



Climate Action Survey 2022

Summary for policy and decision making

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Make it matter

Motivating climate action

The Griffith Climate Action Beacon (CAB) develops knowledge, leadership, capacity and responses to enable effective and just action throughout society, focusing on interdisciplinary research and cross-sectoral practice collaborations as catalysts for change. CAB's interdisciplinary and partnership approach enables research disciplines and communities-of-practice to collaboratively define, research, implement and evaluate solutions for climate action.

The CAB's research focuses on three themes:

Theme 1: Motivation for Climate Action—building the case for and enabling the practice of climate action among individuals and collectively in communities, organisations and government.

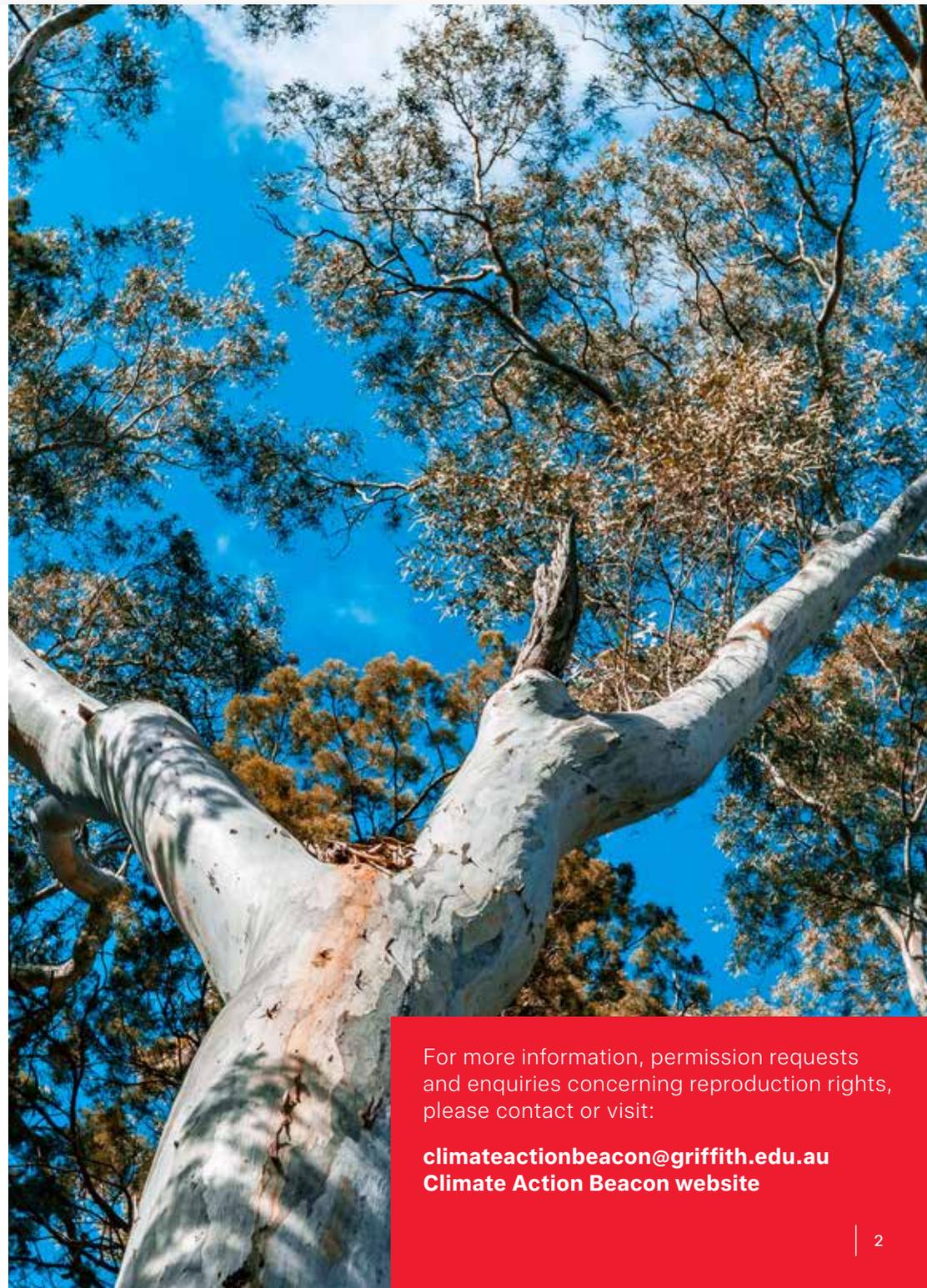
Theme 2: Future Climate Transitions—supporting progress towards climate-resilient development and net-zero carbon emissions.

Theme 3: Climate Justice—ensuring that climate actions are fair, equitable and just, contributing toward broader sustainable development goals.

A range of short- and long-term research projects are supported under each of these themes. The survey described in this report, the National Climate Action Survey, is a core part of the work conducted under Theme 1.

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 Thank you to the
4,030

Australian adults who
participated in this survey



Introduction

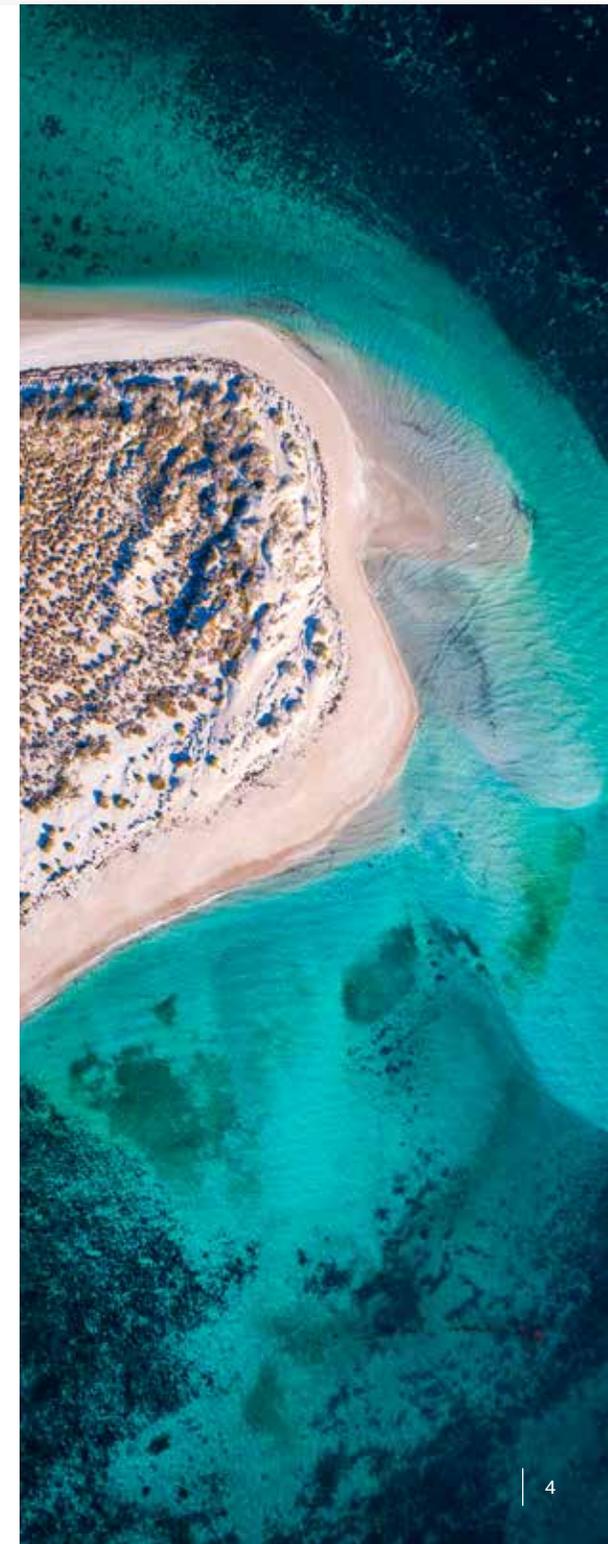
Griffith University's Climate Action Beacon conducted the second of five planned Climate Action Surveys in September–December 2022. The survey discovered what Australians think, feel and do about climate change and related environmental and climatic events, conditions and issues. This report gives details of the background of the survey, as well as its methods, major findings and potential implications. Comparisons are made with findings from the corresponding 2021 survey.

The 2022 Climate Action Survey gathered data from two overlapping populations of adult Australians: 1,263 people who had participated in the 2021 survey (repeat respondents); and 2,767 previously unsurveyed people (new respondents). The total 2022 sample comprised 4,030 Australian adults. Although the 2021 participants were representative of the national population, those members of this sample who participated again in 2022 were, on average, nine to 10 years older than both the national population and the remainder of the 2021 survey respondents. In contrast, the recruitment of new respondents ensured that this sample was demographically representative of the Australian population. Unless otherwise stated (i.e., identified as repeat respondents) the 2022 results reported here are drawn from the 2022 new respondents.

Two versions of the online questionnaire were used in 2022—one for the repeat respondents and one for the new respondents. The latter questionnaire closely resembled that used in 2021. For the repeat respondents, questions that did not warrant asking a second time in two years were replaced by questions exploring new topics especially related to heat exposure and the 2022 flooding events. Both questionnaires comprised almost 200 single items/questions, approximately 30 multi-item composite scales and several open-ended questions. Each could be completed in approximately 30 minutes.

This is one of the most ambitious climate change surveys conducted in Australia, in terms of sample size, methodological rigour, multidisciplinary input and breadth of coverage.

The survey explored different views about climate change; feelings/concerns about the threat and reality of climate change; knowledge of climate change and information sources used to obtain this knowledge; experiences of extreme weather events, natural disasters (including the 2022 Australian floods) and climate change impacts; pro-environmental behaviours and lifestyles; barriers to engaging in these behaviours and lifestyles; and self-views, worldviews and socio-political opinions. We also collected demographic data to reveal details about Australians and climate action.



Key findings

Do Australians think we have a climate crisis?

Though most Australians accept climate change is happening, only a minority think it is an extremely serious problem. While 74% of Australians accept that climate change is real, not all of them are concerned.

- Results show 71% of Australians reported feeling either "fairly" or "very" **concerned about the effects** of climate change. These percentages are similar to those found in 2021 (72%) but considerably higher than the 35% obtained when similar surveys were conducted in 2010/2011.
- Results also show 15% of Australians believed climate change is an "extremely serious" problem right now (compared to 22% in 2021), whereas 31% believed it will be so in 2050 (compared to 45% in 2021). These survey results could help explain why governments remain committed to advancing only modest climate policies for which there is a broad electoral support base—such as a 2050 Net Zero Emissions target—rather than the rapid, transformational changes in all

sectors that scientific assessments conclude are needed now.

Belief in, or acceptance of, climate change per se remained relatively stable. In 2022, our national sample revealed 3% were climate change *deniers*, 6% *sceptics*, and 17% *unconvinced* about climate change. In 2021, the findings were 2% *deniers*, 5% *sceptics* and 16% *unconvinced*. The vast majority of Australians in 2022 were *firm believers* (74%) in the reality of climate change, similar to 2021 (77%).

Who cares about climate change?

Young (under 35), students, women, university-educated and inner urban Australians have relatively high levels of understanding and concern about climate change and the need for action. In contrast, climate change denial, disregard and inaction are more common among older, religious, less highly educated and more politically conservative members.

Among repeat respondents, hope in addressing climate change was more often expressed by those who self-identified as religious, those intending to vote for a conservative-leaning political party, those who

were parents, those who were not a member of a marginalised or minority group and those who rated their health as OK, good, or very good.

