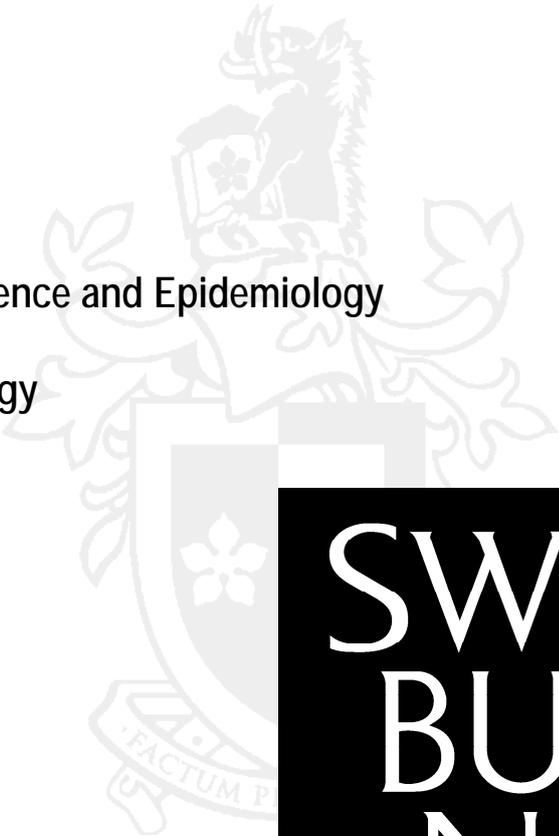


# The Swinburne National Technology and Society Monitor

Department of Statistics, Data Science and Epidemiology  
Faculty of Health, Arts & Design  
Swinburne University of Technology

2015 Monitor

Authors: Gordana Bruce and Christine Critchley



SWIN  
BUR  
NE

SWINBURNE UNIVERSITY  
OF TECHNOLOGY

## Contents

Executive Summary .....	1
<b>INTRODUCTION .....</b>	<b>2</b>
Background .....	2
The Survey .....	2
Measures .....	3
<b>COMFORT WITH THE RATE OF TECHNOLOGICAL CHANGE .....</b>	<b>4</b>
<b>COMFORT WITH DIFFERENT TECHNOLOGIES.....</b>	<b>5</b>
Comfort with Wind Farms and Nuclear Power Plants in Australia.....	6
Comfort with GM Plants and Animals for Food.....	7
<b>ATTITUDES TOWARDS SCIENCE AND TECHNOLOGY .....</b>	<b>8</b>
<b>TRUST IN ORGANISATIONS.....</b>	<b>9</b>
<b>CONCERN ABOUT SOCIAL ISSUES .....</b>	<b>11</b>
Categories of Social Concern .....	12
Subcategories of Social Concerns .....	13
<b>ATTITUDES TO SCIENTIFIC RESEARCH.....</b>	<b>14</b>
Scientific Research Procedures that Could Harm.....	14
Scientific Advances that May Risk Well Being.....	15
Scientific Advances that May Benefit.....	15
Scientific Discoveries that May Not Have Practical Applications .....	16
Summary of Findings.....	16
<b>LANDLINE VS MOBILE CALLS .....</b>	<b>17</b>
<b>THE NATIONAL SURVEY SAMPLE .....</b>	<b>18</b>
<b>SWINBURNE UNIVERSITY CATI FACILITY.....</b>	<b>20</b>
<b>ACKNOWLEDGEMENTS .....</b>	<b>21</b>

## Executive Summary

The Swinburne National Technology and Society Monitor provides an annual 'snapshot' of public perceptions of technological change. The Monitor is based on a national survey of 1000 Australian adults aged 18 to 92. The main findings of the 2015 Monitor are:

1. In general, Australians are comfortable with the rate of technological change in the world today.
2. Most Australians are very comfortable with having wind farms in Australia but are not comfortable with having nuclear power plants in Australia.
3. The degree of comfort with genetically modified (GM) plants and animals for food remains relatively low.
4. Australians trust scientific institutions and the non-commercial media for information about new technologies. They have less trust in major companies and the churches, with the least trust in the commercial media.
5. When asked what social issues were the most important for Australia today, issues related to population were the most cited social concerns, followed by quality of life, public health and community issues.
6. A subset of 400 respondents was asked about their attitudes towards a number of aspects of scientific research.
  - a. Respondents were uncomfortable with scientific research that could either harm or risk the well-being of humans, animals or the environment, and the degree of discomfort was greater for harming or risking the well-being of the environment than it was for harming or risking the well-being of humans or animals.
  - b. Respondents were very comfortable with scientific advances that may benefit humans, animals or the environment, but only moderately comfortable with scientific discoveries that may not have practical applications.
  - c. Where there were differences in comfort levels based on the source of funding, respondents were more comfortable with scientific research that is publicly funded than with scientific research that is privately funded.

# Introduction

## Background

Information and life science technologies have profound social, political, psychological and ethical implications. Public perceptions of such technologies are potentially volatile.

The Swinburne National Technology and Society Monitor was developed in 2003 at Swinburne University of Technology. It involves a representative nationwide survey of Australians, and provides an annual 'snapshot' of public perceptions regarding new technologies in Australia.

The 2015 Monitor is the twelfth edition of the Swinburne National Technology and Society Monitor. It provides a general account of public perceptions about new technologies in Australia, including trust in institutions that provide information about new technologies. In addition, it involves an assessment of current social concerns, and a profile on public attitudes to a number of aspects of scientific research.

## The Survey

The 2015 survey included 1000 respondents. Participants in the national survey were asked:

- ◆ How comfortable they were with the current rate of technological change.
- ◆ How comfortable they were in relation to various technologies.
- ◆ The extent to which they agreed or disagreed with statements about the value of science and technology, and their beliefs as to the amount of control science should have over nature.
- ◆ How much they trusted various institutions, organisations and groups for information about new technologies.
- ◆ What they thought were important social issues for Australia at present.
- ◆ A subset of 400 respondents was asked about their attitudes to a number of different aspects of scientific research.

## Measures

### Perceptions of New Technologies

Comfort with technologies was measured on an eleven point Likert scale where 0=not at all comfortable and 10=very comfortable.

Statements about science and technology were measured on an eleven point agreement scale where 0=strongly disagree and 10=strongly agree.

Trust was measured on a six point Likert scale where 0=don't trust at all and 5=trust a very great deal.

### Perceptions of Social Concerns

Perceptions of important social issues were gained through an open-ended question inviting respondents to nominate what they thought were the most important issues or problems for Australia at present.

### Attitudes Towards Different Types of Scientific Research

A subset of 400 respondents was asked to rate their degree of comfort on an 11-point Likert scale (where 0=not at all comfortable and 10=very comfortable) with:

- Scientific procedures that may harm (people; animals; environment)
- Scientific advances that may risk well-being (humans; animals; environment)
- Scientific advances that may benefit (humans; animals; environment)
- Scientific discoveries about (humans; animals; environment) that may not have practical applications

Respondents were randomly allocated to one of two conditions regarding the source of research funding; either taxpayer through government funding bodies (public funding), or private industry or business funding (private funding).

