



**Australian Water Safety Council**

# Australian Rural and Remote Water Safety Plan 2010-2015

---



Undertaken and funded by the Royal Life Saving Society - Australia



Suggested citation:

Australian Water Safety Council (2010). Australian Rural and Remote Water Safety Plan 2010 to 2015. AWSC, Sydney [Secretariat: Royal Life Saving Society – Australia, PO Box 558, Broadway NSW 2007, Australia]

Acknowledgements:

This production of this plan was undertaken and funded by the Royal Life Saving Society - Australia with contribution from Australian Water Safety Council members. Principal contributors to the development of this strategy were: Dr. Richard Franklin (RLSSA), Amy Peden (RLSSA), Justin Scarr (RLSSA), Matthew Thompson (SLSA) and Norm Farmer (SLSA). Feedback was also received from participants at the 2010 Australian Water Safety Conference.

Australian Water Safety Strategy 2008-2011 Strategic Framework



## Table of Contents

Background.....	5
Diversity of Aquatic Locations .....	5
Issues Identified in the Plan.....	7
Issue 1: Reducing drowning deaths in rural and remote children under five .....	8
Issue 2: Reduce alcohol related rural and remote drowning deaths .....	11
Issue 3: Reduce river related drowning deaths.....	13
Issue 4: Reduce farm related drowning deaths.....	16
Issue 5: Improve water safety knowledge and awareness among Aboriginal and Torres Strait Islander populations.....	18
Issue 6: Extend rural and remote drowning prevention evidence base .....	19
Issue 7: Extend lifesaving services in rural and remote areas known to be of high risk.....	21
Issue 8: Ensuring existing Australian Water Safety Strategy 2008-2011 Goals address rural and remote populations.....	23
References.....	24

## **Development of the Plan**

This Australian Rural and Remote Water Safety Plan (RRWSP) 2010 – 2015 builds upon the Australian Water Safety Strategy (AWSS) 2008-2011 and was developed by the Australian Water Safety Council (AWSC) in collaboration with water safety agencies; organisations working in and for rural and remote people; government; and other groups with an interest in drowning prevention.

This plan seeks to add to those areas of the AWSS 2008-2011 where specific activities / programs / services etc would benefit from a rural and remote perspective, however it also has attempted to add areas where specific work is required in rural and remote areas to achieve the aspirational goal of a 50% reduction in the number of drowning deaths by 2020. The aspirational goal and the goals articulated in this document are not going to be achieved without additional resources being made available to water safety agencies and their partners.

The core of this plan was developed at a meeting in Canberra in September 2009 at Royal Life Saving House with participation from a wide range of organisations. A draft was developed and made available for the 2010 Australian Water Safety Conference, and feedback was provided as part of the conference, which resulted in this version of the RRWSP 2010 – 2015.

## **The Australian Water Safety Council is comprised of:**

Royal Life Saving Society – Australia; Surf Life Saving Society Australia; AUSTSWIM; Australian National Sportfishing Association (ANSA); Swimming Australia Limited (SAL); Divers Alert Network (DAN) Asia-Pacific ; The Child Accident Prevention Foundation of Australia (Kidsafe); Farmsafe Australia; National Marine Safety Committee; Surfing Australia; Australian Leisure Facilities Association (ALFA); Australian Swimming Coaches & Teachers Association (ASCTA); Australian Local Government Association (ALGA); Standing Committee on Recreation and Sport (SCORS)

Information about the Australian Water Safety Council (AWSC) can be found at [www.watersafety.com.au](http://www.watersafety.com.au).

## **Background**

This plan builds upon the Australian Water Safety Strategy 2008-2011 (AWSS) and its goal of reducing rural and remote drowning deaths as part of the overall aim of achieving a 50% reduction in drowning deaths in Australia by the year 2020. This plan specifically addresses the prevention of drowning deaths occurring in rural and remote areas and residents of rural and remote areas who drown away from where they live.

This rural and remote specific plan has been developed in response to Goal 4 of the AWSS – reduce rural and remote drowning deaths and in particular key objective 4.1 of this goal, was to develop and implement a national rural and remote water safety strategy. Other key objectives of this goal such as 4.2 increasing access to tailored water safety programs for people living in rural and remote areas and 4.3 addressing aquatic education instructor shortages in rural and remote areas will be dealt with within this Rural and Remote Water Safety Plan [2].

## **Diversity of populations**

The people who both live in and visit rural and remote locations are a diverse population, covering all age groups, a wide range of occupations, Aboriginal and Torres Strait Islander populations and people from culturally and linguistically diverse backgrounds (CALD).

With such diversity no one program is going to be able to effectively reduce drowning deaths of people living, working and visiting rural locations. This challenge will likely need to be met via a range of strategies targeted at differing population groups; an evidence based approach will be required to ensure both the appropriateness and effectiveness of the programs.

## **Diversity of Aquatic Locations**

Rural and remote Australia has a large diversity of aquatic locations from the farm dam to majestic beaches, rivers / creeks, lakes, lagoons, swimming pools, estuaries, harbours, irrigation channels, water troughs, and water tanks. All form the wide diversity of aquatic locations in rural and remote Australia. These locations are used for both work and recreational activities and provide significant economic opportunity for rural and remote communities.

The wide diversity of aquatic locations, their geographic spread and range of uses provide a unique challenge to ensure the safety of those who use these locations. No one single strategy will be effective and as such it is likely that a range of strategies will be required to ensure the safety of those who frequent rural and remote aquatic locations.

## **Why a rural and remote specific plan?**

Rural and remote populations constitute a large proportion of the drowning deaths in Australia. They also face a range of specific aquatic risks and hazards. A separate plan specifically dealing with reducing rural and remote drowning deaths is essential in addressing both the number of people who drown in rural and remote areas and those risks and hazards that people residing in rural and remote areas regularly face, which increase their risk of drowning.

The need for a specific document was identified in Australian Water Safety Strategy (AWSS) Objective 4.1: ‘...Develop and implement a national rural and remote water safety strategy...’ and this document is the first part of the objective (i.e. the development component).

