

# Improving Beach Safety: The Science of the Surf (SOS) Research Project

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THE UNIVERSITY OF  
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## Beach safety

- A persistent problem
- Around 32 drownings and 4-10 near-drowning on surf beach per year in Australia (Morgan, et al, 2008)
- Rip currents are major hazard, account for 80-90 % of surf rescues per year in Australia
- ➡ Managing exposure to rips is an important strategy to improve beach safety.



## Potential solution

- Restrict swimmers to certain beach locations with experienced water safety professionals on watch

BUT.....

- People make poor choices about where to swim.

? Why?????



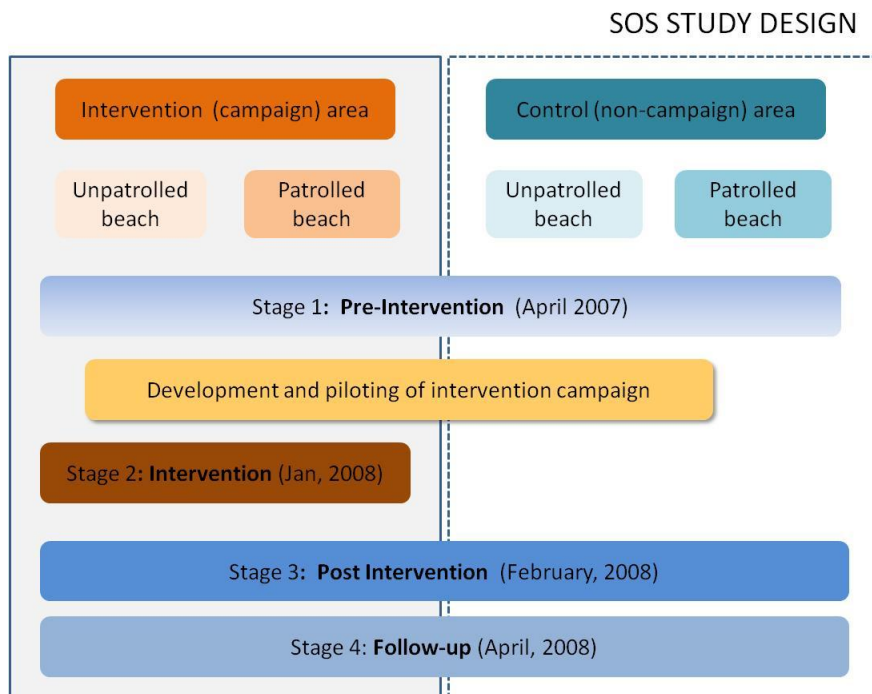
## Baseline beach safety study

- Study interviewed beachgoers on knowledge, attitudes and reported behaviour around beach hazards including rips
- Found beachgoers lacked knowledge of rips:
  - Could not identify a rip in a photograph
  - Could not describe what a rip looked like...
  - But felt confident that they could identify a rip
  - Knew what to do if caught in a rip.



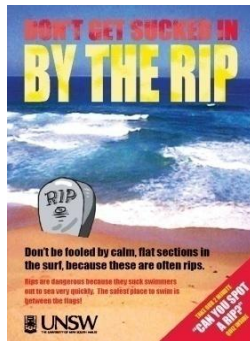
## Aim

- Develop a knowledge-based intervention to target lack of knowledge of rips
  - If people do not know what is safe/unsafe, they cannot be safe
- Evaluate process of implementation of intervention
- Evaluation effectiveness of intervention in improving knowledge of rips



## Stage 2: Development of materials

- Campaign slogan “Don’t get sucked in by the rip”
- Various modes of delivery: poster, postcard, brochure, factsheet



## Stage 2 collection

- Survey methods
  - In Intervention area immediately following distribution of campaign materials in Jan 08; in Control area 1 week earlier
  - Same survey methods as Stage 1, plus process questions
- Process Questions
  - Seen beach safety message? What? Where?
  - For “remaining” respondents: Seen “don’t get sucked in” campaign?