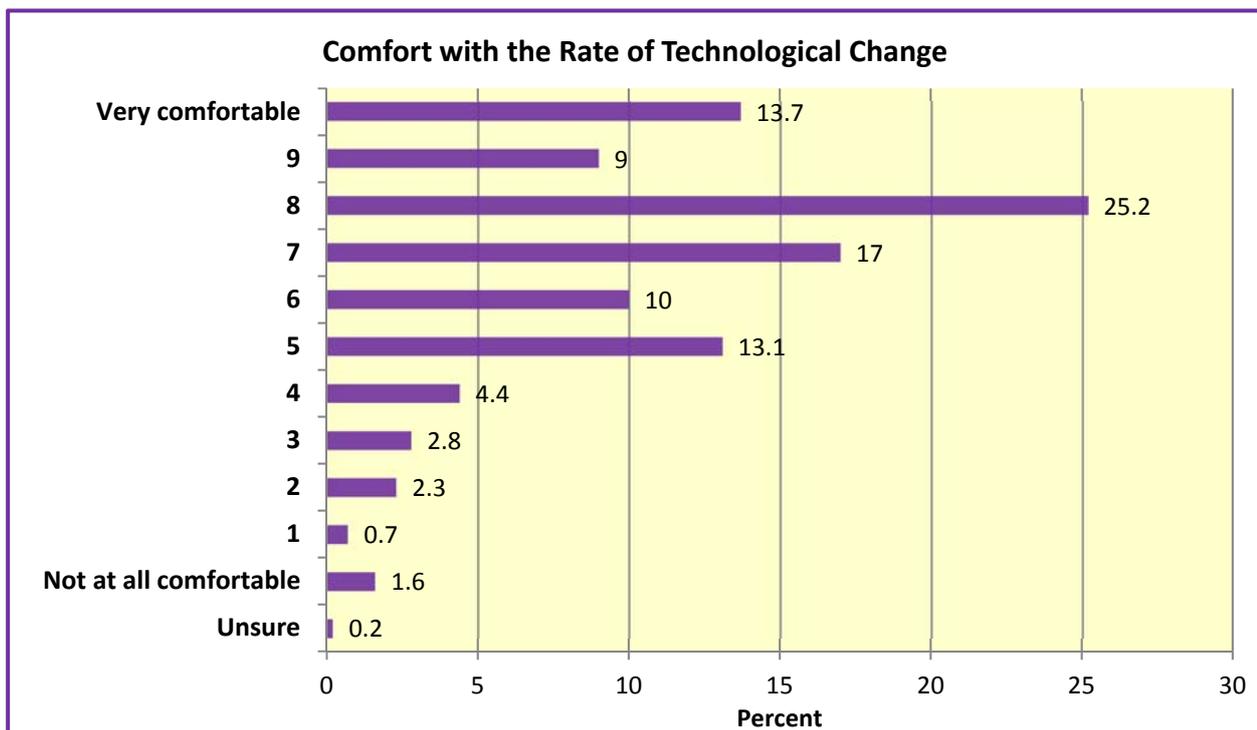
# Comfort with the Rate of Technological Change

In general, Australians are comfortable with the rate of technological change in the world today (average rating = 7.0).

Seventy-five percent of the sample gave ratings above the mid-point of 5 on the 0 - 10 rating scale, while 12 percent gave a rating below the mid-point of 5.

Thirteen percent of the sample reported they were neither comfortable nor uncomfortable (rating at mid-point of 5), and less than one percent reported being unsure of their comfort level with the rate of technological change.

Men were significantly more comfortable with the rate of technological change than women, and younger people were significantly more comfortable than older people.

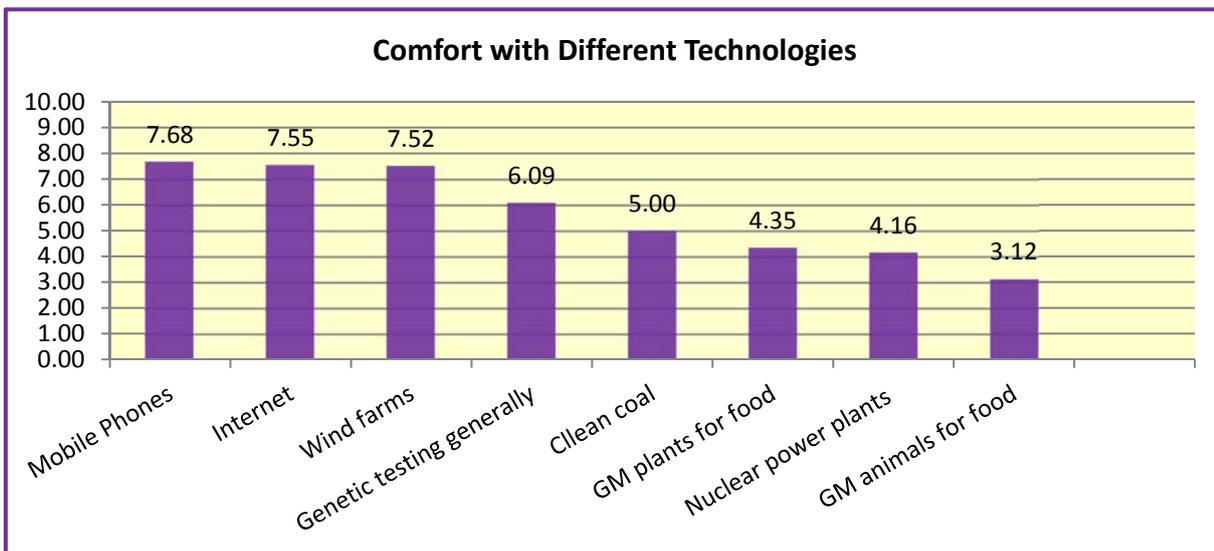


# Comfort with Different Technologies

Australians are comfortable with mobile phones, the internet, wind farms, and genetic testing. They are neutral about clean coal.

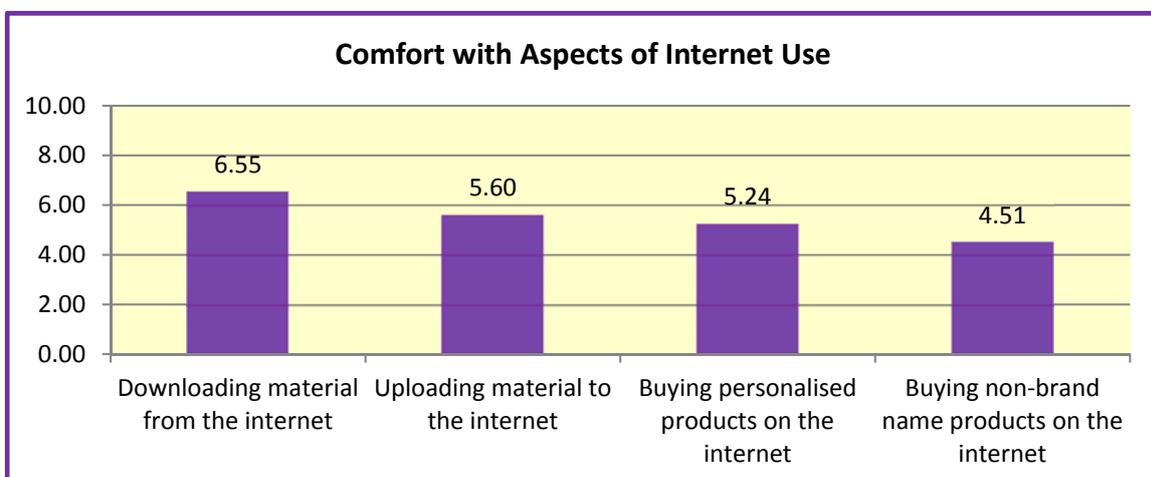
Australians are not comfortable with nuclear power plants or genetically modified (GM) foods. They are significantly less comfortable with genetically modified animals for food than with genetically modified plants for food.

There were gender differences in reported levels of comfort for GM foods (plants and animals) and nuclear power plants, with men reporting significantly higher levels of comfort than women in each case.



In 2015 we asked about some different aspects of internet use. Australians are comfortable with uploading and downloading material and with buying personalised products. They are not comfortable with buying non-brand name products.

Men reported significantly higher comfort with each of these aspects of internet use than did women, and younger people reported higher comfort levels than older people.



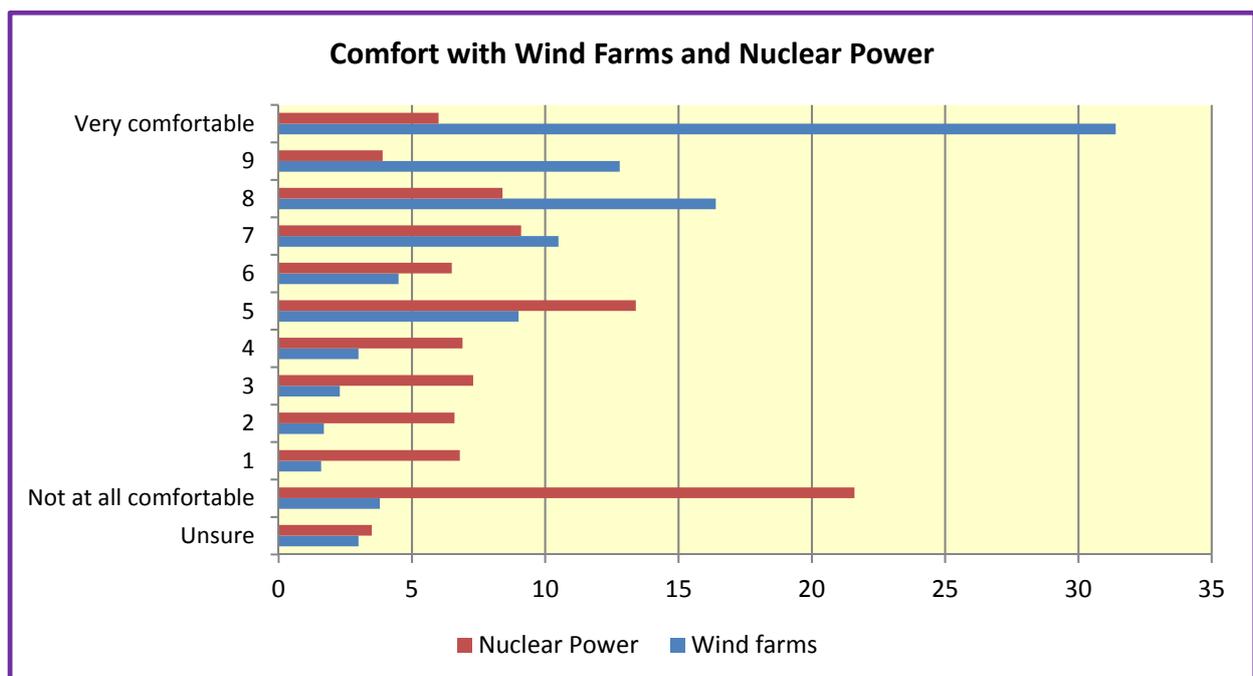
## Comfort with Wind Farms and Nuclear Power Plants in Australia

