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BUILDING RESILIENCE THROUGH FLOOD RISK COMMUNICATION

ANNUAL REPORT 2018-2019

Dr Mel Taylor, Dr Katharine Haynes and Dr Matalena Tofa
Macquarie University & Bushfire and Natural Hazards CRC





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Cover: A car tries to make its way through flooding in Hawthorn Rd, Brighton East. Picture: Peter Farrar



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Finally, we would like to thank all our research participants who have so generously given up their time to take part in various elements of the project.



EXECUTIVE SUMMARY

This project commenced in July 2017 and comprises two phases:

1. Understanding behaviour in and around floodwater, and
2. Evaluating flood risk communication materials and developing guidelines.

This project is based on the findings of earlier BNHCRC research that investigated human fatalities from natural disasters (Haynes et al., 2017). This project focuses on the two behaviours most frequently associated with flood fatalities:

1. Driving into floodwater in a motor vehicle, and
2. Recreating in floodwater.

The focus is on the at-risk groups identified from this earlier research including emergency services personnel, younger and older male drivers, and children and young adults who play in floodwater (Haynes et al., 2017).

The year 2 activities that have been undertaken include:

- Surveys with SES personnel from four jurisdictions (NSW SES, VICSES, ACT SES, SA SES) regarding encountering floodwater at work and workplace safety culture.
- A nationally representative survey of 2200 members of the public regarding driving and playing in floodwater and initial evaluation of flood risk communication.
- Investigation of vehicle-related flood fatalities in Australia 2000-2017.
- In-depth qualitative interviews with emergency services personnel using a mental models framework to investigate flood risk perceptions.
- Development of an online tool for assessment of cue utilisation in the context of floodwater risk assessment (EXPERTise 2.0), and piloting this with a sample of NSW SES personnel.

Work is now underway to transition to Phase 2 activities and to maximise project utilisation opportunities.



END-USER PROJECT IMPACT STATEMENT

Josh McLaren, *Coordinator Community Capability | Southern, Western and South Eastern Zone, NSW State Emergency Service - Organisation Performance & Engagement*

Individuals entering floodwaters has long been a complexity to manage during flood and storm operations. Through the preliminary research, it is evident that there are multiple motivations, drivers and environmental cues that contribute to an individual's decision-making process.

The NSW State Emergency service is committed to ensuring that the research conduct is utilised within all facets of our business, from engaging with communities through to operational decision making. The critical areas of opportunity include:

- How we engage with individuals in regards to driving through floodwaters.
- Reviewing agency messaging to better align with the communities understanding of what floodwaters are.
- Restructure messaging used within a response to more effectively appeal to the communities motivations.
- In partnership with BNHCRC support and influence the development of national guidelines for floodwater risk communication
- The NSW SES will review and evaluate the reserach in regards to volunteers entering flood waters in vehicles during emergencies to ensure the best outcome for all parties involved in the repsonse



INTRODUCTION

Recent analysis of fatalities caused by natural hazards in Australia demonstrated that floods are the second most deadly natural hazard, following heatwaves, in terms of the total number of fatalities since 1900, and that many flood deaths (and rescues) are avoidable (Haynes et al., 2017). Entering floodwaters in a vehicle, particularly in 4WDs, was identified as an increasingly common high-risk behaviour. While young males comprise the highest risk group for this activity, there are also high proportions of women and older men dying in recent years. Of note are the high numbers of fatalities among passengers, particularly females (Haynes et al., 2017). In recent years, the second highest risk group following drivers comprises young male adults and children who play in floodwater (enter floodwater on foot, while swimming or in a small boat or craft).

Risk communication campaigns are typically one-way communication (from professionals/experts to the public). Existing flood education and campaigns in Australia tell the public not to enter floodwater (e.g., 'If it's flooded, forget it' in Queensland), but there has been limited research to date that rigorously evaluates the efficacy of existing flood education and campaigns in Australia, and much anecdotal evidence suggests that these campaigns are ineffective. Better understanding of 'lay' perspectives on this issue, and dialogue between experts and the public helps ensure the risk communication takes into account the audience's knowledge and concerns; in theory more effectively communicating appropriate information.

This three-year project utilises a mixed methods design, involving both qualitative and quantitative approaches, to address the following two major aims:

1. To understand behaviour and attitudes to driving into and recreating in floodwater.
2. To evaluate flood risk communication materials and develop guidelines for flood risk communication.



