bnhcrc.com.au

bushfire&natural HAZARDSCRC

DEVELOPMENT OF A NATIONAL SET OF COMMUNITY SERVICE ANNOUNCEMENTS FOR FLOOD RISK

Flood risk communication research utilisation project

Mel Taylor
Enduring Advantage Consulting/Macquarie University & Bushfire and Natural Hazards CRC

enduring advantage

MACQUARIE University

Version	Release history	Date
1.0	Initial release of document	19/11/2021

Australian Government
Department of Industry, Science, Energy and Resources

AusIndustry
Cooperative Research Centres Program

Publisher:
Bushfire and Natural Hazards CRC

November 2021

Citation: Taylor M (2021) Development of a national set of community service announcements for flood risk, Bushfire and Natural Hazards CRC, Melbourne.

Cover: Source: Mel Taylor

TABLE OF CONTENTS

ACKNOWLEDGMENTS

I would like to acknowledge the Flood CSA WG members, listed at the back of this report, for their work in co-developing messages and thank them for their expertise, support, and commitment throughout the project. Thanks also to the product end users at the ABC, Pat Hession and Theresa Rockley-Hogan for their advice, help with scripting, pre-recording messages for public testing, and generosity with their time to help develop fit-for-purpose messaging. I would also like to acknowledge the support provided by Melissa Peppin (AFAC) in facilitating meetings and focus groups and providing expert technical and communications assistance.

I would also like to acknowledge the contributions of others before this project commenced. This project was able to build on earlier discussions and several messages that had been drafted.

This utilisation project wouldn't have been possible without the original underpinning research, so I would like to acknowledge the research team, also named at the end of this report, and specifically thank Dr Katharine Haynes and Dr Matalena Tofa for working alongside me and helping to drive the research program.

Finally, I would like to thank those who participated in focus groups, testing the messages. You gave your time to contribute to this project and through your feedback and sharing your experiences provided valuable insights and suggestions for improvements to the messaging.

EXECUTIVE SUMMARY

This report details a five-month utilisation project linked to the Bushfire and Natural Hazards CRC 'Flood Risk Communication' core research project[1]. The project aim was to deliver a nationally agreed set of public flood risk messages, informed by research and agreed by a national working group comprising SES representatives from all Australian states and territories.

Specifically, the messages developed in this project are 'Community Service Announcements' (CSAs) intended for initial use by ABC Emergency. These CSAs would typically be used in radio broadcasts during or in the lead up to, significant flood or storm events.

These CSAs are messages of around 30 – 60 seconds duration; however, they may be combined to produce longer segments. In rolling emergency broadcasts, they provide breaks between status updates and warnings from the relevant state or territory emergency services and on-the-ground reporting. These flood CSAs contain public safety information about flood risks, desired behaviours and calls to action, and sources of help or support.

The project was highly collaborative, made possible by the creation of a Flood CSA working group (CSA WG). The CSA WG comprised representatives of all state and territory emergency service agencies with responsibility for response in floods, mostly State Emergency Services (SES), along with a representative of the Bureau of Meteorology (BOM), and representatives from the CSA product end user – ABC Emergency. This group was facilitated and supported by the report author and research Chief Investigator (CI) who also worked to incorporate research informed insights into the messaging, and a partner investigator (PI) from the research end user organisation, the Australasian Fire and Emergency Service Authorities Council (AFAC).

The project comprised three stages: scoping; co-development; testing and finalising.

1. **SCOPING** - this stage used consensus decision-making to identify and prioritise message topics and content areas.
2. **CO-DEVELOPMENT** – this stage involved message drafting and iterative review by the CSA WG to agree a provisional set of CSA messages.
3. **TESTING AND FINALISING** – this stage involved testing of the CSA messages through a series of focus groups with the public and a final round of review and refining based on their feedback to produce the final set of CSAs.

The final stage in this project is the end user production of the CSAs, i.e., professional recording and implementation ready for use. This last stage is outside the scope of the BNHCRC-funded project.

This report included details of the approaches taken and the outcomes in Stages 1 to 3.

[1] https://www.bnhcrc.com.au/research/floodriskcommunication

The scoping stage of the project included use of a survey to aid the consensus process. Following agreement on the main content areas the second stage was co-development. In this stage the CSA WG was divided into small cross-jurisdictional 'cluster' groups to draft messages in two or three content areas, and this was followed by a whole-of-group iterative review process. A set of 26 provisional CSA messages were produced at the end of this stage.

In the final stage the ABC end user produced a set of first-pass audio recordings of each CSA. These were used for message testing with the public. Seven virtual focus groups were run with a total of 39 members of the public. Sample demographics were collected during this process to ensure national coverage across the sample and inclusion of a mix of genders, ages, and flood exposure. In addition, based on CSA message content, important sample characteristics were monitored to ensure inclusion of relevant target audiences in the sample, i.e., parents of younger children and youths/teenagers, drivers, large and small animal owners, and people living in rural locations.

Message testing included assessment of initial impressions, message understanding (words, structure), message ambiguity (intent, confusion), and relevance/utility to self and others. Focus group feedback was then fed back into a final set of edits for a last series of reviews and refining to produce the final set of agreed CSAs.

NATIONALLY AGREED COMMUNITY SERVICES ANNOUNCEMENTS

The final set of Flood CSAs comprises 26 messages. This includes messages that can be used in all phases of flood and storm events, although the majority are designed for use *during* an event. The messages cover a broad range of flood risk content including the need to prepare and leave early, risks associated with driving in floods, storms, and flash flooding, playing, and having contact with floodwater, issues for a range of animal owners, and safety considerations when cleaning up after flooding. The full set of CSAs is included in Appendix 2 of this report and an example CSA is given in Figure 1 below.

> "It's dangerous to drive on flooded roads, causeways, and rural tracks.
> Driving into floodwater is the main cause of death in floods.
> Researchers say many people who drive through floodwater claim to have done it after '*carefully considering the situation*'.
> Consider this. Water over the road can hide deep potholes or roads that are completely washed away. Even if you *know the road well*, or you're *nearly home*, it doesn't make the decision to drive through floodwater any safer.
> Back it up and find a safe way to avoid floodwater."

FIGURE 1. EXAMPLE OF A FINAL FLOOD CSA (DRIVING DECISIONS IN FLOOD). EXPLICITLY INCORPORATING RESEARCH FINDINGS FROM THE BNHCRC FLOOD RISK COMMUNICATION RESEARCH PROJECT.

Following finalisation of the CSAs, these messages were approved by the AFAC SES Community Safety Group on 28 October 2021. These messages and the approach taken to develop them has now been written into an AFAC

Procedural Guideline, which was endorsed by AFAC Council on 28 October 2021 and is available via the AFAC website[2].

The ABC has also finalised the production of the CSAs and these were distributed and available for broadcast from 8 November 2021.

Although the CSAs were created in response to a request by the ABC, and with their involvement, there is the opportunity for other broadcasters to use them too. It is important that those interested in using these CSAs consult the local State Emergency Service agency on which messages will be broadcast to ensure that this messaging complements and reinforces emergency services' communications during the flood/storm emergency.

[2] AFAC National community safety announcements for flood risk communication. https://www.afac.com.au/insight/doctrine/article/Procedural

END-USER STATEMENT

Amanda Leck, *Australasian Fire and Emergency Service Authorities Council (AFAC), Vic*

Developing nationally consistent flood messaging is a significant achievement for the emergency services sector. These messages will minimise harm and save lives by ensuring that the ABC, as the designated emergency services broadcaster, is able to communicate key messages to impacted communities during floods. The fact that these messages are based on research and evidence has meant that emergency services agencies across Australia have been willing and able to collaborate to achieve these nationally consistent messages.

PRODUCT USER TESTIMONIAL

Patrick Hession, *Emergency Broadcast Lead, Australian Broadcasting Corporation (ABC)*

Standardised national flood messaging has not been possible until now and for these messages to be delivered in a relatively short space of time is quite an achievement. Having a process driven by experts in the field has allowed the agencies and communicators to focus on the messages that are most important for people to receive during a flooding event. Emergency broadcasters now have a significantly simplified set of messages to draw upon during flood coverage.

INTRODUCTION

FLOOD COMMUNITY SERVICE ANNOUNCEMENTS (CSAS) IN CONTEXT

Community Service Announcements (CSAs) are used by many broadcasters. They are typically defined as short messages that support activities, events, or charitable causes, and are differentiated from other forms of messages and advertisements mainly because they are broadcast for public good and without commercial charges.

The final goal of the project described here is to produce a set of nationally agreed messages for flood risk communication to be used in CSAs by the Australian Broadcasting Corporation (ABC) for emergency broadcasting.

The ABC is the official emergency broadcaster in Australia, and during emergency events, like floods and bushfires, local radio stations broadcast emergency warnings and alerts to impacted communities. In the current context, flood CSAs would be used during rolling emergency broadcasts on radio, and broadcast – as appropriate - before, during, and after flood and severe storm events.

Importantly, **CSAs are not warnings**. While warnings are focused on succinctly and persuasively encouraging protective action, CSAs (as a form of public information) can elaborate on relevant detail that people may be seeking[3]. CSAs contain higher-level, general advice and support to communities with the aim of increasing public safety. They are typically used by ABC Emergency to break up rolling broadcasts, between local state and emergency service warnings and on-the-ground reporting.

The CSAs used by ABC Emergency are typically around 30 - 60 seconds in duration. These short CSA 'modules' are also sometimes linked together to form longer length messages (up to three minutes). CSAs are spoken in a friendly but authoritative voice to gain listener attention. a. Although they are not warnings, or official directives, it is important to ensure that they do not contradict or undermine emergency services' communications.

PROJECT REQUIREMENTS AND SCOPE

Harmonised/national messaging

Although the ABC had an existing set of CSAs that could be used in floods and storms, these needed revision. In addition, these CSAs formed a complex matrix of messages that could be used in only certain jurisdictions or combinations of jurisdictions, meaning that there was potential for error if a broadcaster selected the wrong one to use, and potential confusion for radio listeners crossing state borders (e.g., travellers and tourists), or those listening to local radio broadcasts in areas that straddle state borders. Therefore, an important requirement in the

[3] From AIDR Handbook 16: Public Information and Warnings. https://knowledge.aidr.org.au/resources/public-information-and-warnings-handbook/

current project was to produce a single harmonised set of CSAs that could be used nationally.

Mutually exclusive/collectively comprehensive

As mentioned, CSAs can be linked together to form longer segments, and as such the CSAs were regarded as a 'set' in which each CSA contains a minimum of overlap of content, but collectively they span a broad range of content areas. This makes the job of combining CSAs simpler, by reducing the chances of repetition in the combined message whilst also enabling the ABC to span a full set of content in the messaging and covering the different phases of a flood or storm event.

Limitations

Due to the relatively short timeframes of the project, there were some limitations and aspects that were out of scope. The process used to develop and create messages took into consideration best practice principles for message construction, e.g., use of plain language, positive framing, and considered a range of target audiences for certain message content, but did not design messages for specific demographic groups within the community, e.g., culturally, and linguistically diverse (CALD) communities. In addition, although working closely alongside the product end user (ABC), the final production and implementation of the CSAs was not included in the remit of this project.

PROJECT STRUCTURE, ORGANISATION AND TIMELINE

In September 2020 the National Flood Community Service Announcement Working Group (CSA WG) was formed to co-develop a set of flood safety messages. The Flood CSA WG comprised representatives of State Emergency Services (SES) agencies from across all states and territories, as well as representatives from ABC Emergency, the Bureau of Meteorology, Australasian Fire and Emergency Service Authorities Council (AFAC) and a researcher (report author).

For this project (and report) the researcher/report author (Mel Taylor) is referred to as the Chief Investigator (CI). The CI led and directed the project. AFAC is the project end user. Its representative on the project (Melissa Peppin) is referred to as the Partner Investigator (PI). The PI supported the CI with project administration, technical/procedural guidance, and communications expertise. The ABC is the product end user and its representatives (Pat Hession and Theresa Rockley-Hogan) provided top-level oversight and guidance across all aspects of the project to ensure that the final product (the set of CSAs) was fit-for-purpose.

