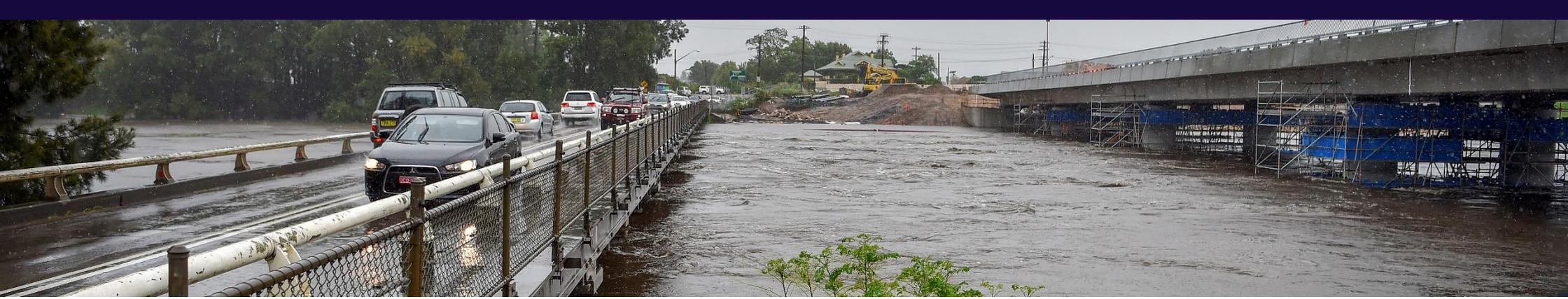




Hawkesbury-Nepean Valley Flood Research

Community Sentiment Telephone Survey

Infrastructure NSW | December 2022



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DISCLAIMER In preparing this report we have presented and interpreted information that we believe to be relevant for completing the agreed task in a professional manner. It is important to understand that we have sought to ensure the accuracy of all the information incorporated into this report. Where we have made assumptions as a part of interpreting the data in this report, we have sought to make those assumptions clear. Similarly, we have sought to make clear where we are expressing our professional opinion rather than reporting findings. Please ensure that you take these assumptions into account when using this report as the basis for any decision-making. The qualitative research findings included throughout this report should not be considered statistically representative and cannot be extrapolated to the general population. For the quantitative research results, the base (number and type of respondents asked each question) and the actual survey questions are shown at the bottom of each page. This project was conducted in accordance with AS: ISO2025:2019 guidelines, to which SEC Newgate Research is accredited. This document is commercial-in-confidence; the recipient agrees to hold all information presented within as confidential and agrees not to use or disclose, or allow the use or disclosure of the said information to unauthorised parties, directly or indirectly, without prior written consent. Our methodology is copyright to SEC Newgate Research, 2022.





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Executive summary





Key insights

The following key insights are drawn from **a quantitative telephone survey with N=400 household decision-makers** from across the Hawkesbury-Nepean Valley (HNV) Floodplain. Fieldwork was conducted between Oct-Nov 2022, following **three major flooding events since the previous survey was conducted** in Feb 2021. This is the fourth survey in the series—following studies in 2014, 2018 and 2021—and is intended to guide the implementation of the HNV Flood Risk Management Strategy.

Local perceptions of flooding as ‘likely’ and ‘severe’ has increased

Perceptions of both the likelihood and the seriousness of floods have significantly increased compared to 2021: from 26% to 40% in likelihood and 41% to 56% in seriousness (ratings of 7+/10).

The vast majority of the community (93%) acknowledges that a flood of similar or larger size to the floods in 2022 is likely to happen again.

Overall, the community showcases a deeper and growing appreciation for the risks posed by floods—likely as a result of the successive major flooding events that took place in March 2021 and March and July 2022.

However, there is still a gap in desired evacuation behaviours

Just over half (53%) of those surveyed experienced at least one of the major 2022 floods—yet only around a tenth (11%) of the community evacuated.

Around three-fifths (58%) of those who experienced a flood reported seeing or hearing at least one Evacuation Order—and of those, the vast majority (70%) chose to ignore the order.

This reinforces a challenge identified in previous flood research, with many people continuing to dismiss official warnings and orders.

This behaviour was more likely amongst those who have experienced floods before—notably, those from the Lower Hawkesbury and Richmond / Windsor areas, and in the 40-54-year age bracket.

People are likely to underestimate the time required to evacuate

While the median evacuation time reported was an hour and most evacuated in under two hours, underestimation appeared to pose a serious risk.

When asked how long it would take to leave their property in a flood, 5% felt unsure and 8% said they would not leave in such a scenario. Of the remainder, 16% estimated they would need more than two hours—up significantly from only 5% in the February 2021 survey, given that many have now experienced or witnessed the recent floods.

However, even this estimate lagged recollections amongst the small handful of residents who *did* evacuate in 2022—where one in four reported having taken more than two hours to leave. This highlights the risk of residents getting out too late.



Key insights *cont'd*

Behaviours appear driven by a strong sense of confidence, reinforced by recent experiences

Most who had seen or heard an Evacuation Order but chose not to evacuate (81%) had reasoned that they did not need to—because they would be safe in their own home. This reflects a key finding of past rounds of surveys.

In fact, there was a significant increase in the proportion who agreed with the idea that their home would be safe during a flood (40%, up from 28% in 2021). This attitude may have been reinforced during the recent floods, for those who had no or little impact to their homes.

Additionally, many reported feeling confident in their decision, with a greater proportion this year claiming to prefer using their own judgement if faced with a flood evacuation (36% vs 29% in 2021)—indicating these people may continue using their own judgement rather than following Evacuation Orders.

There is a greater sense of self-reported flood preparedness—but actual levels are likely to be lower

Overall, people's self-reported sense of being prepared for floods has significantly increased compared to the 2021 survey—along with their stated likelihood to prepare for a flood.

By the same token, a greater proportion this year reported having done at least 3 things to prepare (29%, up significantly from 8% in 2021), while fewer claim to have done nothing at all (38%, down from 51%).

However, we note that past research in the floods space cautions against presuming that people have a deep understanding of what they need to do to prepare. When probed, most show only a surface-level knowledge of what actions are required for flood preparation—suggesting room for further education and reinforcement.

Behaviour-change initiatives may need to focus on creating 'mental proximity' to flooding impacts

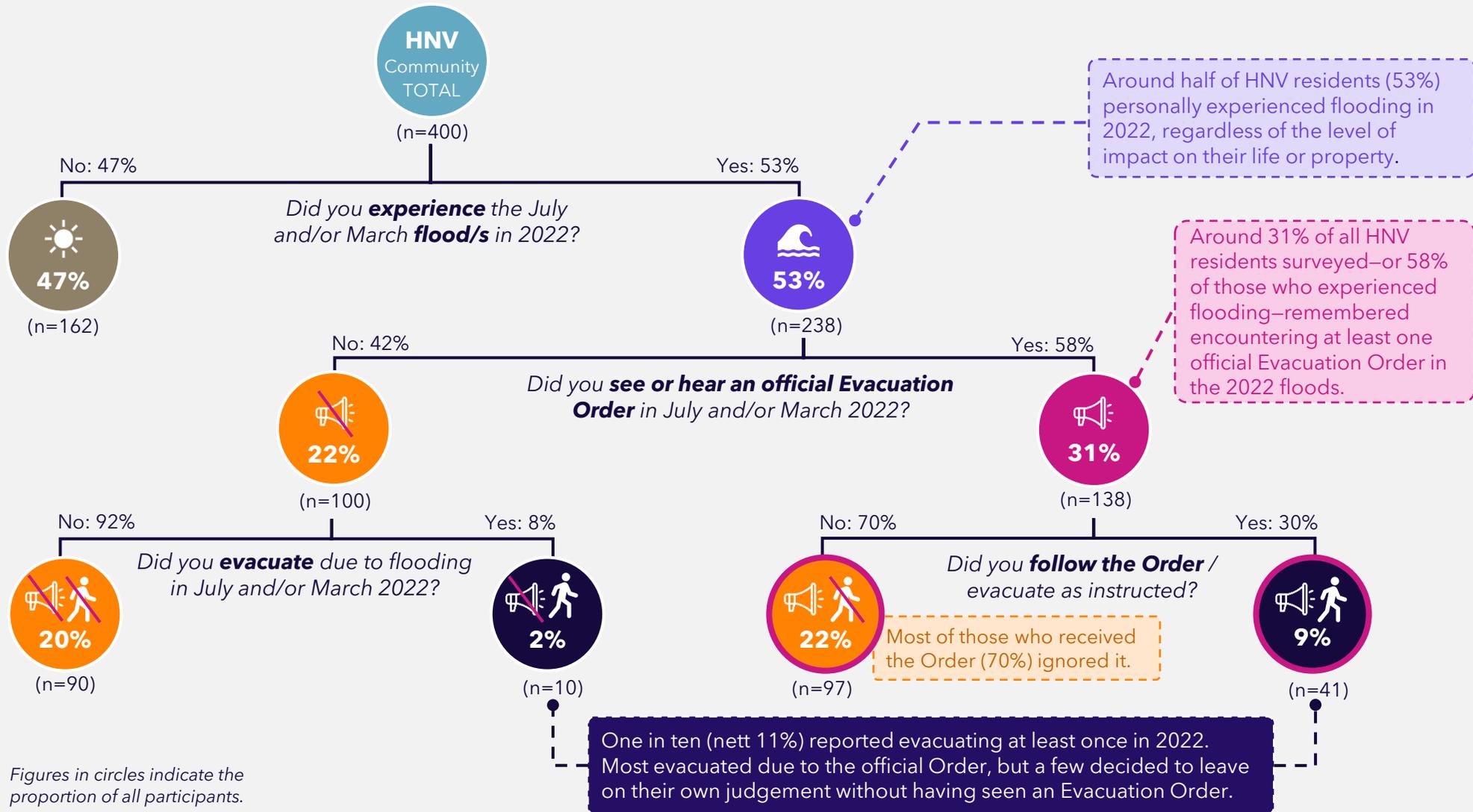
A targeted approach to overcome the gap between ideal and actual flood-safety behaviours needs to focus on dismantling and challenging the (often) misguided sense of safety and confidence.

The approach should consider how to create 'proximity' to the consequences of floods, and further increase the sense of the severity of floods. This could include urging people to reflect on what they *actually* know about flood preparation and what to do in a flood, developing metaphors to make flood impacts feel closer and more visceral, and creating case studies to bring the consequences to life.

This is in contrast to the approach in prior years, which had focused on hypothetical floods and awareness-raising. Now that residents generally understand the risks to be real, the greater task may be in dismantling unhelpful 'knowledge'.

An incidence tree of 2022 flood experiences

The diagram below illustrates the proportion of HNV residents who fell into each stage during the 2022 flood events. The figures shown in each circle indicate community-level proportions.



Key metrics dashboard

Question numbers	Key Metrics	2014 (N=400)	2018 (N=386)	2021 (N=400)	2022 (N=400)
Q5B / Q5C (Perception of risk split in two from 2021)	Perceived risk of flood (divided into 'likelihood' and 'severity' from 2021 onwards)	33	18	-	-
	Perceived likelihood of flood	-	-	26	40 ↑
	Perceived seriousness of flood (see footnote regarding comparability over time)	-	-	41	56 ↑
Q15	Household has done nothing to prepare for a flood	67	79	51	38 ↓
	Household has done 3+ things to prepare for a flood	4	2	8	19 ↑
Q23	Not aware of any procedures for a flood evacuation	13	10	4	4
	Able to identify 3+ flood evacuation procedures	25	32	48	60 ↑
Q4B	In an evacuation, would do as told (‘exactly’ or ‘even if you might question the instructions’)	71	71	70	63
	In an evacuation, would use own judgement (‘and follow instructions if they’re appropriate’)	27	26	27	33
	In an evacuation, would ignore instructions (‘because you know the best thing to do’)	0	3	2	3

Please note that the survey design and sample composition have evolved over time. Comparisons with previous years should be made with these caveats in mind – especially in 2014 when participants were recruited from an SES database rather than through commercial research panels.

↑↓ Indicates where a 2022 result is statistically significantly higher or lower than the 2021 result.

Communication recommendations

We believe the research findings offer a strategic communications opportunity in and of itself—with the potential to act as a ‘myth buster’ about safe and unsafe behaviours. Accordingly, sharing the main findings with key stakeholders, media and the local community would serve an important purpose in making people more aware of the risks they face when they do not heed the advice of emergency services—as well as the benefits of ‘doing the right thing’.

We do not believe the presentation of the information needs to be in any way sensational—the disparity between risk and behaviour speaks for itself. However, there is an opportunity for a more emotionally resonant, personally relevant approach to providing flood information. The data is especially compelling and powerful when it can be broken down or illustrated by hyper-local personal stories based on location and other relatable demographic traits.

