KEY HAZARDS & RISKS SUMMARY

Emergency Management Plan

EYRE AND WESTERN ZONE

Coffin Bay, Eyre Peninsula.

Government of South Australia

CONTENTS

councils

City of Port Lincoln
District Council of Lower Eyre Peninsula
District Council of Streaky Bay
District Council of Tumby Bay
District Council of Wudinna
District Council of Franklin Harbour
District Council of Kimba
City of Whyalla
District Council of Ceduna
District Council of Cleve
District Council of Elliston

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INTRODUCTION

Across South Australia there are a range of disasters including natural disasters such as bushfires, storms, heatwaves and floods that can have significant effects on peoples' health and wellbeing, along with severe impacts on community, social, environmental and economic structures.

This is a concise summary of the Eyre & Western Zone Emergency Management Plan (ZEMP) which provides information on natural disasters and hazards identified as having a specific relationship to the Eyre and Western Zone.

Coffin Bay, South Australia.

TOP HAZARDS AT A GLANCE FOR THE EYRE AND WESTERN ZONE AND THEIR IMPACTS

Hazard	People	Economy	Social/ Community	Environment
Extreme Weather - Heat				
Bushfire				
Extreme Weather - Storm				
Animal and Plant Disease				
Earthquake				

The table above gives an indication of the greatest impacts of disaster events on different aspects of the community. The extent of the impact felt is influenced by the intensity of the event, the actions taken to reduce or avoid the effects and the ability of the community, businesses and government to respond and recover.

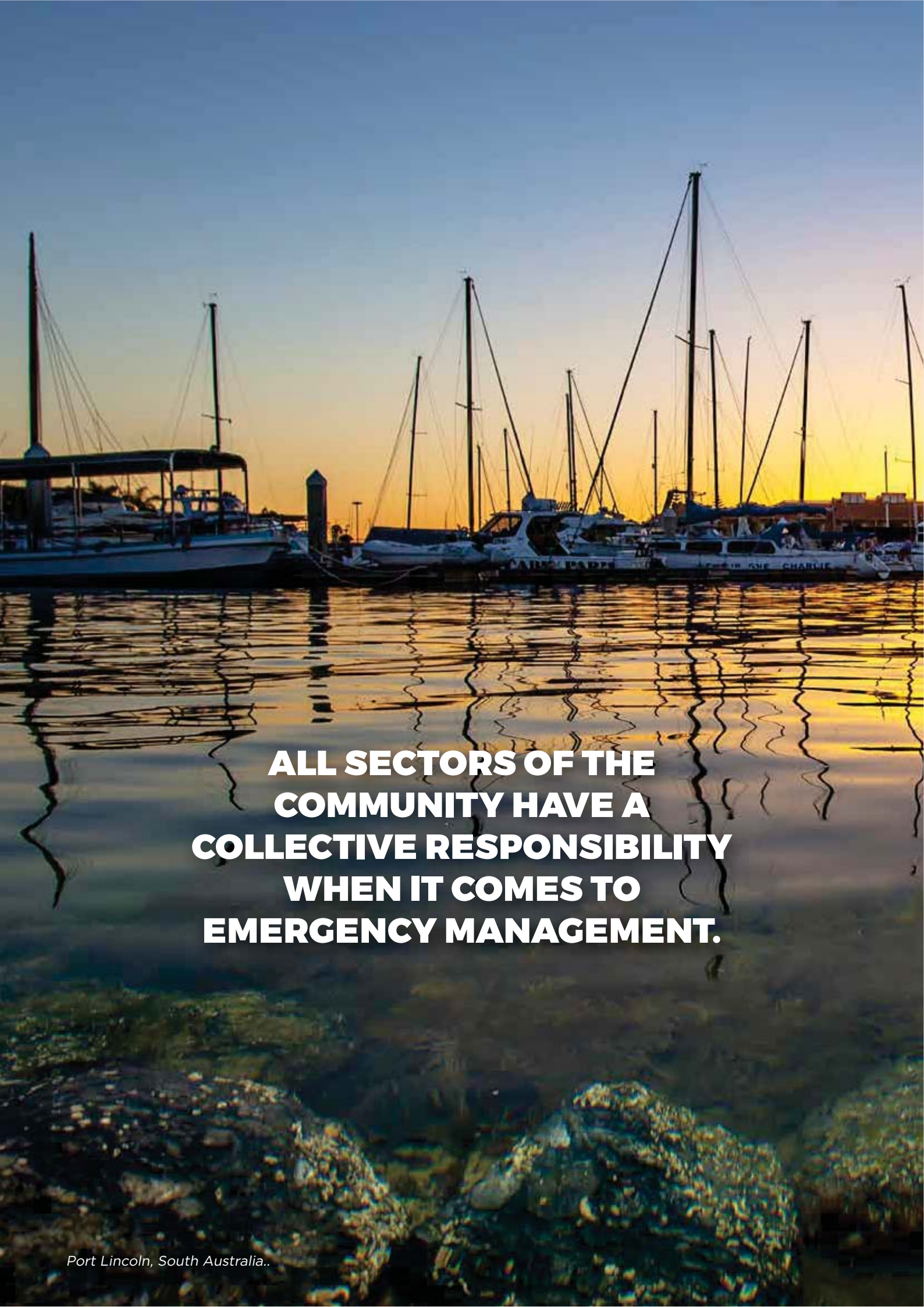
Extreme Weather (Heat) – Extreme heat causes more deaths in Australia than all other natural hazards combined. Take precautions to keep cool, take shelter from the heat and drink water; even individuals who are healthy can be affected. Never leave children or pets in cars as vehicles can quickly heat up to deadly temperatures even on relatively mild days.