Although the CSA WG was formed in September 2020, after two initial meetings the delivery timeframe for the project changed from end-2020 to mid-2021 and there was a break in activities from November 2020 to February 2021. The project resumed in March 2021 and finished at the end of July 2021.

BACKGROUND

BNHCRC *FLOOD RISK COMMUNICATION* PROJECT (2017-2021)

The *Flood risk communication* project was a core research project in the Bushfire and Natural Hazards CRC program from July 2017 to February 2021. During this time the focus of the research was on the two main behaviours in floodwater that account for most fatalities, namely driving into floodwater and playing or recreating in floodwater (Haynes et al, 2017).

This project comprised several research studies focussing on the behaviours of the public and State Emergency Services (SES) personnel when encountering floodwater. Research also addressed conceptualisations of 'flood', and the use of environmental cues in decision-making when encountering floodwater for both these groups (providing a recurring novice-expert comparison across the research). A summary of the main research studies is shown in Table 1, below.

Number	Study name	Focus	Methods and participants
1	**Driving into floodwater: Systematic literature review**	Driving into floodwater, decision-making, risk perception, public	Systematic literature review
2	**Vehicle-related flood fatalities**	Driving into floodwater, public, fatalities	Analysis of coronial records
3	**How the public engages with floodwater**	Driving into floodwater, recreating in floodwater, public, decision-making, behaviour	Online survey administered nationally (n=2,184). Sample was proportionally representative of the adult Australian population by state and balanced for age and gender.
4	**How SES personnel (salaried staff and volunteers) engage with floodwater**	Driving into floodwater, emergency services, decision-making, behaviour	Online survey completed by SES personnel in four jurisdictions (n=1251).
5	**Environmental cues and assessment of floodwater risk (EXPERTise 2.0)**	Driving into floodwater, emergency services, public, cue utilisation, risk assessment	Online assessment tool completed by 162 participants (54% SES personnel and 46% public).
6	**Mental models**	Driving into floodwater, recreating, emergency services, public, behaviour, perceptions	Modified mental models research approach to risk communication. Interviews conducted with 10 SES professionals who specialise in risk communication and 18 members of the public.
7	**Current approaches to flood risk communication**	Flood risk communication, public	Desktop review of flood risk communication materials and analysis of responses (n=844) from the public survey who could recall a flood risk campaign message.

TABLE 1. SUMMARY OF STUDIES IN THE FLOOD RISK COMMUNICATION PROJECT.

This project also generated a range of outputs, including peer-reviewed academic papers and a series of practitioner-focussed *Research into Practice*

Briefs[4], see Figure 1. These outputs provide additional research-driven insights into behaviour and decision-making in flood situations.

The goal of the current utilisation project, resulting from the research just outlined, was to work with communications experts from emergency services and other key organisations to co-develop a series of nationally agreed Community Service Announcements (CSAs) for flood risk. In doing so, the intention was to ensure that this current Australian research along with other contemporary research would be used to inform and optimise the content of these messages.

FIGURE 1. FLOOD RISK COMMUNICATION RESEARCH INTO PRACTICE BRIEFS.

RESEARCH SOURCES INFLUENCING CSA DEVELOPMENT

Research from the BNHCRC *Flood Risk Communication* project was used to help inform the development of the flood CSAs, specifically information from the systematic review of driving into floodwater (Ahmed, Haynes, Taylor, 2018.), the analysis of Australian vehicle-related flood fatalities (Ahmed, Haynes, Taylor, 2020), and the public survey of encountering floodwater (Taylor et al., 2019 and Taylor et al., 2020). Other BNHCRC research that informed discussions and content, was research from a sister project in the communications and warnings cluster area (Tippett et al, 2021), including specifically, research on conflicting cues (Dootson et al., 2019, Dootson et al, 2021), as well as the author's prior research on the challenges for managing animals in disasters (Taylor et al., 2015; Taylor, Lynch, Burns, Eustace, 2015) and recent utilisation activities with large animal owners in the Hawkesbury-Nepean Valley in NSW (BNHCRC, 2020).

Additional non-BNHCRC sources were also consulted, such as academic research from Hamilton and colleagues at Griffith University (e.g., Hamilton et al 2016, Hamilton et al 2019) and emergency services' research commissioned by DFES (Risk Frontiers, 2017, The Behavioural Architects, 2018) and QFES (Hamilton et al, 2018). In addition, many experts on the CSA WG brought professional knowledge from service-driven research and evaluation of their own communications materials and direct engagement with communities.

[4] *Flood risk communication* Research into Practice Briefs can be accessed here https://www.bnhcrc.com.au/resources/practicebriefs

APPROACH

The approach taken for this project was loosely based on a design thinking process. Importantly, the project included three core features.

- **A human-centred approach** – keeping public message recipients at the heart of the work, considering their perspectives, and being evidence-informed through social research.
- **Iterative** – with messages created, reviewed, and refined repeatedly throughout the process.
- **Interdisciplinary** – with an expert working group from a range of disciplines with a variety of roles and professional perspectives.

(HUMAN-CENTRED) DESIGN THINKING

Figure 2, below, provides an example schematic of a design thinking process that broadly depicts the series of activities reflected in the current project.

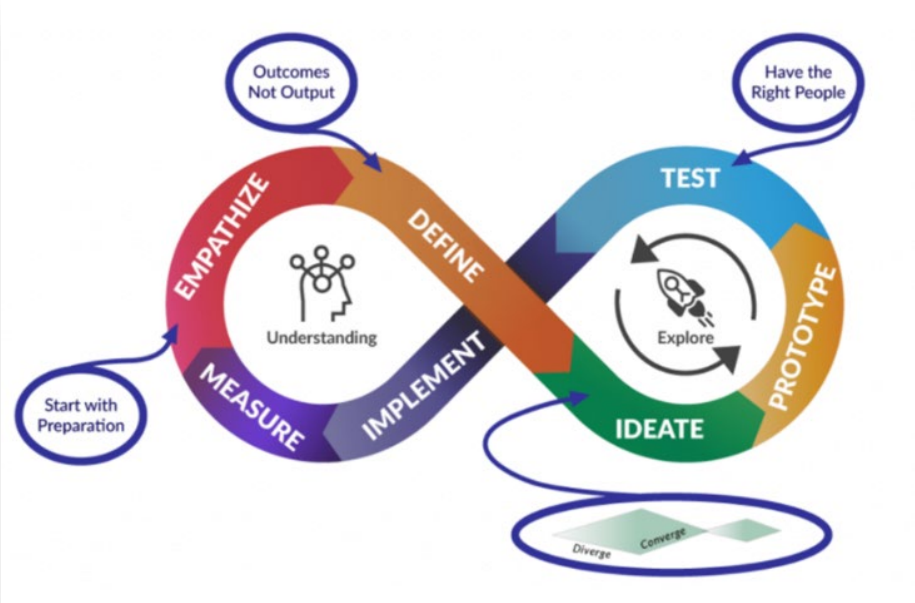


FIGURE 2. AN EXAMPLE OF THE DESIGN THINKING PROCESS (FROM REED WEBBER, UX DESIGNER, HTTPS://DIGN10T.COM/).

The 'understanding' portion of the process was mostly contributed by the underpinning research activities outlined in the previous section, as well as the practitioner knowledge provided by the CSA WG members. The 'empathize' component involves understanding the audience, their behaviours, motivations, and what influences their behaviours and decision-making.

The current utilisation activity began with the 'define' and 'ideate' components as part of the Stage 1 scoping activities. As shown in the figure, this latter 'ideate' work involved both divergent and convergent thinking as the CSA WG worked to expand and explore, and then prioritise and triage ideas and CSA message content. We then moved into the 'prototype' component in the co-development and iterative review activities in Stage 2 of the project, and finally moved to 'test' with the public message/target audience testing in Stage 3.

These components have been followed by the end user production stage, identified as the 'implement' component in Figure 2. In this stage the CSAs were professionally recorded and implemented into broadcasting systems and used. Measuring the effectiveness of these messages is the only unaddressed component in the design thinking process. Measurement in the field is possible, although outside the scope of the current project. However, the 'measure' element would likely be challenging due to the multiple levels, sources, and channels of communication during emergency events, as well as other important factors that may influence observed behaviours or receipt and recall of messages, such as social norms/behaviour of others, perceived authority of the messenger, and issues of trust, consistency, and credibility.

PROJECT OUTLINE

Figure 3 provides an overview of the project stages; the main activities, the main contributors involved, and the general timelines.

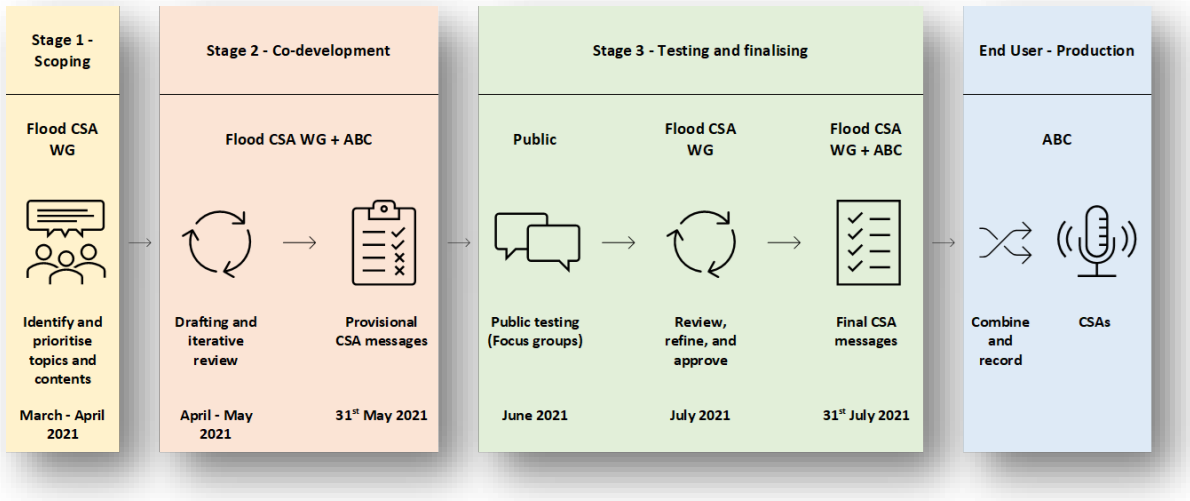


FIGURE 3. SCHEMATIC OF THE PROJECT SHOWING THE THREE STAGES, ACTIVITIES, AND TIMELINE.

The activities involved in each stage will be outlined in more detail in the following sections.

STAGE 1: SCOPING

Stage 1 - Scoping

Flood CSA WG

Identify and prioritise topics and contents

March - April 2021

RATIONALE

The goal of this stage of the project was to reach consensus on the content areas and message 'elements' to be included in the CSA set.

Although a series of Flood CSAs existed, the CSA WG was given complete freedom to choose the content of the new CSA message set. The scoping stage was conducted to expand and explore the full scope of content areas that could be included in the set of CSAs (divergent thinking) and to then identify and agree the content areas and message 'elements' that were regarded as priorities for inclusion (convergent thinking and consensus).

Given the national representation across the CSA WG this process enabled discussion of the shared flood risk challenges and specific differences encountered by different jurisdictions and in different locations, e.g., urban, regional, rural, and remote areas.

The approach taken in this stage of the project was guided by **consensus decision-making**. It was anticipated that jurisdictions would have differing views about the relative importance of certain risk areas or the use of certain words and phrases, or inclusion of certain content. Therefore, consensus was not reached based on a majority vote – as all opinions were equal and valid. Consensus was reached when everyone could either actively support or accept a decision about inclusion of an area/message content.

METHOD

In this initial stage priority was given to encouraging and promoting open and respectful dialogue. The core aim of this stage was 'consensus', both about the message contents and the approach being taken. As inclusive co-development and a sense of final ownership of the 'product' were additional goals of the project it was important to build trust and create a safe environment for discussion of differences and any concerns. For this reason, much of the activity in this stage revolved around discussion.