## Nature and size of problem

In the year to 30 June 2009, there were 302 people who drowned in Australian waterways [3]. The majority were in rivers, the ocean/harbour and at beaches [3]. In the report 'Drowning Deaths – Rural and Remote Australia', which examined rural and remote unintentional drowning deaths between 1 July 2002 to 30 June 2007, there were 1,510 deaths of which 58% occurred outside major cities [4].

In the report only the classifications of outer regional, remote and very remote were used to explore rural and remote drowning deaths. Of the 251 deaths of people residing in these locations, the majority were males with an average age of 39.7 years. For the three regions, the crude drowning rate increased the more remote the location, Queensland accounted for 25% of the deaths, summer was the most common time of the year for drowning deaths and rivers the most common location (however drowning deaths also occurred in a wide variety of other locations such as the ocean, swimming pools, at beaches, in dams, lakes, tanks, and irrigation channels). Using watercraft; swimming, paddling or wading; and walking / playing near water were the three most common activities conducted prior to drowning. A quarter (27.5%) of the people who died were found to have some alcohol or drugs present in their systems, although in nearly half of all cases (43.8%) this information was unavailable. [4]

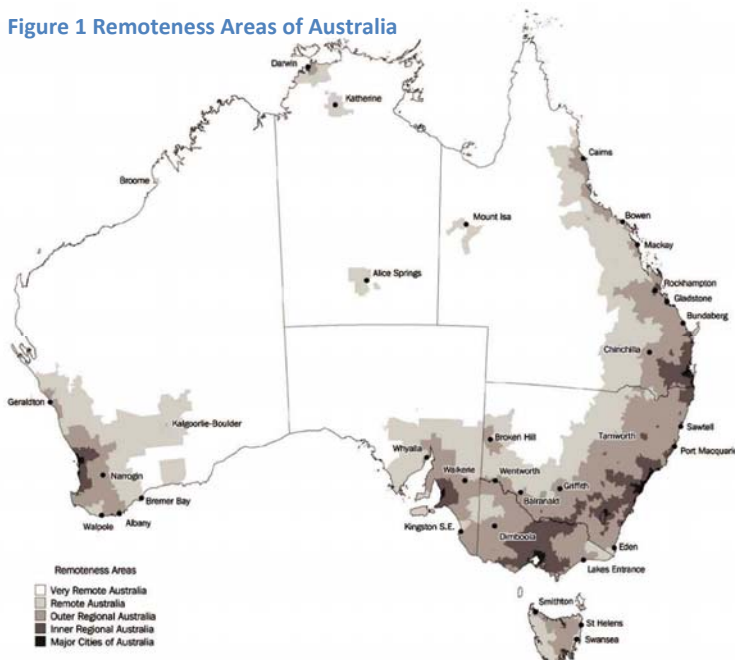
The development of specific programs to address rural and remote drowning death is not new and many organisations already extend existing programs into rural and remote locations [5]. Farmsafe Australia has over many years worked towards reducing all injuries and deaths of children on Australian farms of which drowning is a significant issue [6], specifically in the development of strategies to increase the number of farms who have safe play areas.

This rural and remote plan aims to address the issue of reducing rural and remote drowning deaths by implementing effective prevention strategies. This plan has been developed using the AWSS as a template, with some specific goals from that document included in this plan.

For the plan to be successful it will require commitment from all of the Australian Water Safety Council members; it will need both resources and support from National, State, and Local government; it will require a commitment from people living in and visiting rural and remote areas; and support from businesses, organisations working in and with rural and remote populations, including the education and health systems.

## Defining Rural Areas

Figure 1 Remoteness Areas of Australia



Definition of rural and remote have changed over time from being a measure of distance from a capital city to a measure of accessibility of goods and services, and opportunities for social interaction. A rural area is broadly defined as having restricted or very restricted accessibility and opportunities [7]. In this plan, the ARIA+ (Accessibility / Remoteness Index of Australia) definition was used to classify the location of drowning deaths and the residential locations of people, specifically 'outer regional', 'remote' and 'very remote' locations were used [8][7].

## Issues Identified in the Plan

This 'Australian Rural and Remote Water Safety Plan 2010-2015' does not operate in isolation and has been designed to augment the activities already being undertaken as part of the overall Australian Water Safety Strategy (AWSS) 2008-2011. It is anticipated that this plan will continue on after the current AWSS expires and into the next strategy and around 2015 if appropriate, an enhanced rural and remote plan would be incorporated into the AWSS 2015-2018.

As this document was developed around the AWSS, in its development it reviewed the current goals and used these as the basis for the development of this plan. The issues below reflect those goals or parts thereof considered to be of immediate importance for rural and remote drowning prevention:

- Issue 1: Reducing drowning deaths in rural and remote children under five
- Issue 2: Reduce alcohol related rural and remote drowning deaths
- Issue 3: Reduce river related drowning deaths
- Issue 4: Reduce farm related drowning deaths
- Issue 5: Improve water safety knowledge and awareness among Aboriginal and Torres Strait Islander populations
- Issue 6: Extend rural and remote drowning prevention evidence base
- Issue 7: Extend lifesaving services in rural and remote areas known to be of high risk
- Issue 8: Ensure existing AWSS Goals address rural and remote populations

While all of the Goals in the AWSS 2008-2011 relate to rural and remote populations to differing degrees, the above issues are those considered to be of immediate importance. Appropriate communication to rural and remote populations was considered an important aspect of achieving the 50% reduction in drowning deaths by 2020. As part of the consultation process for this plan it was noted that effective communication needs to have the following elements:

- Defined target audience
- Appropriate messages for each defined audience
- Appropriate engagement strategies for defined audience
- Appropriate partners and models for working together
- Reduction in duplication, use and extension of existing resources
- Consistency in message

It is important for water safety messages to be made as widely available as possible to people living in and visiting rural and remote locations. This will require a multifaceted approach of using main stream media such as television, radio and newspapers as well as other mechanisms such as warning signs and to target audiences from local businesses and other local partners.

What follows is a discussion around the background and nature of the problem, strategies and recommendations for action in each of the eight issue areas listed above.