## Summary of samples

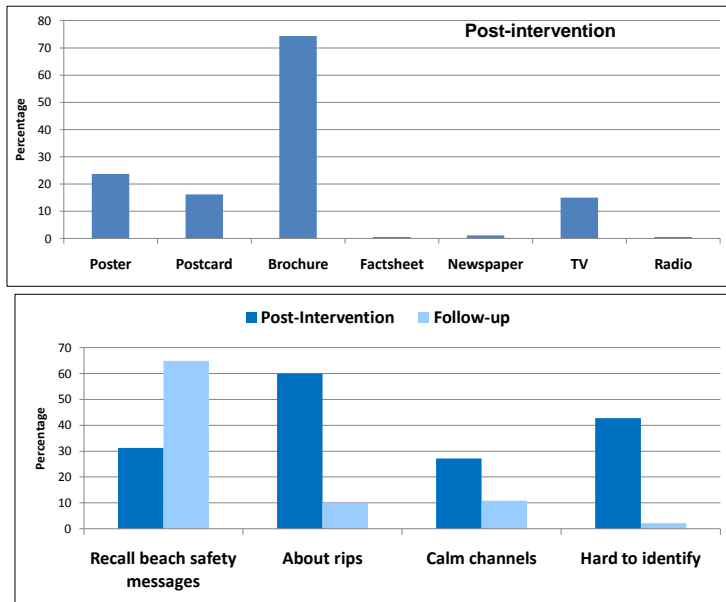
	Pre-intervention		Post-intervention		Follow-up	
	Intervention	Control	Intervention	Control	Intervention	Control
Response rate %, n	83.7% (180)	56.0% (196)	79.3% (552)	85.3% (408)	57.1% (222)	54.9% (161)
% interviewed at beach	96.1	48.5	96.0	88.0	N/A	N/A
Age bracket %						
• 14-29	35.0	17.9	22.2	30.5	10.4	13.1
• 30-49	44.4	52.6	50.5	43.8	58.1	50.0
• 50+	20.6	29.6	27.3	25.6	31.5	36.9
% female	59.8	47.4	57.6%	56.9	59.9	59.6
% English at home	98.3	99.5	97.6	99.3	98.6	99.4
% live in Australia	96.6	98.5	N/A	N/A	N/A	N/A
% on holidays	93.3	69.4	90.9	83.6	89.2	78.9

## Penetration and recall of campaign

- Post intervention:
  - 28.8% reported seeing at least one of our materials
  - Further 10.3% saw “don’t get sucked in” campaign
  - 46.9% of respondents who saw the brochure attempted the quiz
  - 31% answered at least one rip-identification question incorrectly
- Follow-up:
  - 57.2% reported seeing our messages



## Recall of beach safety messages



## Effectiveness of the Intervention

Three types of analysis:

1. Did knowledge improve Post-Intervention in Intervention area?
  - Comparison of Pre/Post Intervention for Intervention and Control sites
2. Did participants who reported seeing campaign messages have better knowledge?
  - Post-intervention comparison of respondents at intervention site who reported Seeing or Not Seeing intervention materials
3. Were the messages durable over 6 months?
  - Follow-up comparison of respondents from Intervention and Control areas



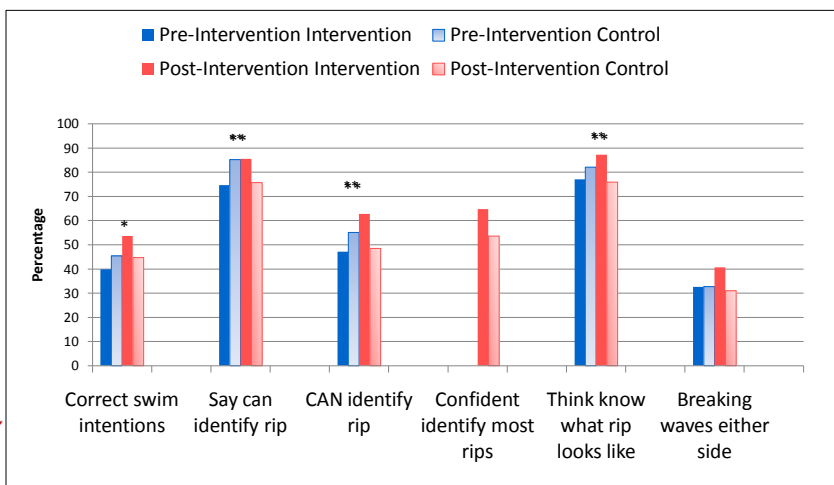
## Pre/Post Intervention for Intervention and Control sites