Findings suggest the possibility of segmenting the population based on willingness to make financial contributions to environmental sustainability. For example, those who are willing to pay higher personal taxes include the more highly educated (28% for university, 12% for those who only graduated school) and those who are high-income earners (25% vs 13% for low-income). These people can be asked, or required, to make greater financial contributions (e.g., through higher levies on premium fuels). Those unwilling (or unable) to do so may need to be approached using other strategies.

Pro-environmental behaviours Australians use at the moment and are willing to use in the future are varied.

Australians are reducing their climate change impact by:

- recycling (65%), reducing single-use plastic (52%), consuming power more efficiently (41%) and consuming water more efficiently (41%).

Australians are willing to:

- have renewable energy infrastructure such as a solar farm in their local area (61%), greatly reduce their energy use (70%) and work with their local community to find ways to adapt to living with climate change (50%).





How have extreme climatic conditions impacted Australians?

More than one-third (37%) of Australians reported having personally and directly experienced at least one extreme weather or natural disaster event in the preceding year, and 47% had done so prior to the past year.

Furthermore, 38% of Australians reported having experienced an event or circumstance displaying the impacts of climate change directly in the preceding twelve months (compared to 24% in 2021). Altogether, 44% of Australians in 2022 (up from 35% in 2021) claimed to have experienced such an event at some point in their lives.

Most Australians, and/or their family members, have directly experienced at least some harm from climate change (66%). In the 2021 survey, the corresponding figure was 68%. Those directly exposed reported greater environmental/climate change awareness, concern and responsiveness.

- About one-third (32%) of Australians were directly exposed to flooding in Australia in 2022. These respondents reported disproportionately high levels of environmental/climate change awareness, concern and responsiveness. Compared to their peers who were not flood-exposed, the 18% of the repeat respondent sample who were exposed to floods in 2022 reported greater changes from 2021 to 2022 in a range of climate change variables. Nearly all these changes were toward stronger beliefs, deeper concern and greater readiness for climate action.
- Many Australians reported that the 2022 floods had impacted them, the people close to them, and/or their property. Specific impacts include property damage/loss (30% of flood-exposed respondents), loss of the capacity to perform usual work in the usual way (31%), financial loss (28%), being physically cut off or trapped (30%) and psychological distress or trauma (24%).
- Most homeowners (66% of the 1559 Australians who either owned their own home or were buying it with a loan/mortgage) reported that

they had modified their homes in at least one way in the preceding five years to better adapt to extreme weather and natural disasters, and 28% had made three or more of eight listed adaptations.

- Following or during hot weather, many repeat respondents reported that they experience sleeping problems (51%), fatigue (48%), dehydration (44%), headache (40%), loss of balance/feelings of dizziness/faintness (24%) and anxiety (18%).

What do Australians think about climate policies?

Support for numerous pro-environment government policies remained high in 2022. For example, 75% of Australians in 2022 expressed support for setting a national zero-carbon emission target by 2050 at the latest, compared to 80% in 2021.

Policy support of climate positive mitigation strategies is generally above 50%; however, there are some differences based on gender, age, or household income. Younger people (under 35) are more in favour of a tax on carbon emissions, with the money

being raised being invested in clean, renewable energy (73%), and are more supportive of a requirement that all new vehicles should be electric by 2040 (61%), compared to older people (57% and 42%, respectively). Those with higher household incomes (above \$100K) tend to be more supportive of using post-COVID government stimulus funding to kick-start the transition to a low carbon and climate-resilient national future (72%) compared to those with lower household incomes (below \$60K; 60%).

Support for new fossil fuel projects, and minimising Australia's commitment to reduce greenhouse gas emissions in international climate agreements are generally higher for men. Men are more in favour of minimising agreements regarding greenhouse gas emissions (49%) compared to women (40%). Furthermore, men and those on a moderate income (between \$60K and \$100K) are somewhat more supportive of building new coal-fired power stations as old ones are retired (47% both), compared to women (37%) and high-income earners (39%) and low-income earners (42%).

Who do Australians trust for climate information?

Most Australians use their own observations and experiences of the weather, climate and/or environment as one of their main sources of information about climate change (68%).

Other popular sources of information are Australian commercial media (67%), scientists (66%) Australian public broadcasting (65%) and the Bureau of Meteorology (63%).

Of the 30+ climate change information sources listed, the least used sources are Twitter (18%), TikTok (17%), theatre and creative arts events (15%), and church and/or religious leaders (12%).

The Bureau of Meteorology is rated the most trustworthy source of information about climate change (trusted by 90% of those who use this source).

Other highly trusted sources are expert panels/advisory groups (88%), environmental organisations, scientists, and medical and health professionals (all approximately 87%). Least trusted are politicians (18% do not trust them at all; 38% only a little, and only 41% of people trust them moderately to completely); and social media sites such as Facebook, TikTok, Twitter and Instagram (11% to 16% don't trust them at all).

Who are the Australians that support climate action?

The survey investigated the relationship between climate change attitudes, behaviours and the personalities of the repeat respondents. Of the five personality traits measured, "openness" was the closest and positively correlated with nearly all the climate change variables. Individuals who scored high in openness tended to report pro-environmental attitudes and behaviours.

Compared to their own 2021 responses, the 2022 repeat respondents reported more frequent pro-environmental behaviour, stronger normative beliefs and personal norms (felt obligations) to engage in pro-environmental

behaviour, greater felt personal responsibility for contributing to climate change, greater willingness to engage in pro-climate actions and superior psychological adaptation to the threat and impacts of climate change. Interestingly, they showed less interest in engaging in climate actions in the future, regarded the climate change issue as less important, and felt less personally and collectively efficacious in acting against climate change.

The reasons most commonly cited by Australians in 2022 for not engaging in pro-environmental behaviours included insufficient time and/or money, entrenched routines/habits, doubts regarding the efficacy of these behaviours and lack of knowledge of actions to take. Similar barriers were noted in 2021.



Survey background and overview

The Climate Action Survey provides detailed information regarding what adult Australians think, feel and do in response to climate change and related environmental and climatic events and conditions. The survey aims to document Australians' knowledge, beliefs, attitudes, and actions as they stood in late 2022 and compare them with those reported in 2021.

More specifically, the survey:

- builds and tests theory, enhances theoretical understandings of climate change-related phenomena
- contributes to knowledge derived from research; fills gaps in this research and resolves inconsistencies/controversies raised by research; and provides a basis for comparison with findings from past studies and a baseline of evidence for use in monitoring changes over time in climate change-related variables
- informs the design of interdisciplinary interventions and the formulation of policy in relation to climate change issues, and thereby meets relevant government and industry needs for up-to-date and authoritative information
- informs individuals and communities and stimulates public debate about climate change-related matters
- meets various objectives of the Climate Action Beacon, informs and complements other Beacon projects, satisfies diverse Beacon member interests, and further establishes the Beacon as a national and international leader in climate change research, policy and practice.

The conceptual model underlying the climate action survey



Key takeaways



57%

believed Australia has already started to feel the effects of climate change



8%

believed the effects would be felt within the next ten years



13%

believed the effects would be felt within the next 50 years

The 2022 Climate Action Survey (CAS) comprises two different but overlapping data collection activities: a survey of those individuals who participated in the survey in 2021 and a survey of newly selected respondents. Both surveys required participants to complete an online questionnaire. The questionnaires were similar but not identical. Both were designed to meet the aims specified earlier.

Input was sought and obtained from academics of various disciplinary backgrounds. In this way, a broad range of interests and agendas was represented.

Survey questions were selected based on theoretical importance, practical implications, continuity with the past and a desire to break new ground.

To enable fair comparisons between responses obtained in the 2021 and 2022 Climate Action Surveys, as far as possible and reasonable, the 2021 survey content—including its closed- and open-ended questions and multi-item scales—was retained for use in 2022. The changes made from the 2021 questionnaire for the 2022 new respondent questionnaire were fewer than for the 2022 repeat respondent questionnaire.

In preparing the 2022 questionnaires, content was deleted from the 2021 questionnaire for three main reasons: responses to certain questions were unlikely to change (e.g., participants' country of birth); content that was less relevant/topical in 2022 (e.g., COVID-19 and political identification leading up to the May 2022 federal Australian election); and some questions failed to provide significant or surprising findings in 2021 (e.g., place attachment).

Similarly, content absent from the 2021 questionnaire was added to one or both 2022 questionnaires for three main reasons: it addressed topics of importance in current times (e.g., questions on heat exposure and heat-related symptoms and responses), it had become more salient in 2022 (e.g., experiences and impact of the floods that occurred in Australia), and/or it related to content that was receiving increased attention in recently published research.

Progressive vs conservative respondents

Throughout the report we refer to progressive and conservative respondents.

The most climate change-concerned and climate change-active respondents are referred to as "progressive" respondents. Typically, they were characterised by a plurality of: aged 35 years or under, university-educated, currently studying, inner-urban residents, intending to vote for progressive political parties (i.e., Australian Greens or the Australian Labor Party), and with prior direct experiences of extreme weather, natural disasters and/or perceived manifestations of climate change. Often, they were also: women, full-time employed, higher income earners, non-parents and/or residing in homes in which English is not the primary language spoken.

We distinguish these people from "conservative" respondents who tended to be more climate change sceptical, unconcerned and inactive. Typically, these respondents were older, tended to be male, living in rural regions, religious and/or school-only educated. They were also less likely to report having directly experienced natural disasters and extreme weather events. Not surprisingly, the prevalence of strong climate change beliefs was most pronounced among those who reported having experienced an event or condition that they attributed to climate change.

Survey procedures and sample

The sample targeted for this survey included as many of the 3,915 participants from 2021 as possible so that the size of the ongoing longitudinal sample was maximised. The survey firm Dynata provided an additional financial incentive to encourage the 2021 respondents to participate again in 2022, attracting 1,263 repeat respondents (32.3%). This sample was supplemented with new respondents (2,767 people).

The new sample was to be stratified by gender (at least 48% females and at least 48% males), age (approximately 50% below 40 years of age and approximately 50% aged 40 years and above), and state of Australia (with sample proportions approximately equal to those in the national population). These three stratification variables were required to be interlocked, ensuring nationally proportionate numbers of each gender, age group and state.

Details of the questionnaire

The repeat respondent questionnaire comprised five open-ended items/questions, 188 items that formed a part of a multi-item scale and 167 other closed-ended questions.

The new respondent questionnaire comprised five open-ended items/questions, 179 items that formed a part of a multi-item scale and 185 other closed-ended questions.

Survey context

Responses to all surveys may be affected by social, political, economic and environmental events and circumstances surrounding survey implementation. Events and circumstances leading up to or during the 2022 periods of data collection that might have affected responses and/or response rates include: federal elections held in May 2022; massive and repeated flooding during 2022 in eastern parts of Australia from the Sunshine Coast in Queensland, via regional and remote NSW, to Melbourne in Victoria; UN Climate Change Conferences (COP26 and COP27) held in 2021 and 2022; the Ukraine war; long-lasting effects of COVID-19; and concerns about the rising cost of living.