RESEARCH STRATEGY

The research strategy involves mixed qualitative and quantitative methods, including questionnaires, in-depth interviews with mental models theory and focus groups – to ensure the research problem is well understood, the needs of those at risk are met and knowledge is co-produced with end users and community.

The research will involve the four steps below:

Phase 1

1. Gather and compile data and develop a detailed understanding of the decision-making processes, motivations, beliefs and information needs of at-risk groups. Including those who do, and do not, enter floodwaters in vehicles or for recreation.

Data include:

- Systematic literature review of published literature.
- Quantitative online survey of SES personnel's' attitudes and experiences concerning driving through floodwaters.
- Quantitative survey of a representative sample of the public's attitudes and experiences concerning driving and playing in floodwaters.
- In-depth mental model interviews with the public and emergency management personnel.
- Focus group and questionnaire data from group testing of risk communications materials.
- Investigation of cue utilisation in assessing floodwater risk in an expert (NSW SES) sample.

Phase 2

2. Collation of flood risk campaign messaging and associated materials:
 - Recent, current, and in-development risk communication materials (e.g. videos, website material, booklets etc.) compiled in partnership with end users,
 - Materials selected for further evaluation based on discussions with end users.
3. Evaluations:
 - Conducted with specific target groups. Participants recruited via targeted calls for interest and via a market research company to ensure a representative sample.
 - Independent comparative evaluation undertaken (in parallel) by a communications specialist (optional).



4. Development of guidelines

- An iterative process undertaken with the AFAC SES CSG to co-develop guidelines for flood risk communication using evidence-informed best practice principles.



RESEARCH ACTIVITIES IN YEAR 2

Second year activities have taken our survey research through to completion of data collection, and have progressed interview and experimental research activities. The team has worked to disseminate initial research findings at a number of national emergency management conferences and has produced academic and practitioner articles; including a set of Research into Practice Briefs. Recently, activities have commenced to progress to the next phase of the project on the evaluation of floodwater risk communication and the co-development of guidelines for communication with AFAC SES CSG. The research project, and team, has supported a number of student activities and the submission of theses and reports.

Brief summaries of Year 2 activities are included below.

ENCOUNTERING FLOODWATER: SURVEYS WITH SES PERSONNEL

The Encountering Floodwater questionnaire investigates the experiences and attitudes of emergency service personnel towards encountering floodwater while on work duties. This survey was administered to NSW SES members early in Year 2 of the project (July-August 2018) following a pilot in Year 1. Subsequently, in collaboration with end users from the AFAC SES CSG, the survey was rolled out to ACT SES, VICSES and SA SES in Year 2. Approximately 1200 SES members have now completed the survey.

Analysis of NSW SES data has been undertaken and a paper is under preparation. Analysis of VICSES data is about to be undertaken for use in a paper at AFAC 2019, see later. Feedback summaries will be prepared for all jurisdictions individually, with a plan to combine data for a larger analysis and further reporting.

In addition to investigating general situational information about incidents of entering floodwater in vehicles (work and private), statistical analysis allows for identification of profiles/descriptions of these incident and the people 'at risk' of entering floodwater. The survey also contains information about willingness to drive through water and information about organisational safety culture. As outlined in utilisation potential (p15) the survey contains information relevant to WHS, training, and recruitment.

DRIVING AND PLAYING IN FLOODWATER: NATIONAL PUBLIC SURVEY

The Driving and Playing in Floodwater questionnaire was constructed to investigate the public's attitudes towards, and experiences of, encountering floodwater. This included both incidents of entering water whilst driving in vehicles and incidents where they may have entered floodwater on foot or in boats, or on inflatables, or swimming, etc. The survey was completed by over 2000 respondents from across Australia in December 2018/January 2019. Initial analysis was presented at the Floodplain Management Australia conference in Canberra in May, and further analysis is currently underway.



The structure of the public survey closely followed that used in the Encountering Floodwater survey with SES personnel. This approach allows 'lay' and 'expert' comparison analysis to be undertaken later. Due to the large sample size, it will also be possible to compare statistically the situations and profiles of those who entered, and those who turned around from, floodwater.

The public survey also asked about floodwater risk communication/campaigns. This enables a 'first look' at public response to risk communication, and views about its effectiveness. Thus forming a useful baseline for the next phase of the project.