The pattern of findings regarding comfort with wind farms and nuclear power plants in Australia has remained consistent with results from previous years. Our 2015 data suggests continued discomfort with nuclear power in Australia, but high levels of comfort with wind farms.

On average, the level of comfort with wind farms in Australia was quite high (average rating = 7.5) while the level of comfort with nuclear power plants was fairly low (average rating = 4.2). Seventy-six percent of respondents reported some level of comfort with wind farms, with 31% reporting they were very comfortable. By contrast, 34% of Australians reported some degree of comfort with nuclear power plants with only 6% reporting they were very comfortable.

Forty-nine percent of the sample reported some degree of discomfort with nuclear power plants, with 22% giving comfort ratings of 0, indicating they were not at all comfortable. By comparison only 12% of the sample reported any discomfort with wind farms. A further 9% were unsure about wind farms and 13% were unsure about nuclear power plants in Australia.

On average, men were significantly more comfortable with nuclear power than women were. Men and women did not differ in their comfort with wind farms.



## Comfort with GM Plants and Animals for Food

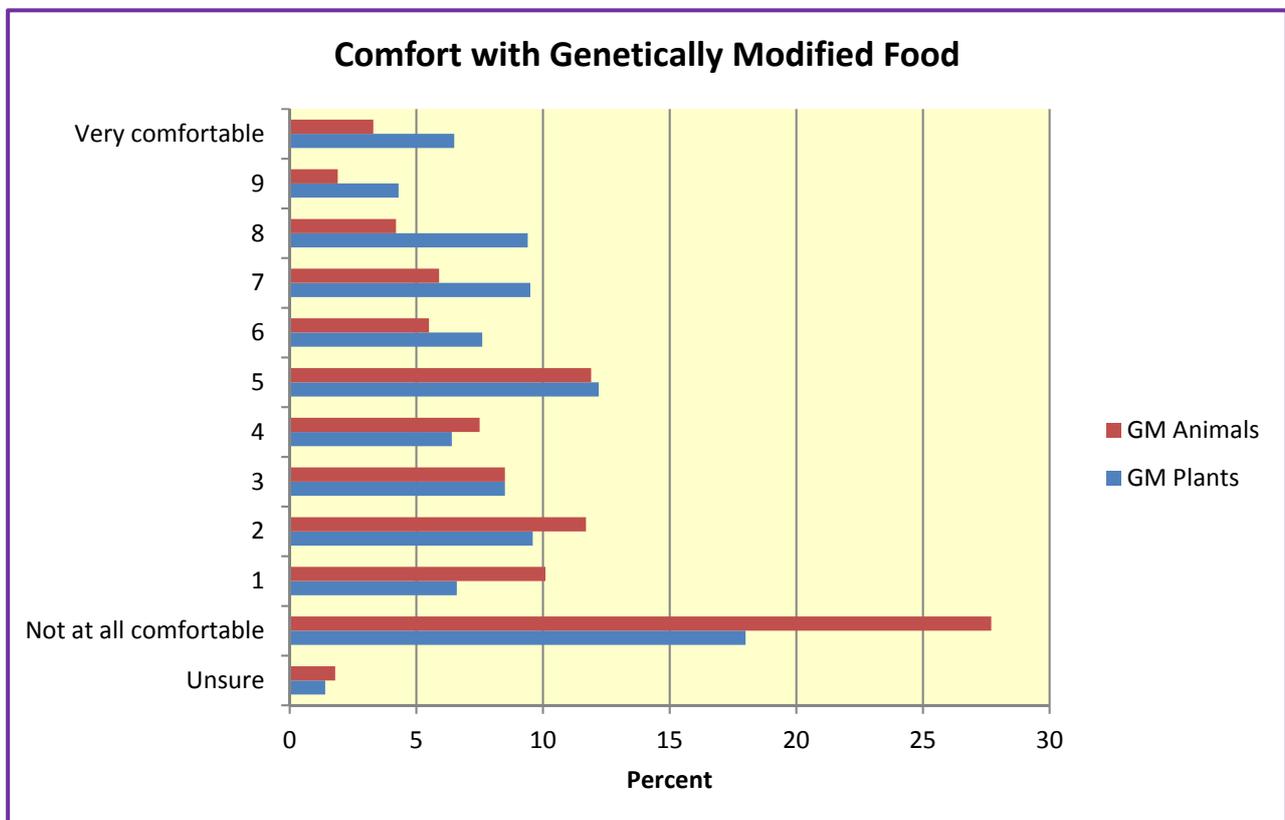
On average, Australians were more comfortable with genetically modified plants for food (average rating = 4.4) than with genetically modified animals for food (average rating = 3.1), but the degree of comfort for both is relatively low.

Thirty-seven percent of the sample reported some comfort with genetically modified plants for food (rating above the midpoint of 5 on the scale), while 21% reported some level of comfort with genetically modified animals for food.

Forty-nine percent of respondents were not comfortable (rating below the midpoint of 5 on the scale) with genetically modified plants for food, while the majority of respondents (66%) were not comfortable with genetically modified animals for food. Respondents who reported discomfort most often reported they were not at all comfortable with GM food (plants = 18%; animals = 28%).

Fourteen percent of respondents reported being unsure of their degree of comfort with genetically modified plants and animals for food (either rating the mid-point 5, or nominating 'unsure').

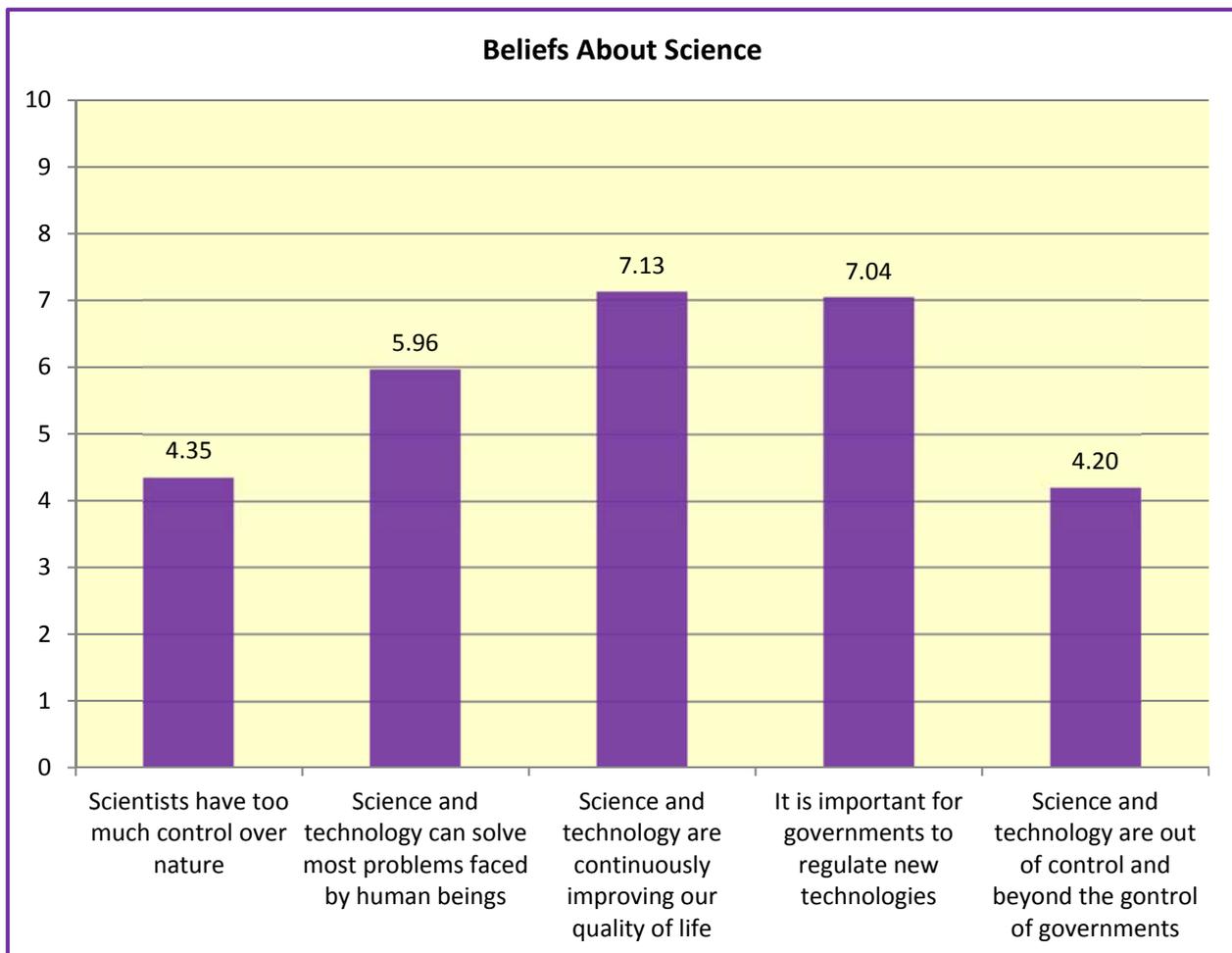
Men were significantly more comfortable with GM plants and animals for food than women were.



