain sections. 5. Develop a Public Water Safety Management Plan Cotter Recreation Reserve. 6. Development of a Public Emergency Management/Response Plan for Cotter Recreation Reserve. 7. Investigate the feasibility of additional emergency help points, including rescue equipment, communication system.
Amenities										
Are appropriate restrooms and changing facilities within proximity of recreational water areas to allow for private dressing?		✓		Insufficient changing facilities provided at the park may lead to unnecessary exposure.	Possible (3)	Major (4)	**High 12**	Bathers Watercraft Users Children		1. Provide appropriate family change facilities in proximity to aquatic recreational areas. 2. Develop a Public Safety Management Plan for Cotter Recreation Reserve. 3. Introduce an Enhanced Enforcement Program with ACT Policing to respond to anti-social and inappropriate behaviour. 4. Development of a Public Emergency Management/Response Plan for Cotter Recreation Reserve. 5. Investigate the feasibility of emergency help points, including rescue equipment and communication systems.

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Are changing facilities fitted with appropriate wash facilities, (which include sinks with soap dispensers, and showers)?		✓		Inadequate changeroom/shower facilities may prevent bathers from removing any cyanobacterial or algal material following river usage.	Possible (3)	Major (4)	**High 12**	Bathers Watercraft Users		1. Provide appropriate family change and wash facilities in proximity to aquatic recreational areas. 2. Investigate the feasibility of outdoor showers and foot wash stations. 3. Implement regular monitoring and testing of water quality at Cotter Recreation Reserve and along the Murrumbidgee River to help minimise the risk of waterborne illness. 4. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 5. Develop and implement a means of communicating with users about the suitability of water conditions on a local level. 6. Development of a Public Emergency Management/Response Plan for Cotter Recreation Reserve which includes management plans for water quality.
Is shade protection provided in proximity to the river foreshore /swimming area? (By way of shelters or existing tree canopies).	✓			Limited picnic shelters are provided at Casuarina Sands and Cotter Bend. Short-term overexposure to UV may lead to sunburn, dehydration and heatstroke. Prolonged UV exposure may lead to serious health issues.	Almost Certain (5)	Moderate (3)	**High 15**	All Users		1. Provide shade structures in proximity to the river foreshore. 2. Installation of SunSmart signage at Cotter Recreation Reserve. 3. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve, with input from the Cancer Council. 4. Targeted campaigns to raise awareness of skin cancer prevention.
Is there access to adequate supply of drinking water (water fountain) in proximity to the designated swimming area to help avoid dehydration and heat-related illnesses?		✓		Short-term overexposure to UV may lead to sunburn, dehydration and heatstroke.	Almost Certain (5)	Moderate (3)	**High 15**	All Users		1. Provide a good-quality drinking water supply at various locations in Cotter Recreation Reserve. 2. Installation of SunSmart signage at Cotter Recreation Reserve. 3. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 4. Targeted campaigns to raise awareness of overexposure to UV.

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Are there signs encouraging active parental supervision in and around child play areas and other amenities such as picnic areas and toilets?		✓		Lack of child supervision around waterways may lead a child to unintentionally enter the river. Unknown persons in the immediate vicinity of the children's play area/reserve attempting to engage with a child not known to them.	Possible (3)	Catastrophic (5)	**High 15**	Children (0-14 years)		1. Installation of Parental Supervision Signage/safety information at Cotter Recreation Reserve, especially around the playground, barbeque/picnic areas, toilet block and river foreshore. 2. Investigate the feasibility of a supervision system during peak periods. 3. Develop a Public Safety Management Plan for Cotter Recreation Reserve. 4. Provide appropriate family change facilities. 5. Introduce an Enhanced Enforcement Program with ACT Policing to respond to anti-social and inappropriate behaviour. 6. Development of a Public Emergency Management/Response Plan for Cotter Recreation Reserve. 7. Investigate the feasibility of emergency help points, including rescue equipment and communication systems. 8. Develop a standardised and coordinated child safety campaign that can be accessed across the community.
Swimming Areas										

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Is the swimming area appropriately separated from watercraft activity (exclusion zones/signage)?		✓		Non-motorised watercraft may collide with a person in the water, submerged obstacle or another watercraft. The risk of a collision is increased in areas where watercraft are operating close to people who are swimming.	Possible (3)	Catastrophic (5)	**High 15**	Children Young Males (15-29 years) People aged 18-44 years Older People (55+ Years) Swimmers Non/Weak swimmers wading through the water CALD Groups Watercraft users	Water Safety Signage System Public Rescue Equipment	1. Separation of swimming and boating/watercraft may necessitate the need for prohibition and/or warning signage advising that swimming is not advised. 2. Identify and implement a passive recreation area for designated swimming at Cotter Recreation Reserve. 3. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 4. Development of a Public Emergency Management/Response Plan for Cotter Recreation Reserve. 5. Discuss possibilities of an enhanced waterways enforcement program with local emergency services. 6. Investigate the feasibility of a supervision system. 7. Review and update safety signage system at Cotter Recreation Reserve. 8. Targeted RLS / ACT Gov Water Safety campaigns and Inland Waterways programs to promote safe behaviour around water within the local community. 9. Investigate the feasibility of emergency help points, including rescue equipment and communication systems.