INVESTIGATING AUSTRALIAN VEHICLE-RELATED FLOOD FATALITIES

Work was completed to explore vehicle-related flood fatalities in Australia (2001-2017). The National Coroners Information System (NCIS) was used to identify 96 fatalities from 74 incidents. These were explored in detail to describe the circumstances of these fatalities. Although previous studies have reported vehicle-related flood fatalities as part of the broader causes of flood fatalities, this is the first publication to focus on vehicle-related fatalities only, and to examine recent fatalities in detail. This paper is currently under review for publication and has been developed into a Research into Practice Brief.

MENTAL MODELS INTERVIEWS WITH EMERGENCY SERVICES

A mental models approach is being used to compare, contrast and explore how emergency service personnel and the public understand floodwater. The overall aim is to identify key areas of similarity and difference in perceptions and beliefs between professionals and the public. In-depth qualitative interviews have been completed with emergency services professionals from all jurisdictions in Australia. These interviews have been transcribed and limited analysis has commenced. We have identified a market research company to assist with selection of a sample for the remaining phase of this work with the (lay) public.

INVESTIGATION OF CUE UTILISATION IN FLOODWATER RISK ASSESSMENT

EXPERTise 2.0 is a software platform, comprising a number of computer-based tasks that can be tailored to different contexts and enable investigation of cue utilisation in decision-making. Research in cue-based processing is designed to help understand the bases on which humans interpret and form judgements in complex, time-constrained situations. It is being employed here to investigate the decision-making involved in assessing the risks of driving through floodwater on roads.

Development of a suite of floodwater risk tasks was completed in May and tested with a sample of NSW SES personnel in May/June. We are currently analysing the data and matching respondents' data to their (Encountering Floodwater) survey data collected previously, to assess how cue utilisation relates to a range of demographic and occupational data. A paper based on this pilot is being



written. We are supplementing this research with a sample of university students (inexperienced drivers) and with the public (see below – capacity building)

DISSEMINATION OF RESEARCH

Data from the SES and public surveys and the mental models interviews have been used in dissemination of project findings this year. A full list of presentations and reports is included at the end of this report.

A panel at the ANZDMC conference in the Gold Coast in June involved the use of project data to highlight challenges in flood risk communication and these were discussed by representatives of end user agencies and other stakeholders. Two papers are currently being prepared for AFAC 2019. One on the VICSES survey data and how it will be utilised, and a second on dilemmas in flood risk communication. Further dissemination is being undertaken through academic and practitioner papers, including practitioner-oriented summaries 'Briefs'.

ACTIVITIES TO PROGRESS PHASE 2 OF THE PROJECT

As mentioned above, the public survey included an initial assessment of flood risk communication campaigns, and their effectiveness. In addition, a student has undertaken a broad search to identify campaigns that have been used in Australia and in other English-speaking countries. This information will be shared with AFAC SES CSG to test for accuracy and for supplementing ahead of the next group meeting in October. At the October meeting, we will be hosting a workshop session to scope the evaluation and development of guidelines project work with the group and agreeing a work plan.

CAPACITY BUILDING – HDR AND OTHER STUDENT ACTIVITY

In addition to the project activities noted above, a number of research students have been undertaking projects that either complement the project by providing additional insights, or directly assist in meeting the overall project goals. These students and their research thesis details are summarised in Table 1 below. Our PhD student (Arifa) is due to submit her thesis in July 2019.

Student Name	Qualification	Thesis title	Dates
Mozumdar Arifa Ahmed	PhD. Psychology	Entering Floodwater: Fatalities, Perceptions of Risk, and Cue Utilisation	Jul 2016 – Jul 2019
Indra Sadeli	Masters of Organisational Psychology	Cue utilisation of the general public in assessing floodwater risk	Jan-Oct 2019
Natalie Holton	Undergraduate Psychology Honours	Inexperienced drivers' use of cues in assessing floodwater risk	Jan-Sept 2019
Rachel Begg	Masters of	Testing a measure of risk	Jan-Oct 2018



	Organisational Psychology	propensity for driving into water on the road	Submitted Oct 2018 (awarded Distinction)
Marvin Najem	Undergraduate Psychology Honours	Why do individuals avoid driving through floodwater? The role of social-cognitive influences	Jan-Oct 2018 Submitted Sept 2018 (awarded First Class)

TABLE 1. DETAILS OF HDR AND HONOURS STUDENTS CONTRIBUTING TO RESEARCH OUTCOMES IN YEAR 2 (2019).