Following an initial CSA WG meeting, where some existing and new CSA messages were reviewed and discussed, the CI developed an online questionnaire to gain independent individual level input from all CSA WG members to identify and explore the main content areas.

In the first part of the survey respondents were asked to rate the importance of 13 main content areas. These areas were brainstormed by the CI and her research colleagues and were based on research data and analysis of risk communication content across jurisdictions (from the underpinning research project). CSA WG members were asked to consider both the importance of content for public safety and usefulness to the community (public value) of each

area, i.e., alongside considering how dangerous the risk was and therefore its likely priority to emergency services, respondents were asked to consider these areas from the public's perspective too – what would the public want to know about/expect to hear? The rationale for this was to encourage a move away from a 'warnings mindset' and consider the utility of these CSAs as 'public information' (i.e., user-centred). If the messages have meaning and relevance to the public, they are likely to engage more with the messages, and this more balanced approach is also likely to result in greater differentiation from 'warnings'. This latter point is important for both the WG representatives and the ABC product end user. For the WG members it helps reduce concerns about CSA messages being received by the public as warnings, or confused with warnings, and potentially undermining or diluting their local messaging, and for the ABC it helps to provide more engaging and varied content for broadcasting.

In the second part of the questionnaire respondents were provided with a range of **message 'elements' – finer grain content that could be included within each content area.** Again, to make this a time-efficient exercise these areas were provided by the research team based on the underpinning research and existing content communicated by emergency services about flood. In this section respondents were asked to indicate the need for inclusion – with a scale of 'not needed', nice to have', and 'essential'. In addition, respondents were asked to indicate whether a message element was likely to be controversial or contentious within the CSA WG/across jurisdictions. This served as a flag for the CI in subsequent discussions.

In both parts of the questionnaire respondents were able to add in additional areas or message elements and provide open comments. Respondents were also asked to identify any gaps or specific circumstances or audiences that needed consideration.

RESULTS

Thirteen of the fourteen members of the CSA WG responded to the survey in the timeframe provided. Figure 4 summarises the responses to section one of the questionnaire and shows the relative importance of each of the 13 content areas.

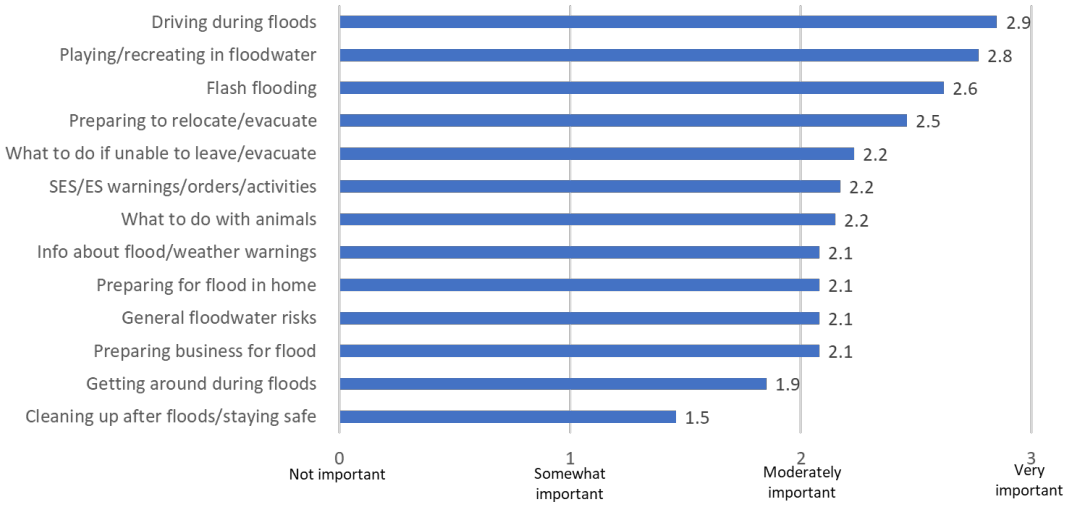


FIGURE 3. CONTENT AREAS - MEAN IMPORTANCE RATINGS.

Possibly unsurprisingly, driving in floodwater and playing in floodwater were identified as the top two areas important to include in the CSA message set. These two behaviours account for the greatest number of fatalities in floods in Australia and are consistent areas targeted by emergency services in risk communication messaging. As can be seen in Figure 3, most areas were rated by the group collectively as at least of moderate importance.

As outlined, for each of the 13 content areas respondents were asked to rate the need for inclusion of a number of message elements. Data for two content areas are shown as examples below (Figure 4. Driving in floods, and Figure 5. Flash Flooding).

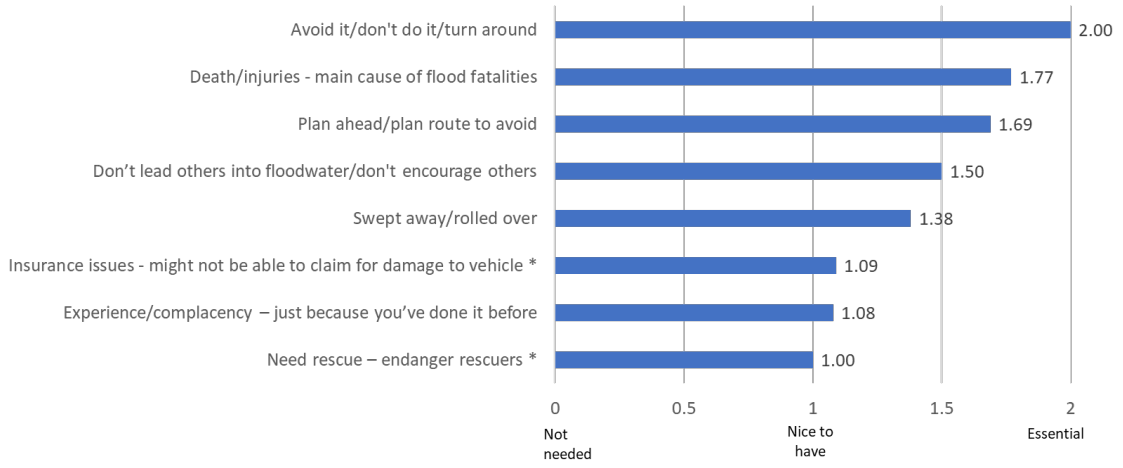


FIGURE 4. DRIVING IN FLOODS - REQUIREMENT FOR MESSAGE 'ELEMENTS' - MEAN GROUP RATINGS. ('*' = AREAS IDENTIFIED AS POTENTIALLY CONTENTIOUS BY ONE OR MORE CSA WG MEMBERS).

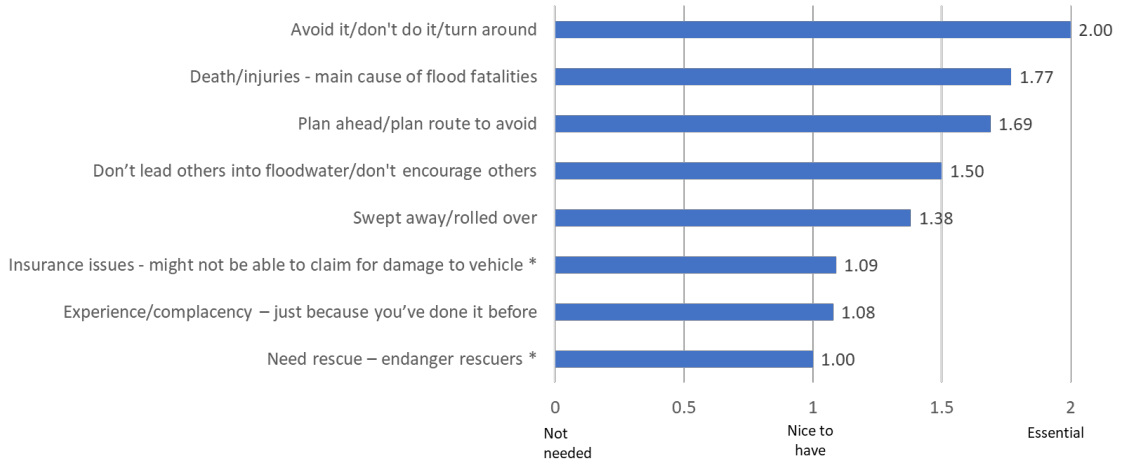


FIGURE 5. FLASH FLOODING - REQUIREMENT FOR MESSAGE 'ELEMENTS'- MEAN GROUP RATINGS. ('*' = AREAS IDENTIFIED AS POTENTIALLY CONTENTIOUS BY ONE OR MORE CSA WG MEMBERS).

As can be seen from the two figures above, the group means varied across areas and a few were felt to be contentious to include in messages, e.g. insurance issues, endangering rescuers, and mentioning that it might be safer to stay in place.

Data gathered in the survey was fed back to the CSA WG and used as the basis for consensus discussions. As can be seen, these data were helpful for identifying areas where the majority of members were agreed already, thus freeing up time to focus on the areas where there were more mixed opinions and teasing out

issues and differences. As mentioned earlier, consensus was not driven by majority vote (or directly by the mean group ratings shown in the figures), hence being able to talk as a group about different priorities for different jurisdictions was helpful for gaining a shared understanding of issues.

Similarly, understanding and discussing the nature of 'contentious' areas was helpful, e.g. there were different views around messaging to consider the danger to/feelings of rescuers. Although there was an appreciation of the reality for rescuers and the potential value of the message, others felt that this focus on 'them' was unhelpful or might be perceived as indulgent in some way, and the focus should be on the individual or community, e.g., the impacts of risky behaviour on them directly or their loved ones. Other common reasons for contention were concerns around responsibility if advice may be incorrect in certain situations, or result in greater/other dangers, or unintended consequences.

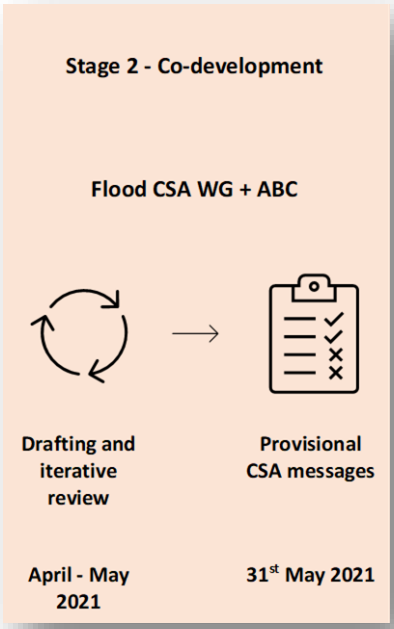
In total, 76 message elements were included in the survey, the mean ratings for each was used to rank them. This information is provided for information in Appendix 1 to show the full list of content considered. Cut-offs and colour-coding was used as a simple tool to consider them at a glance, but the mean rating was not used to exclude content directly.

In terms of additional areas raised in open comments, these included general suggestions to 'encourage of a sense of shared responsibility and people looking out for one another', and 'directing people to where to get more information'. Different demographic groups were mentioned too, such as the need for messaging directed to children/young people, and consideration of issues that were different for those in rural areas, such as long detours to avoid driving in floodwater, unsealed/poorer quality roads, and regular flooding with roads submerged for long periods of time.

OUTCOME

At the end of the scoping stage the activities just outlined resulted in a shared appreciation for a range of perspectives in the group and a clear sense of the areas that needed to be included in the set of CSA messages. At this point the priority areas were clearly identified and understood by all CSA WG members. A small number of message elements were rejected, due to contentious aspects or minimal interest in inclusion across the group, but at this stage of the project we did not exclude or preclude consideration of many lower priority areas or new areas in the next stage.

STAGE 2: CO-DEVELOPMENT AND ITERATIVE REVIEW



RATIONALE

Having gained a shared understanding of the broad content areas and messages to be included in the CSA set, the next step was to co-create messages and conduct iterative reviews to produce a provisional set of CSA messages for public testing in Stage 3.