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Is the swimming area separated from storm water or other potential contamination sources?		✓		The Murrumbidgee River is surrounded by agricultural land. The impacts of agriculture on the river can include Nutrient runoff causing algal blooms; Sedimentation (soil erosion) from agricultural land can cause sediment to enter the river which can cloud the water and reduce light penetration; Pesticides used in agricultural practices can enter the river causing contamination. Poor water quality, particularly after rain fall may affect swimmer's health leading to illness.	Possible (3)	Major (4)	**High 12**	All Water Users	Water Safety Signage System	1. Prohibit/warn against swimming. 2. Implement regular monitoring and testing of water quality at Cotter Recreation Reserve and along the Murrumbidgee River to help minimise the risk of waterborne illness. 3. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 4. Develop and implement a means of communicating with users about the suitability of water conditions on a local level. 5. Development of a Public Emergency Management/Response Plan for Cotter Recreation Reserve which includes management plans for water quality. 6. Investigate adequate measures for closure of the reserve following water pollution notification. 7. Targeted RLS / ACT Gov Water Safety campaigns and Inland Waterways programs to promote safe behaviour around water within the local community.
Is the swimming area prone to flooding?	✓			Persons entering the river during/after flash flooding can expose swimmers to dangers including pathogens which can cause illness, hidden debris below the surface causing collision or entrapment injuries, and unpredictable currents that may lead to drowning.	Possible (3)	Catastrophic (5)	**High 15**	Children Young Males (15-29 years) People aged 18-44 years Older People (55+ Years) Swimmers Non/Weak swimmers wading through the water Watercraft users CaLD Groups	Water Safety Signage System	1. Prohibit/warn against swimming. 2. Develop and implement a means of communicating with users as to the suitability of water conditions. 3. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 4. Development of a Public Emergency Management/Response Plan for Cotter Recreation Reserve. 5. Adequate measures for closure after heavy rainfall/flash flooding. 6. Installation of additional safety signage at Cotter Recreation Reserve, noting the importance of visual and multilingual information. 7. Investigate the feasibility of emergency help points, including rescue equipment and communication systems

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Is the river subject to variable depths (uneven riverbed)?	✓			Direct impact or collision with the riverbed when diving/jumping. Collison or impact with a submerged or partially submerged object when diving/jumping. Person or persons unable to support themselves in the water or recover from a fall. Non/weak swimmers unintentionally enter deep water. People will have less support to keep their heads above water which may increase the risk of drowning.	Possible (3)	Catastrophic (5)	**High 15**	Weak and Non-Swimmers Inexperienced Swimmers Children Specific User Groups Users with underlining medical conditions or disabilities Tourists CALD User Groups Young Males aged 15 to 29 years of age People aged 18 to 44 years of age Older People 55+ years of age Users affected by drugs or alcohol	Water Safety Signage System	1. Prohibit/warn against swimming. 2. Identify and implement a passive recreation area for designated swimming at Cotter Recreation Reserve. 3. Undertake a Bathymetry Survey to map the underwater features of the river. 4. Investigate the feasibility of a supervision system. 5. Review and update safety signage system at Cotter Recreation Reserve, noting the importance of visual and multilingual information. 6. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 7. Development of a Public Emergency Management/Response Plan for Cotter Recreation Reserve. 8. Investigate the feasibility of emergency help points, including rescue equipment and communication systems. 9. Targeted RLS / ACT Gov Water Safety campaigns and Inland Waterways programs to promote safe behaviour around water within the local community.

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Is there a gradual walkable gradient (beach entry) into the swimming area?		✓		A sudden change in water depth can lead to non/weak swimmers finding themselves suddenly in deep water. If an individual does not have the swimming ability to get safely back to shore and unexpectedly find themselves out of their depth, they are at higher risk of drowning. Sudden entry into water may lead to cold water shock.	Possible (3)	Catastrophic (5)	**High 15**	Children Young Males (15-29 years) People aged 18-44 years Older People (55+ Years) Physically Unfit Non/Weak swimmers CALD groups Inexperienced swimmers	Water Safety Signage System	1. Prohibit/warn against swimming. 2. Identify and implement a passive recreation area for designated swimming at Cotter Recreation Reserve. 3. Investigate the feasibility of a supervision system. 4. Review and update safety signage system at Cotter Recreation Reserve, noting the importance of visual and multilingual information. 5. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 6. Development of a Public Emergency Management/Response Plan for Cotter Recreation Reserve. 7. Investigate the feasibility of emergency help points, including rescue equipment and communication systems. 8. Targeted RLS / ACT Gov Water Safety campaigns and Inland Waterways programs to promote safe behaviour around water within the local community. 9. Media campaigns targeting parents and carers to raise awareness and promote prevention strategies/active supervision in and around water.