Based on the research findings and the expertise of our specialist communications arm at SEC Newgate Australia, we offer the following advice for consideration.

Leverage local opinion leader networks to spread the word:

- With this set of fresh insights, there is a timely opportunity to revisit INSW’s stakeholder mapping for this communication task. For key stakeholders such as police and emergency services already responsible for flood communication, facts from the study would help support their messaging to the community about flood safety. As such, we endorse INSW’s continued coordination and briefing of these community insights with these established key stakeholders.
- The research has indicated that residents in the HNV are more likely to follow directives from local sources. Therefore, briefing local stakeholders about the findings would be another way to ‘get the message out’, as they are likely to share the information by word of mouth, in community presentations, in local newsletters, etc. An in-depth stakeholder engagement strategy that targets community leaders at a granular level should be developed, building on INSW’s existing engagement program. This should amplify general messaging, as well as delivering suburb-specific information.
- Targeted stakeholders and advocates could include local MPs (NSW and federal), local councillors and council staff, and the emergency services organisations that INSW already partners with—and extending beyond these ‘usual suspects’ to include cultural and religious leaders, community organisers (e.g. administrators of local Facebook pages), and trusted small business owners (e.g. café owners and pharmacists). INSW and its partners should identify and develop relationships with these local leaders outside of live disaster events.

Use free media coverage to bust myths and model behaviours:

- The fact that many people still ignore evacuation warnings and don’t do much flood planning would be of great media interest. However, awareness-raising campaigns that point to the prevalence of undesirable behaviours have the potential to normalise such behaviours, so we caution INSW and its partners to tread carefully and control the message tightly when engaging with media regarding these research findings.
- Instead, the challenge at hand can be presented simply and factually—with a greater focus on reinforcing knowledge in the identified gaps (e.g. easy ways to prepare effectively for a flood) and promoting stories of people modelling the desired behaviours (e.g. interviews with local resident Jane Doe, who made a proactive plan for her pets and evacuated as instructed, keeping her family safe when they would have otherwise been stranded for two days without power and water).
- A proactive, phased media engagement strategy can also help extend the shelf-life of the SES’s flood-awareness campaigns—with carefully calibrated and placed stories on local TV/radio, in local newspapers, on breakfast television, and in partnership with key metropolitan mastheads (e.g. The Daily Telegraph).
- Outlets prefer (and know their audiences love) ready-made, localised, data-driven stories—meaning there is opportunity to leverage the survey findings to tell compelling stories about the community’s attitudes towards floods, knowledge gaps and personalised impacts.

Communication recommendations *cont'd*

Create emotional resonance in messaging—but tread carefully:

- The survey shows that while awareness of the flood risk has improved since the previous survey, willingness to act and to act appropriately has been slower to shift. The survey also shows that those most at risk are the least likely to evacuate. Some of this is driven by inadequate knowledge—in which case, messaging should be clear and specific (e.g. “Don’t delay—evacuate within an hour of an Evacuation Order.”)
- The current tone of public flood communications appears to skew towards the factual and rational—whereas emotional engagement can often be more impactful in shifting behaviours. We appreciate that INSW and its partners have traditionally sought to minimise messaging that may cause distress—and would suggest carefully testing and calibrating refinements to the approach. For example, the tone should be factual without shaming or alienating the targeted populations—while using more emotionally resonant imagery of local families, etc.
- Linking the survey data to real-life case studies can also create a strong and compelling narrative. It is paramount to illustrate and humanise the potential consequences of failing to plan or ignoring evacuation orders. These stories can serve as a vehicle for practical information, while simultaneously encouraging positive behavior change.

Ensure greater impact by continuing a hyper-localised approach:

- People tend to pay attention to things of greater salience—for example, “this localised information is relevant to me”. Given this, we endorse INSW’s ongoing program of extensive community engagement, including disseminating materials through channels such as:
 - In-person pop-ups at shopping centres and community events;
 - Door-knocking and letter-boxing campaigns;
 - Advertisements and partnership content through local authorities (e.g. police, council and SES social media and mailing lists);
 - Geographically-targeted social media content; and
 - Community centres, schools and residents’ associations.
- The creation of suburb-specific collateral (such as those used in the recent McGraths Hill letter-boxing campaign) will be key in driving the message to residents. Ensure the conversation is framed at a suburb- or area-specific level, rather than through broad statements about the entire Hawkesbury-Nepean Valley as a construct.
- It is important also to consider in-the-moment behavioural ‘nudges’ that may form part of the communications toolkit immediately prior to or during a flooding event—these calls-to-action will have greater salience.

Please refer to recommendations from the *August 2022 Flood Warnings Research* report, also prepared for INSW by SEC Newgate, which touches on:

- Establishing the SES as the single source of truth for flood information, and ensuring it delivers the information with greater consistency and coherency.
- Testing flood messaging and campaigns amongst people with lower literacy / English proficiency and other vulnerable groups (e.g. First Nations communities).
- Drawing comparisons with previous floods to anchor people—but emphasising that not all floods are the same and that the situation can change very quickly.
- Leveraging the behavioural and contextual biases shaping responses to floods (pages 17-18 of that report)—including community norms and the ‘ostrich effect’.

We would be happy to call on the support of our SEC Newgate Communications colleagues to assist with the implementation of these recommendations.

BLAXLAND CROSSING RESERVE

FOWLER RESERVE
\$2.00
PARKING PER CAR

NEPEAN RIVER

UPPER NEPEAN CATCHMENT
FLOWS TO THE HAWKESBURY - NEPEAN RIVER

Introduction and methodology



Background and objectives

Background

Infrastructure NSW (INSW) commissioned SEC Newgate Research to undertake a program of social research with residents in the Hawkesbury-Nepean Valley floodplain (HNVFP). The purpose of this research was to support the implementation and evaluation of the Hawkesbury-Nepean Valley Flood Risk Management Strategy.

The HNVFP in Western Sydney covers approximately 500 square kilometres between Bents Basin near Wallacia to the Brooklyn Bridge and includes the backwater effects of flooding in South Creek and Eastern Creek. It includes population centres such as Penrith, Windsor, Richmond, McGraths Hill and many newer suburbs such as Marsden Park in the North West Growth Area.

This study is the latest wave of telephone surveying that has been conducted periodically since 2014. Tracking of this study has typically been done once every three years, with the previous iteration of this survey conducted weeks before the first major flood in recent memory, in March 2021.

Since then, two other major flooding events have occurred in March and July 2022, against a backdrop of rolling crises that tested the resilience of the local community. Given this, INSW saw a prudent opportunity to reassess the local community sentiment, as the Hawkesbury-Nepean Valley (HNV) community was likely to be operating within a very different and heightened flood context.

This 2022 round of social research was intended to largely replicate the objectives, approach and question line of the 2021 survey, though refinements have been made to account for recent flood experiences. The findings are intended to help INSW benchmark 'the new normal' for flood attitudes and behaviours within the HNV.

Objectives

To track and establish new community outcome indicators across the HNV, following a series of high-profile flooding events that have occurred since the previous survey was conducted in early 2021.

Key objectives for the 2022 telephone survey were to:

- Measure and track key community outcome indicators, including flood awareness and preparedness;
- Explore reactions to, and subsequent behaviours as a result of, Evacuation Orders, including whether the Orders were followed;
- Evaluate community recall of INSW and the NSW SES' public campaign and related collateral about floods;
- Test flood messaging towards public attitudes and behaviours around emergency flood evacuations; and
- Evaluate any shift in community values and priorities that would affect behaviours in a flood evacuation.



Research methodology

Overview of approach

- Telephone survey with residents of the HNV in suburbs with a 1 in 500 chance per year flood extent, as defined by INSW (with some suburb-level boundary shifts introduced between the 2018 and 2021 surveys)
- All participants were a main or joint decision-maker of major household decisions, as a proxy for household decision-making during an emergency
- Total sample of N=400, yielding an overall error margin of +/- 5% at the 95% confidence level (wider for specific sub-groups within the overall sample)
- ABS Census-representative quotas set by floodplain of residence and softer quotas for age and gender to ensure a good mix of participants
- Final survey results weighted by ABS Census-representative proportions for floodplain areas of residence to account for any sampling bias
- A mix of landline and mobile phone numbers were sourced from professional panel partner Sample Pages, using postcodes provided by SEC Newgate
- Fieldwork conducted between 19 October-15 November 2022
- Fieldwork conducted by the call centre team at ISO-accredited fieldhouse CanvasU, with calls averaging 21 minutes

Unweighted sample

Floodplain area	n	%
Richmond & Windsor	193	48
Penrith & Emu Plains	103	26
South & Eastern Creeks	48	12
Lower Hawkesbury	41	10
Wallacia	15	4

The research was undertaken in compliance with the Australian Polling Council Quality Mark standards which can be viewed here: <https://www.linkedin.com/company/australian-polling-council>. The Long Methodology Disclosure Statement for this research appears in the appendix, and can also be viewed here: <https://www.secnewgate.com.au/disclosure-statements/>.

Notes to the reader

When interpreting the findings, please note the following:

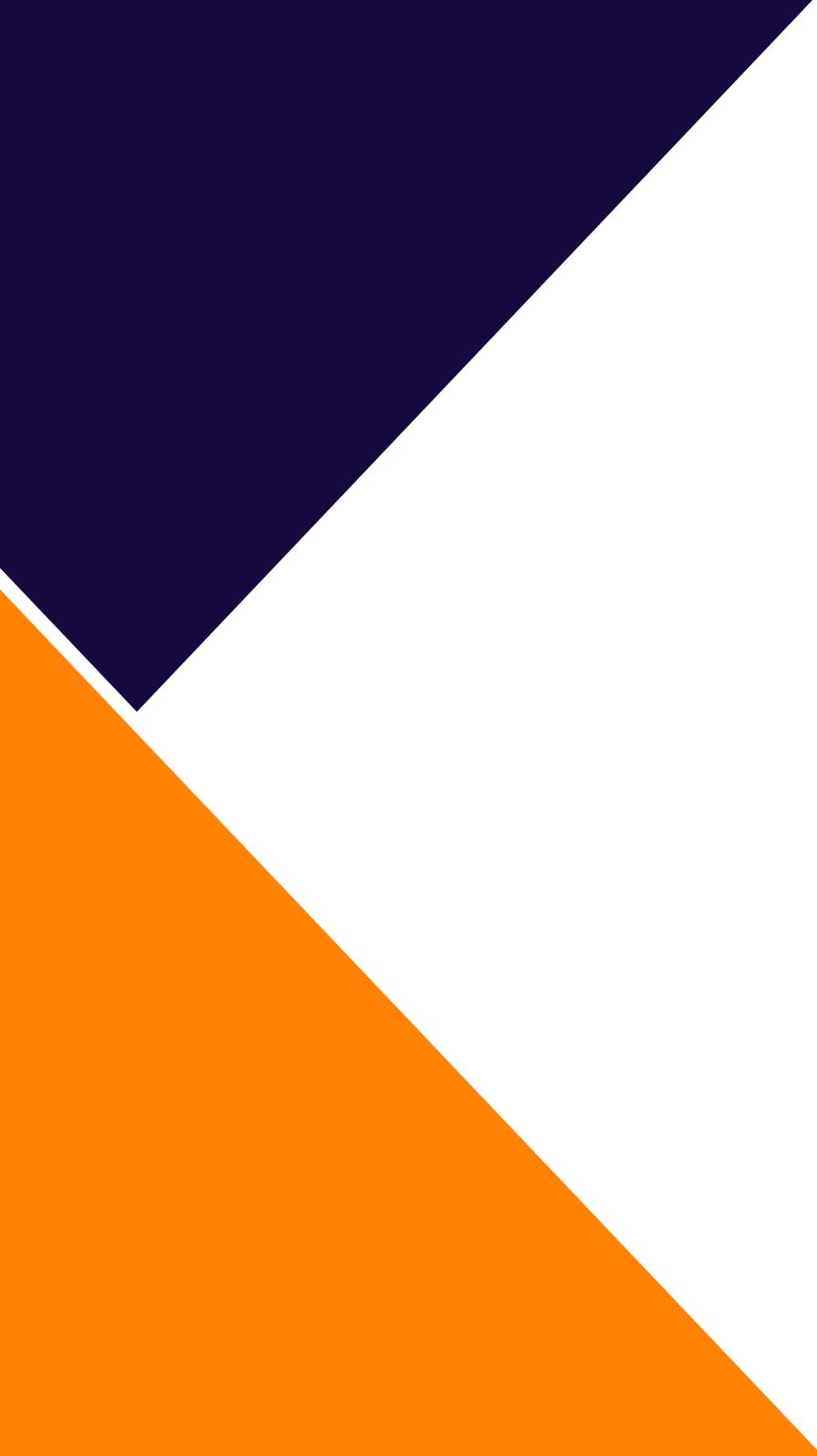
- For the quantitative research results, the base (number and type of respondents asked each question) and the actual survey questions are shown at the bottom of each page.
- Weighted results are shown throughout the report, unless otherwise specified. For details, please see the methodology page.
- Relevant, statistically significant differences between sub-groups or years are identified throughout the report at the 95% confidence level. These are either reported in written format, or using light blue or pink arrows to signify a significantly higher or lower result: ↑↓
- All questions were examined for statistically significant differences by demographic, behavioural and geographic sub-groups, where meaningful in the context of the question. Where differences have not been discussed, it should be assumed that no differences existed or were noteworthy.
- Throughout the report, the term 'NET' has been used where coded responses that are similar in nature have been grouped into one overarching theme (e.g. 'strongly agree' and 'somewhat agree' netted as 'agree').
- 'Prompted' responses identify where participants were offered a list of choices to select from, while 'unprompted' questions allowed participants to provide verbatim responses that were subsequently coded into themes.
- Results may not always total 100% due to rounding or multiple-response questions.
- To ensure data reliability, results are typically only shown when the sample sizes are at least n=30.