APPROACH

To divide up the workload of drafting messages CSA WG members were divided into five 'cluster groups' of two to three people. Each cluster group was assigned two to three content areas for message drafting and the message 'element' information was available to all to help when considering the content of the CSAs. Most cluster group members were assigned randomly, although if a CSA WG member had identified an area of specific interest, or stronger support (than others) for a particular area, or resources to support message development in an area they were allocated to the appropriate cluster. All cluster groups comprised members from different jurisdictions.

Cluster groups were left to decide how they wanted to approach drafting the messages. As there were some CSAs already in existence and the scope of the project and product end user needs were well understood a flexible approach was felt to be appropriate.

A series of three fortnightly CSA WG meetings were scheduled (mid-April, early May, mid-May) to provide regular review points during the message drafting and reviewing.

The first CSA WG meeting (mid-April) overlapped with a few significant natural hazard events. Major flooding had impacted NSW (Eastern Australia floods) in late March and Cyclone Seroja impacted WA in April, this resulted in a few disruptions in the CSA WG membership as members were operational, deployed to other states, or on leave following operations, and some new members stood in as representatives. At the first meeting each cluster group presented back on their messages (if they were drafted) or their ideas and plans.

NSW SES and BoM had actively undertaken earlier flood CSA work so they provided more developed content to the group, other groups provided some key messages that could be included in longer CSAs, and others were not able to provide output at this point (due to a mix of reasons) but provided ideas.

After the first meeting, the CI took the draft messages and recording of the meeting, and with CSA WG agreement drafted a set of CSAs. New messages

were required in a couple of content areas that hadn't been addressed, e.g., animal management. During this period several CSA WG members offered support and resources, e.g., VICSES provided 'Key messages for VICSES Hazards', ABC provided some review and guidance on the early drafts.

The draft CSAs were then circulated before the second CSA WG meeting. Care was taken to explain where content in the draft messages had been taken from, e.g., a cluster group message or elsewhere. After the second meeting there was a further round of editing and reviewing, with a focus on problematic areas, and further work was undertaken between the ABC representative (PH) and the CI to start scripting the messages to make them tighter and (usually) more concise.

The third CSA WG meeting occurred in mid-May and further, more focussed edits were made to the CSAs, these were then circulated at the end of May for general CSA WG approval as the provisional set of CSAs for public testing.

PROVISIONAL COMMUNITY SERVICE ANNOUNCEMENTS

The provisional set of 26 Flood CSAs was produced at the end of this stage of the project. Although there was some variability in the length of CSAs. They typically comprise five to eight key points, see Figure 6.

Although there is no set structure, CSAs typically flow as follows:

- Opening line – statement of the main issue/problem statement (What).
- Second line – why it matters/what is the consequence (Why)
- Middle portion – expansion of the issue. Questioning assumptions/research evidence-informed content. Advice, action statements/things to do to be safe. Positively framed, easy to do/enabling, action oriented. (How).
- Ending – where to get support/help/advice. (Where).

FIGURE 6. GENERAL STRUCTURE OF FLOOD CSA MESSAGES.

The set of provisional CSAs covered a broad range of content areas and will be described in more detail later (see Project Outputs section). Many of the CSAs were informed directly by BNHCRC research, e.g., one of the CSA messages mentioned social pressures that influence behaviour, which were identified as significant in the public survey on driving through floodwater, others referenced flood fatality findings, and the impacts of conflicting cues (e.g., seeing blue skies when flood water is approaching from upstream). Other CSAs drew more directly on emergency service risk communication campaigns (themselves underpinned by research) e.g., 'Back it up' (QFES[5]), 'Bag it, block it, lift it, and leave' (VICSES[6]),

[5] Back it up (QFES) https://www.facebook.com/watch/?v=2230628597239776

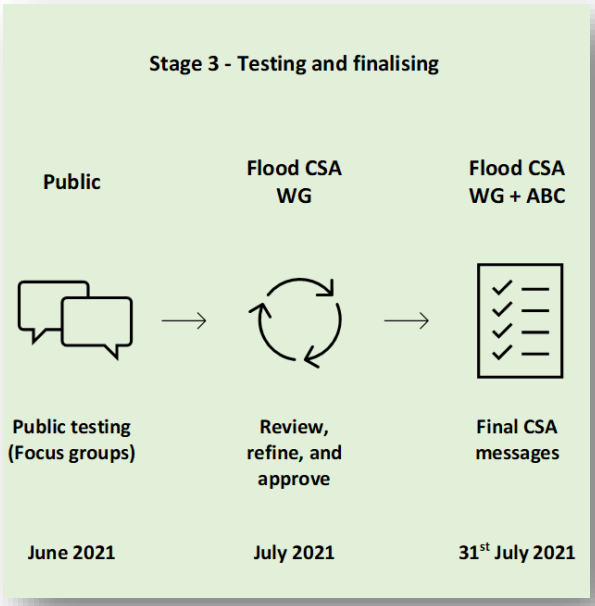
[6] Bag it, block it, lift it, and leave ((VICSES) https://www.youtube.com/watch?v=AsC_GBSCUH4

and animal-related CSAs were informed by research, BNHCRC research utilisation, and messaging for animal owners in the Hawkesbury-Nepean area[7].

FIGURE 7. A FEW OF THE MANY SOURCES THAT INFLUENCED FLOOD CSA MESSAGES.

[7] Get Ready Animals (NSW SES) https://www.ses.nsw.gov.au/get-ready-animals/get-ready-animals-splash-page/get-ready-animals/

STAGE 3: MESSAGE TESTING AND MULTI-STAGE REVIEW



RATIONALE

Focus groups were conducted with members of the public to test the set of 26 provisional CSA messages. Following testing, data were reviewed and incorporated into the CSAs through a three-stage review process. This then led to finalisation and approval of the final set of Flood CSA messages.

As most CSA WG members are experts who develop messaging to communicate with the public, it could reasonably be assumed that the developed messages would convey their intended meaning and be understood by the intended target audience (public). However, given the national implementation of the CSAs and the need for them to be broadly applicable across Australia, as well as the importance of these messages to support public safety, a series of public message testing focus groups was undertaken. This activity was approved by the Human Research Ethics Committee of Macquarie University (ID#6036).

METHOD

Message testing

Message testing is a frequently used approach in market research for optimising the effectiveness of messages and is usually employed for campaign or marketing purposes with potential consumers. In the current context a similar approach was taken with potential recipients of the CSA messages, i.e., members of the public, to gain insights into what they think and how they respond when they hear them. The broad goals of the message testing approach were as follows:

- To gain initial impressions/perceptions – unprompted views, positive and negative.
- To assess ease of understanding – use of words, structure/ordering of content, flow.
- To identify issues of message ambiguity – meaning, intent, confusion, coherence.

- To discuss relevance/utility – importance of message, relevance to self/community.

Through this process it was possible to gain a more nuanced understanding of how the messages were received and interpreted. If potential problems were identified it was possible to discuss these with the group to gain an indication of consensus and to discuss possible solutions, e.g., use of alternative words, deletion of unnecessary or repetitive content, or addition of important omitted content.

An end user representative from the ABC (PH) professionally recorded the provisional CSAs to provide message stimuli for the focus groups. As the CSAs are developed for use on radio, presenting messages in the same sensory modality (auditorily) is important for message testing – to gauge initial impressions and emotional responses to the messages, as well as understanding.

Participant recruitment

The study goal was to recruit up to 48 members of the public to participate (6 focus groups of up to 8 people). As this research employs a qualitative method (focus groups) this sample and the resulting data are not intended to be representative of the general population. However, to provide more rigour to the study we set a goal to include a range of participant characteristics across the sample. Specifically,

- national representation - participants from across all states and territories
- mixed demographics - a range of ages and mix of genders
- flood exposure - some participants with direct exposure to floods/from flood impacted areas
- content specific characteristics – to reflect the target audiences for some CSAs the group needed to include some participants who are drivers, parents of younger and older children, small and large animal owners, and based in urban and rural areas.

Given the relatively small sample being sought to fill this complex profile a mix of open and targeted recruitment approaches was used. Flood CSA WG members assisted by posting on social media (Facebook) and in newsletters/outreach, AIDR posted on LinkedIn, and the CI and PI drew on personal contacts, extended networks and groups via social media and email to target specific locations or specific characteristics, e.g., large animal owners.

Through these various approaches, people interested in taking part in the research contacted the CI via email and were sent a participant information sheet, a set of possible focus group times to provide their availability information, and a link to a short survey to gather the participant characteristics just outlined, contact information, and to complete a formal consent statement.

Following this step, selected participants were allocated to focus groups and were sent Zoom invitations by the PI.

Design

The set of 26 CSAs was divided into three groups of nine (with one repeated) – each group of messages included a mix of content areas, i.e., driving-related, animal-related, playing and water contamination-related, preparation and clean-up, and general information messages.

Focus groups #1-6 each reviewed one group of nine messages, so that each individual message was reviewed a minimum of twice overall. Focus groups #1/#4, #2/#5, and #3/#6 reviewed the same sets of messages.

In order to reduce the impacts of methodological biases on discussion of messages the order of presentation was reversed across these groups, see Table 2. This was undertaken specifically to reduce the impacts of order effects, e.g., discussion of one content area always following and potentially influencing discussion of another; group dynamic effects, e.g., the influence of an emergent leader/alter leader dominating or influencing discussion as the focus group progresses; and duration effects, e.g., fatigue, acquiescence/agreement bias or latching on to repetitive themes or limited perspectives.

Focus Group	Messages Tested - CSA# and order of presentation								
#1	4	3	17	22	1	12	9	19	15
#2	10	26	7	18	23	2	5	16	13
#3	11	8	20	24	21	6	14	25	1
#4	15	19	9	18	1	22	17	3	4
#5	13	16	5	2	23	18	7	26	10
#6	1	25	14	6	21	24	20	8	11
#7	2	5	7	14	16	19	21	12	-

TABLE 2. MESSAGE TESTING DESIGN: PAIRED GROUP, REVERSE-ORDERED MESSAGE PRESENTATION.

Initially a balanced design of six focus groups was planned, however, to accommodate the availability of several participants a seventh focus group was scheduled. The final focus group (#7) only reviewed eight messages. These eight messages were selected for (re)testing on the basis of earlier focus groups' feedback. Typically, they were messages that generated greater discussion or generated differing/inconsistent views across or within groups.

Procedure

A series of seven virtual focus groups was conducted, on the video conferencing platform Zoom, between 18th – 29th June 2021. The scheduling of focus groups was spread across the day (11.30, 13.30, or 18.00 AEST) to extend opportunities for participation across times and time zones.

Each focus group lasted for between 60-90 minutes. The two investigators (CI /PI) attended all focus groups. The CI acted as the lead facilitator and the PI managed the audio content and the technology/process (hosting, screen sharing, recording).

At the commencement of the focus group an initial introduction was provided. This included general 'housekeeping', ethics-related information (e.g., confidentiality, consent, recording and withdrawal), a brief overview of the project and the nature and potential use and context of use for the Flood CSAs, and an outline of the focus group procedure. After the introduction and an opportunity for questions the focus group recording was started, and message testing began.

The process for message testing was flexible to meet the needs and requests of each group but typically followed this structure:

1. Unaided discussion - with minimal introduction, an audio recording of the message was played - and this was followed by unprompted discussion of 'first impressions'.
2. Detailed/targeted discussion - the audio of the message was played a second time followed by further discussion and review of earlier comments, where relevant. This also typically included some prompting by the researcher, e.g., to expand the discussion, bring in other contributions, seek clarification, introduce alternative perspectives, or to gain an indication of consensus/differences of opinion on points raised.
3. Specific content discussion - the text of the message was displayed to participants and any further discussion undertaken, e.g., on specific word use or ordering of content.

This process was repeated for each CSA.

The process of message testing for focus group #7 was the same as noted above except that to test the (divergent) opinions of previous focus groups, these perspectives were introduced into the detailed/targeted discussion after the initial unaided discussions had taken place (if they did not occur unprompted).