# Issue 1: Reducing drowning deaths in rural and remote children under five

## Recommendations

- 1.1 Extend awareness and use of safe play areas beyond farms
- 1.2 Increase access to water familiarisation classes in rural and remote locations
- 1.3 Increase use of appropriate Personal Flotation Devices (PFD)
- 1.4 Ensure existing Objectives in 'Goal 1. Reduce Drowning Deaths in Children Under Five' incorporate a rural and remote component
- 1.5 Promote the importance of vigilance and active supervision of children when at water environments

## Background

A disproportionately high number of children under five years die from drowning each year in Australia. The majority of these are in backyard swimming pools, however farm dams for children under 5 have also been found to be a significant issue [9]. To reduce the number of rural and remote drowning deaths, addressing the deaths of rural and remote children under the age of five will be an important component of achieving this overall reduction. This issue area will explore several child drowning prevention strategies already in place and examine what further work needs to be done in this area.

## Nature and size of the problem

In 2008/09 there were 32 drowning deaths among children aged 0-4 years. Sixty percent of these occurred in swimming pools, with home swimming pools being the most dangerous aquatic location for young children [3]. Lakes, dams and lagoons were the second most common location for child drowning deaths [3]. Almost all the children who drowned (84%) drowned after they fell or wandered into the water.

A study in Victoria of child drowning deaths in farm dams found that the following five major factors were common among incidents: stage of child development, absence of carer supervision, child playing outside the house, dam located within 300m of the house, and lack of effective barrier between the child and the dam [9].

## Strategies

The five recommendations that have been identified above and the existing Objective in the AWSS 2008-2011 were to: extend the safe play area concept beyond the farm, increase water familiarisation classes

### Farmsafe Australia's – Child Safety on Farms Checklist

The safety of children on farms is a key concern. To prevent drowning and other injuries to children on farms, Farmsafe Australia has developed a 'Child Safety on Farms' Checklist. This checklist identifies key child injury risks on farms and provides best practice safety recommendations.

The Checklist includes information on Child Safe Play Areas, Farm Motorcycles, Horses, Tractors and Machinery, Farm Vehicles and other hazards such as firearms and chemicals. With respect to water and drowning prevention, the checklist includes such items as 'Do you know how to resuscitate a drowning child?', 'Are swimming pools, effluent ponds, channels or dams near the house securely fenced?' and 'Are tanks, wells and troughs near the house fitted with lids/mesh and are unused dips and ditches filled in?'

For more information or to download the Child Safety Checklist and Safe Play Areas please visit [www.farmsafe.org.au](http://www.farmsafe.org.au)



and increase the use of PFDs. The fourth recommendation highlights the need to ensure existing programs include rural and remote populations when considering restricting children's access to water, strengthening programs, which raise awareness and build supervision skills, and increase CPR knowledge.

The number of children who drowned after they fell or wandered into water, highlights the importance of restricting a child's access to water and supervision, issues that both safe play areas and the Keep Watch @ Farms program address.

Safe play areas should also be considered for those locations near water where children visit. These may include parks, playgrounds, and areas along rivers and should be included as part of an overall risk management plan.

People with young children, or where a house is close to water, should also be encouraged to make the house safer, by providing a safe play area within the house. This should include installing 'child-resistant doorset(s)' and 'child-resistant openable portion of window(s)' as described in Australian Standard AS1926 Swimming Pool Safety. A 'child-resistant doorset' comprises a door, door frame, self-closing device and self-latching device that is designed to provide an access way through the barrier. 'Child-resistant openable portion of window' is where a window is fixed so that it cannot open more than 100mm. [10, 11]

Keep Watch @ The Farm aims to increase parental supervision, restricting the child's access to water, improving the parent's and carer's CPR and rescue skills and having the child participate in water familiarisation lessons. This program is supported via a gate sign to remind people to close the gate to the safe play area.

Personal flotation devices have been proposed for young children who are on, in or near water to provide an added level of safety. This should not be considered in isolation and should be used where there is a specific need to provide a greater level of safety such as when on a boat or where supervising multiple children.

### Further work

In this area there is a continuing need to evaluate existing drowning prevention programs targeting parents and carers of children under 5, particularly their use into rural and remote areas. There is a need to continue to explore parental and carer supervision and how this can be effectively delivered in rural and remote settings.

### Royal Life Saving Society – Keep Watch @ The Farm

The Keep Watch program has been working to prevent drowning in children under five across a variety of locations for over ten years. Keep Watch aims to achieve this through promotion of the four simple actions of active supervision, restricting access to water, water familiarisation and learning resuscitation to parents and carers.

The Keep Watch @ the Farm program specifically promotes child drowning prevention measures suitable for the range of water locations that can be found on farms, such as troughs, dams, irrigation channels, water tanks and swimming pools. Strategies include building child safe play areas close to the home, active supervision of children when around water, using a Keep Watch @ the Farm 'Please Close the Gate' sign to remind yourself and visitors to close the gate to safe play areas and backyard pools, enrolling children in swimming lessons and learning CPR.

Further information on the Keep Watch @ The Farm and other Keep Watch programs can be found on [www.keepwatch.com.au](http://www.keepwatch.com.au)

Continuing to research child drowning deaths and how they can be prevented is vital in ensuring the continual reduction of child drowning deaths, including those in rural and remote areas.

Pool fencing is an effective strategy in the reduction of child drowning deaths in Australia [12] and a Cochrane Review has found pool fencing to be an effective strategy [13] Ensuring rural and remote pool fencing meets Australian Standards is an issue that needs to be explored in greater detail by AWSC members and allied agencies, and will include issues around legislation and regulations as well as regular fence inspection programs .

## Issue 2: Reduce alcohol related rural and remote drowning deaths

### Recommendations

- 2.1 Investigate the role of alcohol in rural and remote drowning, including social and cultural factors
- 2.2 Develop programs that aim to reduce alcohol related drowning deaths in rural and remote areas
- 2.3 Lobby for blood alcohol analysis to be undertaken in all drowning cases

### Background

Alcohol is known to be a risk factor for drowning [14, 15]. The use of alcohol (and illicit drugs) when recreating in, on or around water, lowers inhibitions, impairs judgment and affects coordination and reaction time, which therefore increases a person's risk of drowning or suffering an aquatic related injury [14, 15].