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Does the foreshore allow for unobstructed visibility to the allocated swimming area?		✓		Obstructions such as steep banks, vegetation and meander riverbanks can limit the ability of park users/public to have a direct line of sight to the water, minimising the chances of recognising a swimmer in distress.	Possible (3)	Catastrophic (5)	**High 15**	Children Young Males 15-29 years People aged 18-44 years Older People 55+ Years Physically Unfit Users with underlining medical conditions or disabilities Users affected by drugs or alcohol Non/Weak swimmers CALD groups Inexperienced swimmers	Water Safety Signage System	1. Prohibit/warn against swimming. 2. Identify and implement a passive recreation area for designated swimming at Cotter Recreation Reserve. 3. Remove trees and shrubs from the foreshore frontage in high visitation areas. 4. Consider a defined access point from carpark to waterfront. 5. Investigate the feasibility of a supervision system. 6. Investigate the feasibility of emergency help points, including rescue equipment and communication systems. 7. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 8. Develop an Emergency Management /Response Plan for Cotter Recreation Reserve. 9. Targeted RLS / ACT Gov Water Safety campaigns and Inland Waterways programs to promote safe behaviour around water within the local community. 10. Media campaigns targeting parents and carers to raise awareness and promote prevention strategies/active supervision in and around water.
Are slopes/banks approaching the water no steeper than 1:5 vertical to horizontal?		✓		Steep banks with a sudden edge pose a risk of accidental falls.	Possible (3)	Moderate (3)	**Moderate 9**	Children Young Males (15-29 years) People aged 18-44 years Older People (55+ Years) Physically Unfit		1. Installation of barriers. 2. Removal of any undefined pathways. 3. Prohibit/warn against swimming. 4. Improve access to the water's edge (engineering controls such as defined pathway/steps). 5. Investigate beach (river sand) nourishment. 6. Identify and implement a passive recreation area for designated swimming at Cotter Recreation Reserve.

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Is the swimming area free of strong currents?		✓		Strong under currents may carry people away into potentially dangerous and unknown situations, leading to drowning.	Possible (3)	Catastrophic (5)	**High 15**	Children Young Males (15-29 years) People aged 18-44 years Older People (55+ Years) Physically Unfit Non/Weak swimmers CALD groups Inexperienced swimmers Watercraft users	Water Safety Signage System	1. Prohibit/warn against swimming. 2. Identify and implement a passive recreation area for designated swimming at Cotter Recreation Reserve. 3. Review and update safety signage system at Cotter Recreation Reserve, noting the importance of visual and multilingual information. 4. Investigate the feasibility of a supervision system. 5. Investigate the feasibility of emergency help points, including rescue equipment and communication systems. 6. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 7. Develop an Emergency Management/ Response Plan for Cotter Recreation Reserve. 8. Targeted RLS / ACT Gov Water Safety campaigns and Inland Waterways programs to promote safe behaviour around water within the local community. 9. Media campaigns targeting parents and carers to raise awareness and promote prevention strategies/active supervision in and around water.
Emergency Equipment										

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Is publicly accessible rescue equipment located in proximity to the swimming area? (At minimum life-ring/floatation device or throw rope).		✓		Delayed emergency response, resulting in serious injury/death. Bystanders attempting to provide in water assistance, putting them and the casualty at risk of personal injury/drowning.	Possible (3)	Catastrophic (5)	**High 15**	Children Young Males (15-29 years) People aged 18-44 years Older People (55+ Years) Physically Unfit Non/Weak swimmers CALD groups Inexperienced swimmers Watercraft users		1. Prohibit/warn against swimming. 2. Investigate the feasibility of additional rescue equipment, including Automatic External Defibrillator (AED), emergency help points, including communication system. 3. Identify and implement a passive recreation area for designated swimming at Cotter Recreation Reserve. 4. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 5. Develop an Emergency Management/Response Plan for Cotter Recreation Reserve. 6. Targeted RLS / ACT Gov Water Safety campaigns and Inland Waterways programs to promote safe behaviour around water within the local community.
Is there an emergency communication system in proximity to public areas? (Duress button or emergency telephone).	✓			Minimal communication systems in place for the reserve, (located at Cotter Campground and Casuarina Sands Reserve). Difficultly in raising the alarm, finding and accessing the site which may lead to personal injury/death.	Unlikely (2)	Catastrophic (5)	**High 10**	All Park and Water Users		1. Prohibit/warn against swimming. 2. Investigate the feasibility of additional rescue equipment, including Automatic External Defibrillator (AED), emergency help points, including communication system. 3. Identify and implement a passive recreation area for designated swimming at Cotter Recreation Reserve. 4. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 5. Develop an Emergency Management/Response Plan for Cotter Recreation Reserve. 6. Targeted RLS / ACT Gov Water Safety campaigns and Inland Waterways programs to promote safe behaviour around water within the local community.
Activity Related										

Hazard Identification				Risk Review					Controls	
Considerations	**Yes**	**No**	**TBC**	**Risk Description** *(What could go wrong)*	**Likelihood**	**Consequence**	**Risk Rating**	**Risk Groups**	**Existing Controls**	**Additional Strategies that may be Adopted to Control Risk**
Is the reserve/public area an alcohol-free zone?		✓		Persons partaking in water-based activities while under the influence of drugs and/or alcohol can increase the risk of drowning by impairing judgement and reaction time, increasing risk-taking behaviour and reducing coordination. Medications can cause drowsiness, affect alertness, and impair reaction time. Illegal drugs can numb the senses, reduce inhibitions and distort the perception of risk.	Likely (4)	Catastrophic (5)	**Catastrophic 20**	Young Males (15-29 years) Older People (55+ Years)	Public Rescue Equipment	1. Restrictions prohibiting alcohol consumption at Cotter Recreation Reserve. 2. Introduce an Enhanced Enforcement Program with ACT Policing to respond to anti-social and dangerous behaviour (e.g., alcohol and drug use). 3. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 4. Development of a Public Emergency Management/Response Plan for Cotter Recreation Reserve. 5. Targeted RLS / ACT Gov Water Safety campaigns and Inland Waterways programs to promote safe behaviour around water within the local community. 6. Installation of appropriate safety signage and active enforcement at Cotter Recreation Reserve, noting the importance of visual and multilingual information. 7. Investigate the feasibility of emergency help points, including rescue equipment and communication systems.
Are areas where fishing is approved appropriately signed?	✓			Cotter Recreation Reserve is a popular fishing spot for locals. Injury to bather caused by fishing line/hook.	Possible (3)	Minor (2)	**Moderate 6**	Children Young Males (15-29 years) People aged 18-44 years Older People (55+ Years) Swimmers Non/Weak swimmers wading through the water	Information Signage	1. Prohibit/warn against swimming. 2. Identify and implement a passive recreation area for designated swimming at Cotter Recreation Reserve. 3. Develop a Public Water Safety Management Plan for Cotter Recreation Reserve. 4. Development of a Public Emergency Management/Response Plan for Cotter Recreation Reserve Foreshore. 5. Prohibition of fishing in designated swimming area. 6. Review and update safety signage at Cotter Recreation Reserve.