- Logistic regression of Site (Intervention vs Control) and Stage (Pre vs Post) on key DVs:

% correct swimming intentions for rip	% correct swimming intentions for flags
% believe they can identify rip	% would never swim at unpatrolled beach
% can identify rip correctly	% would signal guard in rip, in rip
% at least moderately confident in identifying most rips	% wouldn't swim straight in, in rip
% report knowing what rip looks like	% would swim across, in rip
% mention breaking waves either side	% would drift, in rip

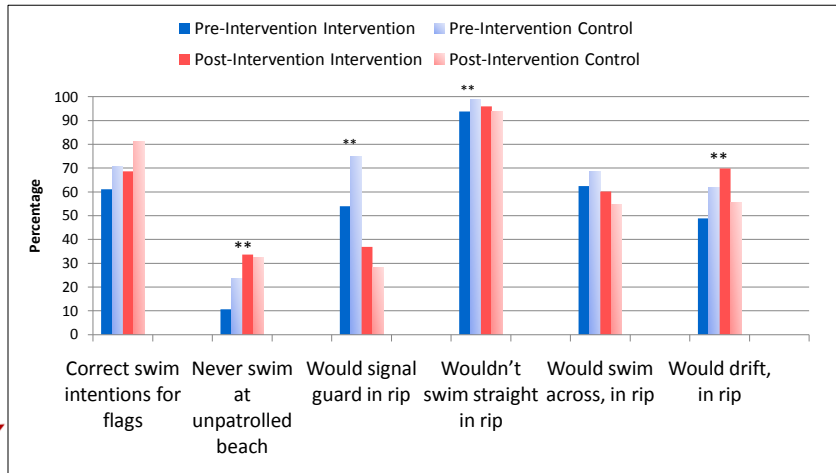
- Interaction term indicates *change* in Intervention area vs Control

### 1. Effectiveness of Intervention: Rip knowledge and behaviour



\* Interaction of Pre/Post and Site (Intervention/Control)

## 1. Effectiveness of intervention: Swim intentions and reactions in rip



\* Interaction of Pre/Post and Site (Intervention/Control)

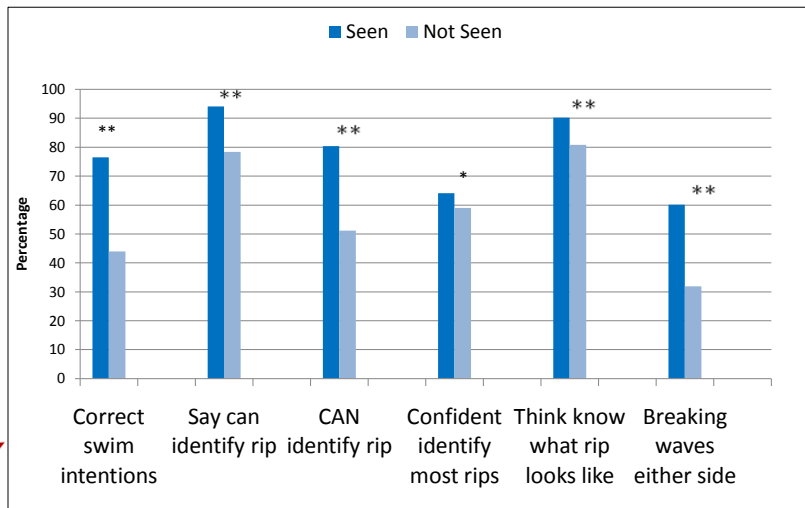
## 2. Effectiveness when seen

- Respondents who had seen at least one of the poster, postcard, brochure, or factsheet were classified as having “Seen” or Not Seen our campaign
- Compared two groups for same key DVs using logistic regression