It is estimated that 27% of drowning in rural and remote Australia involves alcohol. However, this is likely to be an under numeration as blood alcohol content information was unknown in 44% of cases. The consumption of alcohol in aquatic settings is also unknown, however according to a report from the ABS the level of risky/high risk alcohol consumption has increased from 8.2% in 1995 to 13.4% in 2004-05 [16]. While it is not clear if this information is geographically specific, this trend is likely to be reflected across Australia as all age groups and both genders had an increase in consumption [16].

There is pressing need to have a better understanding of alcohol consumption, usage patterns and the social and cultural factors around drinking at rural aquatic locations. Also examination of drinking reduction strategies and their appropriateness in aquatic setting and rural setting would better inform program development.

### Nature and size of the problem

A five year study of all unintentional drowning deaths in Australia, found that alcohol was involved in 21.6% of all drowning deaths, though the levels of alcohol found in the blood varied by age of the victim [1]. Due to the number of drowning deaths where blood alcohol was not recorded these numbers are undoubtedly even higher. Research found that a third of all cases in a particular study were missing information on alcohol or illicit drug involvement. It is recommended that blood analysis should be undertaken in all drowning cases [1].

#### Swim Safe, Swim Sober – Royal Life Saving Society NSW Branch

The Swim Safe, Swim Sober study produced by Royal Life Saving Society NSW Branch, provides a statistical description of the burden of alcohol related drowning deaths in New South Wales. Using the National Coroners Information System (NCIS) a total of 517 people drowned in NSW during the 5 year period of the study (2002-2007), 81.2% were male, and just under a third (29%) of these involved alcohol.

People aged 15 to 29 are an at-risk priority group, with the highest number, rate and proportion of alcohol related drowning deaths. The average age of victims was 40.3 years, with oceans, beaches and rivers being the three most common locations for alcohol related drowning deaths. One third (34.2%) of people who drowned with alcohol in their blood had a Blood Alcohol Content (BAC) reading of less than 0.05 and over half had a BAC of over 0.10.

The Swim Safe, Swim Sober report can be obtained from Royal Life Saving Society NSW Branch at [www.nsw.royallifesaving.com.au](http://www.nsw.royallifesaving.com.au)

## Strategies

This issue links with the existing Goal 2 '*Reduce alcohol related drowning deaths, particularly in men aged 18-34*' in the AWSS 2008 - 2011. This issue did not specify a gender or age group to target as there is currently little evidence to be more specific in this area. A report detailing the usage patterns around rural and remote aquatic locations, the social and cultural factors which lead to alcohol use and possible strategies to reduce the number of people who have been drinking alcohol and interacting with water would be of value.

Objective 2.2 in the AWSS 2008-2011 seeks to investigate the role of alcohol in drowning is taken a step further here to ensure that rural and remote issues are explored specifically as either part of this objective or as a separate project.

Alcohol consumption and its influence is not an issue only affecting drowning and aquatic activity and as such any strategies developed will need to link into wider strategies and address those circumstances where they will make a difference (e.g. random breath testing of boat operators). Also when addressing alcohol consumption, examining those interventions that have worked, and why, will be very beneficial.

There is also a pressing need to improve the information collected on drowning deaths around alcohol consumption. In a report on rural drowning deaths in Australia 44% of cases had no information on blood alcohol content and while some of these cases are likely to be children or other cases where there is no need to collect the information, this should be clearly articulated in the coronial files. While not part of this strategy, data linkage information about drowning incidents which did not result in a death, may also help to inform drowning prevention activities.

## Further work

Information about alcohol and its effects should be included in all water safety programs from the youngest (e.g. Swim and Survive and Beach to Bush) to the oldest (e.g. Grey Medallion). Programs targeted at specific age groups and locations should also be considered (e.g. Swim Safe, Swim Sober).

The use of alcohol should be considered as part of any black spot or risk management plan at aquatic locations and subsequent harm minimisation programs.

### Never too young to learn, never too old to start - Grey Medallion Program

Royal Life Saving's Grey Medallion Program is a program that promotes water safety and active participation among people aged 55 years and over. Grey Medallion aims to reduce the drowning rates of older Australians by encouraging healthy, independent and active lifestyles.

The program consists of four main components: Water safety knowledge, resuscitation and emergency care, aquatic exercise and personal survival and lifesaving skills. The Grey Medallion program helps older Australians learn the essential lifesaving skills that could one day save their family members, friends or their own lives.

For more information on the Grey Medallion program visit: [www.greymedallion.com.au](http://www.greymedallion.com.au)

## Issue 3: Reduce river related drowning deaths

### Recommendations

- 4.1 Increase awareness of river related drowning deaths and prevention strategies among residents of rural and remote areas
- 4.2 Increase the use of Personal Flotation Devices (PFDs) by people using watercraft on rivers
- 4.3 Undertake a program to investigate river black spots across Australia
- 4.4 Increase the number of river locations which have had a risk assessment and risk management plan developed
- 4.5 Improve public awareness of the leading causes of flood fatalities, such as crossing flooded waterways and unsafe conduct in floodwaters

### Background

Rivers as a location were identified as an issue in the AWSS 2008-2011 as part of Goal 3 '*Reduce rural and remote drowning deaths*' however there were no objectives in the plan to specifically address drowning in rivers. The need to specifically address river drowning deaths was again highlighted in a study examining five years of drowning deaths across Australia [1] where rivers were the most common location of drowning deaths.

Rivers are complex and the environmental characteristics vary greatly as do the patterns of usage. Unfortunately, there is very little known about drowning deaths in rivers, nor are there many programs being systematically delivered across Australia to educate people about the hazards (such as crumbling banks, shifting river beds, strong currents, submerged objects, variable water depths, increased turbidity and low visibility).

Flooding is the most common natural disaster in Australia and causes more loss of life than any other type of disaster. Travel, particularly the crossing of roadways at times of flood, is a significant contributor to the number of drowning deaths that occur each year. Coastal rivers can also be impacted by tidal and storm surge influences, which can often increase hazardous river conditions.