Principal Risk Treatments

There are a range of risk treatment options that can be considered for aquatic risk management. The following risk treatments have been developed to reduce the risk of public drownings and aquatic injuries when visiting and undertaking recreational activities at Casuarina Pool, Casuarina Sands Reserve, Cotter Family Campground and Cotter Bend (Cotter Recreation Reserve). The ACT Government should endeavour to adopt the most appropriate risk treatments specific to their capabilities and consult with relevant stakeholders. The principal risk treatments addressing drowning prevention at Cotter Recreation Reserve are listed below.

Establishment of a Public Water Safety Management Plan

A Water Safety Management Plan can provide clear guidance for the effective short and long-term management of public safety around waterways and the management of locations, including infrastructure and naturalised areas, ensuring appropriate public open space and recreational facilities are provided and maintained. Therefore, it is recommended that ACT Government consider developing, implementing, and evaluating a water safety management plan for Cotter Recreation Reserve and any other parks within the ACT Government area that has water frontage/features.

The Management Plan should be developed through broad consultation with all relevant stakeholders. This may include relevant personnel from the local government authorities and regional agencies, emergency services representatives and local safety organisations.

The primary goal of the Public Water Safety Management Plan for ACT Government should be the preservation of life and the prevention of injury.

The plan should allow for:

- Development of a framework for inspections/risk assessments to better understand environmental hazards;
- The identification of sites posing unacceptable risks to public safety with a specific focus on drowning safety; and;
- Supporting the allocation of resources to areas of greatest need to improve water safety within the community;
- Identify and align efforts of stakeholders, including those not yet engaged in the issue;
- Raise visitor and broader community awareness through strategic education and programs;
- The identification of public safety requirements for events that may be held at the reserves;
- Inform research agendas, including identifying gaps in data and interventions;

- Identify responsibilities for inspection and maintenance of infrastructure relevant to the safety of visitors to the river/reserve;
- Identify responsibilities for maintenance for inspection and maintenance of swimming areas;
- Develop criteria for acceptable bathing conditions and water monitoring;
- Identify operating times for the swimming area (seasonal/daily).

Continuous monitoring and review of the Water Safety Management Plan for the ACT Government will ensure that new risks are detected and managed and that action plans are implemented and effectively progressed. Review processes are often implemented as part of the regular management process cycle (and if not, should be), supplemented by major reviews periodically (e.g., annual review).

Establishment of an Emergency Response Plan

It is a reasonable community expectation that an Emergency Response Plan is in place for public spaces. There will always be risks associated with interacting with the natural environment and inland waterways. While a reactive measure and not a proactive measure, a well-planned and rehearsed Emergency Response Plan can significantly minimise the damage incurred if an incident should occur.

It is recommended that the ACT Government prepare emergency response plans for Cotter Recreation Reserve in conjunction with key stakeholders and local emergency services. The emergency plans should be based on a practical assessment of hazards associated with visitor numbers, activities undertaken at the reserves, the environment (river and surrounding reserve) and the possible consequences of an emergency occurring due to those hazards.

The emergency plan should be comprehensive and adaptable to the range of events and visitor numbers. The plan should apply to all potential emergencies that may require evacuation and emergency response to public accidents, including (but not limited to) medical, drowning, missing persons, fire, water contamination and severe weather.

The Emergency Response Plan should include the following:

- Details of the location such as map, street names, GPS coordinates;
- The date when the plan was developed and approved for implementation and each subsequent review date;
- Emergency personnel names and phone numbers;
- Procedures for notifying the land manager, name, and contact details, plus role and responsibilities;
- Emergency Coordinator for the location, roles and responsibilities;
- Emergency notification flow chart;

- Emergency assembly locations, access, and evacuation routes, if gated the names and contact details for all relevant personnel who have access;
- Emergency related equipment such as communications (telephones, alarms etc.), rescue equipment, firefighting, etc;
- Emergency service contact details, which may include fire, police, ambulance, security, ranger/land manager, utilities such as water, communications, gas, and electricity; and
- Emergency procedures, in particular procedures that establish timely and reliable recognition of emergency events and procedures for emergency notification and hierarchy;
- The Emergency Response Plan should be tested and periodically practised, and the plan's existence should be communicated with all relevant stakeholders.

Emergency Response Systems and Equipment

The ability for members of the public to request assistance in an emergency is an important component of a drowning prevention strategy. Therefore, it is recommended that the ACT Government, in consultation with Key Stakeholders, consider technological solutions to address fatal and non-fatal drownings and other public incidents that may occur at Cotter Recreation Reserve. Examples of Emergency Response Systems are:

Smart Technology – which integrates CCTV, microphone capabilities and artificial intelligence. These systems allow for an immediate response (Emergency Service Engagement) during the initial stages of an incident, video surveillance of the water and surrounding area, and PA and siren functions. These systems can also capture visitation data, weather trends, etc.