PACE students (2018/9)

Four student interns from the Macquarie University Professional and Community Engagement (PACE) program have been part of our project team this year, two in August – November 2018, one in April – June 2019, and another has just joined the team (June – August). The first two PACE students (Robert and Zainab) undertook a literature review on published research that has investigated children, recreation and floodwaters. The third student (Josh) began the process of collating current and recent flood risk communication materials from Australia and other English-speaking countries, and our recent student (Sunil) is a joint psychology and data science student and he will be analysing data from the public survey to investigate willingness to drive through floodwater ('Water on Roads' image set).



KEY MILESTONES

The following table outlines the contracted milestones met in Year 2 of the project.

Milestone	Date	Title
1.4.1	September 2018	End user-focused Research into Practice Brief 1
2.1.1	June 2019	End user-focused Research into Practice Brief 3 – NSW SES Survey (draft currently)
2.1.3	September 2018	Poster presentation at BNHCRC/AFAC Conference
2.2.2	December 2018	Ethics application submitted
2.1.2	June 2019	End user-focused Research into Practice Brief 2 - Australian vehicle-related flood fatalities
2.2.1	May 2019	Australian vehicle-related flood fatalities research manuscript submitted to Journal

TABLE 2. MILESTONES

In addition to the formal milestones above, the following project achievements are noted:

- Initial NSW SES Encountering floodwater survey modified and data collected with additional jurisdictions: ACT SES Sep-Oct 2018, VICSES Apr-May 2019, and SA SES May-Jun 2019.
- Design and piloting of public survey 'Driving and Playing in floodwater' (Oct-Dec 2018).
- Public survey data collection (Dec 2018/Jan 2019).
- Identification of key challenges for flood risk communication from survey data and end user input – panel discussion at ANZDMC.
- Design, development, and testing of floodwater risk assessment cue utilisation online assessment (EXPERTise 2.0) (Mar-May 2019).
- Initial pilot of EXPERTise assessment with 92 NSW SES personnel.
- Testing of EXPERTise assessment with 150 students (inexperienced drivers).



UTILISATION AND IMPACT

SUMMARY

Opportunities for project utilisation have been limited and slightly delayed, due to a number of factors:

- This project was a new project in 2017, rather than a continuing project, and had limited research to draw on for utilisation.
- There was a gap between lead end users NSW SES in 2018 at a time when first stage research was underway with NSW SES.
- The first stage of the project involved a range of data collection activities that will be providing the platforms for utilisation going forward (i.e. provides the basis for future utilisation opportunities (see below).

To date project outputs have been through dissemination of research data at conferences and production of two academic manuscripts, a practitioner-focused article in AJEM, and three Research into Practice Briefs. As such, it is hard to know or detail the utilisation of these outputs.

At the end of the reporting period (end June 2019), work is underway with VICSES to plan utilisation of the research based on outcomes from the VICSES Encountering Floodwater survey data. Analysis is underway and meetings are occurring in early July to discuss the findings. A paper is being written for AFAC 2019 (due end July) for a presentation that will be given with the Chief Officer Operations, VICSES detailing how the research is being used/will be use by VICSES.

UTILISATION POTENTIAL

The following is a list of four project components with utilisation potential for development in 2019-2021.

- 'Water on Roads' – Four-image set. Potential as a general community engagement tool, and an engagement tool for driver education/traffic offender training, or as an engagement/discussion tool for SES use with members. Statistical analysis is currently underway to investigate 'norms' with the public sample (n=2200), and will be repeated with combined SES sample (n=1200).
- SES Encountering Floodwater survey included details of members' practices regarding driving through floodwater in work vehicles, the profile of personnel entering floodwater, and the link to organisational safety climate. These data present opportunities for SES agencies to evaluate their WHS policies and member education and communication.
- EXPERTise for floodwater risk assessment – depending on the outcome of the pilot, it may be possible to identify individuals exhibiting behaviour that indicates higher (or lower) cue utilisation. If this is related to better/more accurate performance (as theory would predicted) this has potential for



broader use at an organisational level - to assess the impact of training and/or objectively evaluate the development of expertise in this area.

- National guidelines for floodwater risk communication – the co-development of evidence-based best-practice guidelines with AFAC SES CSG should result in a document with longstanding utilisation potential.



