




Government of **Western Australia**
Department of **Health**

Heatwaves & Health

Presentation by:
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Introduction

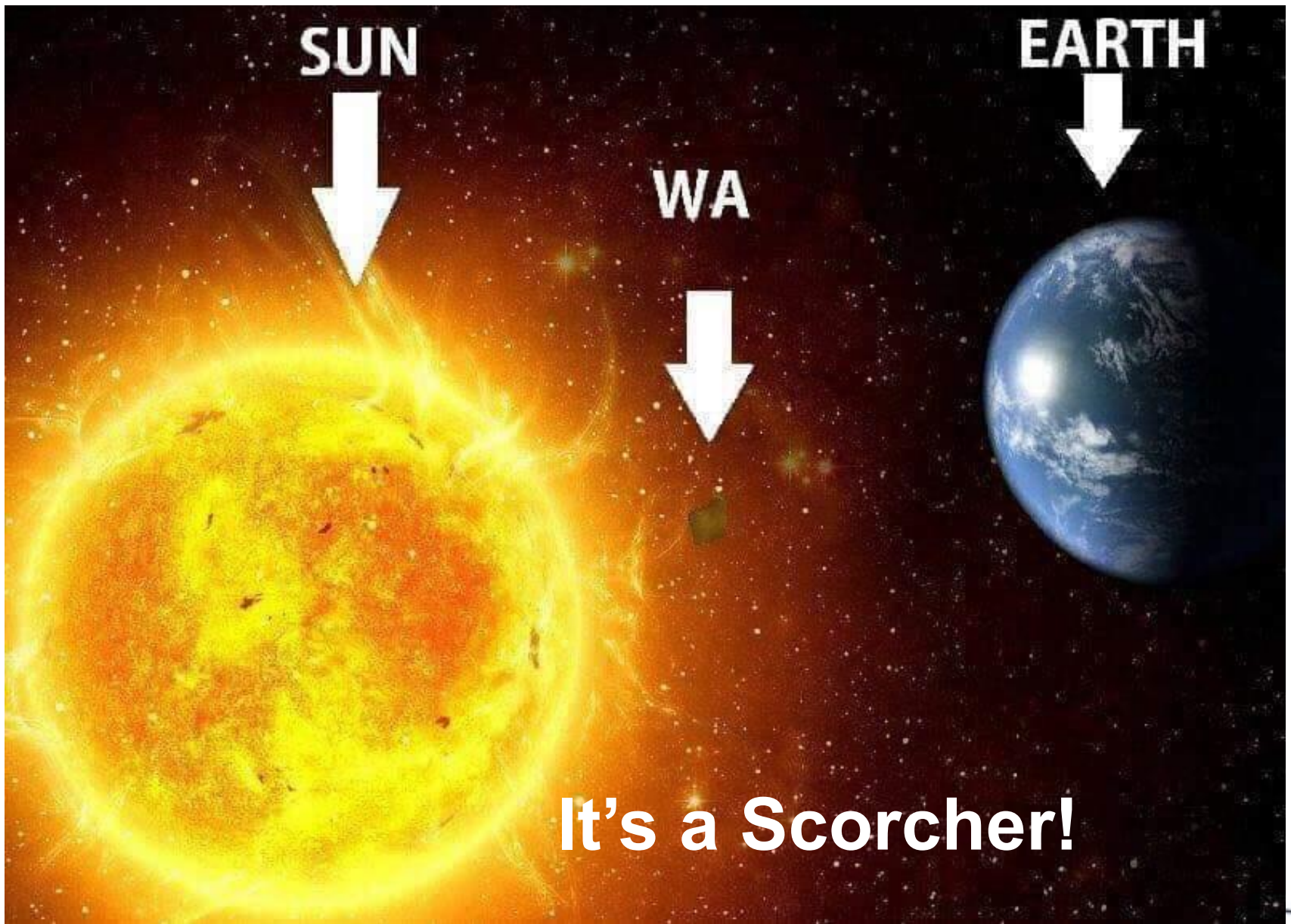
Outline

1. Brief look at what is a heatwave and why we are concerned about them.
 2. Describe the direct and indirect health impacts to community members.
 3. Take a closer look at some of the higher-risk, vulnerable groups that have been identified relevant to Local Governments.
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Introduction