Variable	2021	2022 (repeat)	2022 (new)	2022 (total)
Sample size	3,915	1,263	2,767	4,030
Male/Female	48.6% / 51.1%	48.0% / 51.9%	49.4% / 50.2%	49.0% / 50.7%
Age (years)	Mean = 46.56 (sd =17.41)	Mean = 54.20 (sd = 16.95)	Mean = 47.26 (sd = 19.33)	Mean = 49.44 (sd = 18.89)
Aboriginal and/or Torres Strait Islander	2.3%	1.5%	2.9%	2.5%
Born in Australia?	76.7%	76.1%	77.6%	77.1%
Language spoken at home is English	93.8%	95.2%	94.5%	94.7%
Religious?	40.5%	41.2%	38.1%	39.1%
University-educated	40.5%	39.0%	38.1%	38.3%
Progressive (left-leaning) voter	41.7%	45.8%	49.9%	48.7%
Parent?	56.3%	63.7%	58.9%	60.4%
Employed full-time	36.9%	31.7%	37.6%	35.0%
Income > \$100K p.a.	32.2%	30.0%	32.0%	31.4%
Currently a student	12.8%	5.9%	10.6%	9.1%
Homeowner	56.3%	64.0%	56.3%	58.7%
Member of a minority or marginalised group	29.9%	28.5%	27.7%	28.0%
Reside in a rural/remote area	20.3%	21.1%	22.3%	21.9%
Ever directly experienced a natural disaster	52.4%	73.2% ^a	54.8%	
Ever directly experienced climate change	35.5%	32.6%	44.1%	40.5%
In poor or just OK health	55.6%	48.1%	48.4%	48.3%
Petrol/diesel vehicle owner	82.9%	87.3%	84.9%	85.7%
Australian state of residence				
Australian Capital Territory	2.5%	2.1%	1.6%	1.8%
New South Wales	30.9%	28.7%	32.0%	31.0%
Northern Territory	1.0%	0.8%	0.9%	0.9%
Queensland	19.2%	21.3%	20.2%	20.5%
South Australia	7.5%	8.7%	7.5%	7.9%
Tasmania	2.9%	2.3%	2.0%	2.1%
Victoria	25.4%	25.3%	25.5%	25.5%
Western Australia	10.8%	10.8%	10.3%	10.4%

Table Comparison of demographic profile of 2021 and 2022 data

Note: sd = standard deviation

^a The survey questions used to derive this percentage differed from those used in the other questionnaires. Hence, direct comparisons involving these percentages are not recommended, and reporting a weighted average of the repeat respondent and new respondent percentages would be misleading.

Do Australians think we have a climate crisis?

A key question addressed in the Climate Action Surveys relates to the meaning people attach to climate change. Australians were asked: "Which of the following definitions best captures your understanding of the meaning of the term 'climate change'?"

The five options, and the percentage of Australians who endorsed each option, in the 2021 and 2022 full samples are as follows:

The meaning of the term "climate change"	2021	2022
All changes in the world's climate, regardless of the cause	33%	33%
All changes in the world's climate that are due to human activity	29	28
Increases in the world's temperature (i.e., "global warming")	26	23
All changes in the world's climate that occur naturally	10	12
Something that does not really exist	3	4

These findings point to the complexity of climate change communication and some **confusion** about the term. Overall, we note that there is no consensus, and further, a substantial proportion of the population are still mistaken about the role of humans in climate change. This cautions governments and policy-makers, scientists and scientific organisations, journalists and news media—and any individuals or groups seeking action on climate change—that their audiences likely interpret the term in various ways.

Though most Australians accept climate change is happening (79%), only a minority (15%) think it is an extremely serious problem.

Most (57%) Australians believed that Australia has already started to feel the effects of climate change, and 8% believed that the effects would be felt within the next ten years. A further 13% believed the effects would be felt within 50 years. Together, these findings show many Australians' views reflect what is known as "temporal distancing" of the climate crisis.

The survey shows that 15% of Australians believed climate change is an "extremely serious" problem right now (compared to 22% in 2021), whereas 31% believed it will be so in 2050 (compared to 45% in 2021). Consistent with this, 67% believed it is at least a moderately serious problem now, and 77% believe it will be serious in 2050.

Climate change risk perceptions were generally high, especially among progressive members of the samples. Most Australians (74%) agreed that climate change moderately influences the frequency and intensity of extreme weather events such as heatwaves, cyclones and droughts, and disasters such as bushfires and floods. Few Australians believed Australia would never feel the effects of climate change.

Approximately one-fifth of Australians either slightly agreed, agreed or strongly agreed that climate change mostly affects regions at a geographical distance from their place of residence. Thus, these Australians' views reflect "spatial distancing" of the climate crisis. Again, the chasm between public understanding and scientists calls for immediate action.

Most Australians reported being fairly or very concerned about climate change.

These percentages are similar to those found in 2021 (72%) but considerably higher than the 35% obtained when similar surveys were conducted in 2010/2011.



40%

Fairly concerned



31%

Very concerned

Belief in or acceptance of climate change

A second key question of the Climate Action Survey asks, "Do Australian adults believe in the existence of climate change?" To address this question in the 2021 questionnaire and again in 2022, respondents answered five items located in different sections of the questionnaire assessed belief in and acceptance of climate change. Participants were grouped into four categories based on their responses:

- **deniers** (i.e., those who answered all five questions in a manner reflecting disbelief in climate change)
- **sceptics** (i.e., those who answered either three or four of these items in a manner reflecting disbelief in, or doubts about, the existence of climate change)
- **unconvinced** (i.e., those who answered either one or two of the items in a manner reflecting disbelief in, or doubts about, climate change)
- **believers** (i.e., those who responded to all five questions in a manner that demonstrated acceptance of the reality of climate change).

Belief in, or acceptance of, climate change remained relatively stable. In 2022, our national sample revealed 3% were climate change deniers, 6% sceptics, and 17% unconvinced about climate change. In 2021 the findings were 2% deniers, 5% sceptics and 16% unconvinced in 2021. The vast majority of Australians in 2022 were firm believers (74%) in the reality of climate change, similar to 2021 (77%).

Together, the findings suggest that work remains to be done to convince about one-quarter of the Australian population about climate change, especially the urgent need for climate action. Within this one-quarter, the unconvinced (17.1%) Australians are best positioned for change.

Members who denied or doubted the existence of climate change tended to have the characteristics referred to above as "conservative" Australians: that is, they tended to be males; older rather than younger; intending to vote for a right-leaning political party; less highly educated, religious, or identifying with a particular religious faith; and residing in a rural (vs. urban) location. They were also less likely to report having directly experienced natural disasters and extreme weather events. Not surprisingly, the prevalence of strong climate change beliefs was most pronounced among those who reported having experienced an event or condition that they attributed to climate change. Also showing firm beliefs in climate change were various groups of "progressive" Australians, including students and those who intended to vote either for the Australian Greens or the Australian Labor Party (hereinafter, shortened to Greens and Labor).



Who cares about climate change?

Approximately half of Australians (53%) rated climate change as either an important, very important, or extremely important issue for them. These percentages are lower than the 60% reported in the 2021 survey. Most 2022 respondents (61%) believed climate change should be a high, very high, or extremely high priority for the Australian government. The corresponding figure in 2021 was 67%.

These findings demonstrate how some Australians may reduce climate change-induced anxiety by psychologically distancing themselves—temporally and/or geographically—from the threat it poses. Indeed, these results (and those around the perceived importance of climate action) reveal a significant disconnect between a large proportion of Australians on the urgency of climate action and responses demanded by scientists.

As expected, scores on the climate change "issue importance" scale were higher among progressive than among conservative Australians. Interestingly, they were also higher in the new respondents' sample among those whose main language spoken at home was not English.

Consistently, exposure to severe weather, natural disasters and events and conditions attributed to climate change was positively correlated with better knowledge and greater concern

for climate change and, importantly, a willingness for climate action.

The impacts of disaster and severe weather events on respondents willingness to support urgent climate action also presents an opportunity to communicate the slower impacts of climate changes beyond and including these acute reminders.

Knowledge

Respondents completed a 13-item objectively scored test of their knowledge of the causes, impacts and effective responses to climate change. After granting a point for correct answers and subtracting a point for incorrect ones, the average test score out of 13 was 5.4. In the 2021 survey, the mean score for the same test was 5.6. As was the case in the 2021 survey, the sub-group of the sample that scored highest on objective knowledge was that in which respondents claimed to have personally experienced a change, circumstance, or event they attributed

to climate change. Relatively high levels of climate change knowledge were more evident among the progressive than conservative Australians (although age differences were not significant). Also scoring relatively well were those born outside of Australia, those whose main language spoken at home was not English, and those who had directly experienced a natural disaster or extreme weather event.

Young people (under 35), students, women, university-educated, and inner urban Australians had disproportionately high levels of understanding and concern about climate change and the need for action. In contrast, climate change denial, disregard and inaction were more common among older, religious, less highly educated and more politically conservative members.



The climate change distress scale

 **67%**
Worried

 **39%**
Guilty

 **52%**
Distressed

 **46%**
Anxious

 **47%**
Overwhelmed

 **46%**
Upset

Australians were asked to rate their level of knowledge of climate change. The mean self-rating on a six-point scale was 3.4–3.5. The modal response to the question "how much do you feel you know?" was a little. Self-rated knowledge was modestly but positively correlated with objectively assessed knowledge of climate change. Men rated their knowledge higher than women, but women scored higher on the objectively scored test. Groups of Australians who tended to rate their knowledge as high included those whose main language spoken at home was not English, those who were university-educated, those intending to vote for the Greens or Labor, inner-urban residents, students, those born overseas, and those who claimed to have directly experienced a climate change event or condition. While greater climate change knowledge was expected among the more highly educated and among those with lived experiences of climate change impacts, the superior performance of the overseas-born and non-English background Australians was unexpected and warrants further investigation.

Climate change concern was higher among progressive than conservative Australians. It was relatively high among the full-time employed, higher income earners, Australians who resided in a home where English was

not the main language spoken, and those who self-identified as belonging to minority/marginalised and more vulnerable groups. Concern was higher among those who reported having had one or more natural disasters, extreme weather, or climate change-impact experiences.

Respondents were presented with a list of twelve natural or human-made phenomena that could give rise to concern. The phenomena rated as most concerning were (from the source of greatest concern, in descending order):

- food insecurity
- heatwaves
- biodiversity loss
- impacts of climate change, generally
- war and international conflicts.

Compared to 2021, less concern was expressed in 2022 about all the listed phenomena, including climate change. Future iterations of this survey will monitor national trends in climate change concerns relative to other local and global issues.

Australians were asked to name their biggest concern about climate change in an open-ended question. Common responses ranged from natural disasters and extreme weather events (e.g., heatwaves, bushfires, floods, droughts, sea level rises), through

public apathy and government inaction, to human and social problems (e.g., impacts on developing nations, food shortages, financial impacts), impacts on ecosystems/flora/fauna, and possible destruction of the planet. This diversity of responses is noteworthy, reflecting as it does the many natural and human systems, both proximate and distant, that are affected by climate change.

On balance, expressions of hope in addressing climate change were more often expressed by conservative than progressive Australians. Expressions of hope may thus reflect a downplaying of the climate change threat rather than a belief in personal and collective efficacy to combat it.

Repeat respondents (i.e., those who also completed the survey in 2021) completed a four-item scale measuring the extent to which they felt hopeful when considering their ability to address climate change. Most expressed moderate levels of hope, with scores relatively high among those who self-identified as religious, those intending to vote for a right-leaning political party, parents, those who were not a member of a marginalised or minority group, and those who rated their health as good, or very good.

Have Australians' behaviours and lifestyles been affected by their understanding and experiences of climate change?

The most frequently endorsed lifestyle changes reported by Australians to reduce the impact of climate change (of those listed) were: recycled more (65%), reduced use of plastic items (52%), reduced food waste (47%), consumed power (electricity, gas) from the grid/power companies more efficiently (43%), consumed water more efficiently (41%) and avoided unnecessary purchases (38%). Only 19% of Australians indicated that they hadn't changed any aspects of their lifestyle over the past year due to concerns about climate change.