### Nature and size of the problem

Royal Life Saving's most recent drowning report found that from the period 1 July 2008 to 30 June 2009, there

'Reducing drowning deaths: the continued challenge of immersion fatalities in Australia' – MJA article [1]

A recent article published in the Medical Journal of Australia has found rivers to be the most common location for Australian drowning deaths. The article entitled 'Reducing drowning deaths: the continued challenge of immersion fatalities in Australia' conducted an audit of all unintentional drowning deaths in Australia between 2002 and 2007 using data from the National Coroners Information System (NCIS).

During the five year study period, the audit found 1452 people drowned in Australia, of whom 76.4% were male. The most common location for drowning was rivers (20.3%) compared to beaches (18.3%) and swimming pools (13.3%). Swimming/leisure activities, fishing and watercraft use were the three most common activities undertaken immediately prior to drowning. With a lack of knowledge on effective prevention strategies for river drowning deaths and the diversity of activities undertaken before drowning, further research into river drowning deaths is imperative.

The full text of this article can be found at the Medical Journal of Australia's website: [www.mja.com.au](http://www.mja.com.au)

were 302 drowning deaths in Australian waterways. Of those 76 deaths occurred in rivers (which includes creeks and streams), making it the most common location for drowning [3]. As a vast majority of rivers in Australia are located in areas deemed rural and remote, a specific water safety plan targeting a reduction in rural and remote drowning deaths is vital.

In a five year study by Franklin et al, of all unintentional drowning deaths in Australia, research found that rivers were the most common location for drowning (20.3%), followed by beaches and public or private swimming pools [1].

There are a wide variety of activities being undertaken immediately prior to drowning in rivers. In the National Drowning Report 2009, in 28% of cases the activity was unknown reflecting the high proportion of people who were alone at the time. Common activities included driving, falling-in, swimming / leisure activities, using watercraft, jumping in and undertaking rescues. In the cases of people who drowned when driving, this was often due to driving through flooded roadways. The time of flooding is a time of increased risk and a recent study found 73 people died as a direct result of flooding with just under half (49%) of these related to motor vehicle use [17].

## Strategies

While there are a wide range of possible strategies that could be used to address drowning deaths in rivers, in the short term it was decided to concentrate on awareness raising strategies aimed at users of rivers including watercraft and fishing activities.

PFDs are only one aspect of ensuring less drowning deaths on rivers however strategies can be implemented quickly and supported by other methods such as improving licensing, standards and random breath testing.

Black spots as a strategy have been used effectively in addressing road fatalities and drowning deaths at beaches. The black spot objective involves identifying where black spots exist, increasing people's awareness of where the black spots are, developing strategies to reduce the possibility of drowning at a black spot, and improved risk management approaches based on information collected on black spots for all river locations. Improving the evidence base for prevention of drowning deaths in rivers at specific locations and preparing people for safe participation is therefore a vital strategy.

### Flood Fatalities in contemporary Australia (1997-2008)

A recent article published in the Journal of Emergency Medicine Australasia examined flood fatalities in Australia from 1997 to 2008 inclusive. The study, conducted by FitzGerald et al, found that during the examined period, 73 persons died as a direct result of floods in Australia. The largest number of flood fatalities occurred in New South Wales and Queensland, with the majority occurring in February and among men (71.2%).

Over 90% of the deaths in the study were caused by an attempt to cross flooded waterways or inappropriate or high risk behaviour during floods. This article states that the vast majority of drowning deaths are preventable yet there is no evidence of a decline in flood fatalities in Australia during the analysed period of the study. Flood safety awareness education programs targeting the general population and specific high risk groups such as young men, parents of teenagers and older people, are recommended as a means of reducing the number of flood related fatalities.

This article appears in Emergency Medicine Australasia 2010, volume 22, pages 183-189.

Flooding is a significant problem in Australia and it is postulated that with climate change there are likely to be more occasions where flooding occurs. While major works of improving bridges and other flood related infrastructure will prevent drowning deaths, there is a need in the short term to help people understand the risks related to flooding and how they can keep themselves safe.

#### **Further work**

River drowning deaths are a particular concern in Australia as they are the most common location of drowning, geographically spread throughout Australia. There is also little known about: usage from a recreational perspective, available infrastructure (such as safe areas to recreate; facilities such as roads, parking, boat ramps, walking tracks, all which increase usage), river dynamics (such as rocky vs sandy, fast vs slow, wide vs narrow, straight vs rapids), or community knowledge about river safety. As such, more research is required to help us understand how these drowning deaths can be prevented.

## Issue 4: Reduce farm related drowning deaths

### Recommendations

5.1 Reduce farm dam drowning deaths through improving awareness and the use of safe play areas

5.2 Increase awareness of all aquatic hazards on farms and available prevention strategies

### Background

Farms can be extremely dangerous places with around one hundred people dying from unintentional injuries sustained on farms in Australia each year. With respect to water, agricultural systems such as irrigation channels, dams, pumps and locks pose increased risk to farm workers and young children [2].

### Nature and size of the problem

Around 20 children under the age of fifteen years are fatally injured on farms every year. Dams are one of the major causes of death on farms for children with a study conducted on farm fatalities between 2001 and 2004 finding that drowning accounts for around 35-40% of child farm deaths. Farm dams are by far the most common site for fatalities and serious injuries, predominately among children under five [18].

There has been recent improvement in the reduction of toddler drowning deaths on farms in recent years, with a halving of the number of dam drowning deaths that have occurred since the 1990s. However, despite these reductions, drowning remains the number one cause of child farm fatality in Australia [18].

### Strategies

Due to agricultural specific water hazards, such as irrigation channels and dams etc, the drowning prevention strategies for these locations differ somewhat from other areas. The requirements of stock means that fencing these hazards is often not possible. Therefore, the strategies of safe play areas and supervision are extremely important.

A safe play area aims to limit a child's access to farm hazards through a design intervention, such as a securely fenced house yard that separates the child from the hazard (such as the farm dam). Safe play areas also have the added benefit of restricting a child's access to other farm hazards such as animals and motorbikes etc [19].

Outdoor safe play areas on farms should also be coupled with internal safe play areas with child resistant modifications to doors and windows in line with Australian Standard AS1926 as described in Issue 1: Reducing drowning deaths in rural and remote children under five [10, 11].