Outline (cont)

4. Highlight some of the wider indirect impacts to health caused by heatwaves.
 5. Provide some examples of strategies that have been employed from around Australia, and internationally at a local government level to combat the hazard of heatwave.
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Author: Unknown

Defining Heatwave

- No universal definition. Differs around world and across Australia.
 - The Bureau of Meteorology defines a heatwave as three or more days in a row when both daytime and night-time temperatures are unusually high—in relation to the local long-term climate and the recent past.
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Heatwave formulas used across Australia

| | Summary description | Formulas | Factors in acclimatisation | Simple calculation | State or agency |
|---|--|--|----------------------------|--------------------|--|
| Three daily maximum temperature (3DMT) | Considers the maximum temperature for a three day period | 3DMT = The lowest maximum temperature over the three day period | No | Yes | Queensland New South Wales |
| Three daily average temperature (3DAT) | Considers the average of the maximum temperature and the next days minimum temperature for a three day period. | 3DAT = $(DAT_0+DAT_1+DAT_2)/3$ Daily Average Temperature (DAT)* $= (T_{max} + T_{min})/2$ | No | Yes | Western Australia South Australia Victoria** |
| Excess heat factor (EHF) | Compares the three day average daily temperature with the preceding thirty days | EHF_{BOM} = $EHI_{sig} \times \max(1, EHI_{accl})$ $EHI_{sig} = (DAT_0+DAT_1+DAT_2)/3 - DAT_{95th\ percentile}$ $EHI_{accl} = (DAT_0+DAT_1+DAT_2)/3 - (DAT_1+...+DAT_{30})/3$ | Yes | No | Australian Bureau of Meteorology (BOM) |

★ The DAT 95% percentile is calculated from a reference period of 1971 to 2000.

* Daily average temperature (DAT) is the average of the maximum temperature of the day and the minimum temperature of the next day.

** Victoria uses a daily average temperature for one day.

Why should we be concerned about heatwaves?

Impacts of heatwaves in Australia

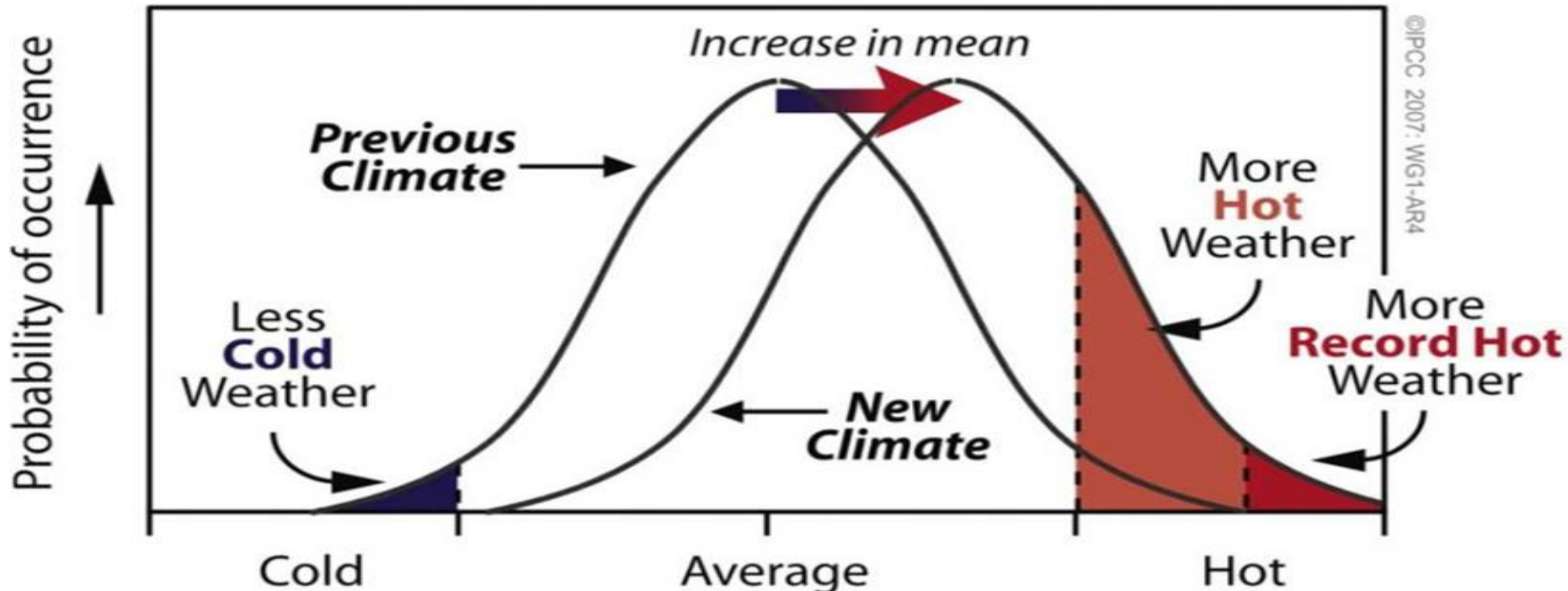
| Hazard | 1788 - 2015 | |
|------------------|------------------|-------------|
| | Number of deaths | % |
| Heatwave | 5332 | 43.3 |
| Flood | 3119 | 25.4 |
| Tropical cyclone | 2160 | 17.6 |
| Bushfire | 1036 | 8.4 |
| Lightning | 293 | 2.4 |
| Earthquake | 16 | 0.1 |