Comparisons to previous surveys

- The research approach has been largely consistent since 2018. One of the most notable differences was a revision to the list of floodplain suburbs provided by INSW and the floodplain areas into which these were grouped—though this has been consistent since 2021.
- Given the impact of recent major flooding events on community sentiment, this report has focused primarily on 2021 and 2022 results—i.e. 'pre-' and 'post-floods'.
- For completeness, we note the 2014 survey had relied on a sample sourced from an address database maintained by the NSW State Emergency Service (NSW SES)—meaning participants were drawn from those whose addresses could be matched to landline phone numbers. There was also a more granular focus on geographical representativeness, with interlocked place-of-residence quotas and weights set by each address's flood risk, zone and topography. Perhaps as a result, the participants from the 2014 study were relatively older, more likely to be living in the highest-risk areas and at least well-connected enough to be on the NSW SES database.
- The wording of questions and codes throughout the survey has been refined over time, in addition to improvements to a small number of response scales. Where material, these have been noted in footnotes or the commentary.

Research findings



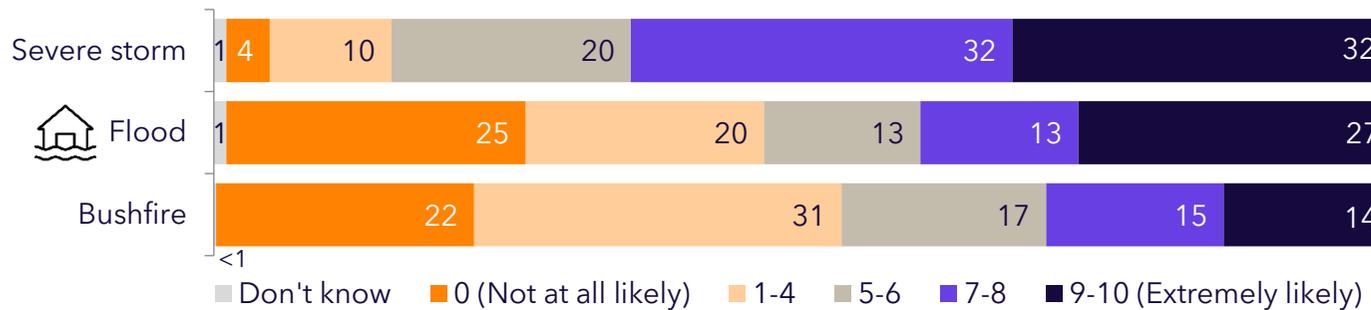


Flood experiences

Perceived risk of flooding

Community perception of the risk of floods has increased significantly since the February 2021 survey. Now, following three major flooding events, estimations of both *likelihood* and *severity* have increased. Nevertheless, notable proportions of those surveyed still viewed floods as unlikely and not that serious.

Perceived **likelihood** of a natural disaster or hazard affecting your property in the next five years (%)

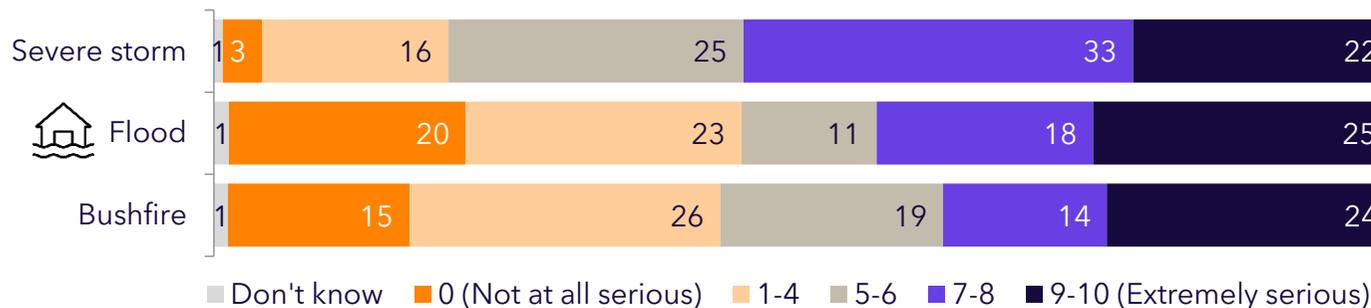


NET Likelihood (% ex. 'Don't know')

2022		2021	
Low (0-4)	High (7-10)	Low (0-4)	High (7-10)
14	65	12	64
46	40 ↑	53	26
53	29	42	38

↑↓ significantly higher or lower than previous wave

Perceived **seriousness** of a natural disaster or hazard affecting your property in the next five years (%)



NET Seriousness (% ex. 'Don't know')

2022	
Low (0-4)	High (7-10)
19	55
44	44
42	39

In 2021, this question was asked only of those who believed flooding was at least somewhat likely—rather than all participants.

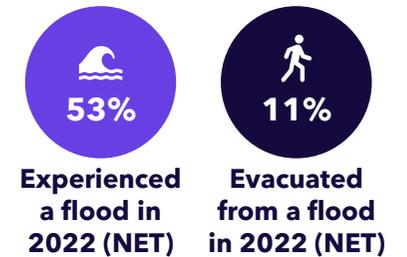
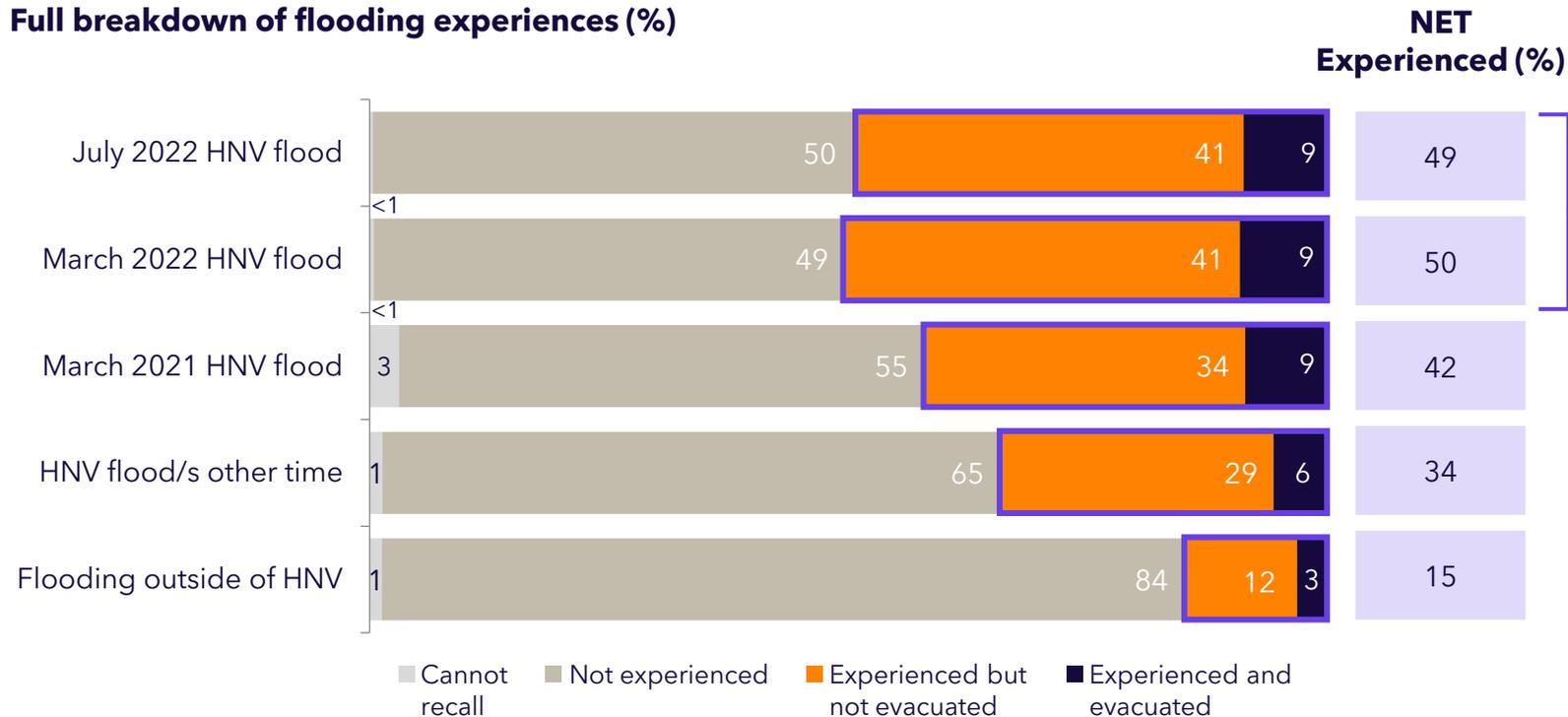
A rebased version of the 2022 results—which appears in the key metrics dashboard—shows a like-for-like comparison of 56%, up significantly from 41% in 2021.

Prior experiences of flooding

Overall, 60% of HNV residents surveyed said they have ever experienced a flood anywhere—with only a quarter of these people (15% of the total) evacuating as a result. This gap between flood experience vs evacuation held true in the 2022 floods, where 53% were impacted in some way but only 11% evacuated.

**60% have experienced a flood at any time and location...
...but only 15% have ever evacuated**

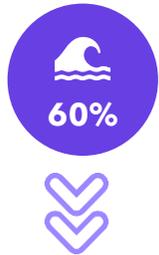
Full breakdown of flooding experiences (%)



Figures in circles indicate the proportion of all participants.

Who has experienced a flood?

In line with past surveys, the 2022 results reinforce how prior flood experience is a significant differentiator of several key flood-related attitudes and beliefs—including an elevated sense of the flood risk and being more likely to prepare, but also being more likely to trust their own judgement in an evacuation.



Experienced a flood at any time and location

Note: This profile is also reflected amongst those who have evacuated from a flood



Never experienced a flood before at any time and location

Those who say they have experienced a flood before were more likely to...	Those who say they have no previous experience were more likely to...
<ul style="list-style-type: none"> • Be from the Lower Hawkesbury area (95%) • Be from the Richmond & Windsor area (76%) 	<ul style="list-style-type: none"> • Be from the Penrith & Emu Plains area (63%)
<ul style="list-style-type: none"> • Be aged 40-54 years (78%) 	<ul style="list-style-type: none"> • Be aged 75 years or older (64%)
<ul style="list-style-type: none"> • Perceive the likelihood of a flood as high (81%) 	<ul style="list-style-type: none"> • Perceive the likelihood of a flood as low (57%)
<ul style="list-style-type: none"> • Perceive the seriousness of a flood as high (74%) 	<ul style="list-style-type: none"> • Perceive the seriousness of a flood as low (50%)
<ul style="list-style-type: none"> • Be more likely to prepare for a flood in the next 3 months (78%) 	<ul style="list-style-type: none"> • Be less likely to prepare for a flood in the next 3 months (54%)
<ul style="list-style-type: none"> • Often commute out of area for work (72%) 	

Figures in circles indicate the proportion of all participants.

Impacts of prior flooding

Most residents who have ever experienced a flood reported suffering at least one negative impact. The most common impact cited in this survey, perhaps coloured strongly by the recency of the 2022 floods, was property damage; in contrast, being stranded was the top impact reported in the previous survey.