Each session was closed with any final discussion, typically summary comments, e.g., messages that stood out as particularly pertinent or strong, general comments from participants about the project. Following this, participants were thanked, and the two investigators held a short debriefing session. In the debriefing the CI/PI discussed the overall 'feel' of the meeting and differences of opinions within the group and comparisons between groups were noted, as they related to specific messages.

Following the series of focus groups emails were sent to all participants to thank them for their participation and they were each sent a $75 Woolworths Wish e-voucher for their time and contribution.

RESULTS, ANALYSIS AND REVIEW

Sample

In total 39 participants took part in seven focus groups. The numbers of participants in each group ranged from 3 to 8 (mean per group = 5.6). The approach to participant recruitment was successful with the final profile containing the desired breadth of participant characteristics. Figure 8 shows the sample breakdown by state/territory and Figure 9 summarises the additional

sample characteristics. The sample comprised 66% female and 33% male participants.

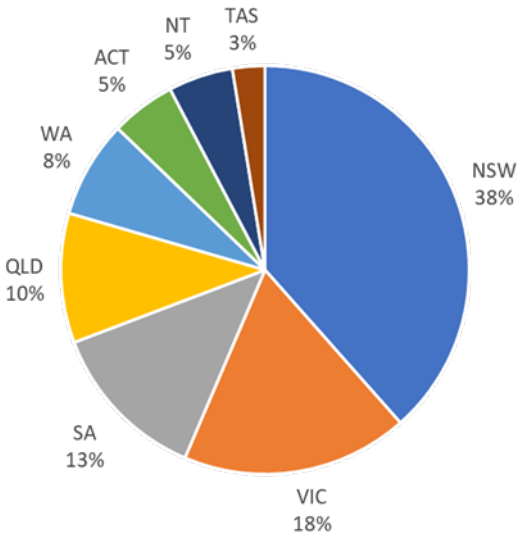


FIGURE 8. FOCUS GROUP SAMPLE BREAKDOWN BY STATE/TERRITORY (N=39).

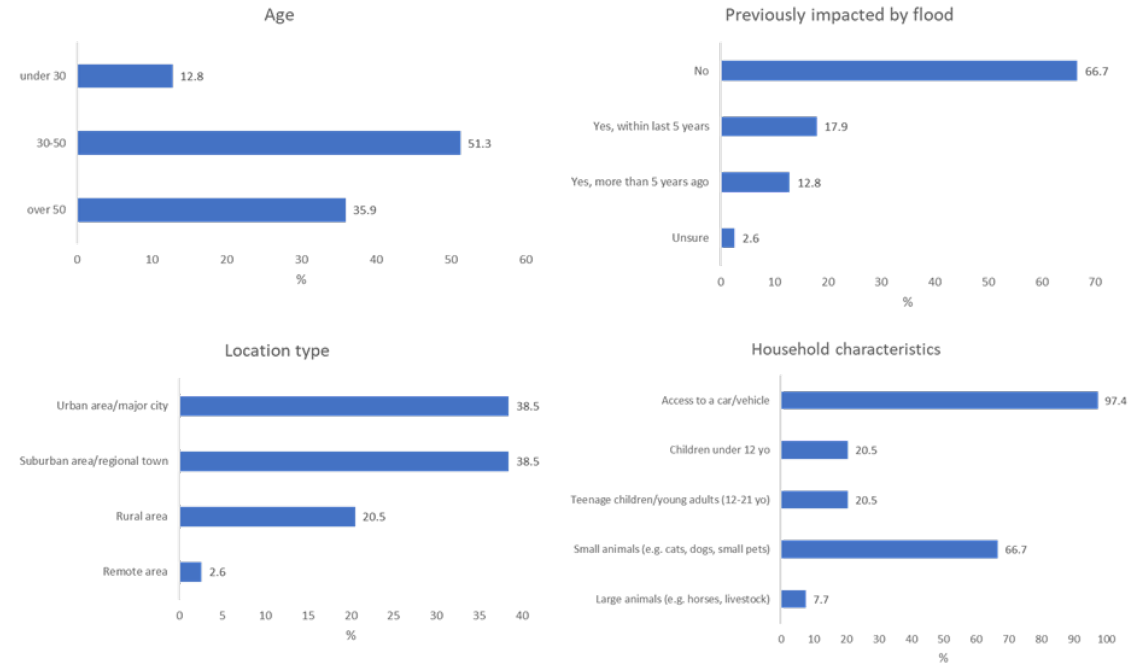


FIGURE 9. FOCUS GROUP SAMPLE CHARACTERISTICS.

Data analysis

The focus group data were analysed and reviewed in three stages.

Stage 1 – CI review

The CI analysed the focus group data by listening back to the recordings of each focus group and extracting the main relevant discussion points into an excel spreadsheet. For each CSA these data were coded and summarised into 'positive' comments and 'negative' comments.

'Positive' comments included positive and supportive general impressions, aspects of the message that were regarded as good or important and should be retained. 'Negative' comments included aspects that participants didn't like or questioned or were unsure of, and included ideas for improvement, inclusions, and missing elements, problematic or confusing words, and misunderstandings.

Once all data had been coded this way, each CSA was reviewed by the CI and 'possible edits' were noted. At this stage the CI's analysis and interpretation was limited, with some filtering out of irrelevant comments but limited critical appraisal to ensure that most discussion points were taken forward to the Stage 2 - team review.

In addition to the detailed extraction of key points the CI also incorporated a colour-coding ('at a glance') visualisation to help prioritise and direct the next stage of review. A colour-coding of green, amber, and red was used to identify the CSA messages with no or minor suggested edits (green), those requiring moderate, greater, or more complex editing (amber), and those that may need removal (red). Table 3 shows this top-level output from the Stage 1 review and the Stage 2 review that followed.

CSA #	CSA Name/content	Focus Group #							Stage 1 review	Stage 2 review
		1	2	3	4	5	6	7		
1	prepare to leave									minor
2	prepare home									minor
3	prepare animals/pets									minor
4	avoid driving									minor
5	thinking of staying									moderate
6	unable to leave									minor
7	large animals									moderate
8	animal owner risks									no change
9	rural roads									no change
10	driving consideration									no change
11	driving flash flooding									minor
12	flash floods									minor
13	walking and cycling									no change
14	livestock and eqpt									no change
15	flooding upstream									no change
16	general driving									moderate
17	general playing									minor
18	kids playing									no change
19	contaminated									moderate
20	teens playing									no change
21	clean up									minor
22	Emergency Alert									moderate
23	BOM Minor									minor
24	BOM Moderate									minor
25	BOM Major									minor
26	driving social pressure									no change

TABLE 3. COLOUR CODED VISUALISATION OF ANALYSIS. GREEN = NO CHANGE/MINOR SUGGESTED EDITS; AMBER = MODERATE, MORE DETAILED OR COMPLEX SUGGESTED EDITS; RED = REMOVAL (NOT USED).

In terms of the feedback given by participants, it is difficult to summarise this succinctly, but overwhelmingly feedback about the messages and the project were positive and supportive, with discussions about how important the content was, and how it would be received by communities. Some sample comments are included in Figure 10.

"I think it's really impactful. If there was a flood in the area…if I decided not to evacuate and then I heard that, I think I'd be .. I wouldn't have already thought about all those things that it [message] went through, and it would force me to think about some of those other inconveniences and problems. It's a good mix... of emotional things - like friends and family and smell - that would appeal to different people." (FG #7, Male, CSA #5)

"The kids one got to me, because we had the kids in the street here playing in the water and their parents thought it was ok" (FG#2, Female, CSA #18)

"I think it was good that it addressed some of the emotion around this. Obviously animals are something near and dear to people. It started off with 'we understand that this is something important to you… BUT here are the practical things that you need to consider in the situation as well'." (FG#3, Male, CSA #8)

"I think it's a really good introduction to a flood coming. Not having experienced floods previously we weren't sure what we needed to do, to be honest, it got us by surprise. So I think that's a great list to start... in preparing to evacuate." (FG#3, Female, CSA #1)

FIGURE 10. SAMPLE COMMENTS FROM FOCUS GROUP PARTICIPANTS.

In terms of 'relevant/irrelevant' comments, many participants commented on the length of the CSAs. Although that was a valid area for comment and important in the discussion of some of the longer messages, there was a need to reinforce the point that the CSAs were not 'warnings' and they needed to be around 30 – 60 seconds in duration minimum. It was understandable that they would sound long in the context of the (audio) testing where recall was a major part of initial unprompted discussions on first hearing. Generally, the length of shorter CSAs wasn't discussed as much on second hearing or as focus groups progressed and became familiar with how they sounded. In addition to discussion on the length of messages, personal examples and anecdotes were raised and discussed. In general, these anecdotes were not regarded as 'relevant' data in the context of the goals of testing the messages.

Invariably, discussion on the length of longer CSAs tended to lead to discussions about improvements, more important points in the message, and suggestions for better ordering or structure – these comments were included in the analysis.

Once the Stage 1 review was completed, the CI annotated a document containing the provisional CSAs, showing the original CSA wording side-by-side with edited versions of the CSA based on focus group participants' feedback. For some CSAs this included multiple variants to consider. This document was then sent to the PI and the ABC product end user representative (PH) for review.

Stage 2 – Team review

The CI met with the PI and the ABC end user (PH) to review the focus group data and the Stage 1 review document. The feedback for each CSA was discussed in detail along with the Stage 1 'possible edits' from the CI's excel spreadsheet and the edited CSAs in the document sent to the team. This enabled the PI to contribute observations as a cross-check and the team to review the suggested edits incorporating the product end user's expertise in emergency radio broadcasting. As the end user had direct experience of using the current Flood CSAs, he was able to advise on a number of additional points such as sentence

and message length, tone, stress, and emphasis of phrases when spoken, likely use in broadcasts and the optimal structure of messages.

As a result of the Stage 2 review, 9 of the 26 provisional CSAs remained unchanged, 12 had minor edits, and 5 had more detailed or complex edits (see Stage 2 review colour coding in Table 3).

'Minor' edits (green) were very simple edits that weren't felt to change or influence the initial meaning of the original CSA, such as a reordering of content, or a change of word, or an addition of a short phrase. For example,

- CSA #12 'Flash floods' - many participants didn't know what a 'culvert' was, so this word was deleted, and 'ditch' was added instead as an example of somewhere to avoid in flash flooding.
- CSA #6 'Unable to leave' - the specific amount of time food stays safe in a fridge (a figure taken from an official Commonwealth food safety organisation) was removed as this was considered controversial by participants and confusing, and consequently distracted from the main safety points in the message which were felt to be more important.
- CSA #1 'Prepare to leave' - the phrase 'make sure you do this safely' was taken off a single action in a list of preparedness actions, and the phrase 'Stay safe as you prepare to leave' was added to the end of the message, as all actions needed to be undertaken safely and it was felt to be important to emphasise 'safety' in the message overall.

'Moderate' edits (amber) as mentioned previously, were either more extensive or more complex changes and/or changes that could alter the initial emphasis of the CSA. The CI used this approach to help triage the edits for the next stage of review, to assist CSA WG members in prioritising their input at Stage 3. 'Moderate' edits encompassed removal of larger amounts of text, addition of new areas or larger chunks of text, changes that altered the focus of the message, or for alerting the CSA WG to broader focus group feedback for consideration. For example,

- CSA #5 'Thinking of staying' – lines were re-ordered in the message to make the intent clearer earlier, issues of phone and internet connectivity were added and charging mobile phones was removed (due to the 'confusion' of mentioning having no phone connectivity), and the last line, which included phone numbers for help, was removed. Again, this was to avoid the apparent contradiction with the message of not having phone connectivity, but also because this information would come from other sources in rolling broadcasts so wasn't regarded as necessary to include here too.
- CSA #7 'Large animals' – the provisional CSA was too long (180 words) and was unlikely to be used by ABC because of that. Following discussion with focus group participants about the key content (this included contributions from a farmer and a veterinarian) and feedback from the product end user about the message content being mixed up for its use in terms of timing (having both preparedness and response related content) the message was substantially reduced (83 words) and constructed to focus on preparedness only.