(Risk Frontiers, Sep 2015)

Why should we be concerned about Heatwave?

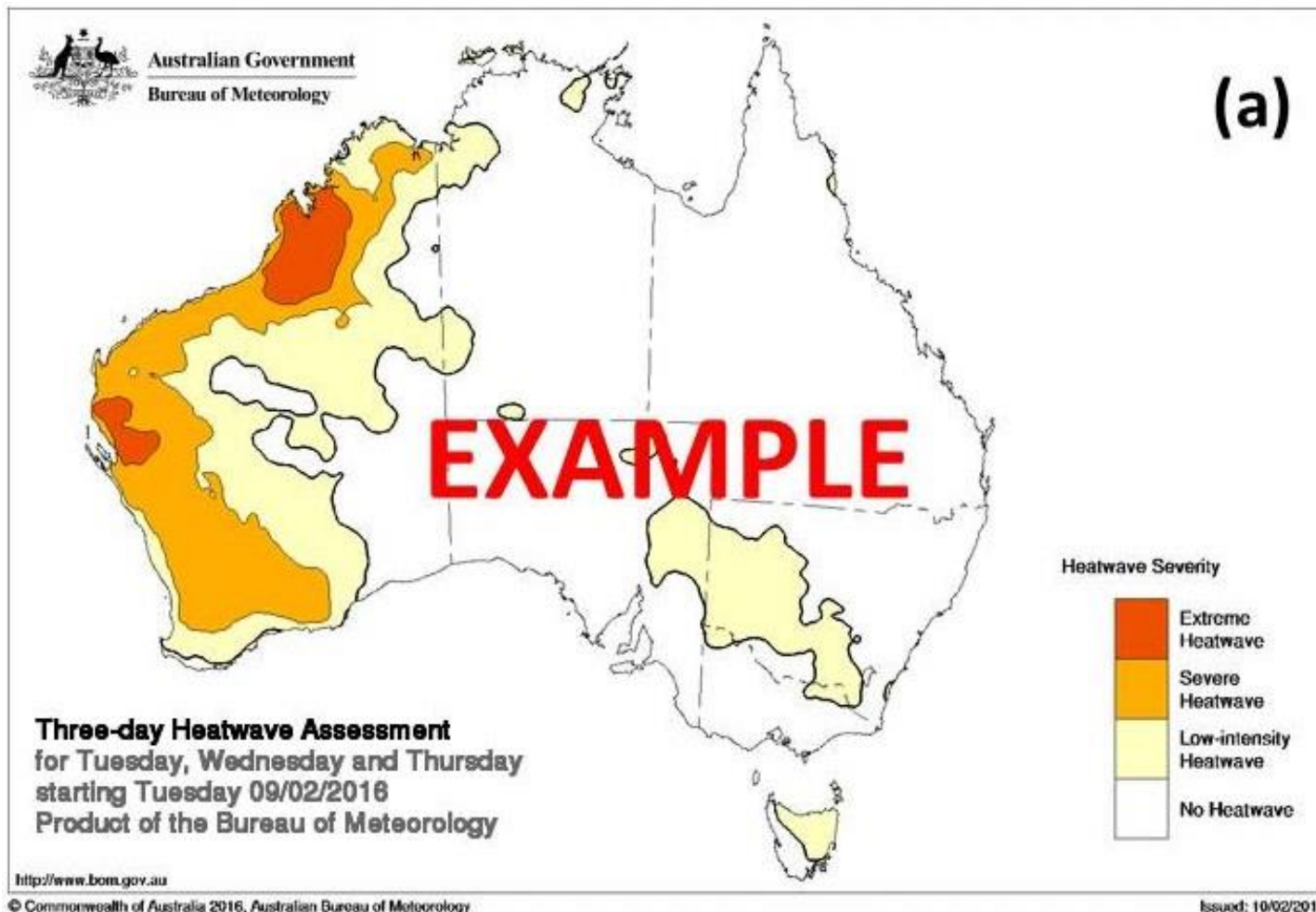
What used to be an infrequent event is now becoming the new normal