Progressive respondents reported stronger pro-environmental personal norms (i.e., their felt moral obligation to combat climate change) than conservative respondents. Other groups with stronger personal norms were : those employed full-time; those whose salary exceeded \$60,000 per annum; those who had prior direct experiences of one or more natural disasters, extreme weather, and/or climate change impact events; and, in the new respondent sample only, non-parents and those who mainly spoke at home a language that was not English.

Interventions aimed at strengthening the personal norms of other groups of Australians are likely to pay off in terms of increased climate action.

Australians were asked about the likelihood that they would engage in six different types of climate change activism if a liked and respected friend asked them to. These types of activism included engaging in non-violent civil disobedience against corporate or government activities that make climate change worse, and donating money to an organisation working on climate change, respectively. Between 23% and 43% of respondents indicated they would or definitely would engage in these actions. Again, it was the progressive rather than the conservative Australians who most often reported that they would engage in these activities, as did several other groups: those employed full-time; those whose household income exceeded \$60,000 per annum; those who had prior direct experiences of one or more natural disaster, extreme weather, and/or climate change impact event/s; those who self-identified with a minority/marginalised group; and those who mainly spoke at home a language that was not English.

A 10-item behavioural willingness scale assessed the extent to which Australians were prepared to make lifestyle changes and financial commitments to support climate action. About one in five Australians were willing to pay higher personal taxes, pay more for electricity, and pay more for fuel, but substantially more were willing to greatly reduce their energy use (70%) and have renewable energy infrastructure (e.g., solar farms) located in their area (63%). In general, progressive Australians (plus the full-time employed; the higher income earners, and those with prior experiences of natural disasters, extreme weather, and/or climate change impact event/s) reported greater willingness to take these actions than conservative Australians.

Which aspects of your lifestyle have you changed over the past year primarily because you wanted to reduce your impact upon climate change?

65% recycled more



52% reduced use of plastic



47% reduced food waste



43% consumed power (electricity, gas) from the grid/power companies more efficiently



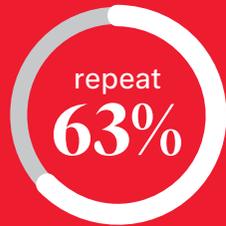
41% consumed water more efficiently



38% avoided unnecessary purchases



Willingness concerning responses to climate change



have renewable energy infrastructure such as a solar farm in my local area



greatly reduce my energy (e.g., electricity) use



work with my local community to find ways to adapt to living with climate change

Findings suggest the possibility of segmenting the population based on willingness to make financial contributions to environmental sustainability. For example, those who are willing to pay higher personal taxes include the more highly educated (28% for university, educated 12% for those who only graduated school) and those who are high -income earners (25% vs 13% for low-income earners). These people can be asked, or

required, to make greater financial contributions (e.g., through higher levies on premium fuels). Those who are unwilling (or unable) to do so may need to be approached using other strategies.

Faced with the threat of climate change, people must adapt psychologically (i.e., make cognitive, emotional and behavioural changes to accommodate this reality). The genders did not differ in psychological adaptation. However, progressive Australians were more likely than

conservative Australians to indicate that they were positively adapting to climate change.

Overall, climate change beliefs and concerns are stronger among the progressive (younger, better educated) than the conservative Australians. But willingness to participate in pro-environmental behaviours and other climate actions cut across the entire sample (not just progressives), especially among the full-time employed and high-income earners, and in contrast, the more marginalised and the non-English speaking respondents.



What are your biggest concern(s) about climate change?

"My biggest concerns about climate change are that the world will heat up so much that every ice cap will melt, causing the seas to rise and more floods to occur when it does rain."

"At the moment, it's not climate change itself, but people's lack of agreeing that it's happening and attempting to help improve our situation regarding climate change."

"I'm worried we will experience food shortages and droughts; I'm worried about more floods and the health and safety of my family."

"We're going to see a continued devastating loss of biodiversity and the movement of human beings that will result in genocide to support the continuation of a capitalist world order."

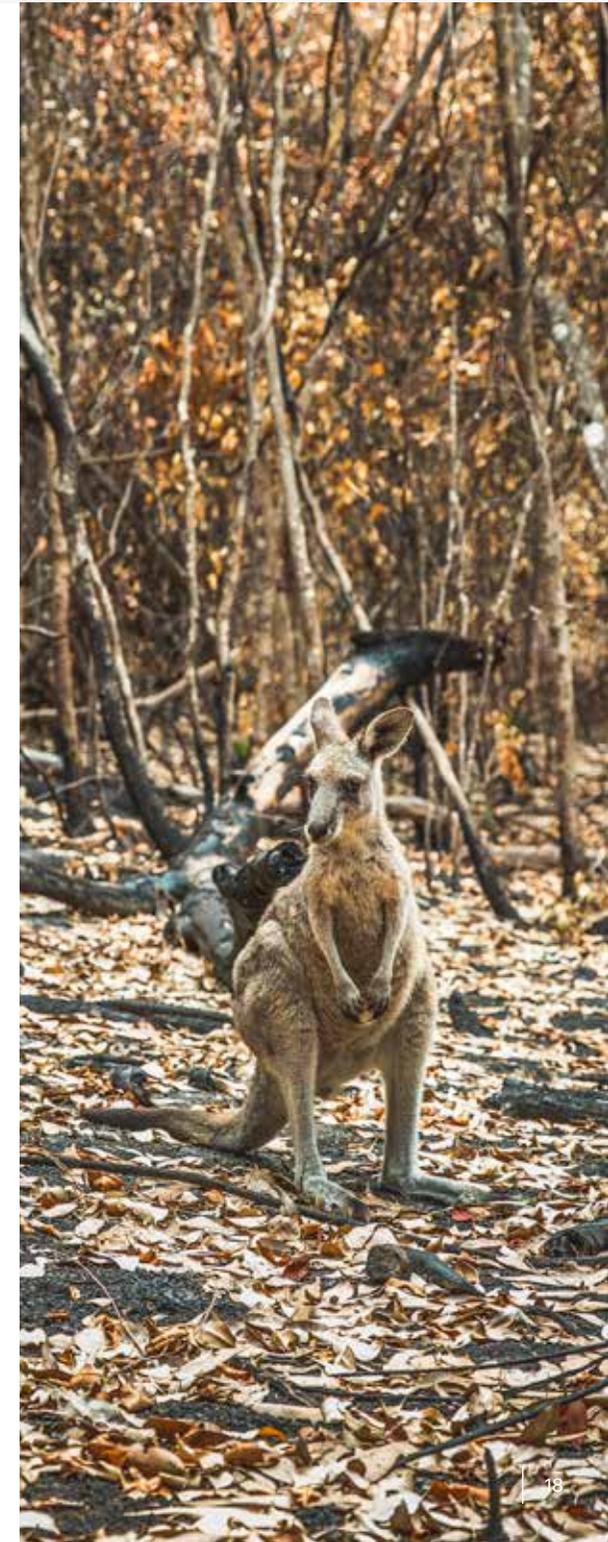
"I'm more concerned about how much rubbish we dump in the ocean. Some of it never breaks down and kills many sea animals."

"The biggest concern is how long it has taken to become aware of it and how there seems to be little global concern about preserving future generations from hardship."

"The world eventually becomes inhabitable, my children or their children not having a world to live in. I live in an agricultural area, and my fiancé works in this industry—the thought of it declining is worrying."

"I'm not that concerned about climate change. I'm more concerned about the negative consequences of policies implemented to combat climate change."

"My biggest concern is that the ratbag greenie minority will bugger up the rest of the world to make a name for themselves. The world population hit 8 billion the other day; how about reducing that number by 50% urgently? Then I may get interested!"



How have extreme climatic conditions impacted Australians?

How many Australians have been directly exposed to potentially harmful climatic events and circumstances? What kinds of experiences have they had?

In accordance with the questions used in the 2021 survey, Australians were asked about their experiences of natural disasters or extreme weather events. Of the respondents, 37% had personally experienced at least one extreme weather or natural disaster event in the preceding twelve months (up from 31% in 2021), and 47% had done so before the preceding year.

Taken together, 55% of the 2022 respondents (up from 52% in 2021) had experienced such an event at some point. Of the 1,516 respondents who had experienced such an event, 1.6% had been injured, and 28% had suffered financially in their most recent experiences. Additionally, 14% had suffered a considerable, major, or extreme amount of property damage due to such an event.

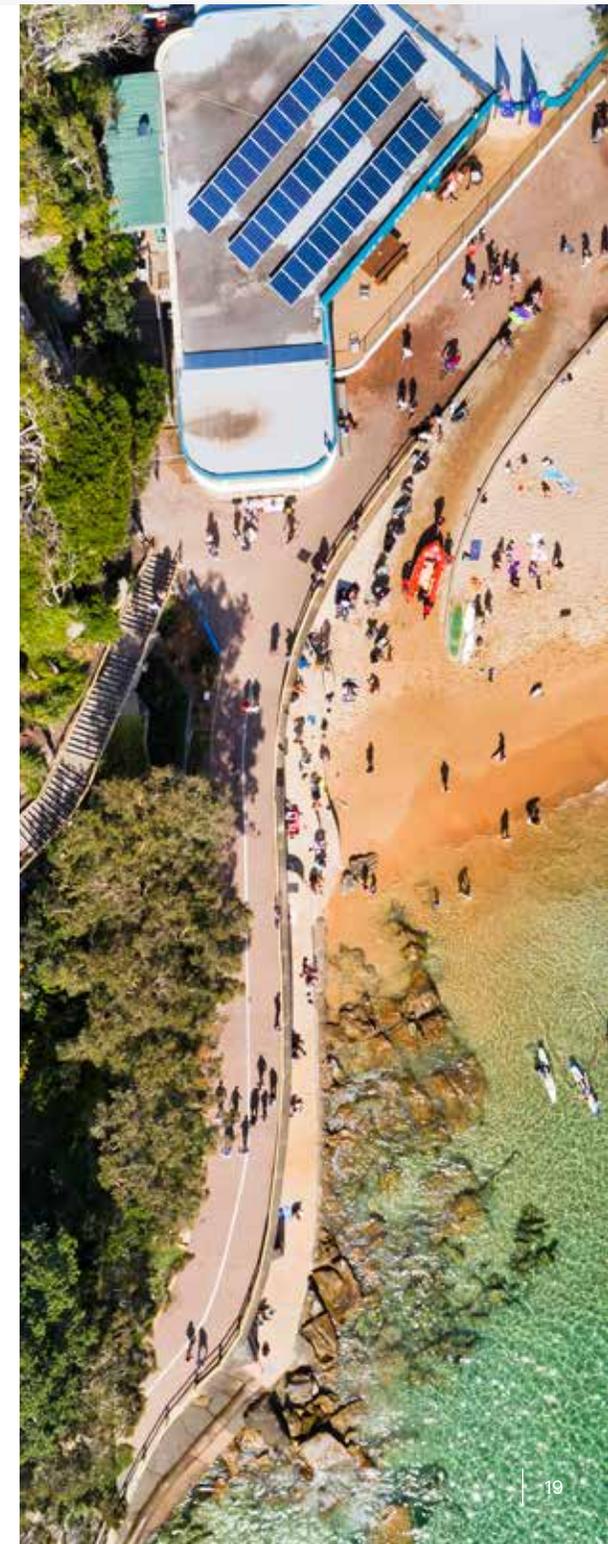
Australians with natural disaster experience expressed greater concern and distress about climate change were more likely to support government action to combat climate change, and more likely to engage in pro-environmental actions.

Particularly large differences between those with and without experience were evident regarding perceived residential exposure to these potentially harmful events.