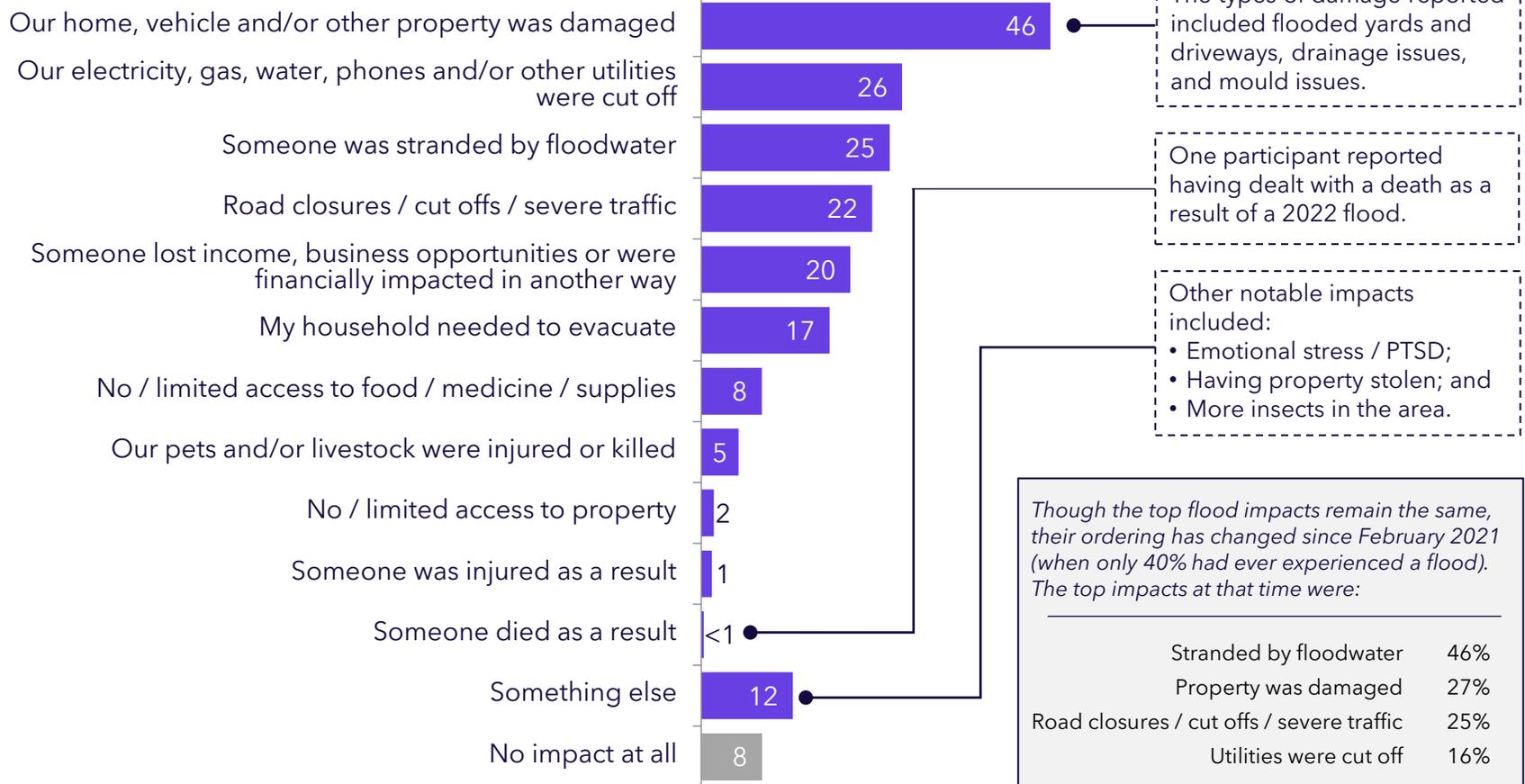


Experienced a flood at any time and location



Impacts experienced as a result of flooding (%)

All unprompted mentions; multiple selections possible



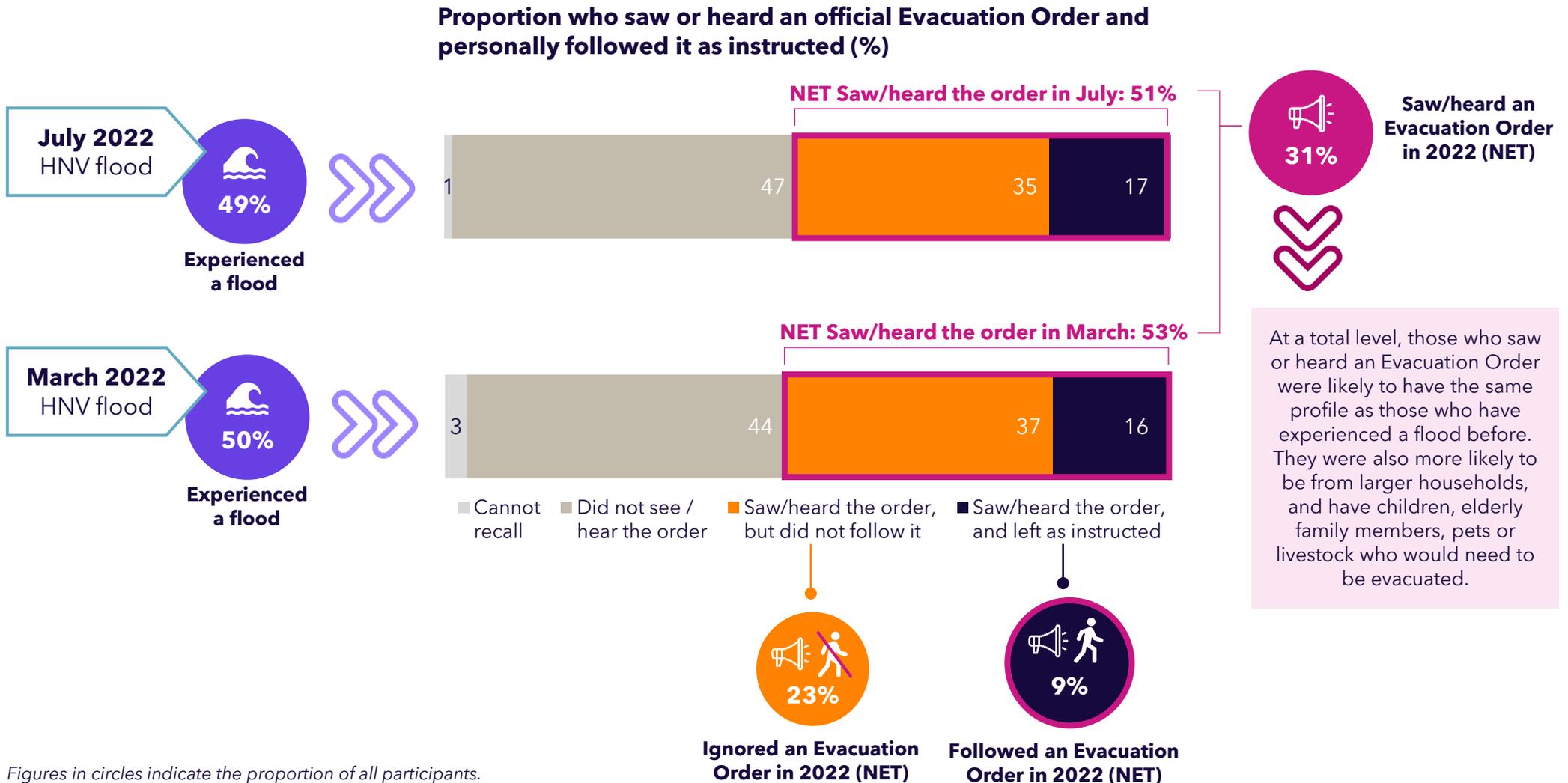
Figures in circles indicate the proportion of all participants.



Reactions to the Evacuation Order for the 2022 floods

Recall of Evacuation Orders and reactions

There was remarkable consistency of evacuation outcomes in both the March and July 2022 floods: Around half of those who experienced flooding recalled seeing or hearing an Evacuation Order—but only a third of those who received an Order reported following the official evacuation instructions.

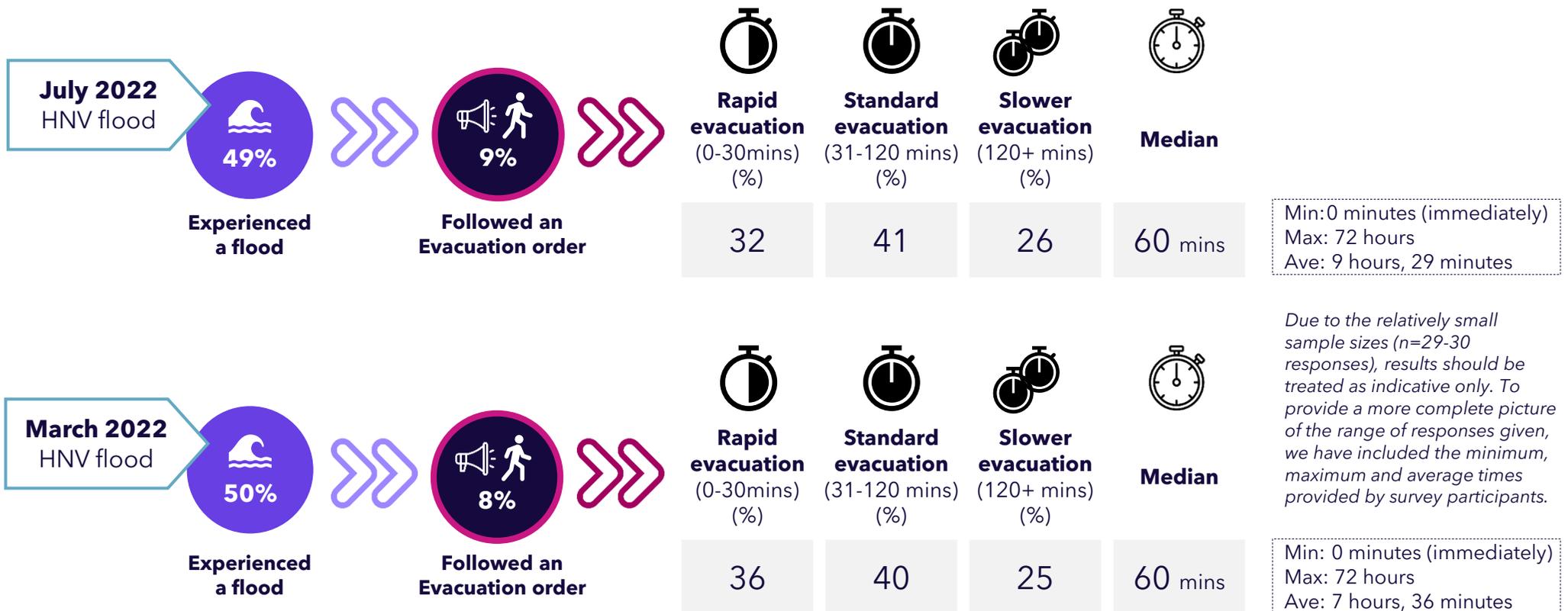


Figures in circles indicate the proportion of all participants.

Reaction times to Evacuation Orders

Given the inaccuracies of recall and the fact that only 30-odd participants in our survey evacuated as instructed, estimates of the time taken to depart should be interpreted with caution. Around three-quarters of those participants reported leaving within two hours, though the median was closer to 60 minutes.

How long it took to leave the property/area*



Figures in circles indicate the proportion of all participants.

Reasons for not evacuating as instructed

Of the quarter of all participants who did *not* follow the Evacuation Order, most (81%) said they chose not to leave because they did not think it was necessary. Key reasonings for this view included feeling that their home was safe (e.g. on sufficiently high ground) and that the Order did not apply to them.



