

Swim or Float?

An evidence-based approach to reducing the risk of rip-related drowning in Australia

Shauna Sherker¹, Matt Thompson¹, Peter Agnew¹,
Norm Farmer¹, Anthony Bradstreet¹,
Robert Brander², Danielle Drozdowski²

1. Surf Life Saving Australia
2. University of New South Wales, Australia

World Conference on Drowning Prevention 2011

Australian for life. 

Drowning in Australia

- Drowning is the fourth leading cause of unintentional injury-related death in Australia
- Average of 94 people drowning annually on Australian ocean beaches (2006-2010)
- Approximately 10x that are hospitalised for drowning-related injury
- Average treatment cost of ~\$400,000 per injured non-fatal drowning

Australian for life. 

Rip-related drowning

- Is difficult to measure accurately
- ~89% of beaches rescues are in rip currents (SLSA)
- ~41% of coastal drowning is rip-related
- **~40 rip-related drowning deaths/year in Australia**

Australian for life. 

Rip-related drowning prevention

- In 2009, SLSA launched a national rip education campaign based on a behavioural response message for swimmers 'to escape a rip, swim parallel to the beach'
- This message is common rip current safety advice promoted around the world
 - The US Lifeguard Association
 - The Royal National Lifeboat Institution in the UK
 - Surf Life Saving New Zealand
 - Florida International University's Rip Current Information Centre

Australian for life. 

To Escape a Rip, Swim Parallel to the Beach

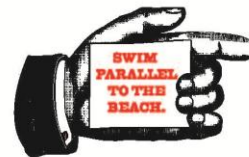


Australian for life. 

To Escape a Rip, Swim Parallel to the Beach



Too many people are drowning in rip currents on Australian beaches every year. Some are good swimmers. Some are fit and healthy. Many are young. Most of them panic. Yet survival is simple. To escape a rip current stay calm and swim parallel to the beach. And remember always swim between the red and yellow flags. ripcurrents.com.au



Rip-related drowning prevention debate

- A debate has been raised within the world of rip current education as to the appropriateness and preference of the 'swim parallel' versus 'stay afloat' responses for swimmers caught in rip currents
- Much of the debate has been based on anecdotal information

Australian for life. 

Rationale for 'swim' advice

- Most drownings occur at unpatrolled beaches or at patrolled beaches during unpatrolled times
- Beachgoers caught in a rip need advice to *get themselves out of trouble* and not rely on surf lifesavers to rescue them
- There may not be any on the beach to rescue them!

Australian for life. 

Limitations of 'swim' advice

- Assumes that person can swim
- Assumes that person can determine which way is parallel (>90% can)
- Assumes that greatest risk is from rip currents that are perpendicular to the beach (i.e. not feeder rips)
- If someone swims and doesn't escape the rip current, they may become exhausted

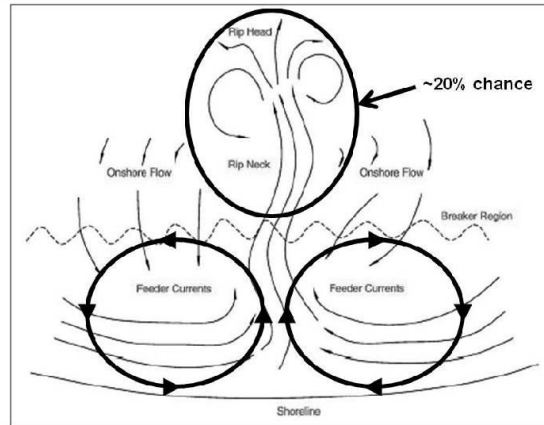
Australian for life. 

Rationale for 'float' advice

- If caught in a rip current and float, you will be returned to shore within minutes 80% of the time
- MacMahan, J., J.Brown, E.Thornton, Ad.Reniers, T.Stanton, M.Henriquez, F.Gallagher, J.Morrison, M.J.Austin, T.M.Scott and N. Senechal. Mean Lagrangian flow behavior on an open coast rip-channeled beach: A new perspective. *Marine Geology*, 268:1-15, 2009.
- This study was conducted in California, and duplicated in UK and France

Australian for life. 

Reprinted from *MacMahan et al. (2009)*



Australian for life. 

Limitations of 'float' advice

- What about the 20% of the time that rip currents exit the surf zone? Will people resist panic if carried a large distance offshore?
- MacMahon measured surface current behaviour for rip-channeled open coast beaches of 3-4 km length away from permanent topographic features
- Can MacMahon's results can be generalised to Australian beach conditions?

Australian for life. 

Aim

- To develop an evidence-base to inform programs to reduce the risk of rip related drowning

Australian for life. 

Methods – multidisciplinary

- Combine methods of epidemiology, geomorphology and behavioural science
- Review the epidemiology of rip-related drowning in Australia (who, what, where, when, how)
- Interview rip current survivors to study human responses [<http://www.surveys.unsw.edu.au/survey/155251/142e/>]
- Investigate the physical responses of people caught in rips
- Determine the flow behaviour of rip current systems (using GPS to determine flow direction and velocity)

Australian for life. 