Many Australians (44%) agreed that some geographically distant natural disasters or extreme weather events had an impact on them, even though they did not directly experience these events. In an age of media, disaster events reach far beyond the impact zone, as stories and images reach the entire nation. Our findings remind those in policy and decision-making around disaster events of the potential impacts of even vicariously experienced events.

Approximately 33% of Australians answered this question in the affirmative: "Has any particular event/s or experience/s altered your views about the seriousness of climate change?" Respondents cited bushfires, droughts and other natural disasters or anthropogenic events, such as the bleaching of the Great Barrier Reef. Media (e.g., television) coverage of these events was also commonly cited, especially when these events occurred in countries (the UK, Pakistan, Hong Kong, Philippines, etc.) other than Australia. References were also made to more subtle and gradual changes, such as the unusual timing of flowering of plants or birds' migration.

Approximately 38% of Australians had directly experienced circumstances or events in the past twelve months that they believed might be due to climate change. The corresponding percentage in the 2021 survey was 24%, so there has been a substantial increase within a single year in the prevalence of perceived climate change experiences. Respondents were also asked whether they had ever had such an experience prior to the preceding twelve months, with 36% answering affirmatively.



In the past twelve months, most repeat respondents have experienced:



63%
one heatwave



36%
more than one heatwave



26%
floods



23%
drought



18%
bushfire/s



7%
cyclones



When asked about their experiences of climate change, responses were dominated by references to the 2022 flooding in eastern parts of Australia. Also frequently mentioned were heatwaves, bushfires, cyclones, rain/storms, drought, food and other shortages, climatic variability/inconsistency, subtle seasonal changes and many others.

Australians who had experienced changes, events, or circumstances in the preceding year that they attribute to climate change, scored significantly higher on nearly all climate change variables. They scored significantly lower on perceptions of the spatial distance of climate change and psychological reactance, with this direction of differences implying greater (rather than less) climate change concern.

Most Australians (66%) reported that they/their family had been harmed to some extent by climate change-related circumstances or events, with only 34% indicating that they/their family had not been harmed at all. In the 2021 survey, 68% of Australians reported that they/their families had been harmed to some extent.

Given that approximately two-thirds of the population believe that they have been harmed to some extent by climate change-related circumstances or events, it is unsurprising that most Australians regard climate change as an important issue that requires government action now.

Perceived vulnerability of their place of residence to the adverse effects of extreme weather, natural disasters, and/or climate change impacts was especially strong among those who had previously experienced such events. Others reporting high levels of perceived residential vulnerability were rural residents, those aged 35 years or less, students, members of minority/marginalised groups, intending progressive voters and residents of Queensland.



In the past year:



of repeat sample respondents had not directly experienced either (1) an extreme weather event/natural disaster or (2) an event or circumstance that they attributed to climate change in the past year



had experienced both these types of events



had experienced an extreme weather/natural disaster event but not a climate change impact event



had experienced an event or circumstance attributed to climate change, but not an extreme weather/natural disaster event

In 2021, the percentages were 41%, 28%, 24% and 7%, respectively.

Australians directly exposed to the 2022 floods:



observed the damage to other people's property



witnessed other people directly impacted by the flooding



had a family member or close friend impacted by the flooding

The 2022 flood experience

Of the respondents, 27% of Australians responded in the affirmative to the question, "were you, or the people close to you, or your property, directly exposed to the 2022 eastern Australian floods, or the consequences of these floods, in any way?" Respondents who reported direct exposure to the flooding also reported greater environmental/ climate change awareness, concern and responsiveness.

Many Australians reported that the 2022 floods had impacted them, the people close to them, and/or their property. Specific impacts include property damage/loss (30% of flood-exposed respondents), loss of the capacity to perform usual work in the usual way (31%), financial loss (28%), being physically cut off or trapped (30%) and psychological distress or trauma (24%).

Flooding exposure was related to (in descending order):

- perceived residential exposure to natural disaster and climate change risks
- likelihood of participating in climate change activism

- frequency of engaging in pro-environmental behaviours because of concerns for the environment
- psychological adaptation.

The potential flood impacts listed were collated, with higher scores indicating greater adverse impacts of the floods. Relatively high flood impacts were observed

- among students and among Australians who had experienced manifestations of climate change
- among those aged 35 years or less, those employed full-time, and those who reported having experienced one or more natural disasters in their lifetime and/or the preceding year.

New respondents residing in the Australian Capital Territory and Queensland reported high flooding impacts, while scores were particularly low among residents of Tasmania.

The repeat respondents who had been directly exposed to the 2022 floods were asked to indicate the frequency/extent to which their functioning in everyday activities was adversely affected by their flooding experience/s. Between 13% and 29% of this group indicated they were at least sometimes/somewhat functionally impaired.

In addition:

31% lost the capacity to perform their usual work in the usual way



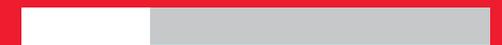
30% experienced property damage/loss



30% were physically cut off or trapped



28% experienced financial loss



24% experienced psychological distress or trauma



28% of those directly exposed to the flooding assisted with cleaning up after the floods



11% were involved in flood-related rescue work.



Among the most common problems experienced were sleeping difficulties (experienced "sometimes/somewhat" by 29% respondents). One of the least common problems was difficulties keeping up an acceptable appearance (13%). Students, inner-urban residents and respondents in poor health reported relatively high levels of flooding-related limitations in their everyday life.

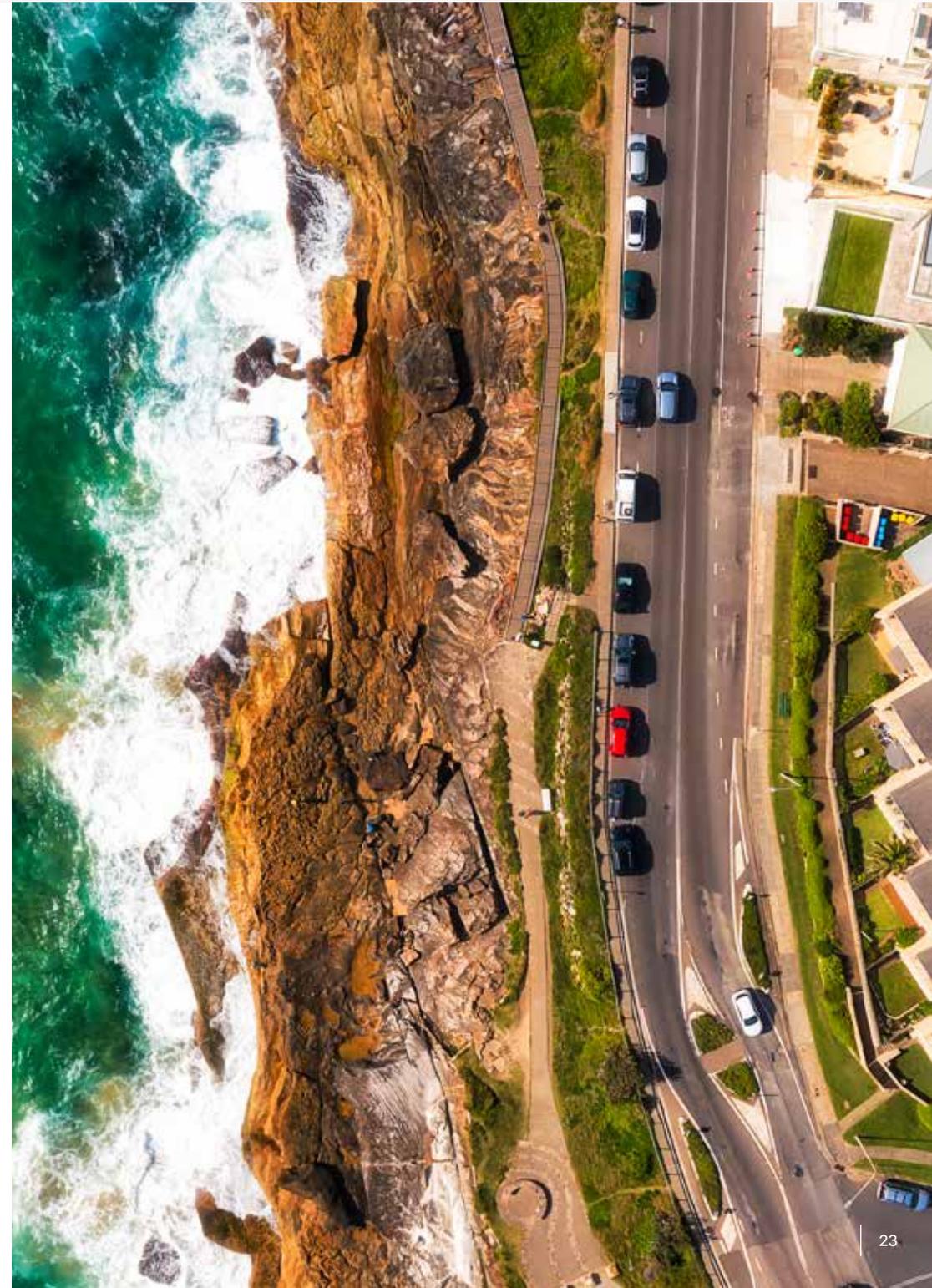
Several questions probed the effects of climatic and disaster events on respondents' use of insurance. Among Australians who incurred property damage due to the 2022 floods, only 25% claimed on their insurance, with 92% of the claims successful. Only 22% of those affected knew if and how they had changed their insurance coverage. In a different section of the questionnaire, 62% of people indicated that they would be at least moderately willing to move their home if their current residence was deemed uninsurable due to its exposure to the risk of flooding, bushfires, or other natural disasters. Thus, about two-thirds of Australians are willing, while 20% are not willing, and 18% are only slightly willing to move from an uninsurable home.

Where do Australians place responsibility for climate action?

The tendency to accept personal responsibility for causing climate change was generally higher among members of the progressive (compared to the conservative) sub-groups of the sample.

Acceptance of responsibility was also higher among those who reported having directly experienced a natural disaster, an extreme weather event, or an event or condition that they attributed to climate change. Direct experience of weather events is positively associated with greater personal responsibility. Australian non-homeowners (compared to homeowners) accept greater personal responsibility for climate action, signalling that it is not necessary to own property to feel responsible for one's personal impact on climate change. More specifically, the lack of control over the home's/property's features seems to be related to greater personal responsibility for climate change.

Most homeowners (66% of the 1559 Australians who either owned their own home or were buying it with a loan/mortgage) reported that they had modified their homes in at least one way in the preceding five years to better adapt to extreme weather and natural disasters. Additionally, 28% had made three or more of the eight listed adaptations, including installing solar panels, solar hot water services, or had modified their home to reduce total household energy usage (e.g., insulation).





Three types of climate change efficacy or empowerment beliefs (self-efficacy, response efficacy, and collective efficacy) were assessed in the survey. Responses suggested generally high levels of efficacy, especially among the progressive sub-groups of the samples and among those who reported having directly experienced a natural disaster, an extreme weather event, or an event or condition that they attributed to climate change.

Beliefs about descriptive norms (i.e., beliefs about whether most other people in their social network behave in pro-environmental ways) tended to be higher among the more highly educated, those who were religious, those intending to vote for a progressive political party, those who were employed full-time, those who reported being in better than OK physical health, and those who reported having directly experienced a natural disaster, extreme weather event or manifestation of climate change. Unlike other trends in the survey data, it was a mix of progressive and conservative Australians who reported that they believed people in their social network behaved in pro-environmental ways, likely for different reasons related to climate concerns, feelings and beliefs.