# Attitudes Towards Science and Technology

Australians generally agree that science and technology are improving our quality of life, and think it is important for governments to regulate new technologies.

There is somewhat less agreement about the level of control scientist have over nature, the degree to which science and technology can solve problems faced by human beings and the level of control that governments have over science and technology.



## Trust in Organisations

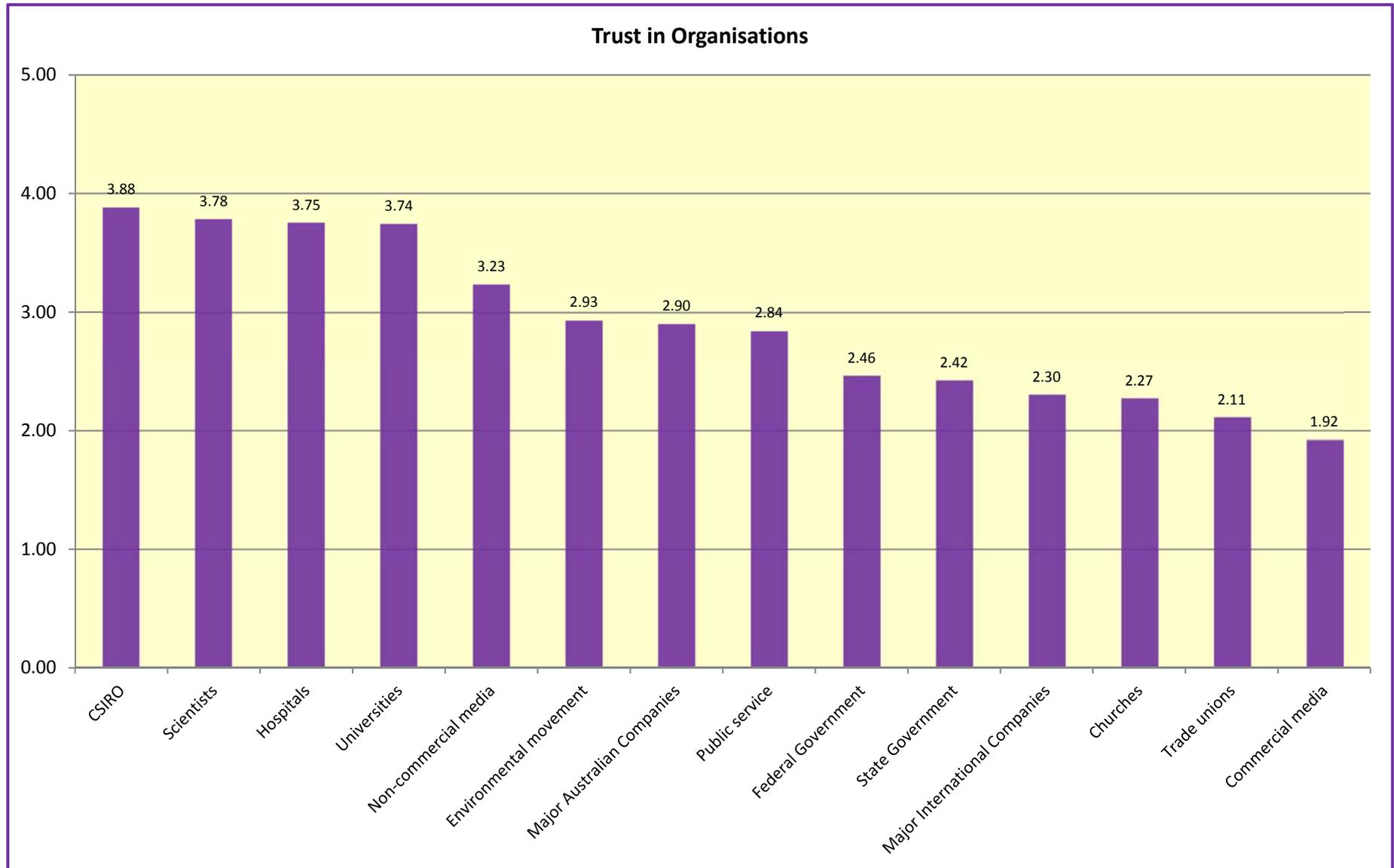
The overall pattern of results for Australians' trust in people and organisations, in relation to information about science and technology, is very similar to the pattern of results found in previous years.

Australians continue to have the most trust in scientific and medical personnel and institutions (such as CSIRO, scientists, universities and hospitals). Australians have a degree of trust in the environmental movement, the public service and major Australian companies, but they do not trust the churches, major international companies, governments or trade unions.

The relative trust in State and Federal governments has varied over the years, depending on the political climate at the time the Monitor is conducted each year. As in prior years, trust for governments was generally low, with no significant differences in trust between State and Federal government this year.

In 2008 respondents were asked to rate their degree of trust in major international companies for the first time. Results in 2015 indicate that trust in major international companies remains significantly lower than trust in major Australian companies.

Consistent with previous results, the level of trust in non-commercial media is similar to levels of trust in scientific organisations, while trust in the commercial media is the lowest of all the organisations.



## Concern About Social Issues

As in previous years, respondents were asked an open-ended question regarding what they felt were the most important issues or problems for Australia at present. In 2015 we gave respondents the option of nominating up to three social concerns. If respondents nominated a very broad area (e.g. education), they were asked if there was some specific aspect of that issue that was of particular concern.

Responses were firstly divided into broad categories and then into subcategories of the broader social concern. Since not everyone nominated three concerns, the data was analysed two ways: firstly looking at the frequency of categories in the first nominated concern; secondly by pooling all the concerns and looking at the frequency of the categories in the pooled data. The pattern of results was very similar for both methods of analysis, with identical ranking of social concerns, and similar percentages of responses in the different categories. Given this finding, it was deemed appropriate to use the data from the first social issue nominated, as this also provided the opportunity to make a comparison with data from earlier years.

The most notable difference in the 2015 data compared with previous years was the marked increase in concern related to population issues. In 2015 population concerns not only overtook quality of life issues as the most cited category of concern, but the percentage of respondents citing population issues (27%) more than doubled compared to previous years (12% in 2012; 13% in 2013). Within this category the most often cited issue related to refugees / asylum seekers (25%; with a broad range of responses on this issue), followed by racism (17%), terrorism (15%) and cultural/religious conflicts (13%).