Methods

- In-depth interviews of beachgoers rescued from rip currents
- Identify the demographics, surf knowledge and behavioural response of those caught in rip currents
- Volunteer 'floaters' instructed to 'actively swim' or 'passively float' in a rip current
- Monitor physiological responses of 'floaters'
- A comparison of rip survival strategies will determine outcomes of active (swim parallel, diagonal or against the rip) vs. passive (float) rip responses
- GPS drifters used to investigate Australian rip current flow dynamics

Australian for life. 

Methods – drifters and 'floaters'



Reprinted from *Brander et al. (2011)*

Australian for life. 

Anticipated results

- The unique multidisciplinary approach adopted will inform the most appropriate evidence-based messages relating to response when caught in a rip current
- 3 year project is subject to Australian Research Council Linkage Grant funding

Australian for life. 

The ongoing message from SLSA is:

- *always swim between the red and yellow flags*, because if we can't see you, we can't save you
- If caught in a rip...
 - *Stay calm, float and raise an arm to attract attention
 - *To escape a rip, swim parallel to the beach
 - *Conserve your energy and use waves to get back the beach

www.beachsafe.org.au

Australian for life. 

YOU CAN SURVIVE A RIP CURRENT BY KNOWING YOUR OPTIONS

- AVOID RIP CURRENTS, ALWAYS SWIM BETWEEN THE RED AND YELLOW FLAGS**
- FOR ASSISTANCE, STAY CALM, FLOAT AND RAISE AN ARM TO ATTRACT ATTENTION**

- TO ESCAPE A RIP CURRENT, SWIM PARALLEL TO THE BEACH**
- CONSERVE YOUR ENERGY, WAVES CAN ASSIST YOU BACK TO THE BEACH**

Australian for life

Rip Current Awareness Day 2011

Wouldn't it be great if every beach was purple?

Sunday 6th February is the anniversary of Black Sunday. A day when 5 people drowned and hundreds were rescued from a flash rip on Bondi Beach.

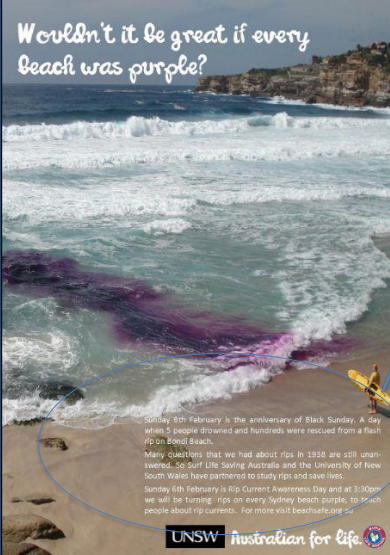
Many questions that we had about rips in 1928 are still unanswered. So Surf Life Saving Australia and the University of New South Wales have partnered to study rips and save lives.

Sunday 6th February is Rip Current Awareness Day and at 3:00pm we will be turning rips on every Sydney beach purple, to teach people about rip currents. For more visit beachlife.org.au

UNSW *Australian for life*

Rip Current Awareness Day 2011

Wouldn't it be great if every beach was purple?



Sunday 6th February is the anniversary of Black Sunday. A day when 5 people drowned and hundreds were rescued from a flash rip on Bondi Beach.

Many questions that we had about rips in 1938 are still unanswered. So Surf Life Saving Australia and the University of New South Wales have partnered to study rips and save lives.

Sunday 6th February is Rip Current Awareness Day and at 3:30pm we will be turning rips on every Sydney beach purple, to teach people about rip currents. For more visit beachsafe.org.au


UNSW Australian for life

Sunday 6th February is the anniversary of Black Sunday. A day when 5 people drowned and hundreds were rescued from a flash rip on Bondi Beach.

Many questions that we had about rips in 1938 are still unanswered. So Surf Life Saving Australia and the University of New South Wales have partnered to study rips and save lives.

Sunday 6th February is Rip Current Awareness Day and at 3:30pm we will be turning rips on every Sydney beach purple, to teach people about rip currents. For more visit beachsafe.org.au

UNSW Australian for life



2nd international rip current symposium

30th Oct - 1st Nov 2012 • Sydney, Australia

Surf Life Saving Australia is proud to host the 2nd International Rip Current Symposium in Sydney Australia, one of the world's most iconic beach cities.

The symposium will bring together leading international researchers and experts to share knowledge of rip currents and to enhance worldwide understanding of this natural hazard. The symposium aims to further the development of related science and public education strategies to reduce the risk of rip-related drowning.

Key themes will include physical rip current science, human behavioural science, rip current public education strategies and beach hazard management. The meeting will also provide opportunities to visit Sydney's unique coastal beaches, as well as a social program to enable informal networking.

It is a great time to visit Australia, as the Rescue 2012 Life Saving World Championships will be held in Adelaide, South Australia only days later.

For more information and to register your interest, visit www.ripcurrentsymposium.com

Australian for life