### Safe Play Areas on Farms

A safe play area is one of the most effective ways to keep children safe and prevent drowning on farms. Dams pose a major risk for children and it is often not possible to fence these due to the needs of stock. Farmsafe Australia advocates that a securely fenced safe play area supported by family rules and supervision is the most effective way to prevent serious injury and death to small children on rural properties.

A safe play area should be located where children are easily observable, completely surrounded by an effective fence, free of moveable structures that can be used to climb over the fence and include safe and interesting play activities whilst excluding drowning hazards.

For more information and to download Child Safe Play Area resources, visit the Farmsafe website [www.farmsafe.org.au](http://www.farmsafe.org.au)



### **Further work**

Evaluation of existing programs, finding ways to make programs more sustainable and ensuring the messages are distributed to all is a continuing challenge and should be addressed. Ensuring consistency of messages and examining joint initiatives where multiple agencies are sharing resources, providing a range of advice and reducing information overload should be considered.

## Issue 5: Improve water safety knowledge and awareness among Aboriginal and Torres Strait Islander populations

### Recommendations

7.1 Development of an Aboriginal and Torres Strait Islander water safety plan in consultation with Aboriginal and Torres Strait Islander people and other key stakeholders

#### Background

Aboriginal and Torres Strait Islander drowning is a significant issue. Estimates state that Aboriginal and Torres Strait Islanders have a drowning rate four times higher than the Australian average [20]. Aboriginal and Torres Strait Islanders face a range of challenges when it comes to preventing drowning deaths from access to appropriate facilities and training to cultural and social factors.

#### Strategies

While the safety of Aboriginal and Torres Strait Islanders is an issue within rural and remote drowning prevention and water safety discussion, it was felt it is appropriate that Aboriginal and Torres Strait Islander have their own water safety plan in which Aboriginal and Torres Strait Islanders have participated and had input into the types of strategies that will work for them.

While the plan is being developed, the water safety community should continue to: communicate drowning prevention messages to Aboriginal and Torres Strait Islanders; increase the number of services, facilities, and training available in aquatics; increase the number of Aboriginal and Torres Strait Islanders employed in a range of roles at local pools and participating in a range of programs such as swimming and water safety, lifesaving, lifeguarding, pool operations and swim teacher training; and work towards increasing the level of support for remote swimming pools.

#### Further work

More research is needed into the nature and size of the Indigenous drowning problem, why this occurs, available strategies and how these may be used in Aboriginal and Torres Strait Islander communities. More resources and ongoing funding is required to help Aboriginal and Torres Strait Islanders participate in and be part of the solutions that will help reduce the number of drowning deaths in their communities.

#### Royal Life Saving Northern Territory – Remote Pools Project

The Remote Pools Project facilitated by Royal Life Saving Society Northern Territory Branch provides assistance in public pool maintenance. The project includes the provision of safety and management audits, telephone support for pool managers, facilitation of conferences for remote pool managers and other network development activities and support to all levels of government including site visits and desktop audits of communities involved in the Remote Pools project.

The main areas of the project are to build community solutions, provide pool operations support, foster community networks and to target the needs of communities in the central desert region of the Northern Territory.

For more information on the remote pools project please visit:

[www.nt.royallifesaving.com.au](http://www.nt.royallifesaving.com.au)

## Issue 6: Extend rural and remote drowning prevention evidence base

### Recommendations

- 8.1 Development of a program of work to evaluate new and existing aquatic safety related programs being delivered in rural and remote locations
- 8.2 Advocate for increased funding for rural and remote drowning prevention research
- 8.3 Investigate the suitability of existing programs being delivered in rural and remote locations
- 8.4 Providing scholarships / bursaries to people undertaking research into rural and remote drowning deaths to participate in Australian and international conferences, specifically the Australian Water Safety Conferences

### Background

To ensure the most efficient use of existing resources and the greatest impact of programs, it is vital that drowning prevention strategies and programs are based upon a solid evidence base. The evaluation of new and existing programs should be seen as a priority but should not be at the expense of the program. There is also an urgent need to fill our gaps in knowledge about rural and remote drowning, participation and exposure to aquatic environments, existing programs and services, and effectiveness of programs. This should not only be focused on drowning deaths.

### Investment in Research

While investment overall in drowning prevention research has increased steadily over previous strategies / plans, this investment has not been specifically targeted towards preventing rural and remote drowning deaths. Despite the lack of funding, during this time there have been reports specific to rural and remote drowning deaths.

The AWSC advocates for increased funding for water safety research and investigations into the effectiveness of drowning prevention interventions in rural and remote locations, as well as continuing to explore areas where more work is required.

### Impacting Policy and Practice

A key measure of the success of research into rural

#### Drowning Deaths – Rural and Remote Australia report

A 2008 report produced by the Royal Life Saving Society – Australia examined drowning deaths of residents of rural and remote locations and people who visit rural and remote aquatic locations. The report used both National Coroners Information (NCIS) and Australian Bureau of Statistics (ABS) records and found that for the period from 1992 to 2004, there were on average 62 deaths per annum of residents of rural and remote locations.

There were 70 drowning deaths per year at rural and remote locations, of which 62% were residents of those areas. High risk age groups were those aged 0-4 years, 18-34 years and people aged 55 years and over. Rivers were the most common location of drowning deaths and nearly 4 out of 5 deaths were of men. Strategies to prevent rural and remote drowning must target high risk age groups (or parents and carers for the 0-4 years age group) and increase knowledge of the risks and hazards associated with rivers.

This report can be downloaded in its entirety from the Australian Water Safety Council website [www.watersafety.com.au](http://www.watersafety.com.au) under the 'Reports' section.

and remote drowning deaths will be its impact on policy and practice. This will require a mix of research methodologies, collaboration between researchers, water safety agencies and rural groups to ensure solutions are practical, evidence based, and achievable.

## Research Capacity

Research capacity will need to be developed across water safety agencies and research institutions in rural and remote locations. This will involve the capacity to develop research questions, undertake research and develop prevention strategies based on the results of the research. Understanding the availability and limitations of evidence provides a powerful tool to those developing programs and interventions.