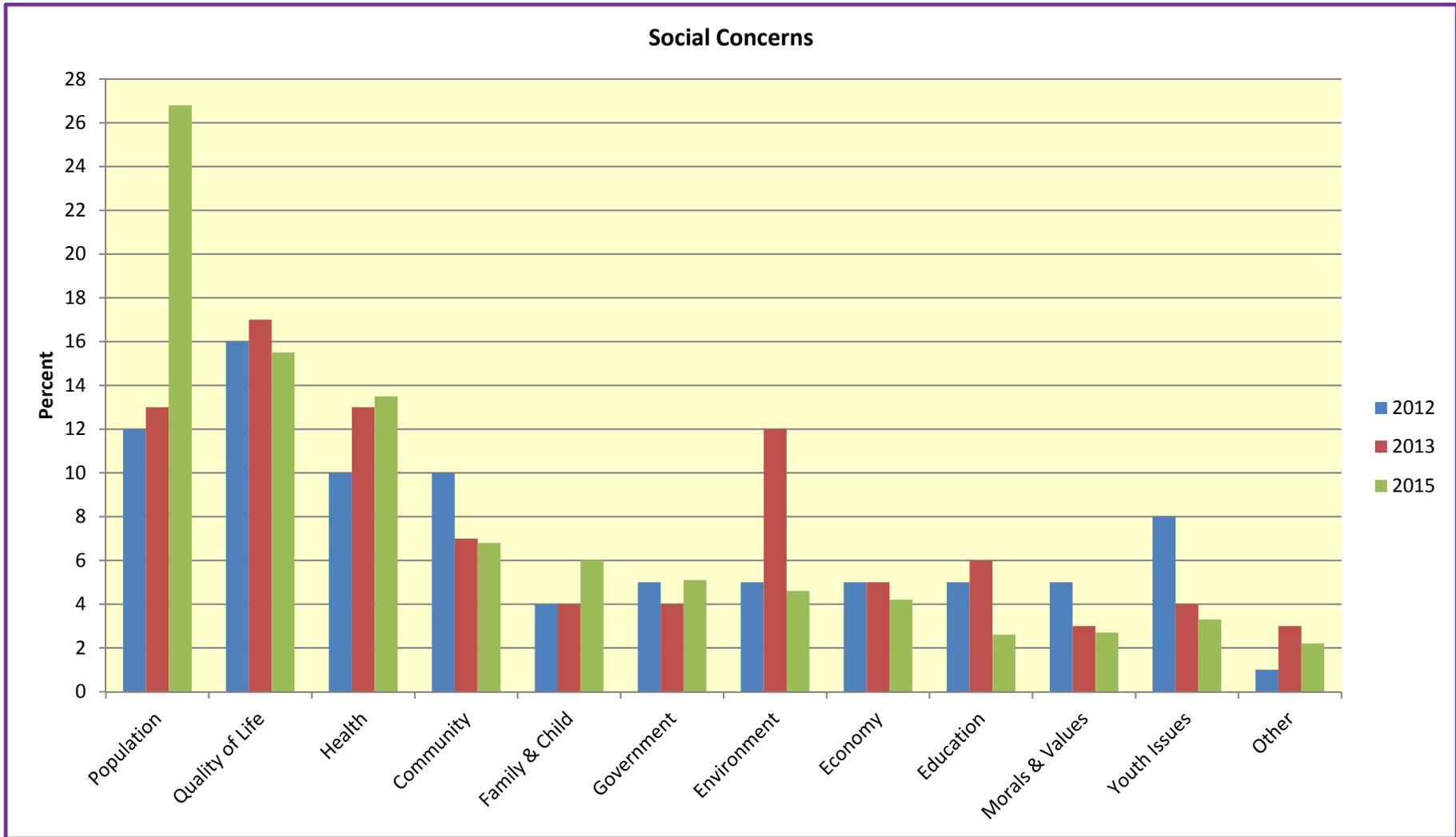
The most frequently cited quality of life issues related to employment (25%), the economic divide between the rich and the poor (18%) and homelessness (15%).

Within the public health category, people most often cited problems related to drugs and alcohol (66%), often making a connection with crime and violence. The next most frequently cited health issue related to mental health (14%).

Other notable changes from prior years was an increased concern about domestic violence (being the main issue within the 'family & child' category; 55%) and the decreased emphasis on environmental concerns in 2015, being appreciably less than 2013, and in keeping with the 2012 data.

In 2015, there were so few responses (<5) related to energy and resources, that it was more appropriate to include these in the 'other' category rather than having them as a separate category.

## Categories of Social Concern



## Subcategories of Social Concerns

The information below details the most frequently cited subcategories within the broad social concerns nominated by respondents (less frequently cited issues are not included). The subcategories are listed in descending order of frequency of response.

### **Population**

Refugees / asylum seekers  
Racism  
Terrorism  
Cultural / religious conflicts

### **Quality of Life**

Employment issues  
Inequality (rich poor divide)  
Homelessness  
Lack of social interaction

### **Health**

Drugs / alcohol  
Mental health  
Health services / funding  
Disability support

### **Community**

Law & order / crime & violence  
Housing  
Social welfare  
Aging population & aging

### **Family & Child Issues**

Domestic violence  
Same sex marriage / equality  
Parenting  
Child protection / welfare

### **Government**

Policies / direction  
Leadership  
Honesty & integrity  
Government (general)

### **Environment**

Climate change  
Conservation

### **Economy**

Economy (generally)  
Economic debt  
Inflation / cost of living  
Taxation

### **Education**

Standards  
Funding  
Curriculum content  
Education (general)

### **Morals & Values**

Lack of respect  
Greed / selfishness  
Social isolation  
Moral decline

### **Youth Issues**

Employment opportunities  
Youth issues (general)  
School bullying

There were a few issues that could not easily be grouped under the main concerns listed above. These were grouped into an 'other' category. As in previous years, the most frequently cited issue in this group related to the use and misuse of the media in influencing public opinion.

## Attitudes to Scientific Research

In 2015 we asked a subset of 400 respondents a number of questions about four different aspects of scientific research in relation to humans, animals and the environment. The questions were related to:

- Scientific research procedures that could harm
- Scientific advances that may risk well being
- Scientific advances that may benefit
- Scientific discoveries that may not have a practical application

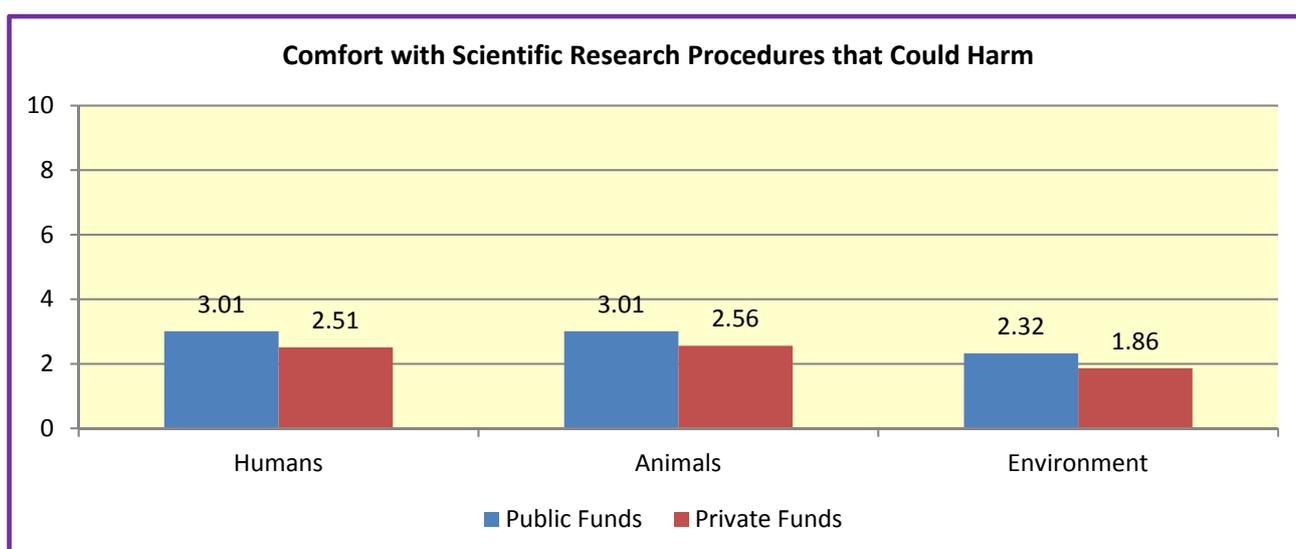
Respondents were informed that the research would be conducted by a public university. However 50% of the respondents were told the funding would be provided by the Australian tax payer through government funding bodies (public funding); and 50% of respondents were told the funding would be provided by private industry or business (private funding). The CATI software was programmed to randomly assign respondents to one of the two funding conditions.

Respondents were asked to rate their degree of comfort for each question on a 0 to 10 scale where 0 meant 'not comfortable at all' and 10 meant 'very comfortable'

### Scientific Research Procedures that Could Harm

Respondents were not comfortable with scientific research procedures that could harm humans, animals or the environment. The degree of discomfort was virtually the same for research conducted with humans and with animals. Respondents were significantly more uncomfortable with research that could harm the environment than with research that could harm humans or animals.