Heatwave can effect the entire population



Why should we be concerned about Heatwave?

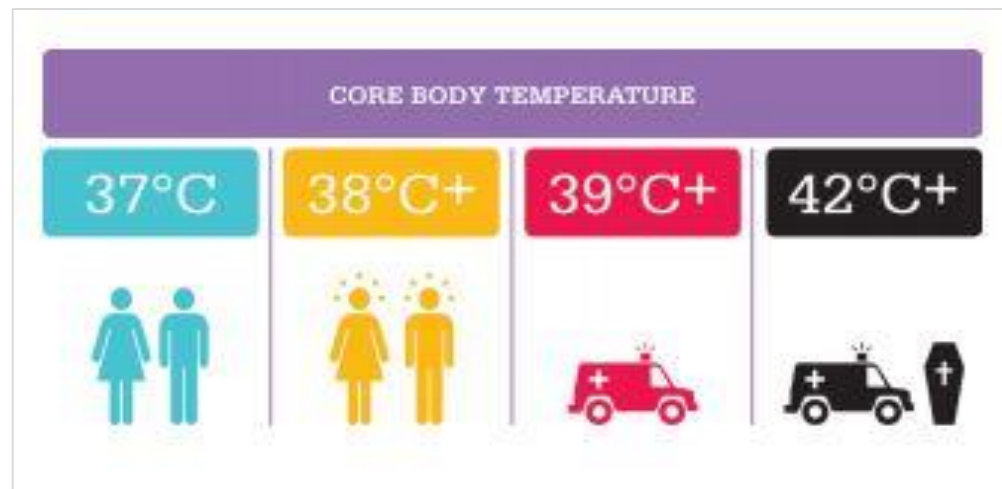
In WA, Heatwaves can occur anywhere.



Impacts on Health


Heat Specific Illnesses:

- Dehydration
- Heat Cramps
- Heat Exhaustion
- Heat Stroke
- Death



Climate Commission, 2013

Impacts on Health

- Exacerbates current chronic diseases
 - Respiratory
 - Cardiovascular
 - Renal
 - Diabetes
 - Higher intolerance to heat for people on some medications, which can commonly lead to dehydration.
 - Mental Health
- 

**Who is vulnerable to
Heatwave?**

Everyone



Who is vulnerable to heat?