- CSA #16 'General driving' – this CSA was universally liked by focus group participants. However, in discussions about driving in floodwater a comment was made that there had been no mention of vehicle size or weight. Comments like this (missing an issue) were not uncommon because focus groups only reviewed a subset of messages, and the messages were designed to have limited overlapping content. In this case, however, it was noted that this important aspect had been overlooked in the CSA message set. In reviewing the driving CSAs (#9,10,11,16) this CSA (#16) was the most amenable to change to incorporate vehicle size. Edits were made to take out some content and include references to larger and heavier vehicles. Consequently, the focus of this CSA was altered, and this was something the CI wanted to draw to the attention of the CSA WG members in Stage 3 Review.

After Stage 2 Review the CI prepared a document for the CSA WG. This included the edited version of each CSA (now termed 'draft CSA') and included, for each, a table summarising some of the focus group feedback (positive and negative comments) and a breakdown of all the changes made from the provisional version and the rationale for these changes.

Stage 3 – CSA WG review

The Flood CSA WG members were sent the document of draft CSAs for review and feedback. Flood CSA WG members were asked to provide written feedback, and a final WG meeting was scheduled.

As a result of the Stage 3 review final minor revisions were made to 17 messages. Using prior terminology, all these revisions were 'green'. Typically, these changes were 'refinements' - additions or substitutions of a word or in one or two places repositioning or reordering of a short statement. They did not alter the meaning or balance of the message, but generally tightened or simplified statements.

For example,

- CSA #2 'Flood prepare home' - there was mention of 'floodwater' flowing back into the home via toilets and drains, and 'floodwater' was replaced with 'sewage' as this better represented the situation, and in
- CSA #24 'Flood warning moderate' - 'main routes' (being affected) was changed to 'main traffic routes'.

The last Flood CSA WG meeting was convened on 27th July 2021, and the set of draft CSA messages was approved.

An overview of the final CSAs is presented in the next section, with the full messages included in Appendix 2.

PROJECT OUTPUTS

During the period March 2021 to November 2021 there have been additional outputs linked to this project, as well as some linked more directly to the underpinning BNHCRC research project. Outputs linked to the research project (July 2017 to January 2021) are listed in the *Flood risk communication* Research Project Final Report[8]. Subsequent outputs are included in this section after the CSA details.

FLOOD COMMUNITY SERVICE ANNOUNCEMENTS

A set of 26 Community Service Announcements was co-developed with a working group comprising representatives from all SES jurisdictions, the BOM, AFAC, and the CI/researcher with regular input from and involvement with the product end user (ABC). The final approved CSAs are provided in Appendix 2 of this report. This message set includes messages that can be used in all phases of flood and storm events, although the majority are designed for use *during* an event, in the context of escalating and/or rolling emergency broadcasts on ABC local radio.

These messages cover a broad range of flood risk content including the need to prepare and leave early, risks associated with driving in floods, storms, and flash flooding, playing, and having contact with floodwater, issues for a range of animal owners, and safety considerations when cleaning up after flooding.

Table 4 summarises the full CSA message set, outlining the main message content and the target audiences for each CSA. In addition, the phase of the event/timing of use for each CSA is indicated.

ADDITIONAL PROJECT OUTPUTS

In addition to this current project report a final Research into Practice Brief (#8) was produced to summarise CSA development for practitioner audiences and was provided to the focus group participants, and the CSA development process and messages have been written into an AFAC procedural guideline.

1. Taylor M, Peppin M, Hession P, Rockley-Hogan T, National Flood Community Service Announcement Working Group. (2021). Development of a national set of Community Service Announcements for flood risk. Flood risk communication Research into Practice Brief No. 8. November 2021. Bushfire and Natural Hazards CRC. https://www.bnhcrc.com.au/resources/guide-fact-sheet/8267

2. Australasian Fire and Emergency Services Authorities Council. (2021) National community safety announcements for flood risk communication (AFAC Publication No. 3093). AFAC, Melbourne, Australia.https://www.afac.com.au/insight/doctrine/article/current/afac-national-community-safety-announcements-for-flood-risk-communication.

[8] Flood Risk Communication – Final Report
https://www.bnhcrc.com.au/publications/biblio/bnh-7824

#	Name	Core message/content	Target audience	Phase of use*
1	Flood prepare to leave	Prepare to leave actions	General - residents	Prepare
2	Flood prepare home	Flood impact mitigation actions	General - residents	Prepare
3	Flood prepare animals	Preparedness advice	Animal owners	Prepare
4	Flood/storm avoid driving	Plan ahead/alternative routes	Drivers	Prepare
5	Flood thinking of staying	Reality of flood/leave early/ questioning decision to stay	General	Prepare
6	Flood unable to leave	Advice if trapped	General	Response
7	Flood during animals	Leave early	Large animal owners	Response/Prepare
8	Flood during animal owners	Don't risk self/leave early	Animal owners	Response
9	Flood/storm driving rural roads	General risks/challenging knowledge/experience	Drivers on rural roads	Response
10	Flood/storm driving decisions	General risks/don't make decision to drive through	Drivers	Response
11	Flood/storm driving conditions	Rapidly changing/advice if caught out/avoid floodwater	Drivers	Response
12	Flood/storm flash flood	Rapidly changing/advice to avoid areas and if trapped	General	Response
13	Flood/storm walking and cycling	Rapidly changing/advice if caught out/safety advice	General	Response
14	Flood/storm livestock and equipment	Advice – prepare early, things to consider	Large animal owners / farmers/livestock	All
15	Flood prepare flooding upstream	Conflicting cues/stay alert/prepare and act	General - rural	Response/Recovery – concurrent
16	Driving into floodwater	General risks/avoid	Drivers	All phases
17	Floodwater playing	General risks/risks to children	General	All phases
18	Floodwater playing children	Risks to children/don't allow	General - parents	Response/Recovery
19	Flood/storm water contaminated	General risks/what's in water	General	All phases
20	Flood/storm playing	General risks/challenging invincibility	Young adults	Response/during
21	Flood/storm after clean up	General risks/things to consider	General - residents	Recovery
22	Emergency alert SMS	Information/one of a number of ways to inform/don't rely on it/stay aware	General	All phases
23	Flood warning - Minor	Information/meaning	General	All phases
24	Flood warning - Moderate	Information/meaning	General	All phases
25	Flood warning - Major	Information/meaning	General	All phases
26	Flood/storm driving social pressure	Social pressure/impact of others/avoid	Drivers	Response

TABLE 4 SUMMARY OF THE CSA SET OF MESSAGES. *ANTICIPATED TIMING IN RELATION TO EVENT – PREPARE = BEFORE; RESPONSE = DURING; RECOVERY = AFTER. SOME COULD BE USED ACROSS ALL/ANY PHASE AND IN CONCURRENT PHASES IN LARGE AND SLOWER RIVERINE FLOODING EVENTS.

CONFERENCE PRESENTATIONS

During the main period of activity reported here three conference presentations were prepared. Due to national COVID19 response two of the three conferences have been moved from their original dates to dates falling after the conclusion of this project, i.e., after July 2021.

These presentations are as follows:

1. Taylor M, Little, B, Rockley-Hogan T, Hession P, Tofa M. (2021) Development of national messaging for flood safety. Floodplain Management Australia. Sydney (virtual) May 2021. (Presentation and extended abstract)
2. Taylor M. Here comes the rain again: National harmonisation of public information messaging in floods. (2021). Australia and New Zealand Disaster and Emergency Management Conference. Gold Coast, September 2021.
3. Taylor M, Tofa M, Hope G, Taneja S. (2021) Floodwater on roads: Driver behaviour and decision-making. Australasian Road Safety Conference. Melbourne, September 2021.

MEDIA/OTHER OUTPUTS

The CI also contributed to the following outputs.

1. Stevens G, Taylor M, Schismenos S. "Why do people try to drive through floodwater or leave it too late to flee? Psychology offers some answers". The Conversation (22/03/2021) https://theconversation.com/why-do-people-try-to-drive-through-floodwater-or-leave-it-too-late-to-flee-psychology-offers-some-answers-157577
2. Taylor M. Driving in floodwater. Radio Interview with Richard Fidler, ABC Sydney (23/03/2021).
3. Taylor M. Driving in floods. Radio Interview with Leon Delaney, Drive Show, 2CC Canberra. (23/03/2021).

CONCLUSIONS

The activities outlined in this report led to the successful delivery of a nationally agreed set of 26 Community Service Announcements (CSAs) on flood risk. This was achieved through the commitment of an expert team of stakeholders who formed the national Flood CSA Working Group and active involvement of supportive product end user representatives from the ABC. At all stages of the project discussions were positive, constructive, and respectful. Differences were aired and compromises were made to ensure that the final set of messages are comprehensive in their content and widely applicable to a range of situations and target audiences across the Australian population.

Inevitably though, this set of messages is not exhaustive. Through the iterative review process and the scripting process some message elements identified in Stage 1 have not found their way into the final message set. In addition, gaps exist. Focus group participants identified desired content that is not included in the final message set, e.g., flood emergency kit ('go-bag') contents. However, to produce a usable 'product' compromises were required for the messages to be fit-for-purpose too, even though there is still room for future improvements. Fortunately, these CSAs form just one part of the messaging content that will be available when required.

In reflecting on the approaches taken, all stages of the project ran smoothly and delivered their objectives successfully. Although timelines were short this worked to maintain momentum, but it also led to short turnarounds for CSA WG reviews at times. The user-centred approach taken by the expert CSA WG when co-creating the provisional CSA messages coupled with the end user message testing in the public focus groups worked extremely well. The fact that the public focus group participants were engaged, constructive, and positive in their feedback serves to reinforce the public value placed on this type of information, and the fact that the message testing resulted in mostly minor editing or revision and all messages were retained at the end of the project is testament to the expertise of the emergency service (and other) communications practitioners on the CSA WG in crafting messages.

Endorsement of the CSAs in October 2021 by the AFAC SES Community Safety Group, the AFAC Council, and their incorporation into an AFAC Procedural Guideline means that they are now officially accepted and will be widely accessible and available for use by other message broadcasters, as well as all emergency services. In addition, as formal doctrine the guideline will be reviewed and revised at regular intervals and the CSAs will, hopefully, remain 'live' and current into the future. In November 2021 the ABC completed the production stage and distributed the CSAs ready for use. Hopefully these messages, in concert with state- and territory-specific public information and warnings, will make a meaningful contribution to the safety and resilience of the Australian public in future storm and flood events.

> *"I would have been one [of those people] to consider driving through a little bit of water, and that [message] really made a big impact on me. I won't be."*
>
> *(FG#7, Female, CSA #16)*

TEAM MEMBERS

UTILISATION ACTIVITY

Project team

Dr Mel Taylor, Chief Investigator (CI). Partner, Enduring Advantage Consulting and Honorary Associate Professor, Macquarie University.

Melissa Peppin, Partner Investigator (PI). Project Officer, Resilience and Risk Reduction, AFAC.