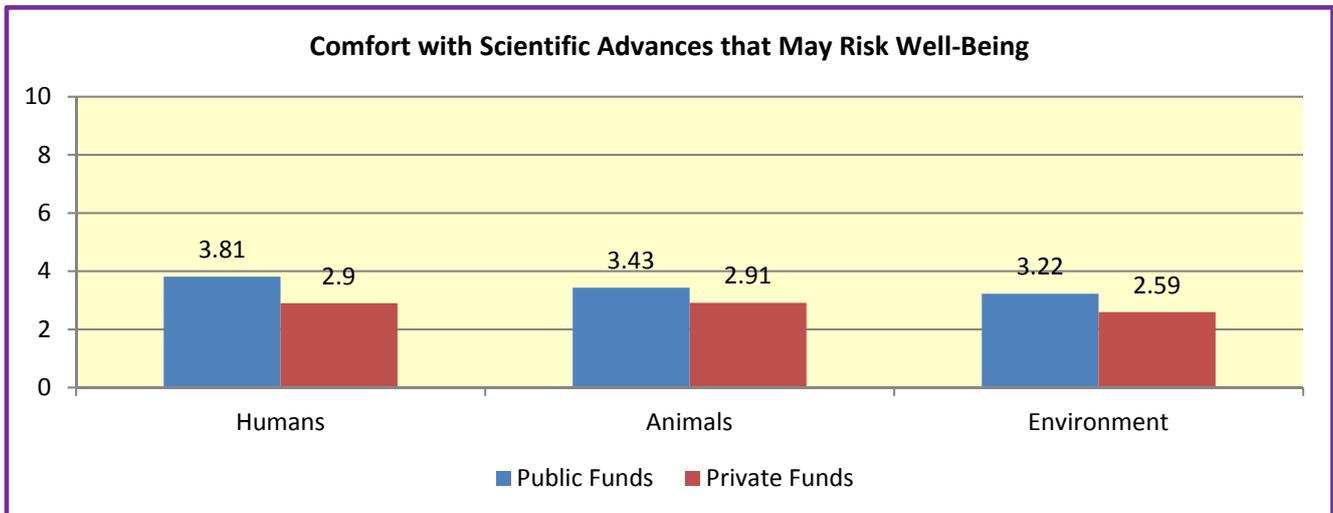
There were no significant differences in degree of discomfort based on whether the funding was from public funds or private funds.



## Scientific Advances that May Risk Well Being

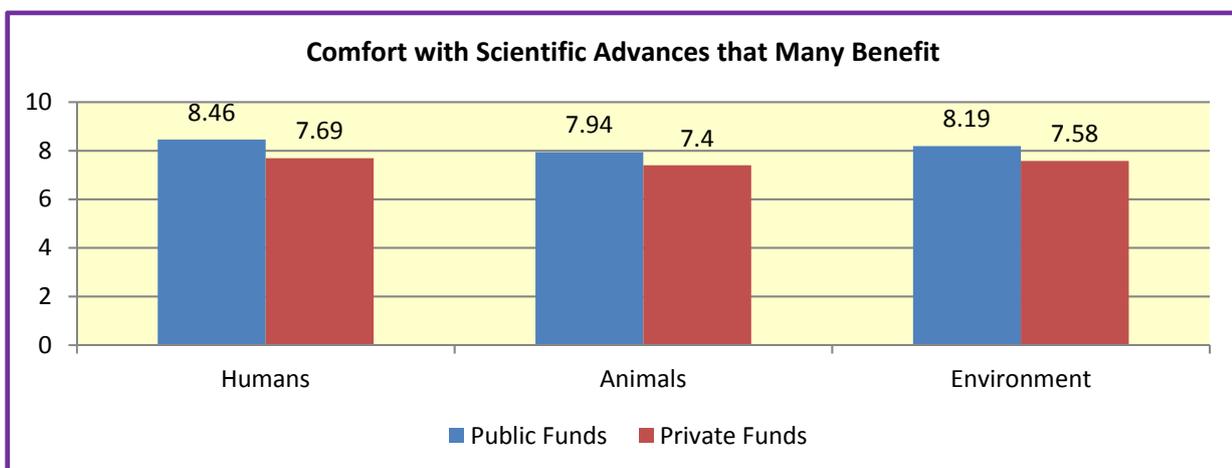
Respondents were also uncomfortable with scientific advances that may risk well-being of humans, animals or the environment, but respondents were somewhat more comfortable with this than with scientific procedures that may harm.

Respondents were significantly less comfortable with scientific advances that may risk well-being of the environment than with scientific advances that may risk the well-being of humans. In addition, for scientific advances that may risk the well-being of humans and the environment, respondents were significantly less comfortable with research that was funded by private organisations than with publicly funded research. The degree of discomfort with scientific advances that may risk the well-being of animals did not vary based on the source of research funding.



## Scientific Advances that May Benefit

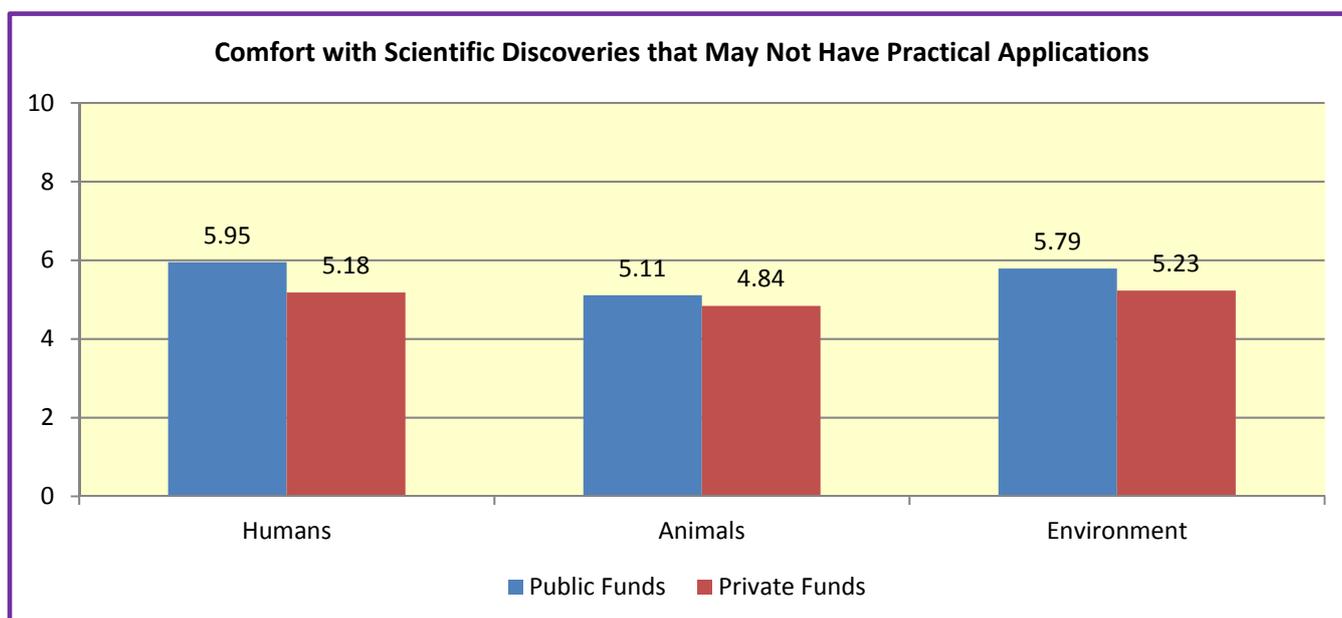
Respondents were very comfortable with scientific advances that may benefit humans, animals or the environment, but were significantly more comfortable with advances that may benefit humans or the environment than with advances that may benefit animals. In each case, respondents were significantly more comfortable if the research was publicly funded than if it was privately funded.



## Scientific Discoveries that May Not Have Practical Applications

Respondents were moderately comfortable with scientific discoveries that may not have practical applications for humans or the environment; however they were significantly less comfortable with scientific discoveries that may not have practical applications for animals.

The degree of comfort with scientific discoveries that may not have practical applications for animals or the environment did not vary based on the source of funding. However, respondents were significantly more comfortable with scientific discoveries that may not have practical applications for humans if the research was publicly funded than if it was privately funded.



## Summary of Findings

Respondents were uncomfortable with scientific research that could either harm or risk the well-being of humans, animals or the environment, and the degree of discomfort was greater for harming or risking the well-being of the environment than it was for harming or risking the well-being of humans or animals.