- Vulnerable people groups
 - Homeless
 - People with cognitive issues
 - Aged
 - Very young
 - Pregnant women
- Sportspeople/Outside workers
- People with Chronic Illness
 - Diabetes
 - Heart conditions
- Culturally and linguistically diverse, incl. tourists



ABC, 2018

Homeless and Heatwave

- No permanent shelter
- No ready access to water
- No ready access to air conditioning
- Often minimal clothing options
- Often have poor health or chronic conditions



Aged and Heatwave


Aged >65 years

- Socially isolated
- Often live in care homes
- Inactivity
 - Not leaving ones home
 - Bedridden
 - Inability to care for ones self
- Pre-existing medical conditions




An increasing vulnerable population

Tourists and the Culturally and linguistically diverse

- Lack of familiarity with Australia's harsh conditions
 - Wearing excess clothing
 - Dehydration
 - Current medications – unaware of heat affect
 - Travel needs – rural/remote
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Indirect increase of risks to Health

- Prevalence of bacterial food borne diseases are likely to increase
e.g. Salmonella.
 - Changes to vector-borne disease distribution increases the potential exposure to diseases not normally seen in the area
e.g. Dengue Fever and Ross River Virus.
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Indirect increase of risks to Health


Heatwave often coincide with:

- Increases risk of bushfires
 - air pollution
 - smoke
- Potential for Drought conditions
 - mental health issues

Both can lead to food insecurity through destruction of food crop.



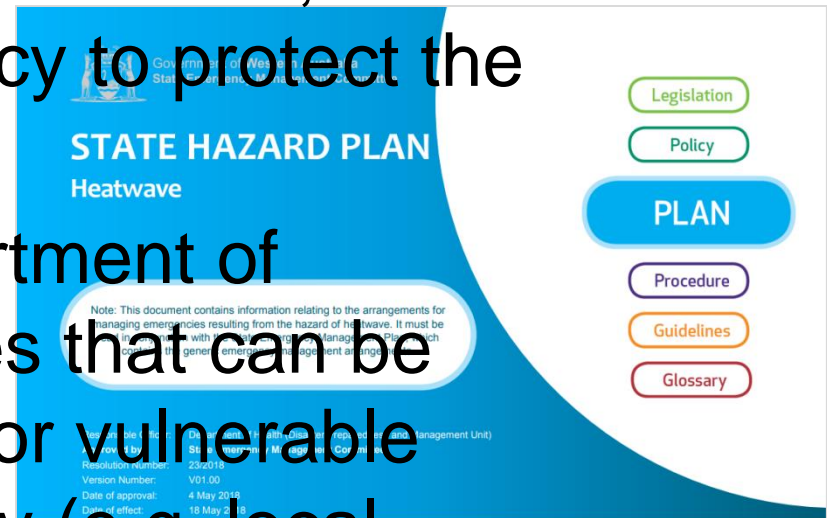
Indirect increase of risks to Health

- Long-term food insecurity
 - malnutrition
 - Water insecurity
 - Inability to access water
 - dehydration
 - Increase in GP and ED attendance – stress on the health care system locally.
 - Increase in drowning deaths.
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Local Government Role outlined State Hazard Plan Heatwave

a. Assist in communicating messages to the public: i. before a heatwave, to assist the development of community resilience; and ii. during a heatwave emergency to protect the community.

b. In consultation with Department of Communities, identify venues that can be utilised as welfare facilities for vulnerable populations in the community (e.g. local libraries, community recreation facilities, respite areas).




Local Government Role outlined State Hazard Plan Heatwave


- c. Provide resources to assist the WA health system when requested.
- d. Undertake community recovery activities, as required.
- e. Participate in ISG, OASG and SECG meetings as requested.
- f. Provide a liaison officer to the State Health Incident Coordination Centre if required.



Heatwave Strategies Examples

- Melbourne 'Homeless and Heatwave Plan'
 - Cooling centres/welfare centres
 - Urban Planning
 - Green Spaces
 - Building requirements
 - Materials – heat efficiency
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Heat related Strategies

- Event planning – requiring ‘heat risk’ to be a considering factor when approving local public event occurring.
 - Workforce planning – outdoor workers, do you have a heat plan in place?
 - General messaging to personnel:
 - Identifying heat-stress/-exhaustion/-stroke
 - How to keep cool in the heat at work
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Questions