NEXT STEPS

The project is transitioning to the second (final phase) which focuses on evaluation of flood risk communication and the co-development of national guidelines for flood risk communication with end users. Initial activities have commenced, including preliminary evaluation of general communication as part of the public survey, initial collation of flood risk communication campaigns, and discussion of approach and initial planning of workshop session with AFAC SES CSG in October 2019.

The project is running behind schedule due to an unexpected change to project leadership, with Katharine Haynes leaving Macquarie University to take up a position at University of Wollongong. This left us short of resources to deliver a number of project dissemination commitments in the period May-July 2019, including two written papers (AFAC), a panel session (ANZDMC), and a presentation (FMA). We are working to catch up in the next two quarters.



PUBLICATIONS LIST

PEER REVIEWED JOURNAL ARTICLES

- 1 Ahmed, M.A., Haynes, K., Taylor, M. Vehicle related flood deaths in Australia 2001-2017. Journal of Flood Risk Management. (Submitted).
- 2 Taylor M., Haynes K. (2019). When is it OK to drive through floodwater, and how do we communicate that? News and Views article. Australian Journal of Emergency Management. 34:2 10-11.
- 3 Ahmed, M.A., Haynes, K., Taylor, M. (2018). Assessing the risks of driving into floodwater: A systematic review. International Journal of Disaster Risk Reduction. 31, pp953-963.

MEDIA PUBLICATIONS

- 1 Mannix, L., Haynes, K., (2019). Awkward conversations: Science says you're way more likable than you think. The Age and Sydney Morning Herald. February 13, 2019.
- 2 Mannix, L., Whittaker, J., Haynes, K., (2019). Lessons of Black Saturday ignored as Australians forget, research shows. The Age. February 5, 2019.
- 3 Gorrey, M., Haynes, K., (2019). Nine minutes to flee: Parramatta's catastrophic flash-flooding warning. The Sydney Morning Herald. Front Page. February 19, 2019.
- 4 Mannix, L., Haynes, K., (2019). No denying weather presenter Bunn is subtly selling climate change. The Age. February 25, 2019.

AWARDS

1. Mannix, L., Whittaker, J., Haynes, K., 2019 EMPA Awards for Excellence in Emergency Communication. Judges choice award for the scientist in residence collaboration and the article 'Lessons of Black Saturday ignored as Australians forget, research shows. The Age. February 5, 2019'.
2. Tippett V., Haynes, K., 2019 Excellence in Innovation Award 2019. National Cooperative Research Centre Association (NCRCA). Awarded for innovation with demonstrated impact for Australia for Bushfire and Natural Hazards CRC research on Risk Communication.

PRESENTATIONS (ORAL)

1. Haynes K., My experience as a scientist in residence at The Age Newspaper. National Cooperative Research Centre Association Conference. Collaborate Innovate. May 2019, Hilton, Adelaide.
2. Taylor M., Haynes K., Tofa M., Ahmed M. Australia Speaks – National survey exploring experiences and attitudes towards entering floodwater. Floodplain Management Australia Conference. Canberra, May 15, 2019.
3. Taylor M., Tofa M., McLaren J., Readman P., Sullivan D., Rundle S., Rose D. Challenges for floodwater safety and risk communication. Australia and



New Zealand Disaster and Emergency Management Conference. Gold Coast. June 12, 2019.

4. Tofa, M. Haynes, K., Taylor, M. Sheltering Experiences and Flood Risk Communication Research. Presentation to North Coast Floodplain Forum, Grafton, NSW, 13 March, 2019.
5. Taylor, M. (2018). Leading a horse to water: What do Hendra virus and flood risk have in common? Presentation to the Regulatory Science Network Annual Symposium. 15 November 2018, Canberra.
6. Tofa, M. & Haynes, K. Exploring mobilities during flooding. NZGS/IAG Conference July 2018, The University of Auckland, Aotearoa New Zealand.
7. Taylor M, Haynes K. Ahmed, A.M, Tofa, M., (2018). Defining Floodwater – expert and public perspectives. AFAC BNHCRC annual conference. Perth, Australia. September.