Publicly Accessible Defibrillators and Monitoring Cabinets - Sudden cardiac arrest (SCA) strikes approximately 30,000 Australians each year. Unfortunately, fewer than 5% survive, often because help cannot reach them in time. Providing access to defibrillators in public areas can significantly enhance survival time.

Housing Publicly Accessible Defibrillators in monitored cabinets ensures the defibrillator is always secure and functional. Monitored cabinets have the ability to constantly monitor the functions of the AED as well as air temperature surrounding the AED. Some cabinets also have surveillance and response-ability, alerting on the deployment of the AED.

Emergency Services Smart Phone Application – *"Emergency +"* is an application developed by emergency services, the federal government and industry partners. The application uses a mobile phone's GPS functionality so callers can provide emergency call-takers with their exact location information. *"Emergency+"* also includes SES and Police Assistance Line numbers as options, so non-emergency calls are made to the most appropriate number.

Geofencing – can be used in an emergency and to promote safety messages and other educational programs/information. Geofencing is a location-based service which uses GPS, Wi-Fi, cellular data, etc, to trigger a pre-programmed action (such as mobile push notifications, trigger text messages or alerts) when a mobile device or radio – frequency identification enters or exits a virtual boundary set up around a geographical location.

Clearly Defined and Designated Swimming Areas

It is recommended that the ACT Government, in consultation with Key Stakeholders, determine the most suitable location/area for recreational swimming to occur as part of the ACT Government Water Safety Management Plan.

As part of the Water Safety Management Plan process, the ACT Government should consider whether to continue promoting recreational swimming at Cotter Recreation Reserve, specifically Casuarina Pool, Casuarina Sands Reserve, Cotter Family Campground and Cotter Bend or deter swimming based on the level of risk. If recreational swimming continues to be endorsed, the ACT Government should look to implement a clearly defined and designated swimming area/s within Cotter Recreation Reserve accompanied by rescue equipment and an emergency communication strategy. The signage systems would also require updating to ensure it reflects information relevant to the designated area/zone of each site.

Clearly defined and designated swimming areas allows for better hazard identification and control, providing an opportunity for safer water recreation. When determining the most appropriate location for recreational swimming, the following must be considered:

The ACT Government Appetite and Risk Tolerance - will help determine the number of swimming locations across the lakes/reserves and the amount of risk the ACT Government are willing to accept.

Anticipated Bather Capacity - (number of bathers/visitors) will help establish appropriate size and infrastructure and ensure sufficient designated recreational space to prevent overcrowding and minimise impacts on current park operations and infrastructure.

Car Parking Availability and/or Access to Public Transport - The defined and designated swimming areas should be easily accessible from car parks or other public transportation areas and should allow emergency services to get as close as possible to the water's edge in the case of a major emergency. Defined access points to the swimming area should be introduced to ensure users enter and exit the area in a safe, controlled manner. Strategically placed public defined access signage should advise of all risks relating to the designated swimming area, allowing users to make an informed decision before entering the water.

Water Conditions - must also be considered when determining a designated swimming area, ensuring currents and water quality have minimal impact on bathers.

Boat and Watercraft Traffic - Clearly defined areas for swimming and boating will significantly reduce the likelihood of a collision between a swimmer and a boat and/or other small craft (e.g., in the lake/reserve). These areas should be reinforced with appropriate visible signage, viewable and legible from both in and out of the water.

River and Reserve Bank and Edge Characteristics - should allow for unobstructed visibility to the allocated swimming area. The foreshore should be a gradual gradient (beach entry) into shallow water, providing safe access for young children and weak swimmers, allowing patrons to wade into their preferred depth. Removal of any sudden drop-offs, steep descents, and potholes should be considered. The entry and lake/reserve floor should be of a material that prevents slipping hazards and improves water clarity. The entry and egress points should be regularly maintained to prevent erosion.

Bathymetry is an essential technique used to measure and map the depth and shape of underwater terrain or topography. It is commonly used to identify suitable swimming sites and ensure that the water depth and terrain is safe for swimming activities. If a designated swimming area/s is identified within Cotter Recreation Reserve, considerations should be given to undertaking a Bathymetry Survey of the proposed area. The data collected during the survey can be used to help identify and remove hazards, determine the placement of buoys, markers, or other safety features to ensure that the water depth is safe for swimming. It is an essential tool for inland water management, safety, and planning.

Installation of Public Amenities

Public spaces should include a mix of amenities that attract people of all ages and genders. They should be designed to promote safety, security, and opportunities for socialising and connecting with nature. Therefore, the ACT Government should consider the feasibility of the following amenities:

- An adequate supply of drinking water (water fountain) is maintained near recreational water areas. Positive measures should also be taken to encourage people to drink water regularly to avoid dehydration and heat-related illnesses.
- The provision of shaded areas within proximity to recreational water areas can also dramatically reduce the incidence of heat stress.
- The provision of appropriate restrooms and changing facilities within proximity of recreational water areas to allow for private dressing and bathing. Sufficient wash facilities, which include sinks with soap dispensers and showers to meet the number of expected water users, should be introduced to allow bathers to remove any cyanobacterial or algal material.

