

# A summer of extreme heatwaves

Andrew Gissing and Lucinda Coates, Risk Frontiers

Heatwaves are the most deadly type of natural peril in Australia, accounting for more deaths than the sum total of all other natural hazards.<sup>1</sup> Despite improvements in forecasting and warnings, more action is required to manage heatwave risk.

According to the Australian Bureau of Statistics, there were 114 fatalities between 2011 and 2017 as a result of excessive exposure to natural heat.<sup>2</sup> Recent heatwaves ran from November 2018 in Far North Queensland and finished with a burst of heat across Australia's south in late February 2019. According to the Bureau of Meteorology<sup>3</sup>, December and January were the hottest on record, with the entire summer the hottest recorded.<sup>4</sup> Numerous cities and towns measured record high temperatures or exceeded previous records of the number of consecutive days above significant temperature thresholds.

Effects of heatwaves are typically not well reported, yet consequences are felt across the community, economy, environment and political spheres. In many cases, effects are compounded by drought, bushfire, poor air quality and water safety risks. It is tragic that 114 people drowned over the summer months.<sup>5</sup>

Australia's most recent heatwaves resulted in increased hospitalisations due to heat-related illness and increased visitations to waterways resulted in numerous drowning deaths. Additional demand for power during the heatwaves placed stress on electricity infrastructure and disrupted power supply to households and businesses. A heatwave in Victoria in January resulted in disruption of power to 200,000 customers who were advised to reduce their power usage.

Extreme temperatures posed significant risks to outdoor workers and, for some businesses, it was too hot to operate, resulting in temporary closure or the rescheduling of operations. There has also been impacts on business related to increased workforce absenteeism and lost worker productivity as experienced in previous heatwaves.<sup>6</sup>

The price of some vegetables increased in the latter half of February as supplies were affected. In some wine growing regions, grapes ripened quicker and required an earlier harvest.

The extreme heat contributed to large-scale fish kills in the lower Darling River<sup>7</sup> and deaths of flying foxes in North Queensland and wild horses in Central Australia were attributed to heat stress.

Authorities have become proactive in providing heatwave alerts. The Bureau of Meteorology has developed heatwave forecast products and is drafting a heatwave warning framework. Communication with the most vulnerable, particularly the elderly, in advance of heatwave conditions is essential. The South Australian Red Cross activated its Telecross REDi service to reach out to people. It reported that from 1450 phone calls made, 270 people needed help including 17 who required ambulance assistance and five hospitalisation.<sup>8</sup>

Joint research between Risk Frontiers and the Bushfire and Natural Hazards CRC following heatwaves in 2017 found that many people did not act on heatwave warnings. Many were also reluctant to use cooling because of energy price concerns.<sup>9</sup>

Much more is needed to fully understand the effects of heatwaves across Australia given the likely increase in frequency as a result of climate change. Given the scale of mortality and disruption, the adoption of heat sensitivity in urban design, the adaption of business practices and better risk communication are vital.

1 Coates L, Haynes K, O'Brien J, McAnaney J & de Oliveria FD 2014, *Exploring 167 years of vulnerability: an examination of extreme heat events in Australia 1844–2010*. *Environmental Science and Policy*, vol. 42, pp.33–44.

2 Australian Bureau of Statistics 2018, *Cause of Death, Australia, 2017*. Canberra, Australia.

3 Bureau of Meteorology 2019, *Special Climate Statement 68 - widespread heatwaves during December 2018 and January 2019*. Melbourne, Australia.

4 Bureau of Meteorology 2019, *High chance of drier and warmer than average autumn in the east following Australia's hottest summer on record*. At: <http://media.bom.gov.au/releases/645/high-chance-of-drier-than-average-autumn-for-eastern-australia-following-record-hot-summer/>.

5 Personal Communication: Amy Peden, Royal Life Saving Australia 6 March 2019.

6 Zander KK, Botzen WJ, Oppermann E, Kjellstrom T & Garnett ST 2015, *Heat stress causes substantial labour productivity loss in Australia*. *Nature Climate Change*, vol. 5, p.647.

7 Australian Academy of Science 2019, *Investigation of the causes of mass fish kills in the Menindee Region NSW over the summer of 2018–2019*.

8 Australian Red Cross 2019, *In South Australia, heatwave help is at hand*. At: [www.redcross.org.au/news-and-media/news/telecross-redi-activated-in-sa](http://www.redcross.org.au/news-and-media/news/telecross-redi-activated-in-sa) [28 February 2019].

9 Tofas M & Gissing A 2017, *Rapid response report: study of heatwave impacts on residents and businesses in Western Sydney*. East Melbourne: Bushfire and Natural Hazards Cooperative Research Centre.