PRESENTATIONS (POSTERS)

1. Ahmed M., Haynes, K, Taylor M. Vehicle-related flood deaths in Australia, 2001-2017. Floodplain Management Australia Conference. Canberra, May 15, 2019.
2. Taylor M., Haynes K., Ahmed A., Tofa M. Encountering floodwater at work: Factors contributing to decisions to drive into floodwater. Floodplain Management Australia Conference. Canberra, May 15, 2019.
3. Ahmed, M.A., Haynes, K., Taylor, M. (2018). Vehicle-related flood deaths in Australia, 2001-2017, AFAC Conference, Perth, 2018.
4. Taylor M, Haynes K. Ahmed, M.A., Sato, L., Begg, R., Faulks, I., Irwin, J. (2018). Flood risk communication to reduce vehicle flood fatalities. AFAC BNHCRC annual conference. Perth, Australia. September.

CONSULTANCY REPORTS

1. Fountain L, Taylor M, Tofa M, Haynes K. (2018). Project U-Turn Evaluation. Evaluation of a community-based initiative to reduce vehicle-related flood risk. Prepared for Risk Frontiers and NSW SES. August 2018.

STUDENT THESES AND OUTPUTS

1. Najem, M. (2018). Understanding decisions to avoid driving through floodwater: Application of Protection Motivation Theory. Psychology Honours Thesis. Macquarie University. [Awarded Grade: First Class Honours].
2. Begg, R. (2018). Investigating NSW State Emergency Service members' willingness to drive through floodwater. Masters of Organisational Psychology Research Thesis. Macquarie University. [Awarded Grade: Distinction].
3. Begg, R. (2018). Investigating NSW State Emergency Service members' willingness to drive through floodwater. Poster. Voted best poster at Masters of Organisational Psychology Research Showcase. December



2018.

4. Humphris, B. (2018). Exploring the experiences of people who shelter during floods. Professional and Community Engagement (PACE) student report. November 2018.
5. Cross, R. and Musaddaq Sheikh, Z. (2018). Flood risk communication project: Systematic review of literature on children, youth and floodwater. Professional and Community Engagement (PACE) student report. November 2018.
6. O'Loughlin, J. (2019). Flood risk communication project: Campaign collection and analysis. Professional and Community Engagement (PACE) student report. June 2019.

END USER WRITTEN AND ORAL BRIEFS

1. Ahmed, M.A., Haynes, K., Taylor, M., Tofa, M. (2019). Vehicle-related flood deaths: An analysis of vehicle-related flood deaths in Australia 2001-2017. Flood Risk Communication Research into Practice Brief 2. June 2019.
2. Ahmed, M.A., Taylor, M., Tofa, M., Haynes, K. (2019). NSW SES Experiences of driving through floodwater: Summary of survey findings. Flood Risk Communication Research into Practice Brief 3. June 2019.
3. Tofa, M., Taylor, M., Haynes, K. (2019). BNHCRC Flood Risk Communication Research Project Update. Presentation to AFAC SES CSG, 3 April 2019, Melbourne.
4. Ahmed, M.A., Haynes, K., Taylor, M., Tofa, M. (2018). Driving into floodwater: A systematic review of risks, behaviour, and mitigation. Flood Risk Communication Research into Practice Brief 1. September 2018.
5. Taylor, M., Haynes, K. (2018). BNHCRC Flood Risk Communication Research Project Update. Presentation to AFAC SES CSG, 11 October 2018, Melbourne.



TEAM MEMBERS

Project leaders

Dr Mel Taylor – Department of Psychology, Macquarie University

Dr Katharine Haynes – Department of Geography and Planning, Macquarie University (now University of Wollongong)

Researchers

Dr Matalena Tofa – Department of Psychology, Macquarie University

Gemma Hope - Department of Psychology, Macquarie University

Lisa Fountain - Department of Geography and Planning, Macquarie University

Students (2018/9)

Mozumdar Arifa Ahmed

Indra Sadeli

Natalie Holton

Rachel Begg

Marvin Najem

Project End Users

Lead end-user

Josh McLaren – NSW SES (Project Lead End User)

AFAC SES CSG end users/members

NSW SES	Joanne Humphries
VIC SES	Kate White
TAS SES	Colleen Ridge
ACT SES	Georgeina Whelan
QFES	Troy Davies
DFES	Ricky Curtis
NTFRES	Nicholas Cowham
SA SES	Liz Connell
SLSA	April Ryan
AFAC	Amanda Leck

Other collaborators/end users

VICSES	Ben Beccari
NTES	Jason Collins
NTES	Gemma Bellenger