Experienced a flood in 2022 (NET)



Ignored at least one Evacuation Order in 2022 (NET)



Reasons for not evacuating (%)

All unprompted mentions; multiple selections possible



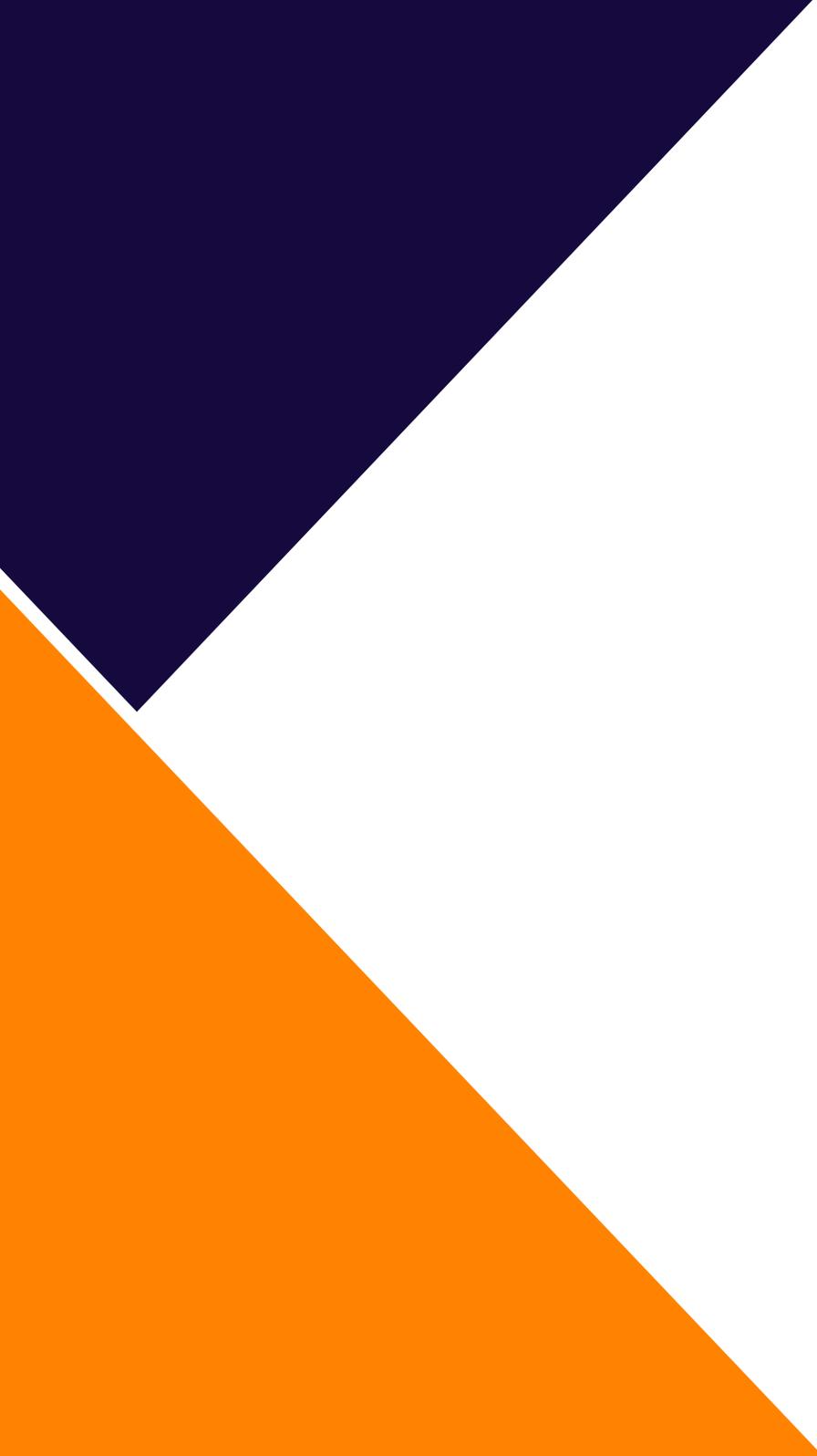
Figures in circles indicate the proportion of all participants.

Confidence in evacuation decisions

People tended to have a high degree of confidence in their evacuation decision—regardless of whether they chose to stay or go, or which 2022 flood it was. This highlights a growing confirmation-bias issue for some locals, who may believe that what had ‘worked’ in recent floods will work just as well in future.



Figures in circles indicate the proportion of all participants.

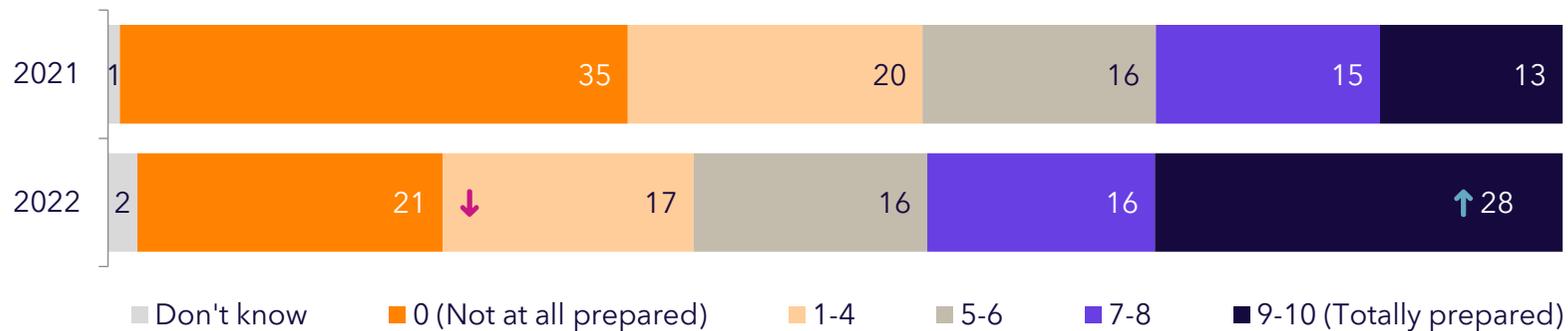


Flood preparedness

Stated preparedness

There was a significant jump in the community's sense of preparedness for an impending major flood, from 28% giving self-ratings of 7+/10 to 45% now. However, an equivalent proportion (39%) still felt relatively unprepared (ratings 0-4), suggesting there is still plenty of room for improving knowledge.

Preparedness if a major flood was to reach the property within the next 24-48 hours (%)



NET Preparedness (% ex. 'Don't know')

Unprepared (0-4)	Prepared (7-10)
56	28
39 ↓	45 ↑

↑ ↓ significantly higher or lower than the 2021 results

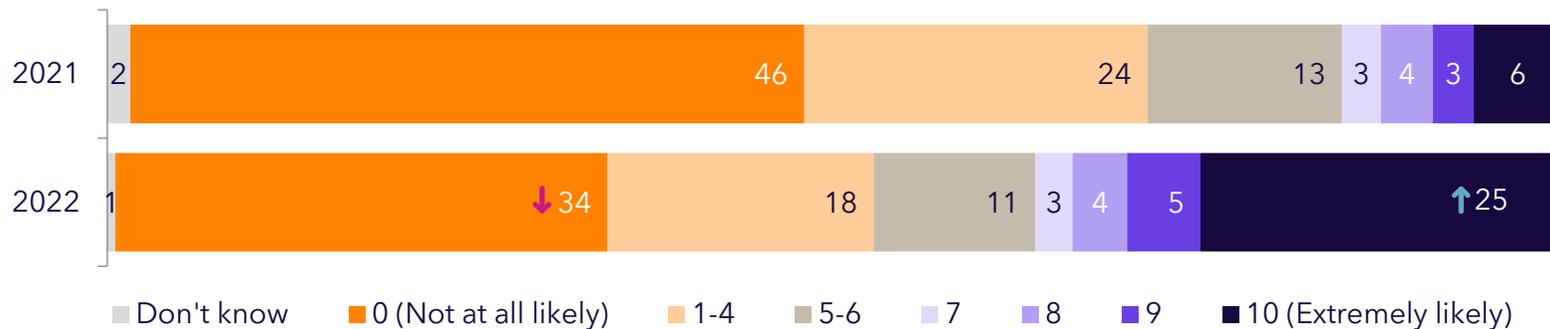
Those least likely to feel prepared if a major flood was to reach their property within the next 24-48 hours*:

- Those who are **less confident in their knowledge of what to do after receiving an evacuation order** (72%)
- Those who **are less likely to prepare for a flood in the next 3 months** (56%)
- Those who **perceive the likelihood of a flood as low** (53%)
- Those who **know no one or very few people in the community** (50%)

Likelihood to prepare

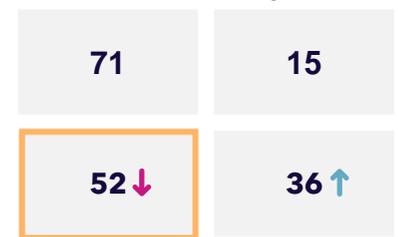
One in three said they were relatively likely to prepare for a flood—more than double the proportion who said the same in 2021. Despite this positive shift, there remained a third who declared they would be *not at all likely* to prepare—particularly those without flood experiences or who felt the flood risk was low.

Likelihood to actively take steps to prepare property and household for the possibility of a flood - or to check existing flood preparations, within the next three months (%)



NET Likelihood (% ex. 'Don't know')

Low (0-4) High (7-10)



↑ ↓ significantly higher or lower than the 2021 results

Those least likely to take steps to prepare their property and household for floods or to check any existing flood preparations within the next three months:

- Those who are **less confident in their knowledge of what to do after receiving an evacuation order** (80%)
- Those who **perceive the likelihood of a flood as low** (76%)
- Those who **perceive the seriousness of a flood as low** (70%)
- Those who **have never experienced a flood before** (70%)
- Those who **don't have flood insurance for their property** (58%)
- Those who **have never experienced an evacuation due to a flood before** (57%)

We note there is likely to be some hypothetical bias in these results - either over- or under-claiming of likely behaviours compared to what people would do. However, it is still important to capture this measure to provide some indication of what people expect they would do.

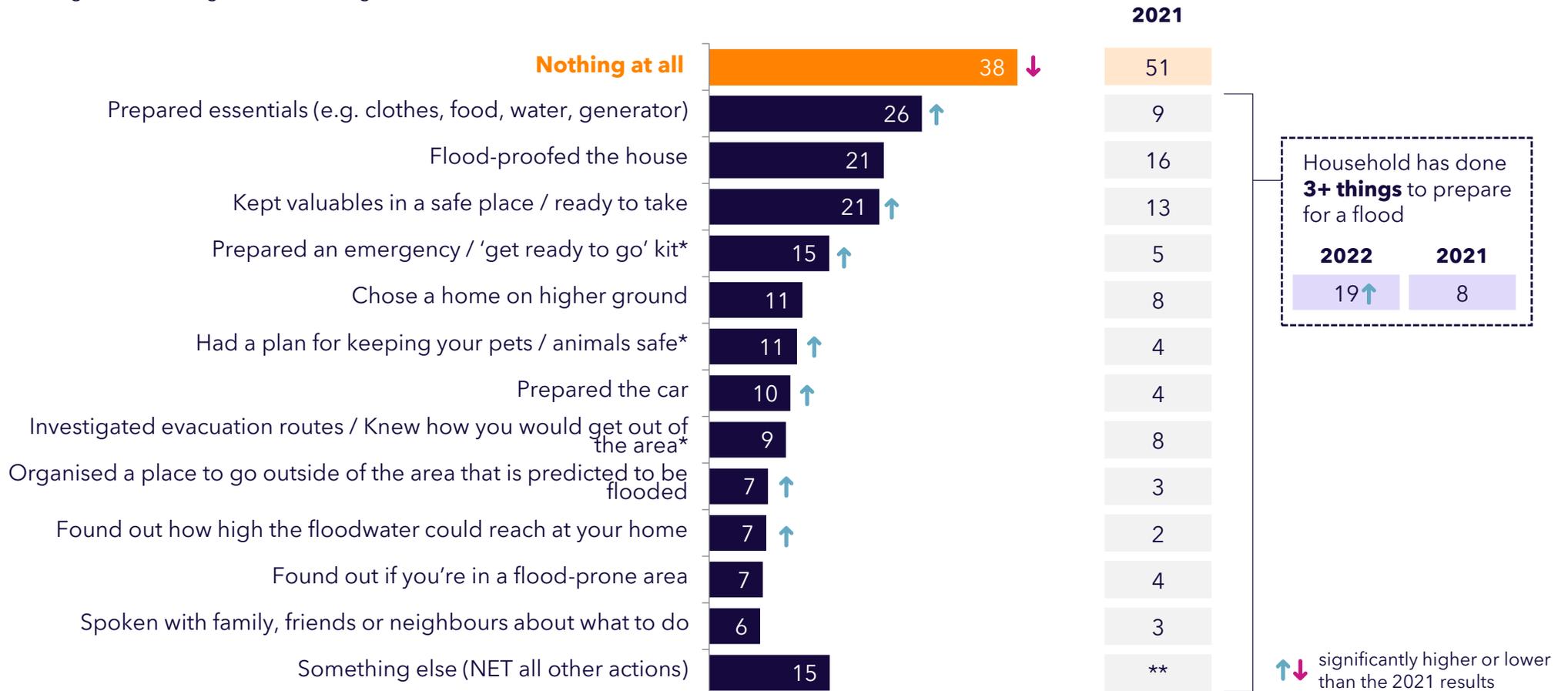
Preparation actions taken

Three in five (62%) reported having done at least *something* to prepare for a potential flood, while one in five (19%) have undertaken at least three actions—a positive measure that has increased significantly from only 8% in 2021. The top actions cited revolved around preparing essentials, the property and valuables.