Normative beliefs (i.e., beliefs about whether significant other people would want us to behave in pro-environmental ways) were positively correlated with other climate

change-related beliefs, concerns, and pro-environmental behaviours. Progressive Australians scored higher than conservative Australians (although gender differences were non-significant in both samples). Also reporting strong pro-environmental normative beliefs were higher income earners, those full-time employed, and those with prior natural disasters, extreme weather events, or manifestations of climate change experiences. Australians living in the Australian Capital Territory also reported strong normative beliefs.

About one-third of Australians felt pressure to adopt particular (unspecified) views about climate change. These Australians tended to be males, those who describe themselves as religious or as identifying with a particular religious faith, and those intending to vote for one of the conservative political parties. Thus, pressure to adopt views about climate change were most often felt by conservatives, who are also those most likely to doubt or deny the existence of climate change.

How are Australians responding to hotter weather?

Repeat respondents were asked about their experiences of extremely hot weather. In response, 23% indicated they were not affected by this weather, 42% were a little affected, 30% were somewhat affected and 5.5% were severely affected. When asked to indicate the symptoms they have ever experienced following or

during hot weather, the most common responses were loss of sleep/trouble with sleeping (51%), fatigue (48%), dehydration (44%), headache (40%), loss of balance/feelings of dizziness/faintness (24%) and anxiety (18%). Almost one-sixth (16%) experienced none of the 15 symptoms listed, suggesting they either have limited exposure to heat, cope well in heat, or have experienced other non-listed symptoms.

Response to heat

Repeat respondents were asked to specify the features of their home that are installed to reduce the effects of hot weather. The most common responses were blinds and awnings (89%), air-conditioning (82%), fans (81%), and outdoor areas like verandas, decks or patios (78%).

Few respondents had tinted windows (21%) or a light-coloured roof (37%). The most frequently adopted strategies to maintain comfortable temperatures were increasing fluid intake (92%), wearing lighter/looser-fitting clothing (89%), closing windows (81%), staying inside (77%) and closing blinds and curtains (75%). Few respondents reported visiting friends who live in cooler places (6%), visiting green areas (14%), reducing alcohol intake (22%) and turning on air-conditioning (36%).

In the past twelve months, have you directly experienced any environmental or climatic changes, circumstances, or events that you think might be due to climate change?

"Record heatwave in Perth (six consecutive days over 40 degrees). I live in a home without air-conditioning, and this was extremely uncomfortable and led to my partner and I having to seek out environments with air-conditioning (e.g., public library or shopping centre) to avoid heat stress."

"It all changes over time. There are plenty of examples of the whole civilisation collapsing to climate change over the last 5000 years. e.g., the Mayans, the Romans and the Old Egyptian kingdom. It is called nature."

"The storms in the Dandenongs over the past year have been particularly fierce, with unprecedented strong winds. After the terrible bushfires of early 2020, the past two years have been incredibly wet, with more rain, flooding and cold weather than usual."

"Living in a regional, rural, remote area of Australia, you experience the effects of climate change and what it does to the land. We are getting longer periods of hotter and dryer weather over summer and then major erosion causing flood events."

"My family farm home in the countryside was totally ruined by flood, which caused 75% damages to the whole property of 125 acres."

"Last summer, the ocean temperature was consistently around 25 degrees at my local beach for about six weeks, which is unheard of and most certainly due to climate change."

"Our summer temperatures are getting higher, our bird life is not around so much anymore, and our fish have ulcers on some of them when you catch them, owing to the sea temperature being hot."

"I didn't care about climate change until the 2019 bushfires, which opened my eyes to the situation. Also, during November, Victoria started getting a lot of rain. The Barwon River and all the wetlands were constantly flooded for a whole month."

"Floods 2022. While the homes of my family and friends were not affected, I could see the damage done on the news. We were lucky because we chose to live in areas that weren't all likely to be affected by the floods."

"Increasing rainfall affects things like food availability, transport and cost. Temperature variations have affected sleep and efforts to plan activities."

"The city that I live in has been blanketed with bushfire smoke for several weeks, making the city one of the worst in the world for air quality."



What do Australians think about climate policies?

Support for pro-environment policies was stronger among progressive rather than conservative Australians. This support was also relatively high among those who did not own a motor vehicle and those who had experienced one or more natural disasters, extreme weather events, or climate change impacts. Also, support was high among Australians who were employed full-time, those with a relatively high household income, and those residing in the Australian Capital Territory. Consistent with their support for climate-friendly policies, these respondents also reported high levels of climate change belief, concern, risk perceptions, issue importance, personal norms, efficacy, willingness to take climate action, and similar climate change attitudes and behaviours.

Findings from the repeat respondent sample related to pro-environmental policy support illustrate the increasing polarisation of Australians, with progressive voters' support increasing over the 2021-2022 year, whilst that of conservatives decreased over the same period.

The surveys included an item about the recently legislated Australian federal government target of a 43% reduction in greenhouse gas emissions by 2030. Substantial proportions (37% of Australians) believed the target was "about right", 24% of Australians thought it was "too low" and 10% thought it was "too high". Approximately 14% of Australians indicated there should be no target and 14% replied that they had no opinion on the issue. While these responses illustrate the existence of divergent views on the issue, they also suggest that the majority of Australians are on board with this policy initiative.

Australians were asked to what extent they would support the following initiatives when proposed by the government as policies:

Climate positive mitigation strategies

- Set a target of national net zero-carbon emissions by 2050 at the latest (75% with a further 11% undecided as they did not understand the policy, or where not in favour of, or against the policy)
- Put a tax on carbon emissions, with the money raised being invested in

clean, renewable energy (66%, and 10% undecided)

- Stimulate public/private investment in a national clean energy power system to replace all coal power (73%, and 11% undecided)
- Phase out over ten years the mining of fossil fuels (coal, oil and gas) (62%, and 12% undecided)
- Increase taxpayer-funded financial grants/subsidies for private solar panels and batteries (71%, and 11% undecided)
- Require all new vehicles to be electric by 2040 (52%, and 8% undecided)
- Use post-COVID government stimulus funding to kick-start the transition to a low carbon and climate-resilient national future (64%, and 17% undecided)
- Assist communities that are currently reliant on coal mining for their livelihood (78%, and 14% undecided)

Climate negative mitigation strategies

- Provide taxpayer-funded financial grants/subsidies to the fossil fuel industry (41%, and 19% undecided)

- Build new coal-fired power stations as old ones are retired (42%, and 17% undecided)
- Minimise Australia's commitments to international climate agreements regarding the reduction of greenhouse gas emissions (44%, and 19% undecided)

Policy support of climate-positive mitigation strategies is in general above 50%, however, there are some differences based on gender, age or household income. For example, females are more likely to support phasing out of fossil fuels over ten year (63% support, 20% oppose) compared to men (60% support, 33% oppose), but less likely to assist communities that are currently reliant on coal mining for their livelihood (74% and 80% respectively). Younger people (under 35) are more in favour of a tax on carbon emissions, with the money being raised being invested in clean, renewable energy (73%), and are more supportive of a requirement that all new vehicles should be electric by 2040 (61%), as compared to older people (57% and 42% respectively).

Those with higher household incomes (above \$100K) tend to be more supportive of the use of post-COVID government stimulus funding to kick-start the transition to a low-carbon and climate-resilient national future (72%) compared to those with lower household incomes (below \$60K; 60%).

Policy support of climate-negative mitigation strategies is, in general, lower than climate-positive mitigation policies, and more differences are visible based on gender, age, and/or household income. For example, men and those on a moderate income (between \$60K and \$100K) are more supportive of building new coal-fired power stations as old ones are retired (47% both), compared to women (37%) and high- (39%) and low-income earners (42%). Furthermore, men are more in favour minimising agreements regarding greenhouse gas emissions (49%) compared to women (40%). The support for use of taxpayer-funded financial grants/subsidies to the fossil fuel industry is very mixed. Overall, Australians are very divided on this policy (40% opposed, 41% supportive, and 19% do not know/do not understand).

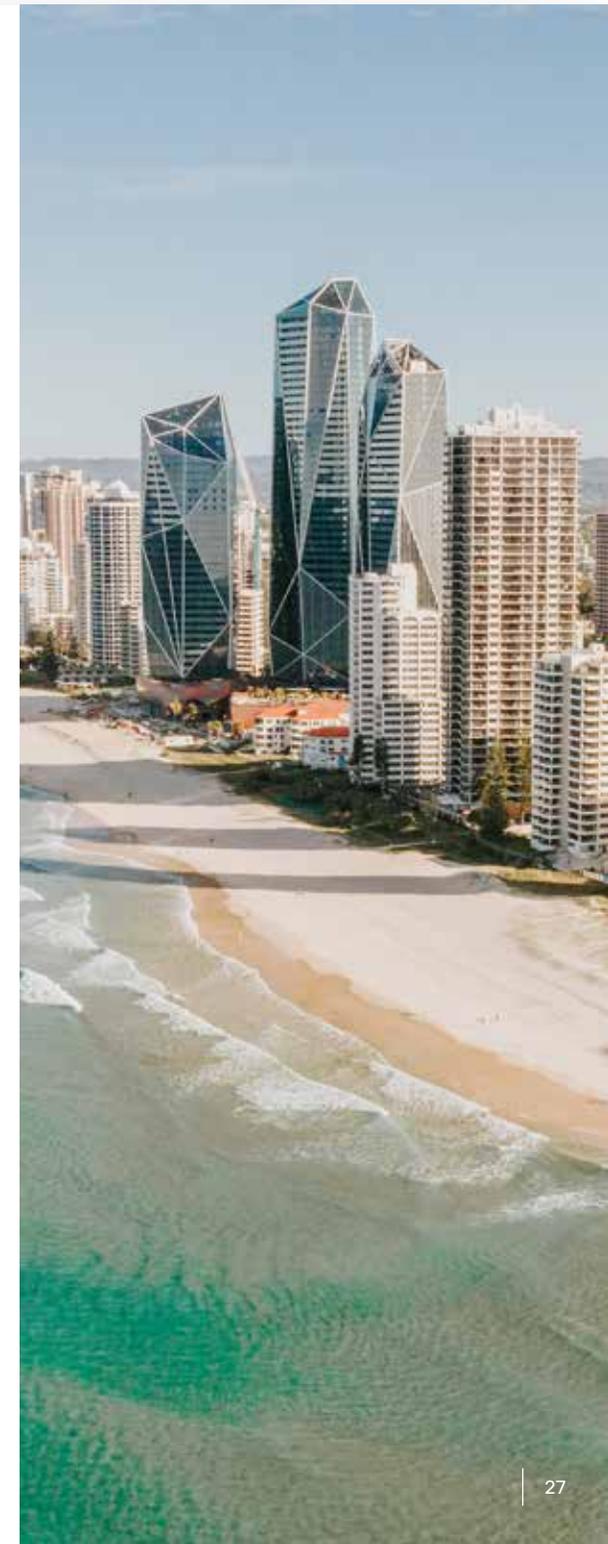
Intending progressive (Greens, Labor) voters and Australians who had experienced natural disasters and/or impacts of climate change scored relatively highly on the extent to which they think of themselves as having a "green" identity, and, as expected, the acceptance of this identity was positively correlated with a stronger belief in climate change, greater concern for its impacts and living a more pro-environmental lifestyle.

To explore how personality was linked with climate action behaviours, repeat respondents completed short scales measuring five personality traits: conscientiousness, agreeableness, emotional stability, openness to experience, and narcissism.

For example, we found that those people who are more conscientious (e.g., "I am dependable and self-disciplined") were positively associated with high levels of connection to nature, self-rated climate change knowledge, and low levels of impacts of flooding.