## Communicating Research

Water safety agencies are not the only bodies undertaking research and as such there is a need to ensure both those undertaking research and those using the research have an opportunity to share the results and their implications. It is essential that water safety agencies consider new developments and adjust policy accordingly. Communication channels and mediums should be developed and existing systems used (such as the Australian Water Safety Conference) to communicate changes in our understanding and evidence base.

### 'Water safety in the bush: strategies for addressing training needs in remote areas' article

The article 'Water Safety in the bush: strategies for addressing training needs in remote areas', discusses lessons learned from developing and conducting a water safety training program across 11 remote Australian communities during 2006 and 2007. The 'water safety in the bush' campaign aimed to improve water safety awareness and skills through the delivery of swimming and water safety instruction, first aid training and AUSTSWIM accreditation courses.

This article discusses strategies that can be used to improve the efficacy of rural and remote drowning prevention programs. These include: the need for flexibility associated with timing, venue and delivery mode of training to ensure appropriateness for the local community, achieving a sense of community ownership by requiring local organisations to design and implement the projects and ensuring community organisations have the capacity to take on a coordinating role.

The full text of this article can be found at [www.rrh.org.au](http://www.rrh.org.au)

## Issue 7: Extend lifesaving services in rural and remote areas known to be of high risk

### Recommendations

7.1 Conduct risk assessments based on ARIA+, hazards and lifesaving activity and drowning deaths

7.2 Introduce targeted lifesaving services at black spots during periods of high risk

7.3 Provision of surf and beach safety education in targeted high risk areas and remote communities

7.4 Investigate introducing a lifesaving service where a rural and remote community has an identified need and how to sustain the service.

### Background

Surf beaches as a potentially hazardous location were identified as an issue in the AWSS 2008-2011 [2] as part of Goal 5 “Reduce surf beach drowning deaths”. Aquatic recreational activity at the beach and in coastal surrounds continues to be a part of the fabric of Australian culture ingrained in our outdoor lifestyle and world renowned coastline. As such, beach visitations continue to remain high, drawing people from both coastal and inland locations and domestic and international origins. According to the Australian Bureau of Statistics (ABS), the rate of coastal growth in local government areas was 60% higher than the national average [21].

As a consequence of the high level of coastal activity, coastal drowning continues to represent a significant proportion of drowning deaths. The locations of these span across multiple coastal locations including those that are rural and remote, which is compounded by the fact that only about 400 of Australia’s 11,758 beaches have a lifesaving service for a period of the year [22]. Over 30% of coastal drowning deaths occurred in a location greater than five kilometres from a lifesaving service during 2009 alone [23].

Persons who reside away from the coastline also continue to drown at coastal locations. Over the last six years, at least 50% of those who drowned resided more than ten kilometres away from the coast and in 2009 almost 20% of victims lived more than 50 kilometres from the coastline [23]. This demonstrates the need to target rural and remote communities with surf and beach education as they continue to be over represented.

### Strategies

Per objective 5.1 of the AWSS 2008-2011 [2], which seeks to identify non-patrolled surf beaches with high drowning rates, an analysis of a number of data sets has been undertaken. Consideration of coastal drowning fatality data, ARIA+ and other ABS population data to identify these locations including rural and remote locations.

The identification of these priority locations will subsequently be underpinned by coastal risk assessments at the selected locations to examine and recommend the most suitable interventions and address all elements of the drowning chain. These interventions will include the expansion of services through the enhancement or introduction of appropriate service provisions during periods of increased risk.

Interventions will also include the provision of appropriate surf and beach safety education programs at high risk locations and within communities of increased drowning risk on and away from the coast at rural and remote locations per objective 5.3 [2], (see: *Walngawu Djakamirri SLSC Case Study*).

Smarter and more effective methods of lifesaving operations are currently being developed as needs are identified. The enhancement of communications systems to enable a broader response is occurring and also the upgrading of existing lifesaving assets to allow for greater capability. Other measures include the use of Emergency Response Beacons (ERBs) at remote locations and callout response of lifesaving services at these remote locations or outside regular response hours and season.

### Further Work

There is a need to continue to conduct coastal risk assessments at all coastal locations beginning with those identified as high risk. This process is incremental, but is restricted by resources available to the project. As these assessments are finalised, the recommendations will be considered and implemented as resources permit.

These interventions will include continued expansion of services, utilisation of smarter techniques and identification of communities with identified high risk, to remedy knowledge gaps and lack of awareness. With this will come technological, cultural and remoteness considerations to tailor services and programs to meet specific needs.

### Walngawu Djakamirri Surf Life Saving Club

The Walngawu Djakamirri Surf Life Saving Club located at Yirrkala in North East Arnhem Land was opened in August 2009 marking the beginning of Australia's first indigenous surf life saving club. The project recognised that the Northern Territory's indigenous population was over-represented in the drowning and aquatic-related injury statistics.

There are some very important and enduring outcomes emerging from the establishment of the club:

1. All school students received important credits through the Vocational Education and Training system toward their high school certificates, which will help many of the indigenous youth with career and employment goals,
2. The number of people in the community with lifesaving and first aid skills was significantly increased aiding with the reduction of the over-representation of indigenous people in drowning incidents and aquatic related injuries,
3. The importance of health and fitness as lifesavers, and in our daily lives, was promoted through education and participation in sport securing better health and fitness outcomes for our indigenous population.

It is hoped that this will be the nucleus for the establishment of further services in rural and remote communities including indigenous, which will not only assist with the continued reduction in drowning deaths but the enhancement of resources and opportunities at and for the people in and around those locations.

## Issue 8: Ensuring existing Australian Water Safety Strategy 2008-2011 Goals address rural and remote populations

### Recommendation

8.1 Analysis of all activities currently undertaken to prevent drowning deaths in Australia to consider how these might be undertaken to ensure the inclusion of rural and remote populations.

### Background

The AWSS 2008-2011 has 14 goals and each of these goals have objectives that relate to their achievement. Many of the goals are applicable to rural and remote populations as well as the wider community and so to not repeat each of these goals again in this plan, rural and remote populations should be considered when undertaking any drowning prevention activity.