Flood CSA Working Group members

Fiona Amundson (ACT SES)
Rachel Armstrong (WA/DFES)
Daniel Barty (BoM)
Liz Connell (SASES)
Mark Cunnington (NT/PFES)
Jamie Devenish (VICSES)
Su Ferreira (WA/DFES)
Pat Hession (ABC Emergency)
Chloe Jeffers (VICSES)
Ian Leckie (NSW SES)
Megan Lehaney (WA/DFES)
Emma McGrath (TAS/DPFEM)
Sally Perry (NSW SES)
Theresa Rockley-Hogan (ABC Emergency)
Rachel Rowett (SASES)
David Webber (NSW SES)
Darren Welsh QLD/QFES)

UNDERPINNING RESEARCH – *FLOOD RISK COMMUNICATION* PROJECT

Project leaders

Dr Mel Taylor – Department of Psychology, Macquarie University

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

Dr Matalena Tofa – Department of Psychology, Macquarie University

Researchers

Dr Arifa Ahmed, – Department of Psychology, Macquarie University

Dr Daniel Sturman – Department of Psychology, Macquarie University/University of Adelaide

Gemma Hope - Department of Psychology, Macquarie University

Lisa Fountain - Department of Geography and Planning, Macquarie University

Sunil Taneja - Department of Psychology, Macquarie University

REFERENCES

1 Ahmed, MA, Haynes, K., Taylor, M. (2018). Assessing the risks of driving into floodwater: A systematic review. International Journal of Disaster Risk Reduction. 31, pp953-963

2 Ahmed, MA, Haynes K, Taylor M. (2020) Vehicle-related flood fatalities in Australia, 2001-2017. Journal of Flood Risk Management. https://doi.org/10.1111/jfr3.12616

3 Bushfire and Natural Hazards CRC (2020). Animal preparedness research shines again. News from the CRC. https://www.bnhcrc.com.au/news/2020/animal-preparedness-research-shines-again (29/10/20)

4 Dootson, P., Greer, D., Miller, S., & Tippett, V. (2019). Conflicting cues with emergency warnings impacts protective action. Hazard Note 59, Bushfire and Natural Hazards Cooperative Research Centre (BNHCRC). Retrieved from https://www.bnhcrc.com.au/hazardnotes/59

5 Dootson, P., Thomson, T. J., Angus, D., Miller, S., Hurcombe, E., & Smith, A. (2021). Managing problematic visual media in natural hazard emergencies. International Journal of Disaster Risk Reduction, 59, 102249.

6 Hamilton, K., Peden, A. E., Pearson, M., & Hagger, M. S. (2016). Stop there's water on the road! Identifying key beliefs guiding people's willingness to drive through flooded waterways. Safety Science, 89, 308-314. doi:10.1016/j.ssci.2016.07.004

7 Hamilton K, Peden AE, Keech JJ, Hagger MS. (2018). Changing people's attitudes and beliefs toward driving through floodwaters: evaluation of a video infographic, Transp. Res. Part F: Psychol. Behav. 53: 50–60.

8 Haynes, K., Coates, L., van den Honert, R., Gissing, A., Bird, D., Dimer de Oliveira, F., . . . Radford, D. (2017). Exploring the circumstances surrounding flood fatalities in Australia—1900–2015 and the implications for policy and practice. Environmental Science & Policy, 76, 165-176. doi:10.1016/j.envsci.2017.07.003

9 Keech, J. J., Smith, S. R., Peden, A. E., Hagger, M. S., & Hamilton, K. (2019). The lived experience of rescuing people who have driven into floodwater: Understanding challenges and identifying areas for providing support. Health Promot J Austr, 30(2), 252-257. doi:10.1002/hpja.181

10 Risk Frontiers (2017). Western Australia Post Flood Social Research. Report prepared for the Department of Fire and Emergency Services.

11 Taylor M, McCarthy M, Burns P, Thompson K, Smith B, Eustace G. (2015), The challenges of managing animals and their owners in disasters: The perspectives of Australian Response Organisations and Stakeholders. Australian Journal of Emergency Management, 30:2,31-37. https://ajem.infoservices.com.au/items/AJEM-30-02

12 Taylor M, Lynch E, Burns P, Eustace G. (2015), The preparedness and evacuation behaviour of Australian pet owners in emergencies and natural disasters. Australian Journal of Emergency Management, 30:2, 18-23. https://ajem.infoservices.com.au/items/AJEM-30-02

13 Taylor, M, Tofa, M, Haynes, K, McLaren, J, Readman P, Ferguson, D, Rundle, S, Rose, D. (2019) 'Behaviour around Floodwater', challenges for floodwater safety and risk communication. Australian Journal of Emergency Management, 34 (2019), pp. 40-7.

14 Taylor M, Tofa M, Fountain L, Haynes K. (2020) Public Survey of Driving and Recreating in Floodwater. Flood risk communication Research into Practice Brief No. 4. April 2020. Bushfire and Natural Hazards CRC. https://www.bnhcrc.com.au/resources/guide-fact-sheet/6870

15 The Behavioural Architects (2018). Developing behaviourally effective messaging to prevent flood water crossings. Presentation to the Department of Fire and Emergency Services, 4 July 2018.

16 Tippett V, Greer D, Mehta A, Dootson P, Bradley L, Miller S, and Murray, S. (2021) Towards protective action: effective risk and warning communication during natural hazards. Final Report. Bushfire and Natural Hazards Cooperative Research Centre (BNHCRC), Melbourne.

APPENDIX 1: SCOPING – LIST OF MESSAGE ELEMENTS

Topic	Rating	Message element
Flash	2.00	Risk - being washed away
Drive	2.00	Avoid it/don't do it/turn around
Play	2.00	Child fatalities – recreating in floodwater is the second highest cause of death in floods
General	1.92	Floodwater is unpredictable
Flash	1.92	Sudden/unexpected
WXwarn	1.92	Where to go for information
Play	1.85	Dangers of storm drains etc
Evac	1.85	How will you know (your triggers, don't wait to be told?)
Evac	1.85	What should you take with you
General	1.83	Never/don't enter
Unable	1.82	Best thing/s to do - advice on how to stay safe
Unable	1.82	Water – drinking/other/storage
Drive	1.77	Death/injuries - main cause of flood fatalities
Business	1.77	Employee safety
Clean	1.77	Electricity
Clean	1.77	Water
Unable	1.73	Power/electricity - what to do
Drive	1.69	Plan ahead/plan route to avoid
Play	1.69	You don't know what's in floodwater
Home	1.69	Belongings/property in home – raising up/protecting
Evac	1.69	What do you need to do / consider
WXwarn	1.69	Flood warnings – major, moderate, minor (BoM warnings)
SESwarn	1.69	Evacuation warnings / orders
Business	1.69	Customer safety
Business	1.69	What you can do to protect assets / reduce losses
Clean	1.69	General safety
Home	1.62	Water/electricity/gas – what to do
Evac	1.62	Leave early – roads may be cut before property affected
Evac	1.62	Take your animals with you-don't know whether roads will be cut /how long before you get back.
Business	1.62	Property/Stock/equipment – raised up
Clean	1.62	Where to get this sort of information
Home	1.58	Decide what you would take – what matters to you (Red Cross Rediplan)
Play	1.54	Acknowledge that water can look fun, but it's dangerous
Home	1.54	Keep phone charged and take phone charge
WXwarn	1.54	What warnings mean - how to interpret/what action to take
Drive	1.50	Don't lead others into floodwater/don't encourage others
General	1.46	Drowning /being swept away
Animals	1.46	Advice for - cats/dogs (small animals)
Clean	1.46	Infection control
General	1.38	Risk of injury/infection
Flash	1.38	Might be safer to stay in place/not evacuate
Drive	1.38	Swept away/rolled over
WXwarn	1.38	National warnings framework compatible/considered
Animals	1.38	What to do with animals you can't take - e.g. chickens, yard dogs, wildlife (what to do for the best)
Unable	1.36	Where to go for information
Flash	1.31	Large items in the water - injury/drowning
Travel	1.31	Shallow water can move quickly/knock you over – when walking or cycling
SESwarn	1.31	What to expect from emergency services
Animals	1.31	Advice for horses and larger pet animals
Animals	1.31	Where to get information (e.g. Get Ready Animals, State Ag Dept)
Home	1.25	Sandbags - how to get them/where to place them
General	1.23	What sorts of things might happen - loss of power, NBN
Home	1.23	Bathrooms/drains - stop backflow
Clean	1.23	Mold / slips / safety of structures
Clean	1.23	Freezers (spoiled/safe food)
Play	1.15	Injuries/grazes and scratches – can get infected
Animals	1.15	What to do for different animals (or what NOT to do - eg don't tether)
Business	1.15	Insurance
Clean	1.15	Cleaning up - advice, what to use
Drive	1.09	Insurance issues - might not be able to claim for damage to vehicle
Animals	1.09	Feed – protection from water/feed for animals
Drive	1.08	Experience/complacency – just because you've done it before
Home	1.08	Consider low lying areas/places where water collects – driveway (exit/escape routes)
Home	1.08	Have at least half a tank of fuel (so no need to fill up/delay)
SESwarn	1.08	Other things emergency services will be doing?
Animals	1.08	Relocation of animals on property– high ground/safer places
Drive	1.00	Need rescue – endanger rescuers
Travel	1.00	Issues of standing water/roads cut/congestion
Flash	0.92	May be at known places - and unknown places
Flash	0.92	Any signs/things to look out for
Travel	0.92	Public transport disruption - leave more time/find out ahead of time
Home	0.92	Know how to open your electric garage doors with no electrical power
General	0.85	Recognising likelihood of flood - soaked land, forescast
Animals	0.83	Farm preparedness – what you can do/where you can get info (machinery, insurance)
Evac	0.82	Emergency services are not responsible for rescuing pets
Travel	0.70	Use travel apps

APPENDIX 2: FLOOD COMMUNITY SERVICE ANNOUNCEMENTS (FINAL VERSIONS)

1. FLOOD PREPARE TO LEAVE

If you know a flood is coming, leave your home early and go somewhere safer - like to a friend or relative's house.

Before you leave there are some things you can do to keep you and your household safe.

- Identify the safest route to your nearest safe location and leave well before roads are impacted by floodwater.
- Move vehicles, outdoor equipment, garbage, chemicals, and poisons to higher locations.
- Put indoor items that you want to protect in higher locations.
- Put plans for your pets and other animals into action to keep them safe.
- Don't forget to take your medications with you.
- And let friends, family and neighbours know what your plans are.

Get more advice on how to prepare for floods from your state or territory emergency service and stay safe as you prepare your property and leave.

2. FLOOD PREPARE HOME

Floodwater can cause a lot of damage in your home.

Take simple steps ahead of time to reduce the impacts of flooding.

Sandbags can reduce the amount of water entering your home when used and laid correctly.

A great way to stop sewage flowing back into your home is to place sandbags inside plastic bags and then use them to block toilets and cover drains and sinks.

You can protect furniture and valuables by moving them higher, either to an upper level in your home, or by moving them up off the floor onto the kitchen bench, tables or whatever you have handy.

Know your trigger to leave and leave while you can get out safely.

3. FLOOD PREPARE ANIMALS

You are responsible for your animals in an emergency.

In floods it can take several days, or even weeks, for floodwaters to clear and your animals are relying on you to keep them safe.

If you have pets and other animals, it will take you longer to evacuate in a flood or other emergency. Leaving early is the safest option.

Plan to take your animals with you.

Consider what items you may need for them - such as leads, carriers, toileting supplies, medicines, and food.

Don't forget to talk to neighbours and friends about what you want them to do for your animals if you can't get home, and how you could help them if they can't come home.

Information to help you prepare your animals for floods is available from RSPCA, Department of Agriculture, and the 'Get Ready Animals' website.

4. FLOOD/STORM AVOID DRIVING

It's dangerous to drive on flooded roads, causeways, and rural tracks.

Driving into floodwater is the main cause of death in floods.

Think about alternatives if your 'usual' roads are prone to flooding.

The best way to avoid driving in floodwater is to be prepared – that means wait for conditions to improve before heading out.

If you have to evacuate, plan the route BEFORE you leave, so you know where to go and how to get there safely.

Prepare to stay safe. Plan ahead.

5. FLOOD THINKING OF STAYING

In a flood, it's much safer and easier to leave early.

"*A few days at home waiting for the floodwater to go down*" won't be much fun.

Think about what it would be like in a flood…

Will you be stuck in your home if roads are under water? How long will it be before you can leave? Will your car still be there?

How will you manage without electricity, internet, or your mobile phone if power and communications are interrupted? How will family and friends know you're OK?

Will the toilet still work? Will food in your fridge still be safe to eat? And how bad will the smell of the floodwater and debris get?

For advice on how to prepare for floods, check out your state or territory emergency service website. While you still have power.