Of all personality traits, openness (e.g., "I am open to new experiences, complex") was the most strongly associated with nearly all of the

climate change variables, especially with the connection to nature, engagement in pro-environmental behaviours, green identity, interest in future pro-environmental behaviours, personal norms and psychological adaptation. Its association with connection to nature was the highest single correlation. New respondents completed a shortened six-item scale assessing the extent to which they supported the New Ecological Paradigm, a view of the world that acknowledges the need for humans to live in harmony with nature. This worldview was more strongly endorsed by progressive than by conservative Australians. Members of a minority or marginalised group and Australians who had experienced natural disasters and/or impacts of climate change also scored relatively highly on this scale. Australians with this worldview tended to report strong beliefs in climate change, be very concerned about climate change, regard the issue as highly important, and report strong support for pro-environmental policies.





In August 2022, the Australian Federal Parliament passed legislation to reduce Australia's greenhouse gas emissions by 43% by 2030, compared to 2005 emission levels. What is your view of this target of 43% emissions reduction?

"I think the target is reasonable and obtainable."

"The current indicators of changes in weather patterns due to climate change are much worse than initially forecasted at the time most of these targets were suggested. We need stronger and bolder commitments to avoid catastrophic climate change effects."

"I do not believe that we need to reduce emissions at all."

"Need to ensure that we still have stable gas and electricity or energy supplies and that any reduction in targets is not to the detriment of households' business and the economy."

Who do Australians trust for climate information?

Where do Australians obtain their information on climate change?

Our results show 68% of Australians use their own observations and experiences of weather, climate and/or the environment as one of their main sources of information about climate change. Other popular sources of information are Australian commercial media (67%), scientists (66%), Australian public broadcasting (65%) and the Bureau of Meteorology. Of those listed, the least-used sources for information about climate change

are Twitter (18%), TikTok (17%), First Nation's media (15%), theatre and creative arts events (15%), and church and/or religious leaders (12%). Notably, over one in ten Australians reported using First Nations media as a source of information of climate change.

Who do Australians trust to receive information on climate change?

Australians were also asked to indicate the extent to which they trust the sources of information about

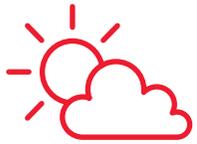
climate change they use. The most often trusted by those who use them were (from most trustworthy, in descending order): scientists and scientific publications, the Bureau of Meteorology, expert panels/advisory groups (e.g., the Great Barrier Reef Expert Committee), other specialist government providers such as the Climate Council, environmental organisations (e.g., Greenpeace, World Wildlife Fund), their observations and experiences, medical and health professionals, and lectures/formal education.

Among Australians, views about (or trust in) climate change scientists were generally favourable, especially among progressive respondents. Trust was also higher among non-parents, non-vehicle owners, those employed full-time, members of minority/marginalised groups, and those who had directly experienced a natural disaster, extreme weather event, or manifestation of climate change.





Australia's most trusted sources of information on climate change



Bureau of Meteorology/
meteorologists (90%)



Expert panels/advisory
groups (such as the
Great Barrier Reef Expert
Committee, etc.) (88%)



Environmental
organisations (e.g.,
Greenpeace, World
Wildlife Fund, Australian
Marine Conservation
Society) (87.2%)



Scientists, scientific
organisations, and
scientific research
publications (including
report, from the CSIRO
or the Intergovernmental
Panel on Climate
Change (87%)



Medical and health
professionals (86.8%)

Least trusted are politicians (18% don't trust them at all; 38% only a little, and only 41% of people trust them moderately to completely); and social media sites such as Facebook, TikTok, Twitter, and Instagram (11% to 16% don't trust them at all).

Who are the Australians that support climate action?

Australians reported varying levels of involvement in their local community groups or clubs. Those with higher community involvement tended to be male, aged 35 years or under, from a home where a language other than English is mainly spoken, religious, university-educated, currently studying or full-time employed, residing in an inner urban area, having a higher-than-average household income, having had prior experiences of a natural disaster, extreme weather, and/or climate change impact event, and/or be in good health.

Most importantly, greater community involvement was moderately but positively correlated with self-reports of a pro-environmental lifestyle.

Australians claimed that they engage in an average of between five and six of 16 pro-environmental behaviours (e.g., using public transport, carrying re-usable drink containers and signing environmental petitions). On average, three of these 16 behaviours were reportedly performed at least partly because of environmental concerns (with the remaining performed for other reasons).

Compared to relevant other groups, higher numbers of these pro-environmental behaviours were reportedly performed by progressive than by conservative Australians

(although gender differences were modest) and by Australians who had prior experiences of one or more natural disasters, extreme weather, and/or climate change impact event. Performing many of these pro-environmental behaviours was positively correlated with most other measures of climate change belief, concern, and action.

Additionally, 71% of repeat respondents indicated that they intended to engage in pro-environmental behaviours "about the same" in the forthcoming twelve months as they currently do, 3% intended to engage less and 26% intended to increase their level of engagement over the following year.

Most frequently cited reasons for not engaging in environmentally friendly behaviours



16%

I do not know what to do



25%

These actions are too expensive



26%

I am too busy/
I do not have enough time



25%

I have my own routines, habits, and ways of doing things that are different from these



20%

These actions are not going to stop or solve environmental problems

Australians were asked to indicate how they think their level of engagement in pro-environmental behaviours compares to that of the average Australian. In response—similar to 2021—47% thought that their level of engagement was about the same as that of the average Australian, 35% believed that their level of engagement was below the national average, and only 18% believed that they were above the average. These percentages suggest that the current sample was not overly represented by environmentalists ("greenies").

Substantial proportions expressed interest in adopting five environmentally friendly actions in the future. For example, of those who gave a substantive response and had not already implemented the action, 65% of Australians expressed future interest in installing a home solar battery system (compared to 73% in 2021), and 54% of Australians were interested in getting an electric or hybrid vehicle (compared to 55% in 2021).

Motor vehicle ownership was modestly associated with climate change beliefs, concerns and actions. For example, the percentage of

Australians who reported being fairly or very concerned about climate change varied from 85% for those who own at least one electric or hybrid vehicle to 77% who own no vehicles, 71% for those who own at least one four-cylinder petrol or diesel vehicle, and 62% for those who own at least one six-cylinder or larger petrol or diesel vehicles. In a country where most are car dependent, motor vehicle ownership and emissions are some gauge of existing and planned climate action.

Many repeat respondent homeowners reported that they had modified their home in the preceding five years to

make it better adapted to extreme weather and natural disasters. One-eighth (12.5%) of these homeowners claimed to have made three or more of the eight possible home modifications listed. The corresponding figures in the new respondent sample were higher: 66% of 1,559 homeowners had modified their homes in at least one listed way, and 28% had made three or more possible adaptations. Given that the new respondent sample reasonably represents the national population, these findings provide evidence of widespread grassroots actions against climate change.

Interest in adopting environmentally friendly actions in the future



Installing a home solar battery system



Getting an electric or hybrid vehicle



Do you, and/or the community with which you have identified yourself in the preceding questions, face any particular challenges to taking action against climate change?

"Mostly financial restrictions, as many actions against climate change would stretch further our already limited financial budgets."

"I'm waiting for every human to pledge their support for climate change action."

"Not interested in taking action against something that is non-existent and a waste of taxpayers' money."

"Being on the disability support pension means I can't afford to make purchase choices that are better for the environment if they are more expensive than other choices. Also, wouldn't be able to afford to buy an electric car."

"Due to mobility issues and severe C-PTSD, I cannot physically engage in protests or other activities. I was very involved in wildlife rescue and care during the Black Summer fires and it took such a toll—from which I never really recovered—that I don't think I can get involved to that extent in the future. And I am ashamed of that."

"I can often get discouraged because the impact I'm making seems so little when much larger corporations or governments are making such big impacts on the environment and continue to choose profit over the environment."

Final thoughts and policy and practice implications

Like the first Climate Action Survey conducted in 2021, this second survey sheds light on Australians' understandings of, and responses to, climate change.

The surveys are distinctive in several ways—for example, compared to most past climate change and similar surveys:

- the current surveys measure many constructs that are of theoretical significance
- many variables, especially those that are complex and multi-faceted, are measured by validated multi-item scales
- climate actions/behaviours of many kinds are examined
- sources of information about climate change are investigated
- emphasis is placed on possible barriers to and drivers of climate action, including objective knowledge, normative beliefs, different types of (in)efficacy, (dis)trust in sources of information, and psychological adaptation

- data relevant to climate justice for members of marginalised groups are obtained
- the effect of contextual factors, such as COVID-19 in 2021 and the widespread flooding of eastern Australia in 2022, on climate action is examined
- longitudinal data are collected.

The 2022 survey gathered data from two overlapping populations of adult Australians: 1,263 people who had participated in the 2021 survey (repeat respondents) and 2,767 previously unsurveyed people (new respondents). This summary report mostly highlights the findings from the new respondent sample. This sample was recruited in a manner that ensured it was demographically representative of the Australian population.



Demographic sub-groups of the sample displaying high and low levels of climate change concern.

The following reported relatively high levels of climate change understanding, concern and action:

- women
- respondents aged 35 years or under
- students
- inner-urban residents
- respondents educated to university level
- those intending to vote for a progressive political party.

In contrast, climate change denial, disregard and inaction were more common among:

- men
- older people
- religious people
- less highly educated people
- more politically conservative members of the sample.

These findings mirrored those obtained in the 2021 survey.

For this reason, it is possible to generalise the findings obtained in this sample to the wider Australian population regarding gender, age and Australian state/territory.

The study continues to differ from—and be superior to—most past surveys in its planned multi-wave (longitudinal) design, sample size, methodological rigour, multidisciplinary input and breadth of coverage.

One reason for focusing on findings from the new respondent sample was that the repeat respondents were, on average, nine to 10 years older than both the national population and those 2021 survey respondents who did not participate again in 2022. They were also more settled in the sense of being parents and homeowners. Furthermore, examination of the 2021 data revealed that the repeat respondents reported attitudes and behaviours that were less environmentally- and climate-friendly than they did the 2021 sample as a whole.

The 2022 findings from the repeat respondents provide some evidence of changes in climate attitudes and behaviours within Australians, but this evidence is limited by the passing of only one year since the initial survey. We expect further opportunities to

explore changes within individuals over time will accrue in subsequent surveys.

In total, the 2022 surveys involved the collection of nearly 400 bits of information from each of the 4,030 respondents. Unsurprisingly, with more than 1.5 million data points available, the number of analyses that can be performed—and the number of findings that could have been included—are enormous. This brief report presents a modest selection of these findings and foreshadows the likely future publication of many more. Even with only a subset of findings now available, there is a risk that major takeaway points may not be fully appreciated. In this context, three important conclusions from the 2021 survey are worth reiterating after only minor updating and revision in light of the 2022 survey findings.

- A clear majority of 2022 new respondents—and, by extension, the majority of adult Australians—accept that climate change is real, are concerned about the harm it is causing, are in favour of government action to mitigate the threat it poses, and are taking action themselves to tackle the problem. Notwithstanding the large size of this majority group, a smaller group (about 9%) voiced disbelief in, or doubts about, the existence of and the threat posed by anthropogenic climate change. The percentages of respondents who were categorised

as climate change deniers, sceptics and unconvinced are relatively stable from 2021 to 2022.