Specific goals or objectives identified as relevant to rural and remote populations but not addressed elsewhere in this plan include:

- Goal 3, Reduce Drowning Deaths in Older People
- Goal 5, Reduce Surf Drowning deaths
- Goal 6, Reduce Drowning deaths in Home Swimming Pools
- Goal 7, Reduce Drowning Deaths Attributed to High Risk Recreational Activities
- Goal 9, Reduce the impact of Climate Change and Extreme Weather on Drowning Deaths
- Goal 11, Strengthen the Skills, Standards and Contribution of our Drowning Prevention People

### Further work

All reports and programs in the future should have a section on rural and remote populations and Aboriginal and Torres Strait Islanders, to both address rural and remote drowning deaths and the issues related to these populations.

### Surf Life Saving Australia (SLSA) Beach to Bush Program

The Beach to Bush program, is a water safety campaign aimed at improving beach safety knowledge amongst rural and remote children. Since its commencement in 2003, the program has reached more than 135,000 students in over 1,000 schools.

This program facilitates highly experienced surf lifesavers volunteering to travel to regional areas to educate primary school children about surf safety messages. These messages include a demonstration of warning signs, a demonstration of basic surf rescue equipment and video and interactive sessions.

For more information on the Beach to Bush program, please visit the Surf Life Saving Australia website at [www.slsa.asn.au](http://www.slsa.asn.au)

### Rural and Remote Teachers of Swimming and Water Safety – Survey

In 2007 Royal Life Saving Society Australia in collaboration with AUSTSWIM, supported by the Australian Government Department of Health and Ageing conducted a survey of rural and remote swimming and water safety teachers needs.

Issues identified included access to and cost of professional development activities, working conditions (pay, hours and length of season), strategies for helping people return to work after taking time off, administration (including ease of re-registering, costs, access and availability), number of children undertaking swimming lessons and quality of facilities (age and availability of water).

The full report on can be downloaded from [www.watersafety.com.au](http://www.watersafety.com.au) under the 'Reports' section.

## References

1. Franklin, R.C., J.P. Scarr, and J.H. Pearn, *Reducing drowning deaths: the continued challenge of immersion fatalities in Australia*. MJA, 2010. **192**(3): p. 123-126.
2. Australian Water Safety Council, *Australian Water Safety Strategy 2008-2011*. 2008: Sydney.
3. Royal Life Saving Society - Australia, *The National Drowning Report 2009*. 2009, Royal Life Saving Society - Australia: Sydney. p. 12.
4. Franklin, R., E. Simmonds, and A. Peden, *Drowning Deaths - Rural and Remote Australia*. 2008: Sydney.
5. Beattie, N., P. Shaw, and A. Larson (2008) *Water safety in the bush: strategies for addressing training needs in remote areas*. Rural and Remote Health (online) **Volume**,
6. Mitchell, R.J., et al., *Farm-related fatalities involving children in Australia, 1989-92*. Australian & New Zealand Journal of Public Health, 2001. **25**(4): p. 307-14.
7. Australian Institute of Health and Welfare, *Rural, regional and remote health: A guide to remoteness classifications*. 2004, Australian Institute of Health and Welfare: Canberra. p. 87.
8. Australian Bureau of Statistics, *ASGC Remoteness Classification: Purpose and Use (Census Paper No. 03/01)*. 2003, Australian Bureau of Statistics: Canberra.
9. Bugeja, L. and R. Franklin, *Drowning deaths of zero- to five-year-old children in Victorian dams, 1989-2001*. Aust. J. Rural Health, 2005. **13**: p. 300-308.
10. Standards Association of Australia, *AS 1926.1-2007 Swimming Pool Safety Part 1: Safety barriers for swimming pools*. 2007, Standards Australia.
11. Standards Association of Australia, *AS 1926.2-2007 Swimming pool safety Part 2: Location of safety barriers for swimming pools 2007*, Standards Association of Australia.
12. Pearn, J.H., et al., *Safety legislation, public health policy and drowning prevention*. International Journal of Injury Control and Safety Promotion, 2008. **15**(2): p. 122-123.
13. Thompson, D.C. and F.P. Rivara, *Pool fencing for preventing drowning in children*. The Cochrane Database of Systematic Reviews 1998, 2006. **Issue 1. Art. No.: CD001047**.
14. Driscoll, T., J.E. Harrison, and M. Steenkamp, *Alcohol and drowning in Australia*. Injury Control and Safety Promotion, 2003. **10**(4): p. 175-181.
15. Driscoll, T., M. Steenkamp, and J.E. Harrison, *Alcohol and Water Safety*, Commonwealth Department of Health and Ageing, Editor. 2003, Commonwealth of Australia. p. 97.
16. Australian Bureau of Statistics, *4832.0.55.001 - Alcohol Consumption in Australia: A Snapshot, 2004-05* Australian Bureau of Statistics, Editor. 2006, Australian Bureau of Statistics,: Canberra.
17. FitzGerald, G., et al., *Flood fatalities in contemporary Australia (1997-2008)*. Emergency Medicine Australasia, 2010. **22**(2): p. 183-189.
18. Fragar, L., L. Stiller, and P. Thomas, *Child Injury on Australian Farms - The Facts 2005*. 2005, Australian Centre for Agricultural Health and Safety.
19. Depczynski, J., et al., *Safe play areas for prevention for young children drowning in farm dams*. Australasian Journal of Early Childhood, 2009. **34**(3): p. 50-57.
20. National Public Health Partnership, *The National Aboriginal and Torres Strait Islander Safety Promotion Strategy*. 2005, Department of Health and Ageing: Canberra. p. 28.
21. Australian Bureau of Statistics, *1301.0 - Year Book Australia, 2004*. 2004: Australian Bureau of Statistics.
22. Surf Life Saving Australia. *Beach Management and Safety Program*. 2010 [cited 30/06/2010]; Available from: <http://www.slsa.com.au/default.aspx?s=beachmgmtandsafetyprog>
23. Surf Life Saving Australia, *2009 National Coastal Safety Report. Preventing coastal drownings in Australia*. 2009, Surf Life Saving Society Australia: Sydney.