Targeted Public Awareness and Education Strategy

Many visitors to Casuarina Pool, Casuarina Sands Reserve, Cotter Family Campground and Cotter Bend (Cotter Recreation Reserve) would not know that drowning is a significant problem in Australia (and worldwide). Public awareness and behaviour change are crucial if

drowning prevention measures are to be accepted and successful. Therefore, it is recommended that the ACT Government develop and deliver public water safety education/awareness strategies to help change visitors' perceptions and increase awareness of aquatic recreation dangers in and around waterways.

Key factors pertaining to effective education and awareness strategies include:

- Consistency in safety messaging (elimination of confusing/unclear or disparate information).
- Consistency in the method of provision (ongoing information provided at regular locations/times).
- Longevity in the provision of information (ongoing, not a one-off).

The following are suggestions/examples of current strategies used around aquatic environments to assist in public awareness and behaviour change:

Education Programs – these can incorporate various aspects associated with aquatic and recreation activities and are a fundamental component of any drowning prevention strategy. Education programs should promote water safety (such as safety and preventative measures, rescue, and CPR information) across all life stages and should be tailored accordingly.

Advocacy of Swimming and Water Safety Programs at Local Pools - to promote water familiarisation, safety, correct stroke technique and personal development within a safe environment. Classes can target a range of ages and swimming abilities. Particular focus should be given to encouraging older people to test and redevelop their skills in controlled environments.

Multisectoral Collaboration – consists of building and strengthening partnerships with local schools, water safety bodies, media outlets, water management authorities, and tourism sectors to develop and implement water safety education strategies. While not all parties may have drowning prevention as their primary goal, their agendas and activities may nevertheless intersect and help reduce drowning deaths and promote safer aquatic environments.

Education Signage – can provide visitor information pertaining to the site, as well as key water safety information. Education signs should be positioned in areas that are subject to high public exposure. However, they should not be placed in positions where they would compete with formal regulatory or hazardous warning signage.

CALD Community Education - Targeted water safety communication should be delivered to CALD communities. CALD communities can be at higher risk of misinterpreting or misunderstanding risk due to:

- Language and comprehension difficulties, including the ability the understand English warning signs
- The inability to swim; and

- Different understandings of water safety, including when a body of water is considered dangerous.

Community groups may benefit from the delivery of a range of structured and/or informal education programs. These programs would ideally revolve around the acquisition of survival skills, self-rescue skills and skills which enable individuals to rescue others in the safest manner possible whilst minimising any personal risk.

Water Quality

Water quality is of prime importance and must be factored in when recreational swimming is permitted within the inland waterway. Ideally, water clarity should be clear enough for users to estimate the depth, see surface hazards easily, and detect any submerged objects.

Water quality should also be at safe levels to ensure bathers health by reducing waterborne illness. Water quality can be compromised from a blue green algal breakout, which may cause mild to severe health issues, including injury or infections related to ears, nose, skin, and other gastrointestinal issues.

It is recommended that ACT Government continue to monitor and review their current closure communication processes to ensure that visitors are made aware of water conditions at Cotter Recreation Reserve, especially after heavy rain fall, or when there are algal outbreaks.

Provision for Publicly Accessible Rescue Equipment

Although it is preferred that incidents do not occur, it is unrealistic to expect that all incidents can be prevented. In order to minimise the potential of a fatality or permanent disability resulting from a drowning incident, the provision for rescue equipment to be readily available at key locations within Cotter Recreation Reserve should be considered.

It is important to note that if Publicly Accessible Rescue Equipment is introduced into the overall treatment strategies for the four (4) sites, then the equipment must be appropriate for the features and conditions of the aquatic environments. The equipment should be easy to use by members of the public with minimal hesitation and without putting the rescuer's safety at risk.

Additional options for the ACT Government to consider would be the following standard publicly accessible rescue equipment:

Throw Bag Device - a length of floating rope in a bag or container that can be quickly thrown to a casualty in the water. It is most suitable for swift-water and flood rescue in locations such as river mouths, estuaries, and areas where frequent strong currents are present.

Life-Ring - a life-saving device designed to be thrown to a person in the water to provide buoyancy and prevent drowning. In most cases, they are round and brightly coloured (ideally

red and white or orange) and attached to a rescue line which assists in quick casualty retrieval. They come in a range of sizes to meet various aquatic conditions and locations.

Publicly Accessible AED – a type of computerised defibrillator that automatically analyses the heart rhythm in people who are experiencing cardiac arrest. When appropriate, it delivers an electrical shock to the heart to restore its normal rhythm. A publicly accessible AED should be accessible 24/7 in all-weather environments.

Emergency Response System (ERS) - can be positioned in high use/risk areas. Once activated, link to a nominated contact/s, such as local emergency services.

For rescue equipment to be of use in the event of an incident, its availability must be known. It must be identifiable and accessible, and it must be within good working order. This may require the installation of appropriate storage in a prominent location and additional signage.

Publicly Accessible Rescue Equipment Examples

While the above-listed equipment can help with aquatic rescues, it can be costly to repair or replace if stolen or damaged, so budgetary provisions are advisable. Regular inspection of the equipment throughout the year is required and replaced/repaired when necessary.

It should be remembered that public rescue equipment is reactive and not a proactive measure. Public rescue equipment can give patrons a false sense of safety, and in some circumstances, it may not be appropriate. Furthermore, publicly accessible rescue equipment should only be seen as one element of an overall treatment strategy. Therefore, the ACT Government must consider the overall treatment strategy for additional public safety equipment provisions at Cotter Recreation Reserve.