6. FLOOD UNABLE TO LEAVE

Leaving early is the best plan when there is the possibility of flooding.

If you're caught in *rising* floodwater and unable to leave, this is a life-threatening situation. Seek shelter in the safest and highest place you can find and call triple zero.

Rising floodwaters can lead to properties becoming isolated. Outages in your electricity and disruption to sewerage and other amenities may occur.

If you are unable to leave, but still have running water, fill containers with fresh water so you have supplies available.

Remember, food kept in your refrigerator will become unsafe to eat if the electricity supply is lost.

If you are isolated due to floodwater cutting off roads or other access, do not try to evacuate. It could be more dangerous than staying and waiting for help.

For emergency assistance, call the SES on 132 500. In a life-threatening situation call triple zero.

7. FLOOD PREP LARGE ANIMALS

You are responsible for your animals in an emergency.

Horses and large animals take longer to load and evacuate. Plan for your animals and practice your plan.

In an emergency the safest option for you and your animals is to leave early.

In a flood situation, traffic routes need to be clear for evacuating residents and emergency service vehicles. Horse floats and large vehicles can slow down traffic and you could easily get caught when roads close.

Plan to leave early. Really early.

8. FLOOD DURING ANIMAL OWNER

In floods, people will often risk their lives to save animals.

Your pets, horses and livestock are important to you, but during a flood you shouldn't risk your own safety trying to rescue them.

If horses or other large animals are trapped by floodwater, conditions are likely to be dangerous for people too. Animals can behave unpredictably when frightened - and you should assume that floodwater is contaminated and stay out of it.

If YOU get injured, you can't help your animals or the people around you.

The safest and easiest thing to do is to leave early and take your animals with you.

For emergency assistance, call the SES on 132 500. In a life threatening situation call triple zero.

9. FLOOD/STORM DRIVING RURAL ROADS

Driving into floodwater is the main cause of death in floods and storms and these deaths are often locals driving on local roads.

Unsealed roads will become slippery. Mud and debris add to dangerous driving conditions. Water on the road can hide deep potholes and damage to roads – including collapsed road surfaces and washed out drains. Poor lighting can make it even harder to judge the risks on wet roads.

Let someone know where you're going and when to expect you, and above all else, remember…

…just because you know the road well, doesn't mean it will be safe to drive when it's flooded.

10. FLOOD/STORM DRIVING DECISIONS

It's dangerous to drive on flooded roads, causeways, and rural tracks.

Driving into floodwater is the main cause of death in floods.

Researchers say many people who drive through floodwater claim to have done it after 'carefully considering the situation'.

Consider this. Water over the road can hide deep potholes or roads that are completely washed away. Even if you *know* the road well, or you're *nearly* home, it doesn't make the decision to drive through floodwater any safer.

Back it up and find a safe way to avoid floodwater.

11. FLOOD/STORM DRIVING CONDITIONS

During heavy rain, conditions can be unpredictable and 'flash' flooding can develop quickly.

If you're driving during wet weather, slow down so you can see and respond more safely to the changing situation around you.

If driving conditions become dangerous, pull off the road and stop somewhere safe – ideally on higher ground away from trees.

When it's safe to continue, be aware of driving hazards, such as mud, debris, damaged roads and fallen trees.

Know and understand the dangers. It's OK to turnaround from floodwater.

12. FLOOD/STORM FLASH FLOOD

Heavy rainfall can lead to *flash flooding* and there may be no time to warn you.

Some places are especially dangerous, like a dry creek bed that can flood in minutes. Never camp or leave your vehicle in these places.

If your home or business is prone to flash flooding, evacuate early - to reduce the chances of being cut-off or trapped.

Stay away from drains, ditches, or other locations where stormwater flows.

If you're trapped by *rising* floodwater, go to the safest place available to you, for example the second storey of a sturdy building.

For emergency assistance, call the SES on 132 500. In a life threatening situation call triple zero.

13. FLOOD/STORM WALKING & CYCLING

During heavy rain, conditions can be unpredictable and 'flash' flooding can develop quickly.

It's easy to find yourself in a dangerous situation if you're outside in storms and heavy rain.

Moving water will make it hard for you to keep your balance when walking or cycling, or harder for vehicles to see or avoid you if you're on the road.

Seek shelter away from water and places it could flow to – like drains and drainage channels, underpasses, or low bridges. Move somewhere higher and wait for conditions to become calmer.

Stay safe in storms and floods.

For emergency assistance, call the SES on 132 500. In a life threatening situation call triple zero.

14. FLOOD PREPARE LIVESTOCK AND EQUIPMENT

Livestock and equipment are at risk during flood.

If your property has not been affected by flooding *yet* – but could be – NOW is the time to activate your emergency plan.

Move livestock and equipment to higher ground while it is safe to do so BEFORE flooding impacts your property.

Ensure livestock have adequate feed to get through the initial few days. Remember, floodwater can take days or even weeks to clear.

If a safe paddock or refuge is unavailable, fix internal gates in an open position or cut internal fencing, to give animals an opportunity to escape danger.

Never leave external gates open, as animals loose on roads are a great danger to themselves, other drivers, and emergency services.

If livestock are trapped by floodwater, conditions are likely to be dangerous for people too. Don't risk your safety trying to rescue them. Seek additional help and advice.

For emergency assistance, call the SES on 132 500. In a life threatening situation call triple zero.

15. FLOOD PREPARE FLOODING UPSTREAM

If heavy rain and flooding have been recorded upstream, now is the time to implement your flood plan. How much time have you got to prepare and keep you and your loved ones safe?

Floodwaters can sometimes take a while to arrive, and floods can peak days, or even weeks after the rain has stopped. Blue skies are no guarantee for safety and local waterways can remain deceptively fast-flowing and dangerous after a flood peak.

It's important to keep monitoring weather warnings and forecasts on the Bureau of Meteorology website and be aware of warnings from your state or territory emergency service.

Stay aware of continuing or approaching dangers. Make sure your neighbours, visitors, and tourists are aware, so they can stay safe too.

16. DRIVING INTO FLOODWATER

Driving into floodwater is the main cause of death in floods. Many of these drivers were in four wheel drives and utes.

Floodwater over the road can look still but can hide fast flowing water underneath. It can be hard to estimate how deep the water is, or how strong the current can be.

Water also hides the road surface, which can get washed away and large potholes and cracks can form.

An unstable road surface can collapse under the weight of your vehicle.

If you come across water over the road – turn around. Stay safe by never driving through floodwater.

17. FLOODWATER PLAYING

It's dangerous to play in floodwater.

Playing in floodwater is a major cause of children's deaths.

Never swim, jump, walk or ride boogie boards or bikes in floodwater.

Floodwater can cause injury, illness, and death. It can contain things like chemicals, sewage, dead animals – and live ones too!

Floodwater can cover drains, pipes and debris that can trap you underwater.

Stay away from floodwater.

For emergency assistance, call the SES on 132 500. In a life threatening situation call triple zero.

18. FLOODWATER PLAYING CHILDREN

It's dangerous to play in floodwater.

Playing in floodwater is a major cause of children's deaths in floods. Floodwater can be deeper, and flow faster than it looks.

It may sound like fun, but the reality is that playing in floodwater and stormwater can be deadly.

Being trapped in storm drains, sucked into pipes, or washed away in stormwater are common causes of death. These things have happened to children who were playing in floodwater.

Don't let your kids play in floodwater. It's not worth the risk.

19. FLOOD/STORM WATER CONTAMINATED

Floodwater is dirty.

Exposing a scratch or a graze to floodwater can cause infection and serious illness - or even death.
So, what's in floodwater?

Dirt, mud, branches, rocks.
Chemicals, bacteria, poo.
Snakes, spiders, dead animals and much much more.

Assume all floodwater is contaminated. Avoid contact and protect yourself.

20. FLOOD/STORM PLAYING

Entering floodwater, even if you think it's fun, is a major cause of death during floods.

Think it through.

Floodwater can be deeper and faster flowing than it looks. Even shallow moving water can sweep you and your mates away. It can pull you into hidden obstacles, snag and tangle your clothing, and stop you seeing drains and pipes that you can be sucked into. On top of that, floodwater can be full of chemicals, garbage, dead animals, and SEWAGE.

Kayaking, canoeing, swimming, boating, jet skiing and any other types of water activity are not safe during floods, regardless of how strong or skilful you think you are.

Don't be a flood stat. Your best decision is to stay out.

For emergency assistance, call the SES on 132 500. In a life threatening situation call triple zero.

21. FLOOD/STORM AFTER CLEAN UP

After floodwater recedes, wait for authorities to announce that it's safe to return before you go back to your property.

Before you start cleaning up, take a moment to stop and consider a few things.

- Talk to your insurer.
- Check that power, water, solar, and gas supplies are turned off.
- Make sure your property is structurally safe by checking damage to windows, walls, electricals, and your roof. You may need assistance from qualified and licenced professionals.
- Wear protective clothing and be aware of slip, trip, and fall hazards.
- Clean and sanitise everything that can be saved.
- Take clean drinking water and food with you.
- Do not eat or drink any food items that have been exposed to floodwater.

Get more advice on how to clean up after floods from local authorities or your state or territory emergency service website.

22. EMERGENCY ALERT SMS

Emergency Alert messages *may* be sent when there is a threat near you.

These messages come through as a text on your mobile phone or a recorded message on your landline, and they tell you what you need to do to keep you and your family safe.

It's *just one* of the ways you could receive important information about what you need to do to stay safe during a flood.

If you do not understand the message, ask a family member, friend, or neighbour for help.

During floods and storms, conditions can change quickly, and *you also* need to take steps to know what's going on around you - in case you don't receive a warning.

It's important that you know where to go for information and that you continue to monitor alerts.

For emergency assistance, call the SES on 132 500. In a life threatening situation call triple zero.

23. FLOOD WARNING MINOR

Flood Warnings are issued by the Bureau of Meteorology to tell you about the risk of flooding in your area.

A *Minor Flood Warning* means minor roads may be closed, and low-lying bridges and access roads may be submerged.

In urban areas flooding may affect some backyards and buildings with low floor levels, as well as bicycle and pedestrian paths.

In rural areas you may need to remove livestock and equipment from low lying areas.

The flood situation can change quickly. It is important to monitor warnings for changes, even if weather conditions appear safe.

Monitor weather conditions and forecasts on the Bureau of Meteorology website or app, and warnings through your state or territory emergency service.

24. FLOOD WARNING MODERATE

Flood Warnings are issued by the Bureau of Meteorology to tell you about the risk of flooding in your area.

A *Moderate Flood Warning* means main traffic routes may be affected.

Some buildings may also be affected by floodwater above the floor level and the evacuation of flood-affected areas may be required.

In rural areas removal of livestock and equipment from low lying areas may also be required.

Heavy rainfall may lead to dangerous, localised flash flooding so you should avoid places where fast flowing water could flow to, such as storm water drains and creeks.

Monitor weather conditions and forecasts on the Bureau of Meteorology website or app, and warnings through your state or territory emergency service.

25. FLOOD WARNING MAJOR

Flood Warnings are issued by the Bureau of Meteorology to tell you about the risk of flooding in your area.

A *Major Flood Warning* means rural and urban areas are likely to be flooded and even major roads may be closed.

Many buildings may be affected by floodwater above the floor level and properties and towns are likely to be isolated.

Heavy rainfall may lead to dangerous, localised flash flooding so you should avoid places where fast flowing water could flow to, such as storm water drains and creeks.

Ensure you and your family can evacuate early, as major floods can cut exit routes before waters arrive at your property.

Monitor weather conditions and forecasts on the Bureau of Meteorology website or app, and warnings through your state or territory emergency service.

26. FLOOD/STORM DRIVING SOCIAL PRESSURE

It's dangerous to drive on flooded roads, causeways, and rural tracks.

Often, people who drive into floodwater are just following what others are doing or feel pressured by those behind them to keep driving.

Even if you make it through, others who see and follow, might not.

Remember, the safest and smartest decision for you, your passengers, and those around you is to stop and turn around.

Lead by example and turn around.