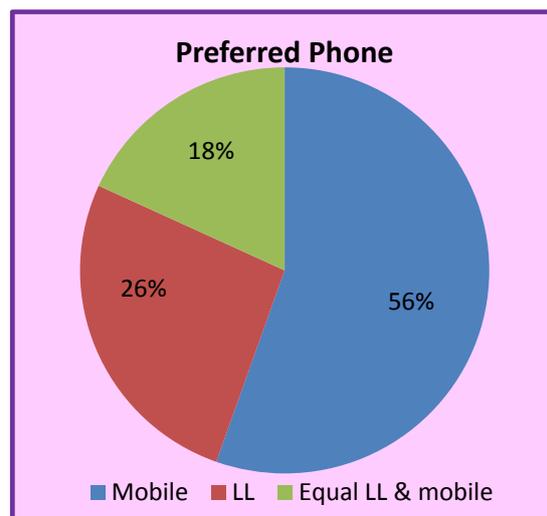
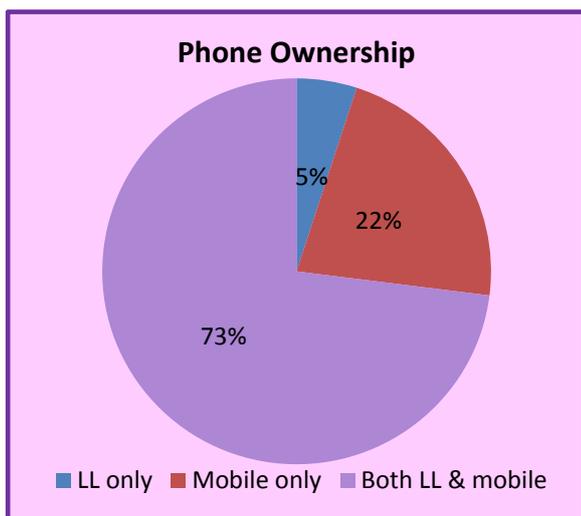
Respondents were very comfortable with scientific advances that may benefit humans, animals or the environment, but only moderately comfortable with scientific discoveries that may not have practical applications.

Where there were differences in comfort levels based on the source of funding, respondents were more comfortable with scientific research that was publicly funded than with scientific research that was privately funded.

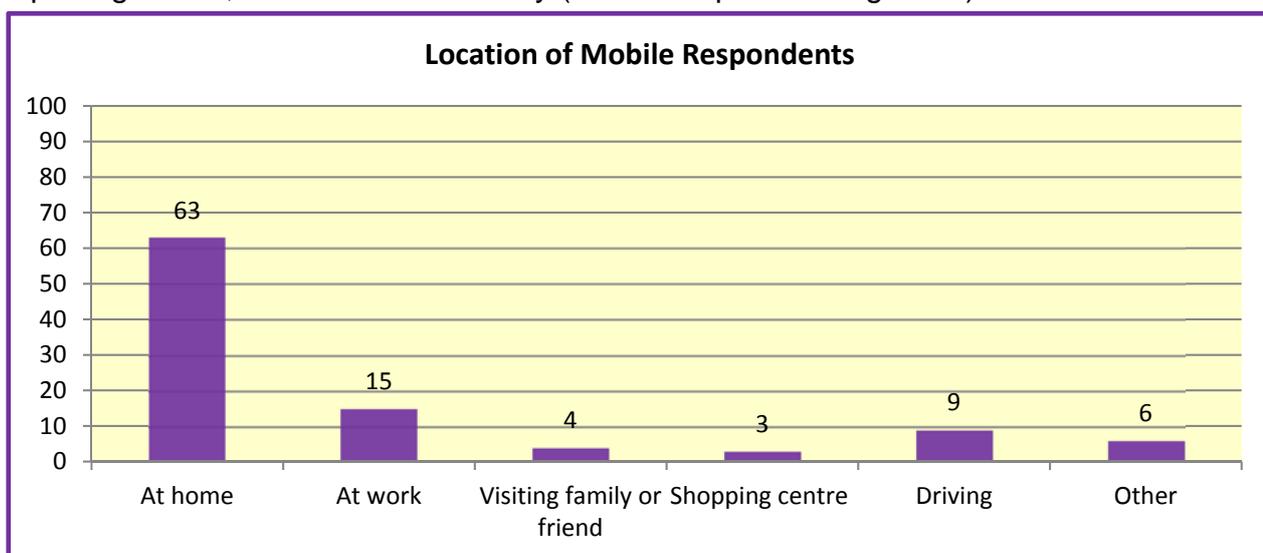
## Landline vs Mobile Calls

In 2015 46% of the respondents were contacted on randomly computer generated mobile numbers (a higher proportion than in previous years). We took this opportunity to ask respondents about phone ownership and preferences for phone use.

The majority of respondents (73%) owned both a landline and a mobile phone; 22% were mobile only and 5% were landline only. Of the respondents who had both landline and mobile phones, the majority (56%) preferred to use their mobile phone rather than their landline.



Landline calls were only conducted in households, therefore all landline respondents were at home. For the calls made to mobile phones, we asked respondents where they had been while they were speaking to us. The majority of respondents (63%) were at home; while 15% were at work and 9% were driving. Respondents who nominated 'other' indicated they were on public transport; outdoors (parks & gardens); in a café or restaurant; at university; in a sporting venue; or in a medical facility (GP or hospital waiting room).

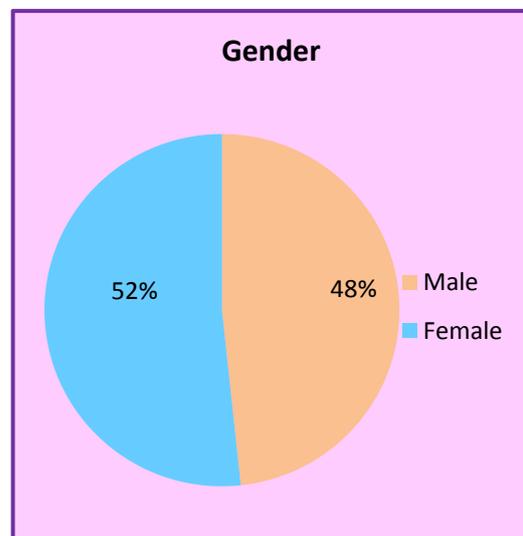
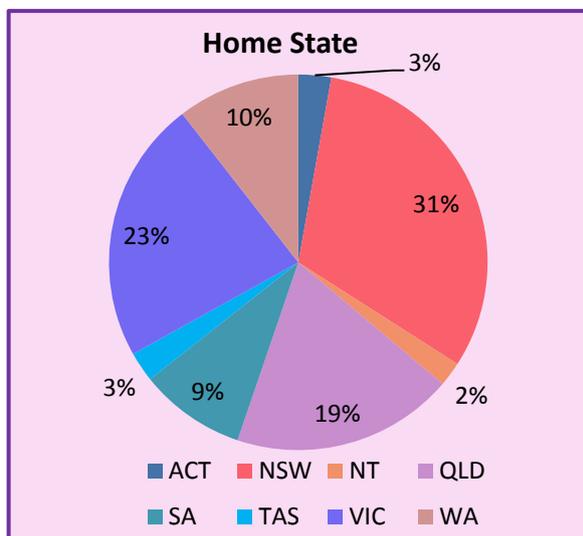


## The National Survey Sample

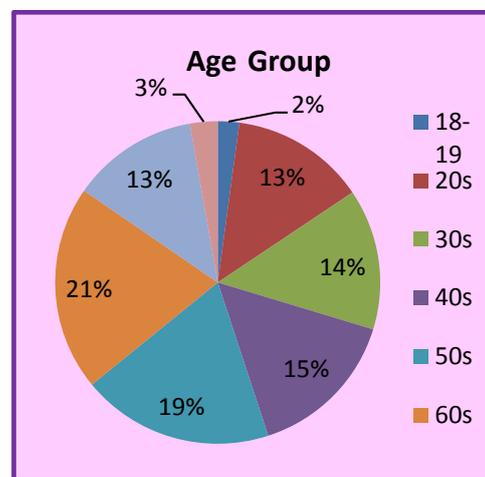
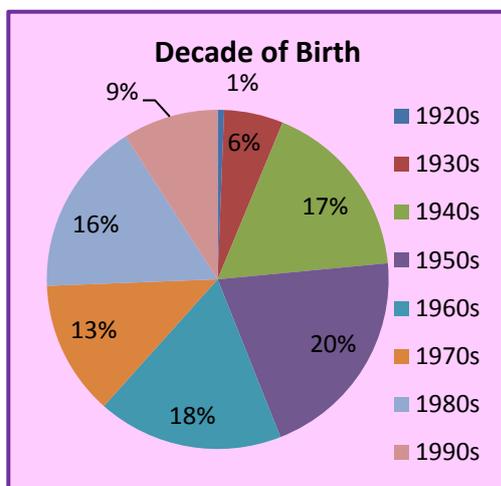
1,000 respondents took part in the 2015 national survey. The target population was the Australian general public aged 18 years and over. The survey was conducted between 7<sup>th</sup> October and 24<sup>th</sup> October 2015 using Computer Assisted Telephone Interviewing (CATI) technology.