What households have done to prepare for a flood (%)

Top unprompted mentions 5%+; multiple selections possible

* Wording for the coding has been changed in 2022

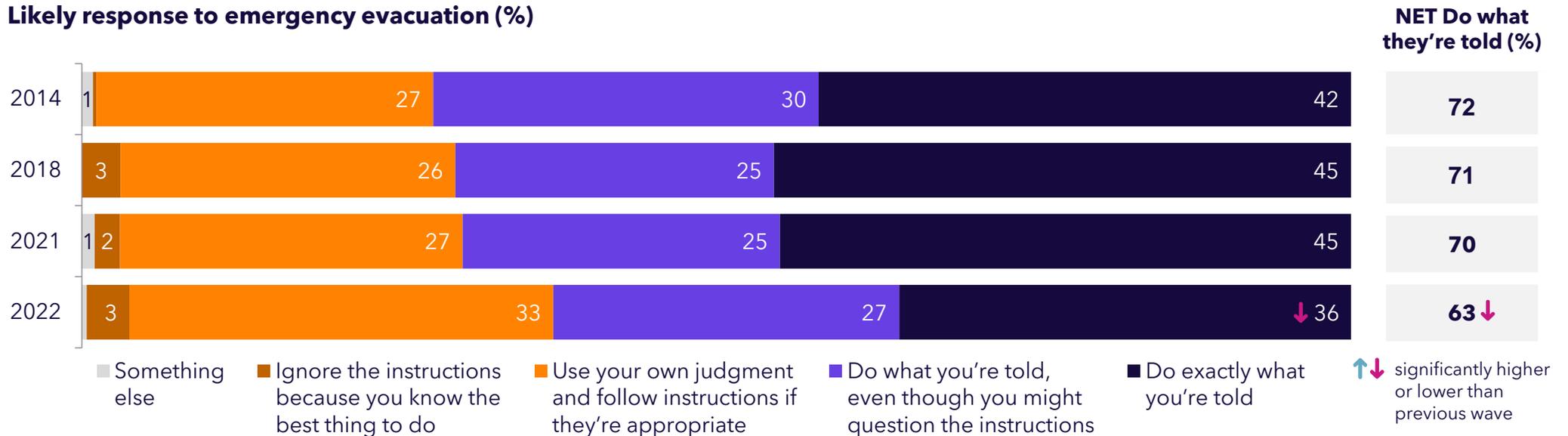


Response and evacuation

Likely evacuation behaviour

The majority claimed they would do as told in an emergency evacuation, but there has been a significant drop since February 2021 (from 70% to 63%). In line with previous results, those with prior experiences of flooding were more likely to claim they would trust their own judgement over official instructions.

Likely response to emergency evacuation (%)



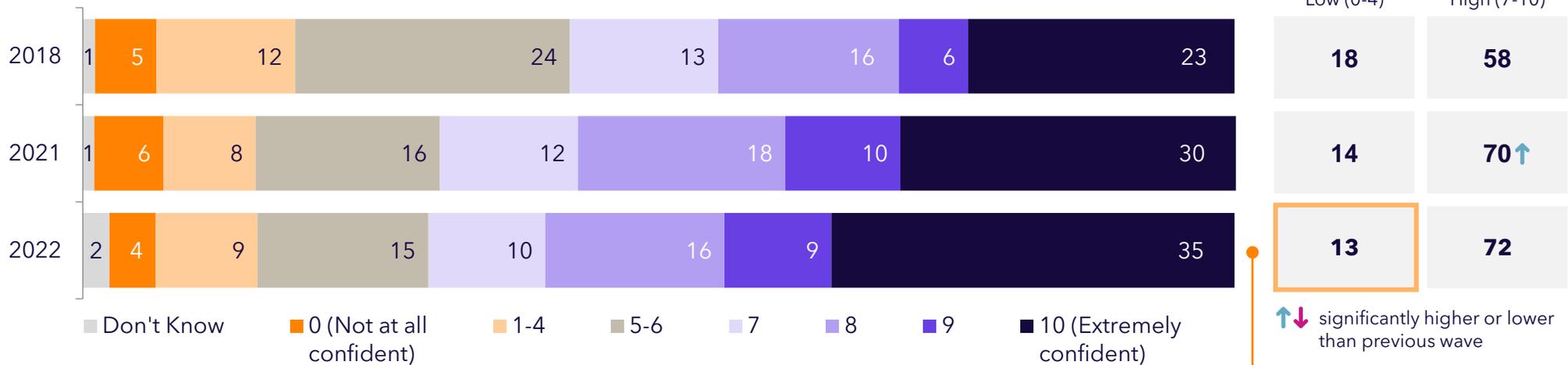
2022: More likely to...

Ignore instructions:	Use own judgment:	Do what told, though might question:	Do exactly what told:
<ul style="list-style-type: none"> Those who live in a rural property or farm (18%) 	<ul style="list-style-type: none"> Residents in Lower Hawksbury area (66%) Those who are more likely to prepare for a flood in the next 3 months (47%) Frequent commuters out of area for work (45%) Male (43%) Those who experienced flood/s before (41%) 	<ul style="list-style-type: none"> South & Eastern Creeks area (44%) Those who never experienced flood/s before (37%) 	<ul style="list-style-type: none"> Penrith & Emu Plains area (50%) Those who are from household that would be able to evacuate in one trip (40%)

Confidence in evacuating

Over the longer term, there has been a growing sense of confidence in knowing what to do after receiving an Evacuation Order—from 58% in 2018 to 72% now, particularly amongst those who rated their confidence 10 out of 10 (from 23% to 35%). However, other results suggest this may be overstated.

Confidence in knowing what to do after receiving an order to evacuate property in the next few hours due to a flood (%)



NET Confident (% ex. 'Don't know')	
Low (0-4)	High (7-10)
18	58
14	70↑
13	72

↑↓ significantly higher or lower than previous wave

This was especially true for those without flood insurance (17%).

A per previous rounds of this social research, we note that there is a degree of bravado and unfounded presumption of 'common sense' knowledge that fuels people's expectations that they will know what to do if ordered to evacuate. As such, these figures should be considered as *self-rated* confidence only, and not assumed as genuine knowledge of what to do or ability to act.

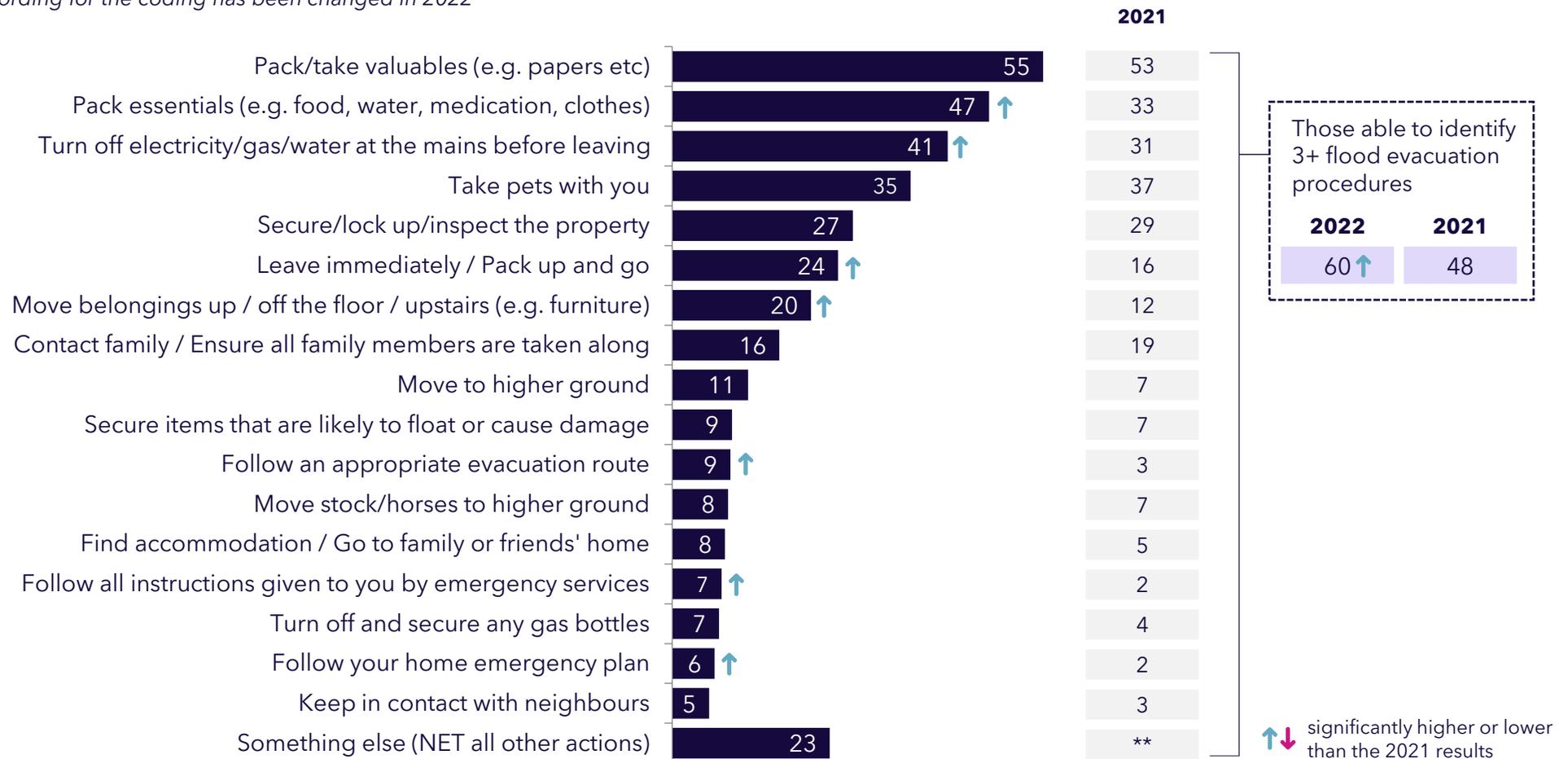
Knowledge of evacuation procedures

Three in five residents were able to list up to three or more evacuation procedures this year—significantly higher than last year’s 48%. The top actions mentioned included taking valuables, packing essentials and turning off utilities before leaving—with the latter two now mentioned significantly more frequently.

Awareness of flood evacuation procedures (%)

Top unprompted mentions 5%+; multiple selections possible

* Wording for the coding has been changed in 2022



Estimated time to evacuate

Following recent floods, there has been an increase in the estimated time required to evacuate—with 16% now believing they would need more than two hours, up from 5% in 2021. We note that this hypothetical estimate still lags the quarter of those who *actually* evacuated in 2022 who took more than two hours.

NET Estimated time to evacuate home due to a major flood

	Rapid evacuation (0-30mins) (%)**	Standard evacuation (31-120 mins) (%)**	Slower evacuation (120+ mins) (%)**	Won't leave (%)	Don't know (%)
2021	62	32	5	2*	4
2022	43↓	41↑	16↑	8*↑	5

**(% excl. 'Won't leave' and 'Don't know')

↑↓ significantly higher or lower than the 2021 results

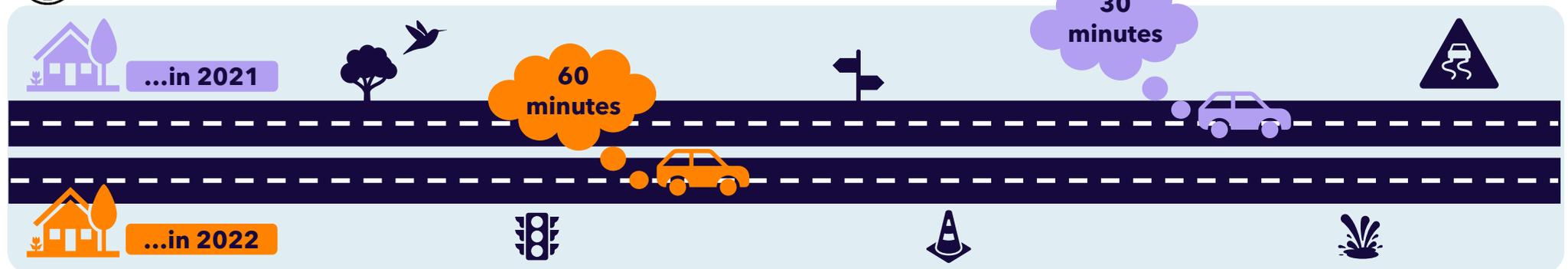
Those more likely to feel they would need more time (2022):

- Perceived the likelihood of flood as high (68%)
- Are more likely to prepare for a flood in the next 3 months (67%)
- Residents in Richmond & Windsor area (67%)
- Aged 54 years or younger (64%)
- Have experienced flood/s before (63%)
- Know no one or a few people in community (63%)
- Have pets/livestock that need to be evacuated (63%)

* We note that the 8% from Q28B here—who said they would not leave if instructed—is slightly higher than the 3% from Q4B (page 31) who said they would ignore official instructions in an evacuation situation. Q28B is one of the first questions in the survey, whereas Q4B follows several additional questions that ask participants to consider their confidence in knowing what to do and how much help they may need. As a result, the Q4B result should be treated as the more accurate, considered response.