Bushfire - South Australia can expect 6 or 7 serious fires every 10 years. Be prepared for a bushfire if you live in a bushfire area, and be bushfire ready by having a bushfire plan.

Extreme Weather (Storm) – Extreme storms are more commonly observed than any other natural hazard in South Australia. To stay safe you should move vehicles under cover or away from trees; secure or put away loose items around your property and stay indoors, away from windows, while conditions are severe.

Animal and Plant Disease - A major outbreak of an animal or plant disease has the potential to cost billions of dollars in lost earnings. Exotic diseases can easily be mistaken for common diseases seen on South Australian farms every day. Seek professional assistance as soon as any problem is noticed to protect the future of the agriculture, viticulture and livestock industry

Earthquake – Earthquakes occurring in urban areas pose a risk to residents and essential societal systems, including critical infrastructure. In an earthquake, it's important that you quickly **DROP** to the ground close to you, where you can avoid injury from flying debris; take **COVER** under something strong, like a sturdy table; and **HOLD** on to it until the shaking stops.



ALL SECTORS OF THE COMMUNITY HAVE A COLLECTIVE RESPONSIBILITY WHEN IT COMES TO EMERGENCY MANAGEMENT.

Port Lincoln, South Australia..

EYRE AND WESTERN ZONE IN FOCUS

11 councils

3.5% of SA's population **56,613**

SIZE 230,000 square kilometres 1/3 of SA's coastline

employment **26,103**

$3.7b Gross Regional Product

$2.7b exports

97% grain grown **exported**

UP TO **40%** of SA's **wheat**

UP TO **82%** of SA's **seafood**

7.3% population **speak another language**

MAJOR Industries

Agriculture

AQUACULTURE

Tourism

mining

Processing and **MANUFACTURING**

TOURISM $270m per year **518** tourism related businesses

HEALTH SERVICES

3 MAJOR and **8** smaller **hospitals**

17 aged care facilities

IRON KNOB

BIRTHPLACE OF AUSTRALIA'S **steel industry**

44% environmentally protected land

14 Nationally Important WETLANDS

by 2100

4°C WARMER

48-98cm SEA LEVEL RISE

>2.2°C SEA TEMP.

RAINFALL **30%** DECLINE ACROSS SEASONS

KEY infrastructure

3 major **export ports**

3 major **regional airports**

UNDERSTANDING OUR RISK PROFILE

Disasters are having an increasing financial and social impact on individuals, communities and businesses. There are large upfront costs for response and recovery and long–term impacts on wellbeing. The cost of disasters, both direct and intangible, are expected to rise significantly in the coming years.

In 2011, the Australian Government released the National Strategy for Disaster Resilience[1] (the Strategy). The Strategy aims to promote a shared responsibility between governments, business, not-for-profit organisations, communities and individuals. The Strategy recognises that Australians need to focus more on understanding risks relevant to their community and preparing for potential impacts.

Keeping the community informed is a key aspect in building community resilience – before an emergency to help with prevention and preparedness, while responding to the emergency and after, to help with recovery.

This plan is a public version of the Eyre and Western Zone Emergency Management Plan (ZEMP). The ZEMP relies on strong, cooperative, coordinated and consultative relationships among State Government agencies and local governments to work together in disasters. State Government and Local Government have plans to maintain effective service delivery to ensure that an efficient and coordinated response and recovery can be delivered to any disaster.