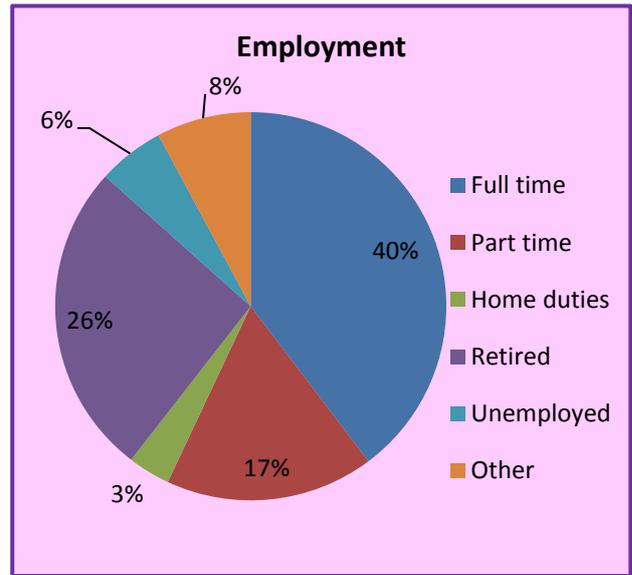
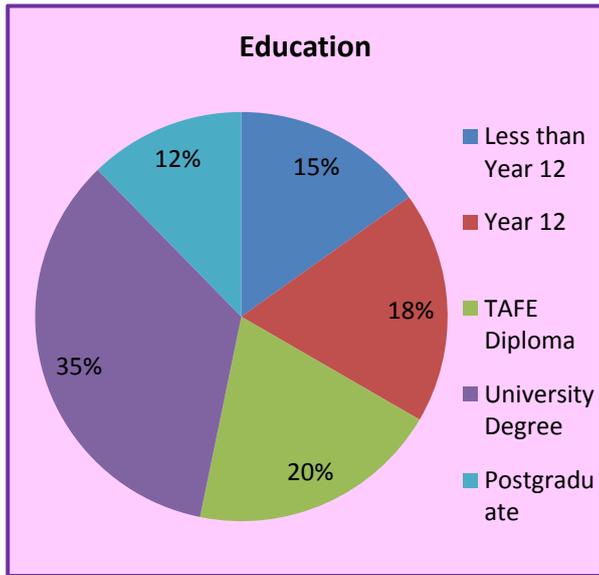
Calls were made to mobile phones as well as landlines. In all cases, telephone numbers were randomly computer generated. Of the 1,000 respondents, 54% were contacted on landlines and 46% were contacted on mobile phones.

The following charts provide a graphical representation of the percentage of respondents in each demographic category.

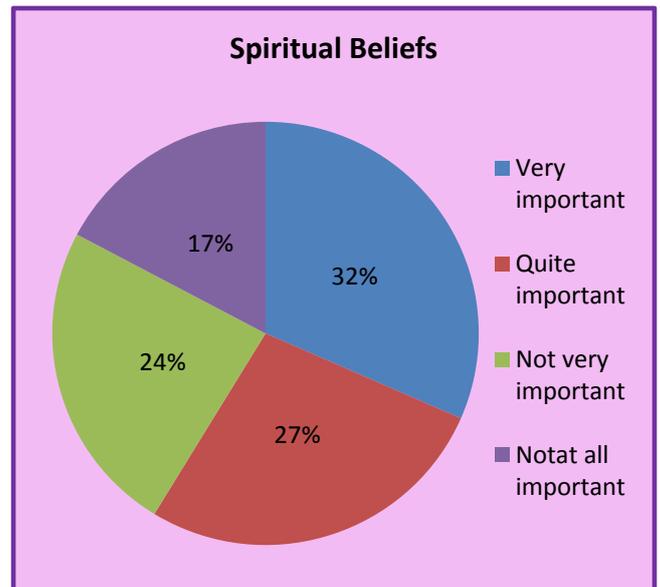
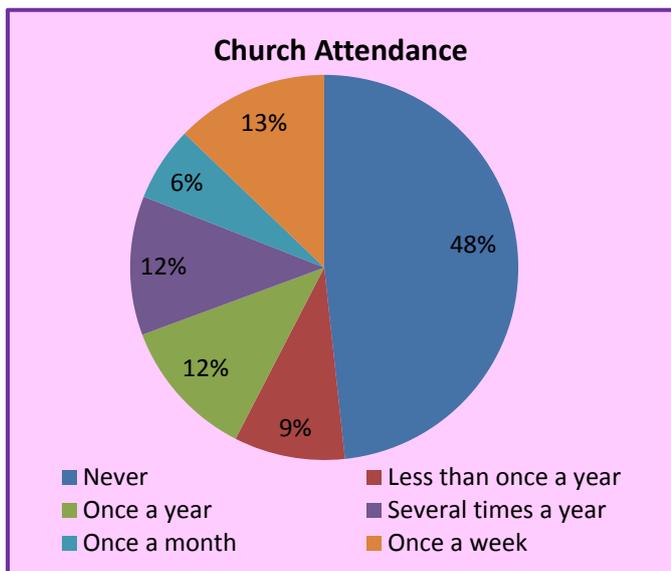


All states and territories were represented in the sample. Fifty-two percent of the sample was female. The average age of the sample was 51 years.





The majority of the sample had completed tertiary education (67%) and were currently employed (57%).



Forty-eight percent of the sample never attended church. Of those that did attend church, 13% did so at least once per week. When asked about the importance of spiritual beliefs, fifty-nine percent of the sample ascribed some degree of importance.

# Swinburne University CATI Facility

The Monitor is produced by the Swinburne University Computer Assisted Telephone Interviewing (CATI) Facility, which is part of the Department of Statistics, Data Science and Epidemiology, within the Faculty of Health, Arts & Design.

Any questions can be directed towards the authors of the Monitor:

Dr. Gordana Bruce (03 9214 5783) [gbruce@swin.edu.au](mailto:gbruce@swin.edu.au)

Associate Prof. Christine Critchley (03 9214 5480) [ccritchley@swin.edu.au](mailto:ccritchley@swin.edu.au)

The CATI Facility specialises in designing and conducting high quality telephone surveys for academic, government and private organisations. Our aim is to simplify data collection for our clients while maintaining rigorous research standards.

The CATI Facility Executive Committee is comprised of:

Associate Prof. Christine Critchley (Academic Leader)

Dr. Gordana Bruce (Manager)

Mr Jarrod Walshe (Research Fellow)

For further information about the services provided by the Swinburne University CATI Facility please contact Gordana Bruce:

Phone: (03) 9214-5783

E-mail: [gbruce@swin.edu.au](mailto:gbruce@swin.edu.au)

# Acknowledgements

The Swinburne National Technology and Society Monitor was made possible through financial support from the Faculty of Health, Arts & Design.

In particular, the CATI Facility acknowledges the support of Professor Janet Hiller, Dean of the School of Health Sciences, Swinburne University of Technology.

In addition, the CATI Facility wishes to acknowledge the support of Robyn Graham from OZINFO for technical support with OZQUEST, and Jarrod Walshe (Swinburne University) for general research assistance.

Finally, the CATI Facility wishes to thank the supervisors and telephone interviewers who conducted the interviews for the 2015 Monitor.

## Supervisors (in alphabetical order)

Liz Crestani  
Tim Fenby  
Oliver Holmes  
Michael King

Ashna Muneer  
Matt O'Rourke  
James Shelley  
David Szmalko

## Interviewers (in alphabetical order)

Imogen Agar  
Charlotte Boyce  
Julie Chhouk  
Taryn Clothier  
Hannah Cramond  
Elliot Creagh  
Prue Crundall  
Jana Filipovic  
Spencer Heffernan  
Sarah Jackson

Caitlan Lillis  
Dimitri Midas  
Philippa Moloney  
Mai Nguyen  
Vinh Phan  
Sage Presser  
Natalia Sopelario  
Josh Szabo  
Mady Szabo  
Rey Takeshima