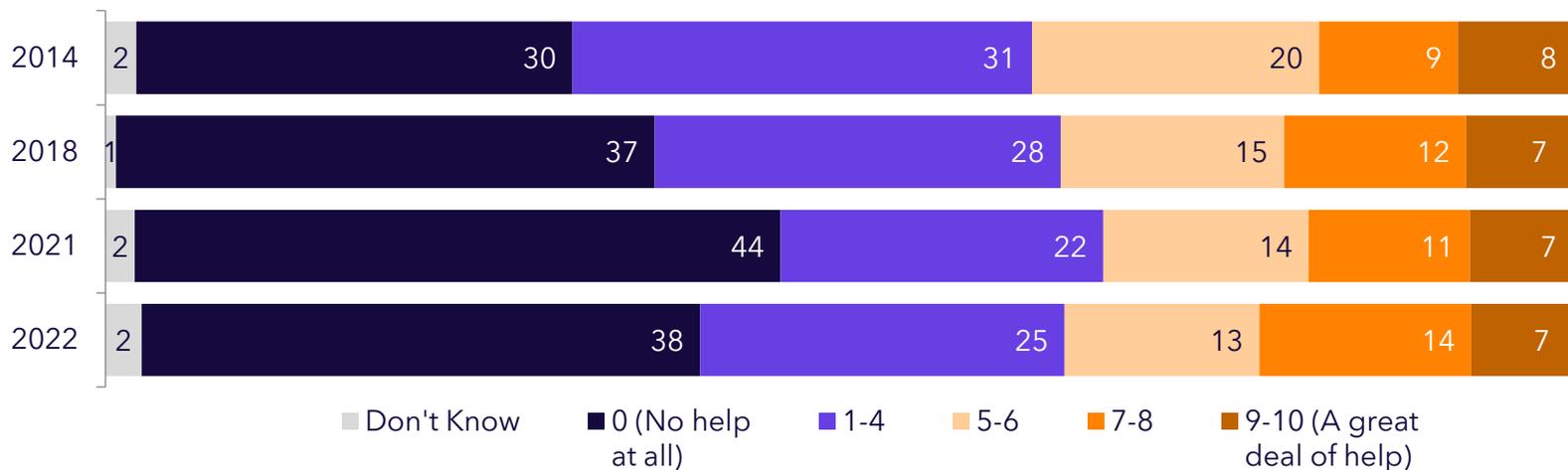
Median estimated evacuation time required...



Need for evacuation assistance

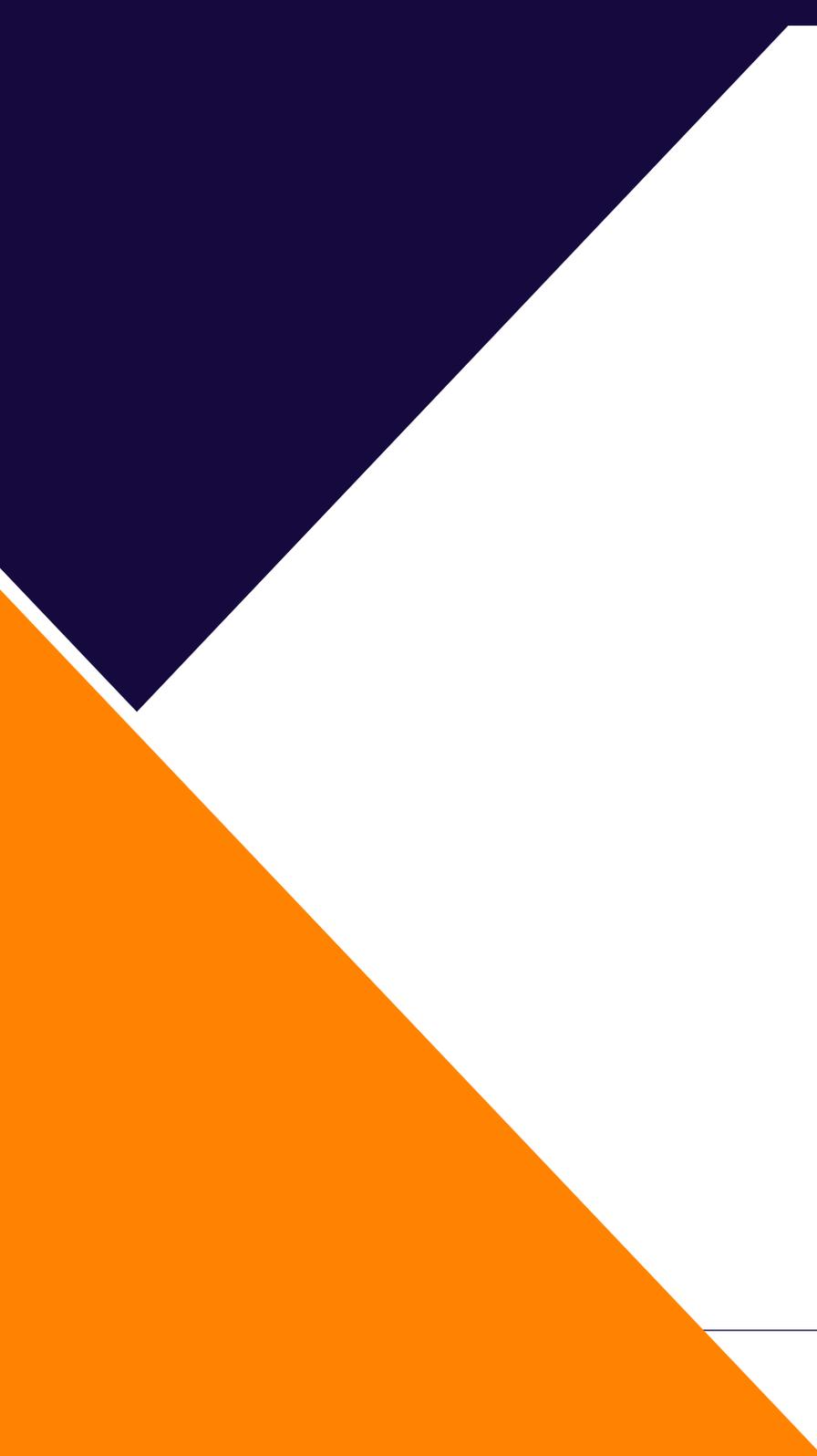
Nearly two in five residents (38%) reported they would need no help at all for an evacuation—a slight dip from 44% last year. However, as in previous years, around one in three felt they would need some help—particularly those who believe the risk of floods is relatively high.

Expected extent of help needed from others to evacuate household (%)



NET Need help (% ex. 'Don't know')	
Don't need (0-4)	Need (5-10)
62	38
64	36
67	33
64	36

This was especially true for those without flood insurance (42%).



Flood information, messaging and communications

Recall of flood-related information

When prompted with a list, 82% said they had seen or heard at least one of the flood-related topics or key messages within the last 12 months. A different, unprompted question was asked in the 2021 survey, finding that 75% recalled some kind of flood information—up significantly from 23% in 2018.

Examples of SES and INSW flood messages (not shown):

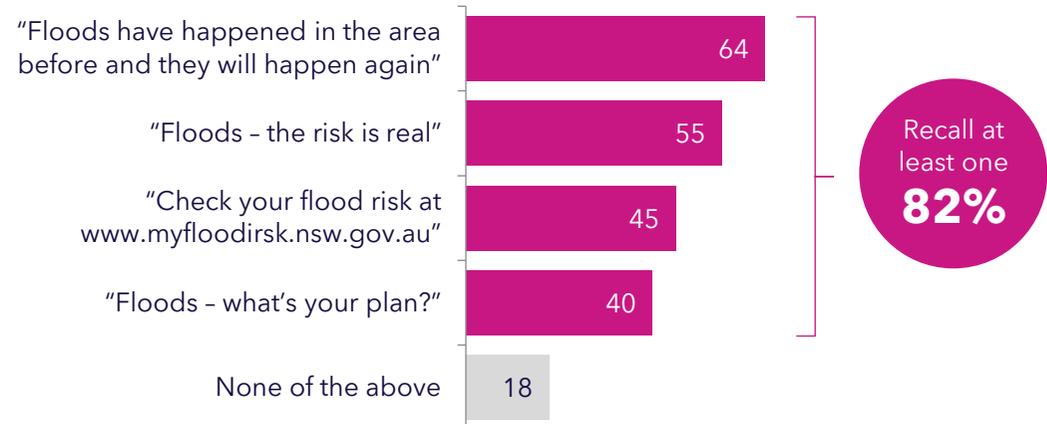


- All participants reported their main language at home is English. This is one of the limitations of this study; results may differ for those from linguistically-diverse backgrounds.
- 11% stated they know someone in their household or local community who would need information in a language other than English. Common languages required included Mandarin, Cantonese, Vietnamese, Hindi and Auslan.

Flood-related topics seen or heard in the last 12 months (%)

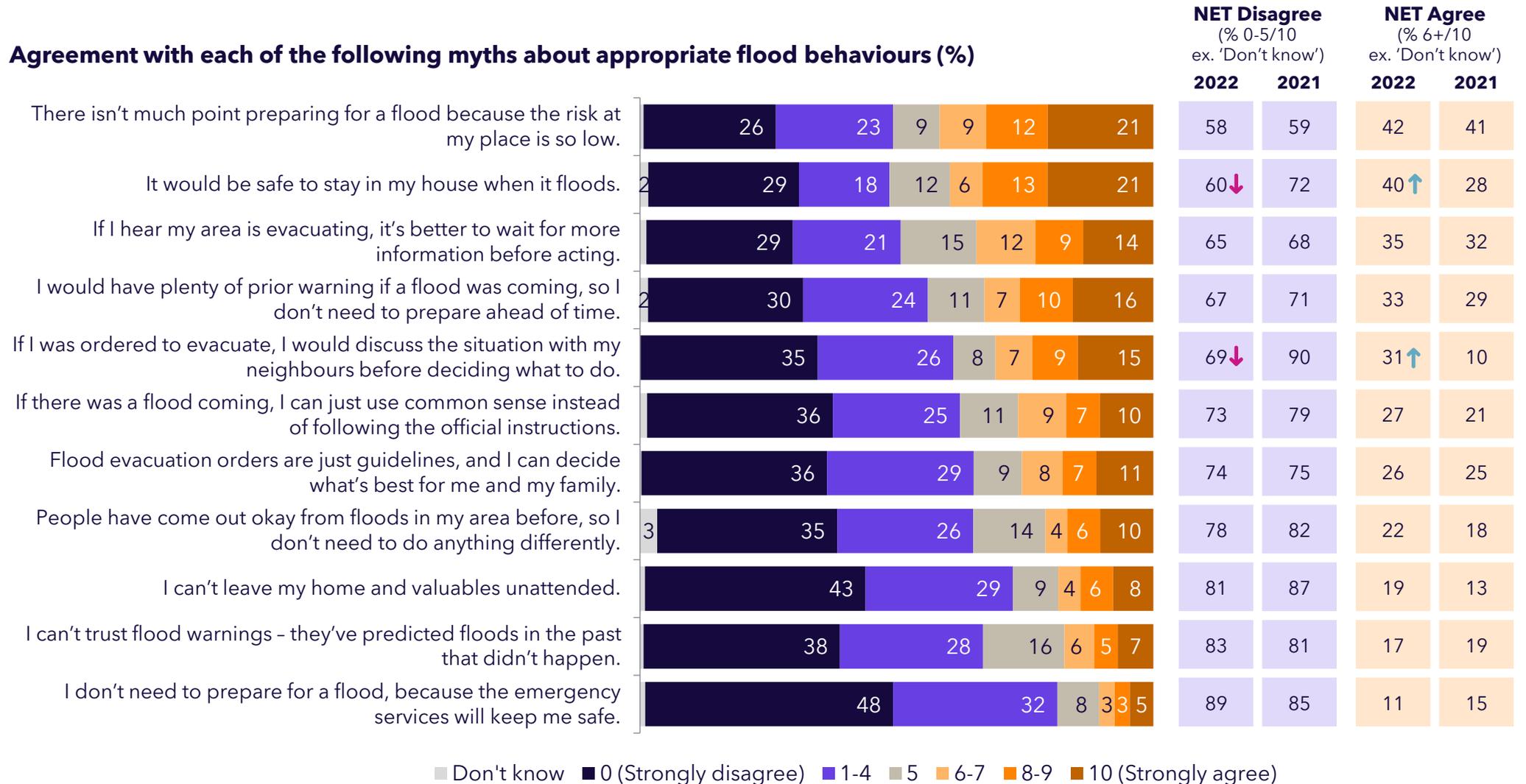


Flood-related messages seen or heard in the last 12 months (%)