Provision of Supervision

Inland waterways are statistically one of Australia's most dangerous aquatic environments, with 114 deaths occurring in rivers in 2021/22. Therefore, it is important to consider supervision needs as part of the water safety management process for Cotter Recreation

Reserve. Various supervision systems can assist in minimising aquatic risk and should be considered for Cotter Recreation Reserve:

- Full-time comprehensive lifesaving/lifeguard service
- Seasonal lifesaving/lifeguard service
- A flexible demand-based service on a case-by-case basis, (such as events or public holidays).
- Surveillance cameras
- No supervision service, but the provision of safety signs and controlled access.

A parental supervision strategy should also form part of the overall treatment strategy for public safety. Children need to be actively supervised by a parent or guardian when in and around the water. Children under five should always be within arm's reach, and children under 14 should always be in sight. This message should be reinforced on localised signage in and around aquatic areas and in proximity to playgrounds, picnic and barbeque areas abutting waterways.

Systems of Safety Signage

A coordinated approach to signage with strategically placed signs and visible content is an essential part of aquatic risk management. Therefore, it is recommended that a review is undertaken on the current water safety signage system at Cotter Recreation Reserve.

Determining the most appropriate signage around natural waterways is a detailed process that should include assessing the hazards and associated risks which need signage, then determining:

- The classification of sign to be used
- The location and size of the signs
- The mounting height
- The sign height and maximum viewing distance
- The text to support the sign
- The use of single or multiple message signs
- The lighting and illumination where the signage will be located
- The environment where the signage will be located
- The material, construction, and physical properties
- The fixing method of the signs.

The placement of water safety signage needs to be carefully considered allowing the public to make an informed decision when visiting Cotter Recreation Reserve.

Water Safety Signage is a commonly used risk mitigation strategy around waterways. Appropriate signage should allow a person to make an informed decision before undertaking aquatic recreational activities at locations under the landowner's or operator's control.

Water Safety Signage commonly consists of four key components:

1. General Warning Message
2. Prohibition Symbols
3. Warning Symbols
4. Information symbols and messages

Standards Australia has developed guidelines for designing and applying Water Safety Signs and Beach Safety Flags 2416:2010. These signs have been well-researched and evaluated to show very high results in terms of recognition and recall.

The symbols used in this signage schedule are the most current and up to date. However, it is important to note that symbols and publications are reviewed and can be updated, this should be considered throughout the design phase.

General Warning Message
Warns users that hazards may exist at the location/facility and that patrons must take reasonable care for their safety. The general warning message should be within a red-coloured text box with white text. As a matter of practice, landowners and operators should include a general warning message on all signs installed at public recreational facilities.

Warning: Use of this facility may be hazardous.
Please take reasonable care for your safety.

Prohibition Symbols
Are safety signs which aim to prohibit behaviour likely to cause a risk to health or safety. All government Regulations should appear as prohibition symbols. The symbols are depicted by a red circle on a white background, with a red diagonal slash across the prohibited activity or behaviour.

(Example - Prohibition symbol)

Warning Symbols
Are safety signs which indicate a potential hazard, obstacle or condition requiring special attention. The symbols are depicted in a yellow diamond/triangle with a black border and warn the public of the hazard displayed inside the geometric shape.

AS/NZS 2416.1:2010 Part 1, Part 2 and Part 3 Water Safety Signs and beach safety flags display warning symbols within a triangular shape, instead of the traditional diamond shape. Within AS/NZS 2416.1:2010 Part 1, Part 2 and Part 3 Water Safety Signs and beach safety flags the standards make specific reference to allow warning signs within Australia to be depicted with both. The triangle shape has been introduced as the Australian Standard is also now an International Standard and the triangle is more widely used in other parts of the world. Whatever option is chosen by the owner or operator, it is important to ensure that a consistent approach is taken in respect to the message to the public.

(Example - Prohibition symbol)

Information Symbols / Message

Any other comments or instructions that government wishes to appear on the sign should appear either as information or safety messages.

Information should appear on the sign as a white image or words on a blue background.

Safety/Emergency information, such as exits, first aid etc., should appear on the sign as a white image or words on a green background.

(Example - Information Symbol)

(Example - Emergency Symbol)

Supporting Text

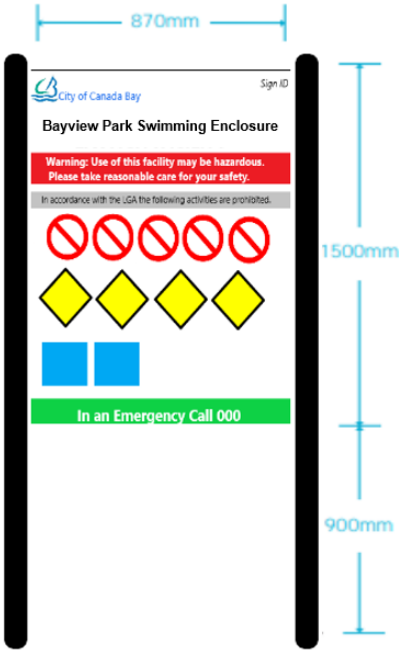
The presentation of information is very important to how people understand and react to water safety signage. It is advisable to use supplementary text alongside symbols. This text should ensure the signs meaning can be clearly read and understood. The positioning of symbols on water safety signage should be given careful consideration as their positioning will also affect how successfully the sign is read and understood. The minimum height of

symbols should take into account the needs of people with normal sight and people with visual impairments.