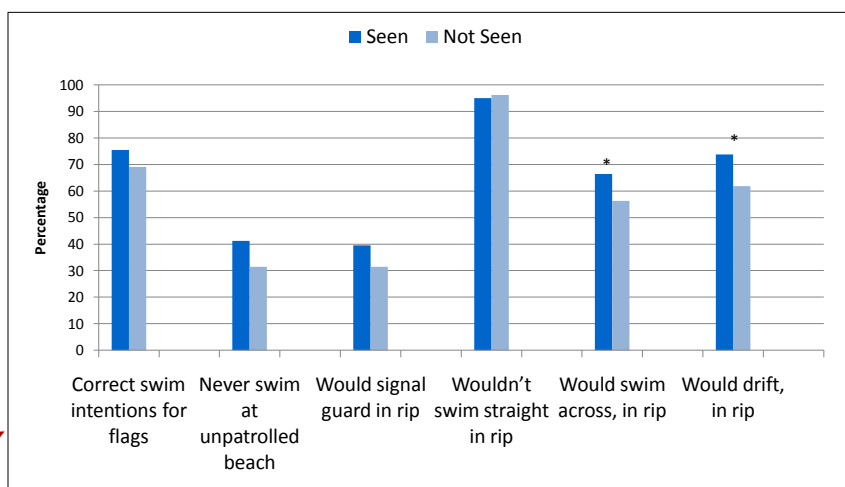


## 2. Intervention site - **Seen** and **Not Seen** groups: Rip behaviour and knowledge



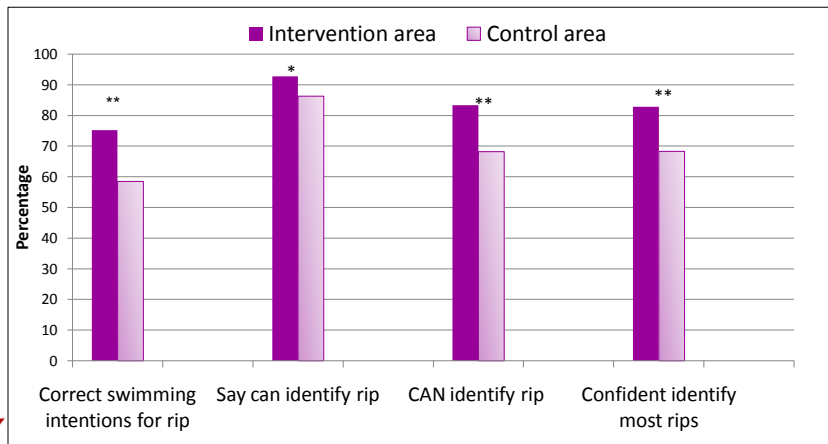
\* Logistic regression, Seen Vs Not Seen, \*= $p < 0.05$ , \*\*= $p < 0.001$

## 2. Intervention site – **Seen** and **Not Seen** groups: Swim intentions and reactions in a rip



\* Logistic regression, Seen Vs Not Seen, \*= $p < 0.05$

### 3. Follow-up – Intervention and Control site participants: Rip knowledge and behaviour



\* Chi-square test: Intervention Vs Control, \*= $p < 0.05$ ; \*\*= $p < 0.001$

## Conclusions

- Short term effects of the intervention:
  - ↑ intention to swim away from rip,
  - ↑ ability to identify rip,
  - ↓ intention to swim on unpatrolled beach
  - ↑ responses if caught in a rip
- Best results for participants who reported seeing campaign materials
- Issue:
  - ↑ confidence in identifying rips overall and for Seen participants. Is this *overconfidence*?
  - Probably not as actual ability improved

## Conclusions 2

⇒ Follow-up: Participants in intervention area still showed improvements (relative to those in control area) in:

- Ability to correctly identify a rip
- Intention not to swim in areas likely to contain a rip



## Conclusion 3



- ⇒ Simple, brief print-based intervention to improve knowledge of rips had positive effects over short and longer term (up to 4-6 months).
- ⇒ Evaluation study shows the value of moving beyond “Swim between the flags” to addressing rip and beach hazard awareness.

## Research Team + Advisory Committee

- **Prof Ann Williamson**, School Aviation, UNSW
- **Dr. Rob Brander**, Biological, Earth and Environmental Sciences, UNSW
- **Dr. Julie Hatfield**, NSW IRMRC, UNSW
- **Dr. Shauna Sherker**, NSW IRMRC, UNSW, Now Surf Life Saving Australia
- **Dr. Andrew Hayen**, Dept Public Health, Sydney University
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- NSW Health
- NSW Sport and Recreation