Testing flood myths

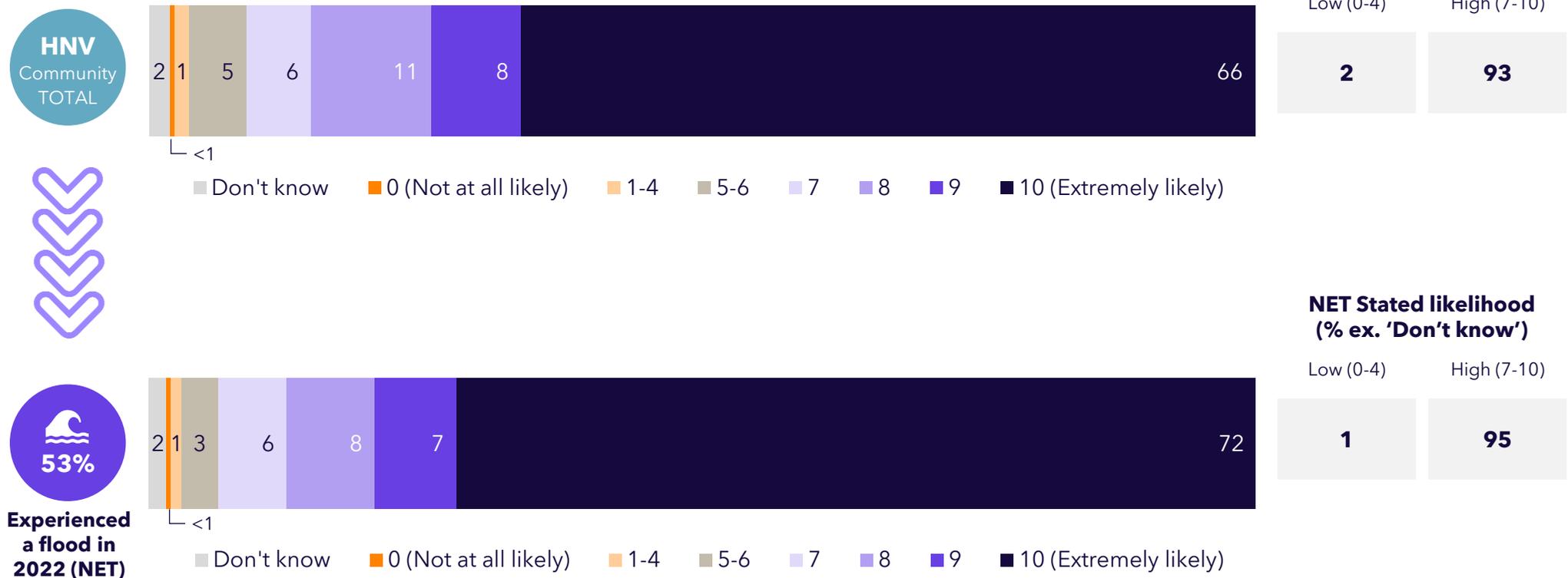
To better understand potential drivers for undesirable behaviour, we tested a series of flood myths based on previous community research and academic literature—arguing for inaction. Compared to the 2021 results, more people now agree that staying home would be safe and they would confer with neighbours.



Stated likelihood of occurring large flood events

On balance, most (93%) do believe there is likely to be another flood the same size as the 2022 floods—or bigger. This is particularly true amongst those who experienced a flood this year, with 72% rating the likelihood 10 out of 10 compared to only 66% for all participants.

How likely a flood of the size in 2022 or bigger would happen again (%)



Figures in circles indicate the proportion of all participants.

Preparing for future floods: In their words

When asked what would help residents of the HNV community feel more prepared for future floods, much of the feedback was an affirmation of the good work being conducted by NSW SES, along with many suggestions for improving infrastructure that is outside the direct remit of INSW and the SES—including building or fixing roads and bridges, building and raising dams, and adding more phone towers. Many also stated that they did not need any further information as they already felt adequately prepared, though some did acknowledge that increased preparation would only come from taking personal action (e.g. talking to family about being prepared). Below is a sample of relevant feedback for INSW and the SES.

Give us adequate warnings, like what they do for fires in my area—they give us at least a day in advance to let us know when a fire is approaching.

Penrith & Emu Plains, Male, aged 55-74yrs

When the floods are initially happening... You don't see anyone for days and you need initial contact straight away, such as with the SES, army or local fire brigade. The most important thing is for a representative from the SES or army to establish a line of communication—e.g. a representative or designating a resident as the point of contact for the SES, so everyone on the street has communication.

Lower Hawkesbury, Male, aged 40-54yrs

Keep up with the warnings. The Facebook warnings are fantastic. Water levels and route of the flood are clearly displayed and are very helpful.

Wallacia, Female, aged 40-54yrs

Clarity from SES communications needs to improve, both in terms of where it is posted and what is the most current information—especially when it comes to flood warnings and evacuation orders. The SES often seems to 'neglect' certain parts within the local area.

Richmond & Windsor, Male, aged 18-39yrs

Getting information through pamphlets through the post or something on the TV that is directed at the local area.

Richmond & Windsor, Female, aged 40-54yrs

More information for the community about how to act in a flood, and information about areas to stay away from.

Penrith & Emu Plains, Female, aged 55-74yrs

Information that SES has on their website is not easily accessible during emergencies. We need clearer information on where to access information and I would like to know where river levels are at.

Richmond & Windsor, Female, aged 75yrs+

We need clearer communication from the authorities as to who needs to evacuate and who doesn't. In the past, we've received text messages where there's been no flood risk in our area, and it's been confusing. It would be good if there was a picture of a map on social media for more guidance.

South & Eastern Creeks, Female, aged 18-39yrs

Appendices



Floodplain areas - suburbs included in 2022 survey

Richmond & Windsor Area	Penrith & Emu Plains Area	South & Eastern Creeks Area	Lower Hawkesbury Area	Wallacia Area
Agnes Banks	Emu Heights	Berkshire Park	Bar Point	Greendale
Bligh Park	Emu Plains	Llandilo	Berowra Waters*	Wallacia
Cattai	Jamisontown	Marsden Park	Colo	
Clarendon	Leonay	Riverstone	Cumberland Reach	
Cornwallis	Penrith	Schofields	Ebenezer	
Freemans Reach	Regentville	Shanes Park	Gunderman	
Grose Wold		Windsor Downs	Laughtondale	
Hobartville			Leets Vale	
Londonderry			Lower Macdonald	
Maraylya			Lower Portland	
McGraths Hill			Marlow	
Mulgrave			Milsons Passage	
North Richmond			Sackville**	
Oakville			Sackville North	
Pitt Town			Singletons Mill	
Pitt Town Bottoms			Spencer	
Richmond			Webbs Creek	
Richmond Lowlands			Wendoree Park	
South Windsor			Wheeny Creek	
Vineyard			Wisemans Ferry	
Wilberforce				
Windsor				
Yarramundi				

Sample composition

All participants were a main or joint decision-maker of major household decisions, as a proxy for household decision-making during an emergency. This accounts for some skews in the demographic traits of the sample, such as age. This is consistent with previous rounds of research.

FLOODPLAIN AREA*	Unweighted %	%	n
Richmond & Windsor Area	38	48	193
Penrith & Emu Plains Area	29	26	103
South & Eastern Creeks Area	29	12	48
Lower Hawkesbury Area	3	10	41
Wallacia Area	2	4	15

AGE	%	n
18-39 years	13	41
49-54 years	28	125
55-74 years	39	157
75+ years	20	77

GENDER	%	n
Male	48	187
Female	52	213

HOME STATUS	%	n
Owner	81	334
Renter	15	53
Other	2	6
Prefer not to say	2	7

HOME TYPE	%	n
A larger house (e.g. with a garden / swimming pool)	62	248
A smaller house (e.g. terraces, townhouses, semi-detached)	22	83
An apartment or unit	5	17
A mobile home, such as a caravan, motorhome or camper trailer	1	2
A retirement home	1	2
A rural property or farm	7	31
Other	3	13
Prefer not to say	1	4

YEARS IN LOCAL AREA	%	n
0-9	13	52
10-19	15	63
20-29	23	94
30-39	22	81
40-49	12	52
50+	15	56

Sample composition *cont'd*

CURRENT FINANCIAL SITUATION	%	n
Having a lot of difficulty covering basic living expenses	5	21
Having some difficulty but just making ends meet	12	50
Doing okay and making ends meet	45	179
Doing well and feeling comfortable	34	134
Prefer not to say	4	16

ANY OF THE FOLLOWING APPLY TO YOU PERSONALLY	%	n
You identify as Aboriginal or Torres Strait Islander	3	14
One or both of your parents were born in a mainly non-English-speaking country	20	79
You have religious, spiritual or cultural beliefs that could affect your decision about whether or not to evacuate in a flood	1	3
You own or manage a business in the local area	19	72
You often commute out of the local area for work	40	158
You work or volunteer for an emergency services organisation, or work in a role that relates to emergency services	12	50
None of the above	39	153

# OF PEOPLE IN HOUSEHOLD	%	n
1	19	75
2	33	131
3	16	60
4	16	66
5	9	38
6+	6	30

ANY OF THE FOLLOWING APPLY TO YOUR HOUSEHOLD	%	n
You have children or elderly family members who would need assistance during a flood evacuation	28	110
You have pets or livestock that would need to be evacuated in a flood	55	225
You or someone in your household have a disability or health condition that could affect their ability to evacuate in a flood	21	86
You and your household do not always have access to a reliable vehicle that you could use to evacuate or enough fuel to help you evacuate	10	40
You and your household - including any animals and valuables - would be able to evacuate in one trip	76	299
You have flood insurance for your property	52	204
None of the above	3	10

Australian Polling Council: Methodology Disclosure Statement

This research was conducted by SEC Newgate Research on behalf of Infrastructure NSW (INSW) between 19 October and 15 November 2022.

The target population for the research was household decision-makers aged 18 years or above who reside within the Hawkesbury-Nepean Valley Floodplain, defined by a list of suburbs supplied by Infrastructure NSW.

The research comprised a telephone survey with N=400 participants.

Survey participants were drawn from the database of Sample Pages, a commercial provider of research sample. Participation was on a voluntary, and a mix of landlines and mobiles were dialled.

Weighting was applied to the survey dataset to more accurately reflect the target population by floodplain area of residence, using RIM (Random Iterative Method) weighting (or raking).

The dataset was weighted to match population data from the Australian Bureau of Statistics' Census by floodplain of residence location. The weighting approach was consistent with that used in previous waves of the survey, bar adjustments to INSW's list of in-scope suburbs between 2018 and 2021.

Using the effective sample size, the maximum margin of error for estimates made on the total sample is +/- 5%. Weighting efficiency was around 75% for most survey estimates; that is, the effective sample size for most estimates was around 96% of the actual sample size (i.e. n=300 for estimates made on the total sample).

The full question wording used in the survey is included within the footnotes of the report. For multiple choice questions and statement grids, the order of response options and statements was randomised to avoid potential order effect.

The research was undertaken in compliance with the Australian Polling Council Code of Conduct standards, which can be viewed here: <https://www.australianpollingcouncil.com/code-of-conduct>.

Photo credits

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Page 2, Credits header: Old and new Windsor Bridge, February 2020 - Photo by Adam Hollingworth

Page 3, Contents image: Warragamba Dam spilling, March 2021 - Photo by Adam Hollingworth

Page 4, Executive summary cover: Suburban streets flooded in McGraths Hill, March 2021 - Photo by Top Notch Video

Page 5, Key insights header 1: Flooding at Windsor 1988 - Photo by RAAF Richmond

Page 6, Key insights header 2: River Road, Emu Plains near peak of flood, March 2021 - Photo by Adam Hollingworth

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Page 12, Background and objectives image cover: Approach to Yarramundi Bridge flooded, March 2021 - Photo by Adam Hollingworth

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