- Across the range of climate change variables currently investigated, a distinct profile emerged of the most climate change-concerned and climate change-active respondents. We refer to these people as “progressive” respondents. Typically, they were characterised by a plurality of: aged 35 years or under, university-educated, currently studying, inner-urban residents, intending to vote for progressive political parties, and with prior direct experiences of extreme weather, natural disasters, and/or perceived manifestations of climate change. Often, they were also: women, full-time employed, higher income earners, non-parents, and/or residing in homes in which English is not the primary language spoken. We distinguish these people from “conservative” respondents who tended to be more climate change sceptical, unconcerned and inactive. Typically, these respondents were older, living in rural regions, religious, and/or school-only educated.

- Respondents with natural disaster experience expressed disproportionately high levels of concern and distress about climate change, were more likely to support government action to combat climate change, and were more likely to engage in pro-environmental actions. Australian institutions and individuals cannot and should not wait for everyone to be impacted before seeking the same urgency as those already impacted by disaster events. Instead, there is an urgent need for strategies for personal and community engagement on climate action that do not rely on the experience of such events. This survey suggests where these strategies might work.

As was the case in 2021, overall, the picture to emerge from the 2022 surveys is of a nation that is divided along age, education, party-political, and other demographic lines in its views of and responses to climate change. We also note a majority motivated to take climate action of many types and a persistent small group reluctant to accept and act on the realities evident in everyday observation and increasingly revealed by climate science.

To the above three conclusions may be added a further six drawn from the 2022 surveys:

- Differences between the 2021 total sample—all of whom were new respondents—and the 2022 new respondents occurred in both directions. Thus, compared to 2021, scores were higher in 2022 on some variables (e.g., pro-environmental behaviours, descriptive norms, subjective norms, personal responsibility for contributing to climate change, response efficacy, distress, and psychological adaptation to climate change) but lower on others (e.g., climate change belief, perceived importance, concern, self-efficacy, residential exposure to natural disasters and climate change impacts, and endorsement of the New Ecological Paradigm). This set of seemingly contradictory findings is difficult to reconcile. Perhaps the findings suggest a changing normative context in which people act in more environmentally responsible ways without necessarily believing any more strongly in the threat posed by climate change. The impact of the 2022 Federal election and the success of parties and candidates advocating climate action may also explain these changes. The sense that Australian politics had shifted to climate action may have impacted these results, too. Whether these changes are replicated—and

whether they represent genuine shifts in Australians' attitudes and behaviours—must await further iterations of the survey (and evidence from other sources). The findings may also reflect an ongoing uncertainty and confusion about responsibility and urgency. Now that the public has accepted climate change and many have experienced either first-hand or cascading impacts, many may not be clear what to do and what is effective.

- Within-person changes in the climate change variables (i.e., differences between the repeat respondents' data when they participated in the 2021 survey and their data when they participated again in 2022) also occurred in both directions. Thus, compared to their 2021 responses, the 2022 repeat respondents reported engaging more frequently in pro-environmental behaviours, stronger normative beliefs and personal responsibility for contributing to climate change, greater willingness to engage in pro-climate actions and superior psychological adaptation. However, in 2022, they showed less interest in engaging in future climate actions, regarded the climate change issue as less important and felt less personally and collectively efficacious in acting against climate change. They also expressed less concern about climate change and fewer

feelings of residential vulnerability in 2022 than in 2021. At the risk of over-simplification, it seems that, compared to 2021, in 2022, these respondents reported heightened climate-related activity but no greater climate concerns.

- Within-person changes in the climate change variables did not occur uniformly. For example, findings from the repeat respondent sample highlighted important roles played by exposure to natural disasters (specifically, the 2022 eastern Australian floods) and political leanings (as measured by federal government voting intentions). In these cases, changes from 2021 to 2022 toward stronger climate change beliefs, concerns, and actions were more evident among flooding-exposed and progressive respondents than among the contrasting sub-groups of the sample. Changes over the year also varied by Australian state/territory.
- Findings from the repeat respondent sample related to pro-environmental policy support illustrate the increasing polarisation of Australians, with progressive voters' support increasing over the 2021–2022 year, whilst that of more conservative voters decreased over the same period.

- Of the sample, 17% were seemingly not convinced about the threat posed by climate change but appear open to listening to arguments and responding to changes to their physical, economic and social environment. This sample subset may include many individuals who are simply climate change complacent. These people may not be open to evidence from contemporary climate science, but be more readily persuaded by arguments embedded in conservative and traditional values such as those associated with family, God and country. These people are also likely to be disproportionately represented in particular social and residential settings (e.g., aged care facilities, churches and Country Women's Associations). These settings may provide suitable venues for presenting pro-environmental messages.
- The survey identified variables (e.g., green identity, personal norms, normative beliefs, climate change concern/distress, perceived personal contribution to causing climate change) that were highly correlated with the indices of climate action. Each of these variables is potentially useful for targeted climate change messaging.



Policy and practice implications of the survey findings

At a policy level, the findings show that there is support from most respondents for government policies regarding future energy sources (e.g., restricting the construction of new coal-fired power stations), imposing a price on carbon, facilitating the uptake of electric vehicles and assisting those whose livelihood is threatened by the shift away from fossil fuels. The survey helps identify sub-groups of the population in which this support is strongest (e.g., students, people living in a home where English is not the primary language spoken) and weakest (e.g., people over 55 years, rural residents). The survey also helps identify policies for which there is less strong support: for example, whereas many of the pro-environmental policies put to the current sample attracted support from 70% to 80% of respondents, a policy requiring all new vehicles to be electric by 2040, and a proposal to construct concrete walls to prevent coastal erosion from sea-level rise (even if such walls are costly and detract from beach usage), were supported by close to 50% of the samples.

The findings can be used to strengthen climate interventions. These interventions can take many forms. They could, for example, involve the presentation of social norm information, they could draw attention to the actions of community leaders who act as models of environmentally friendly behaviour, and/or they could

provide individuals, households or neighbourhoods with feedback as to their progress over time towards sustainable environmental goals.

As was the case in 2021, the current survey of new respondents found that although both normative beliefs (i.e., beliefs about what significant other people would want us to do) and descriptive norms (i.e., beliefs regarding what other people in our social network are doing) are correlated with self-reports of climate action, the former is more so. The strength and consistency of this finding across multiple climate action measures in both years' surveys suggest that social influence interventions may be more effective if they target normative beliefs rather than beliefs about descriptive norms.

As mentioned before, the survey results also offer insights into the likely efficacy of interventions that use financial incentives and deterrents. Findings suggest the possibility of segmenting the population based on willingness to make financial contributions to environmental sustainability. More highly educated and high-income earners are more willing to do so, and these people can be asked, or required, to make greater financial contributions (e.g., through higher levies on premium fuels). However, Australians who are unwilling to make greater financial contributions (or unable to do so) may need to be approached using other strategies.

To be effective, these and other interventions require using well-targeted communication strategies. The surveys found that approximately one-third of respondents reported medium-to-high levels of psychological reactance (i.e., the sense that their freedom to hold and express their views about climate change is being constrained). Mean scores on this variable were higher in 2022 than in 2021. Similarly, when responding to open-ended questions, some respondents were critical of the "forceful" tactics used by environmental groups and advocates. These findings are a timely warning about well-intentioned climate change communication and its complex reception by diverse communities or audiences.

In addition, the survey revealed the sources of information that are most often used and most often trusted. It identified commonly used but seldom trusted information sources (e.g., politicians, social media) and seldom used but highly trusted sources. To achieve maximum reach and considerable impact, the survey findings suggest climate change communication should use sources that are both frequently used and well trusted, such as the Bureau of Meteorology, scientists and scientific publications, and other specialist providers of climate change information, such as the Climate Council.

Communication strategies must minimise individual barriers to behaviour change to be effective. The most commonly cited reason for not engaging in climate change behaviours was "being too busy". Impact and engagement success may be improved by introducing people to more time-efficient environment-friendly ways. A similar point relates to two other frequently cited behavioural barriers: the additional expense and effort involved in pro-environmental actions. As far as possible, behavioural alternatives that are (perceived to be) reasonably priced and convenient will yield greater success. Some tailoring of these solutions will likely help financially challenged people who may be offered inexpensive alternatives while their time-poor peers are offered greater convenience.

The second-most often cited reason for inaction (i.e., "I have my own routines, habits, and ways of doing things") poses considerable challenges for those seeking to change environmental behaviours. Research¹ shows that habits are difficult to break without changes to the physical or social context. This will require creative and strategic communication strategies. For example, one group that may be

sensibly targeted when attempting to shift habits is those who will soon, or have recently, shifted residence. Moving house often requires some revision of established routines and thus provides opportunities for re-thinking environmentally significant behaviours.

Finally, environmental education and awareness tend to be most effective when individuals are motivated to change their behaviour. More than 10% of new respondents cited as barriers to climate action, not a lack of motivation but a lack of knowledge about what to do and/or whom to talk to, contact, or engage with on environmental issues. These respondents may have felt constrained by a sense of helplessness or inefficacy. Environmental education and social support interventions can help fill these gaps.

The survey also provides insights into the population segments that might be least efficaciously targeted. Approximately 2% of respondents consistently denied the existence of anthropogenic climate change, and another 5% expressed highly sceptical views. Responses from some members of these two groups to the open-ended questions suggested

considerable antagonism to the issue and its advocates. Investing resources into persuading members of these groups about the seriousness of the climate change threat may be met with little success.

Findings from the 2022 Climate Action Survey point to the possible existence of several important historic trends and within-person changes in climate change-related beliefs, attitudes and behaviours. Currently, it is not known whether these apparent trends and changes are merely temporary blips, or indicative of genuine and sustained shifts in Australian society. Future phases of the survey will shed light on this issue.

¹Verplanken, B. (2011). Old habits and new routes to sustainable behaviour. In L. Whitmarsh, S. O'Neill, & I. Lorenzoni (Eds.), *Engaging the public with climate change: Behaviour change and communication* (pp. 17-30). London: Earthscan.





Is there anything else you would like to say about your views on climate change or natural disasters?

"WE NEED TO ACT NOW BEFORE IT IS TOO LATE FOR FUTURE GENERATIONS."

[original comment in capital letters]
[original comment in capital letters]

"I think we need to [take a] holistic approach that everyone participates in without it being a punishment."

"I'm heartened by the fact that Australia as a whole voted for government representatives with a strong climate change ethos."

"I think we have much to learn from the way in which the Aboriginal cultures cared for the natural environment in terms of preventing widespread bushfires and not building in known flood-prone areas. I think some of the recent natural disasters in our country were preventable, certainly, at least in part."

"People have been manipulated into the widespread belief that responsibility largely rests on the individual, when in fact, the biggest polluters by far are large corporations. We need to aggressively turn the tables because it is way past time that corporations shoulder their fair share of responsibility for tackling climate change."

"There is no such thing as climate change. There are natural disasters, never caused by climate change—which does not exist."

"It is changing, but there are a lot of scare tactics and fear-mongering occurring, and it is difficult to know whom to trust."

"Climate change is happening now and the world should unite together to help reduce or stop climate change impacts."

"It's happening but there are still too many people in denial as the truth is too inconvenient for them."

"Climate change policy will affect Australia extremely badly NOT because of any change in climate but because our Socialist government are so stupid and unintelligent, they will institute so many policies that will cripple our nation economically that we will become vulnerable to others such as China. Maybe that's what they want, but for me, they can all go to Socialist hell in Beijing and leave ordinary people alone!"

"Climate change is the greatest global con job ever seen. It is being used to milk the wealthy nations and gullible nations like Australia into handing over money and close down industries that help this country."

"If we all work together we can make a change."



Final remarks

Planning has commenced to conduct a third iteration of the survey in the second half of 2023. If you would like to contribute to the survey study, please contact:

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