BUILDING RESILIENCE THROUGH FLOOD RISK COMMUNICATION

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PROJECT FOUNDATIONS

An analysis of human fatalities from flood hazards in Australia, 1900-2015

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MAIN ACTIVITIES

1. Understanding behaviour in and around flood water
   - Survey Research (Driving into floodwater)
   - Cue utilisation
   - Decision-making (Driving into, and recreating in, floodwater)

2. Evaluating and adapting flood risk communication materials
SURVEY RESEARCH – DRIVING INTO FLOODWATER

1) Defining Floodwater – FMA 2017
2) NSW SES - Driving through Floodwater Survey (Pilot/Extension) (Rachel Begg)
3) Other NSW emergency services – Driving through Floodwaters Survey (Lisa Sato)
4) Water on Roads Survey (Pilot)
5) Public – Driving through Floodwater Survey (Arifa Ahmed)
6) Intentions to turn around/not enter floodwater – young people (Marvin Najem)
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Your participation is requested!
At the breakout session, and beyond...

Extended invitation to other SES jurisdictions to take part
NSW SES – DRIVING INTO FLOODWATER SURVEY (PILOT)

Aims

a) Explore experiences of driving into floodwater in a work context

b) Explore experiences of turning back from floodwater in a work context

c) Look at associations with
   • demographics, training,
   • organisational safety climate,
   • influencing factors
SURVEY ADMINISTRATION

1) Circulated link in weekly newsletter ‘Members Connect’
2) Link on Members Facebook page
3) mid-October to end-November

☐ a. Less than 15cm
☐ b. 15cm – 30cm
☐ c. 30cm – 45cm
☐ d. 45cm – 60cm
☐ e. 60cm- 95cm
☐ f. 95cm or above
OVERALL PROFILE OF RESPONDENTS

1) 77 responses
2) 37% female; 63% male
3) 44% most often drive passenger vehicle; 35% light truck/dual cab
4) 41% drive SES vehicle rarely (<1 per/m), 29% few times a month, 29% most weeks
5) 80% get deployed to work in flood/storm conditions
6) 86% volunteer members; 14% paid staff members
TRAINING

1) Flood rescue
   a) 44% no current flood rescue qualifications
   b) 19% Level 1, 10% Level 2, 10% Level 3

2) Driving training
   a) 62% drive operational vehicles
   b) 23% 4WD operations

3) Safety training
   a) 62% maintain team safety
EXPERIENCE OF FLOODED ROADS

56% experience flooded roads at least once or twice a year

Driven through floodwater in the last two years...?

a) 30% as a driver in a NSW SES vehicle
b) 27% as a passenger in a NSW SES vehicle
   c) 45% in their own private vehicle

(26 respondents completed the section about their experience)

Turned around?

53% reported that they’d turned around in a situation that other colleagues might have continued driving through

(22 respondents completed the section about their experience)
DRIVING INTO FLOODWATER

Risk perception
1) Generally not felt to be risky
2) However 16% rated seriousness of harm at higher level

Factors that influenced decision to drive into floodwater
1) Lack of alternative route, careful consideration of the situation, Professional SES training/knowledge, knowing the road well

“The water on the road was unexpected, around a bend, there was not sufficient time to come to a complete stop safely to make an evaluation. Water on road was not signposted”
TURNING AROUND FROM FLOODWATER

Risk perception
1) Felt it would have been risky to go through (55% rated risk as 5-7 on 7-point scale) Interestingly 33% rated it as low risk (1-3)
2) Main risks were perceived as damage to vehicle (35%), and being washed away in vehicle (26%)

Factors that influenced decision to turn around from floodwater
1) careful consideration of the situation, NSW SES’s attitude towards safety, professional SES training/knowledge

“I talked the driver out of attempting to drive through it. Other 2 passengers let me do the talking so not sure of their opinions, but I suspect were relieved. The driver was over confident being in a high clearance 4wd ute”
EXTENSION OF THE SES SURVEY TO OTHER JURISDICTIONS
DEFINING FLOODWATER

1) Fundamental question
2) Pilot survey (FMA 2017)
3) Initial focus on ‘experts’ and organisational definitions
4) Ideas for next wave of responder and public surveys
   a) What do people regard as ‘floodwater’ (on a road)?
   b) When does a puddle become a flood?
   c) Is there consistency in evaluation – ‘experts’ vs ‘public’?
DEFINING FLOODWATER

How do you define floodwater?

Do both these photos show dangerous floodwater?

Would you enter the water in a vehicle?
WATER ON ROADS SURVEY

1) Collection of 16 photos of water on roads

2) Piloted on 32 attendees at TOP last week
   a) Would you consider driving through?
   b) Would you consider this road ‘flooded’?

3) Cut down to a set of 8 photos – based on analysis of data

4) Now ready for more testing.....
   .......with ‘experts’
ADDITIONAL RESEARCH DATA

1) Traffic offenders program (Ian Faulks – Technical Panel)

Data collected from more than 230 traffic offenders in program in 2017
1) Cue utilisation research (Gemma Hope)

a) Evidence that higher cue utilisers were able to make faster and more accurate judgements about the risk of flooded roads (low/mid/high risk photographs)
INDIVIDUAL VERSUS GROUP DECISION-MAKING
PUBLISHED RESEARCH ON VEHICLE ACCIDENTS...

1) There is a relationship between carrying passengers and vehicle accident risk for young drivers.

2) Driver death rates for young drivers increases with the number of passengers.

3) Driver death rates for those aged over 30 decrease when passengers are present.

4) Young male drivers have higher death rates than young female drivers.

5) While carrying passengers significantly increases the death rates for both genders, it is more dramatically so for male rather than female drivers.

6) Death rates of young drivers with passengers is higher at night than during the day. Particularly between 12 and 5.59am.
INITIAL RESEARCH (DRAFT PLAN)

1) Participants: Macquarie University students
2) Scenario: Photos and verbal description to set the flood and social context.
3) Variables: Gender, number of passengers, importance / reason for the journey.
4) Methodology:
   a) Driver / passengers will be asked a series of questions in relation to the risk and to make a decision in terms of entering or turning around.
   b) Driver / passengers will be encouraged to discuss their options
   c) Qualitative data will be collected as participants reason through their decision making
   d) Quantitative data will be collected via a short questionnaire that examines their general risk propensity and their individual views and attitudes to the scenario they just completed.
5) Follow-on work may include utilising the general public as participants; altering the flood risk; testing a wider age range, cultural background and driving experience.
CHILDREN AND FLOODWATER
INITIAL RESEARCH (DRAFT PLAN)

1) Work with children to discuss their perceptions, views and experiences of playing in floodwaters.

2) Evaluate current messaging with parents and children.

3) Develop new or improved messaging with children and their parents.

4) Participants: Up to four groups of children from NSW, QLD, Northern Australia. Initial contact will be made through SLSA / Nippers and other relevant clubs.
NEXT STEPS: EVALUATIONS

1) Consultation with end-users and at risk groups to negotiate which risk communication materials to utilise for evaluations

2) Development of evaluation scenarios following photo pretesting, survey results and experimental work with passengers and children.

3) Preparation, tweaking and improving risk communication materials in consultation with end-users and at risk groups

4) Collaboration with Macquarie Department of Marketing – Have been evaluating traffic safety campaigns
OUTPUTS

1) Academic papers
2) End-users directed ‘research into practice’ briefs
3) Evaluation tool and methodology
4) Evaluated materials
THANK YOU

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