Mounting Height

The following principles should be applied to assist users of the facilities in predicting the location of successive signs, whether they are mounted on walls or posts.

a) Signs should be mounted as close as practicable to the observer's line of sight in the vertical plane. For a standing adult, this will be approximately 5° up or down from a point 1500 mm above ground level in front of the observer.
b) Signs that are freestanding or mounted overhead should be placed so that they are not a hazard and do not enter into the required space for a clear and accessible path.
c) Where practical, the space in front of the sign should be clear so that people without correction lenses or with visual impairments are able to approach the sign to reduce their viewing distance.



Asset Management

The ACT Government has a responsibility to ensure that all facilities and assets within its jurisdiction are easily identifiable. This includes a unique identifier for each sign structure that corresponds with the government's assessment sheet to facilitate replacement or repair in the event of damage, vandalism or theft. It is important to note that this asset number is not a location or emergency number.

Managing water safety signs is an essential part of the government's risk management approach and requires ongoing inspection and maintenance to ensure that signs remain

effective in warning the public. Signs are often targets of mischief, vandalism or theft, and symbols may need to be updated to comply with relevant standards or to reflect changes in the nature of the facility.

To effectively manage signs, the ACT Government should establish a management system that includes regular inspections and funding for repairs and replacements in an organised and cyclical manner. The ACT Government may choose to incorporate sign management into its public facility management program or establish a separate sign maintenance program with dedicated personnel and resources. It is crucial that funding allocated to sign maintenance is clearly identified and used exclusively for this purpose, to prevent it from being diverted to other competing priorities.

Monitor and Review

Continuous monitoring and review of risks ensure new risks are detected and managed and that action plans are implemented and progressed effectively. Review processes are often implemented as part of the regular risk management process cycle (and if not, should be) supplemented by periodic major reviews (e.g., annual reviews).

Monitoring and reviewing activities link risk management to other management and administrative processes, e.g., capital works plans. This incorporated approach facilitates better risk management and continuous improvement. The primary input to this step is the watch list of the major risks that have been identified for risk treatment action (Risk Register). The outcomes of any review process should be in the form of revisions to the risk register and a list of new action items proposed for risk treatment or funding opportunities for already identified treatment options.

Appendix A - Industry Standards and References

The following references to codes, standards and guidelines are based on the latest available edition at the time of preparation of this safety report.

- **AS/NZS 2416.1:2010** Water safety signs and beach safety flags - Specifications for water safety signs used in workplaces and public areas (ISO 20712-1:2008, MOD)
- **AS/NZS 2416.2:2010** Water safety signs and beach safety flags - Specifications for beach safety flags - Colour, shape, meaning and performance (ISO 20712-2:2007, MOD)
- **AS/NZS 2416.3:2010** Water safety signs and beach safety flags - Guidance for use
- **AS 1319-1994** (R2018) Safety signs for the occupational environment
- **AS ISO 31000:2018** Risk management – Guidelines
- **AS 1657:2018** Fixed platforms, walkways, stairways, and ladders - Design, construction, and installation
- **AS 60601.2.4:2018** Medical electrical equipment - Particular requirements for the basic safety and essential performance of cardiac defibrillators (IEC 60601-2-4:2010 (ED. 3.0), MOD)
- **AS ISO 55001:2014** Asset management - Management systems - Requirements
- **AS 3745-2010** Planning for emergencies in facilities
- **AS 4586-2013** Slip resistance classification of new pedestrian surface materials
- **Australian Water Safety Strategy 2030,** Australian Water Safety Council (2021)
- **Guidelines for Water Safety in Urban Water Developments,** Royal Life Saving Society Australia. (2004)
- **National Drowning Research,** Royal Life Saving Australia
- **Building Code of Australia**
- https://www.abs.gov.au/
- www.parks.act.gov.au
- https://visitcanberra.com.au/
- https://tourism.act.gov.au/insights/research/

Appendix B

Facility Visitation Rating

Table 1 - Suggested development rating for reserves designed as a guide only.

Development Rating (D)	Type of Development at Location	Natural features
1	Virginal bush, cleared land, no infrastructure	No hazardous features
2	Cleared land, static infrastructure e.g., grass area with table and chairs, toilet area, lookout	Sloping ground, no natural water, walking track around Reserve
3	Cleared land with mobile infrastructure e.g., grass area with playground equipment, cycle way, market, leash free dog area	Reserve contains natural waterway that runs during wet weather, drops less than 1 metre
4	Council owned infrastructure with no artificial lighting e.g., golf course, football field, recreational ground, caravan park	Creeks, ponds, and ledges between 1 and 3 metres
5	Extensively developed infrastructure with artificial lighting e.g., sporting complex, artificially lit courts	Contains rivers, dams, and cliffs greater than 3 metres

Table 2 - Suggested population use rating for beaches.

Population Rating (P)	Population Use
1	Less than 5 people at a time
2	5 to 50 people at a time
3	50 to 100 people at a time
4	100 to 500 people at a time
5	Greater than 500 people at a time

Table 3 - Suggested frequency of use rating for beaches.

Frequency Rating (F)	Frequency of Use
1	Annual event or activity
2	Monthly event or activity
3	Weekly activity or event
4	Daily activity or event
5	In use for majority of day

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