All sectors of the community have a collective responsibility when it comes to emergency management.

[1]National Strategy for Disaster Resilience: *http://www.safecom.sa.gov.au/site/emergency_management/natural_disaster_resilience_program.jsp*

Organ Pipes, Gawler Ranges National Park, Eyre Peninsula.

South Australia's emergency management arrangements involve the following activities:

- **Prevention** – actions undertaken in advance. Sometimes this is referred to as mitigation. Examples include prescribed burning or constructing flood mitigation dams, having back-up generators or alternative communication systems in place. Prevention activities occur prior to disasters.
- **Preparedness** – making arrangements, creating and testing plans, training, educating and sharing information to prepare organisations and communities before a disaster occurs.
- **Response** – the assistance and intervention during or immediately after a disaster. Focus is on saving lives and protecting community assets (buildings, roads and infrastructure) and the environment.
- **Recovery** – the coordinated process of supporting emergency-affected communities in reconstruction of physical infrastructure and restoration of emotional, social, economic and physical wellbeing. Recovery can be required for months and/or years after the disaster.

Wanna Cliffs, Eyre Peninsula.

MAJOR HAZARDS

The Eyre and Western Zone

1. Extreme Weather (heatwave)
2. Bushfire
3. Extreme Weather (storm)
4. Animal and Plant Disease
5. Earthquake

Risk Assessment Process

The arrangements for the State to manage emergencies are outlined in the State Emergency Management Plan (SEMP).

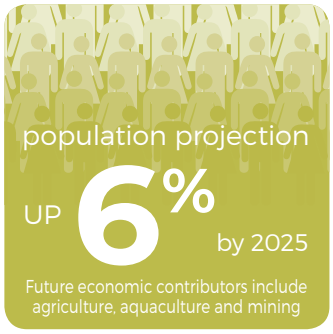
The SEMP identifies the State's eleven Emergency Management Zones. Each of these Zones has specific characteristics that are vulnerable to disasters, for example different demographics, industry, infrastructure, businesses and economic factors.

Each Zone has a Zone Emergency Management Committee (ZEMC) made up of Local and State Government and emergency management staff. These committees have a risk assurance role and provide regional leadership in emergency management in their Zones. One of their main roles is the development of a Zone Emergency Management Plan. This is important as understanding the potential impact of disasters on the region is essential for planning and preparation.

Zone Emergency Management Plans were produced by conducting risk assessment workshops with stakeholders from government and non-government organisations. These workshops used realistic scenarios about a hazard. Attendees then assessed which risks were the most likely to occur and could have the greatest impacts in the Zone.

The Eyre and Western Zone Emergency Management Plan includes detailed information about the five relevant hazards in the Zone: bushfire, extreme storm, extreme heat, animal and plant disease and earthquake, and the main risks associated with each. Information about the priority hazards and their likely impacts are detailed in the following pages.

> Risk assessments used *The National Emergency Risk Assessment Guidelines* based on ISO 31000 to ensure a consistent and rigorous approach.



EMERGENCY SERVICES

60 CFS Brigades
11 SES units
2 MFS stations
15 POLICE stations
11 AMBULANCE stations

History of Emergencies

2005 Wangary **BUSHFIRE**

2016 **STORMS**

1. EXTREME HEAT

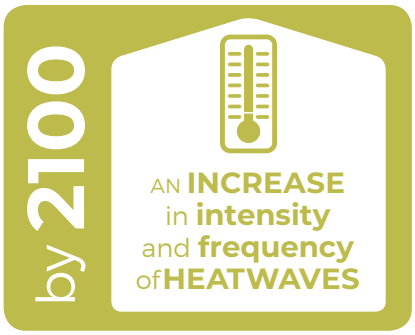
Extreme heat causes more deaths in Australia than all other natural hazards combined.

Extreme heat, also known as a heatwave, is defined as three or more days of high maximum and minimum temperatures that are unusual for that location.

Heatwaves can be the cause of death and significant health issues in people with kidney, heart disease and mental health issues. The risk of death and serious illness is particularly high for the elderly, children and those working or enjoying recreational activities outdoors. People are encouraged to take shelter from the heat, drink water and keep cool. Never leave children or pets in cars as they can heat quickly to deadly temperatures even on relatively mild days. Heatwaves are a particular risk for anyone who does not take precautions to keep cool, even individuals who are healthy.

Animals, the natural environment and infrastructure, such as power, communications, water and transport are also at risk. Heatwaves can also impact the continuity of service provision from businesses and government. Local government services may also be impacted and experience an increase in demand.

For more information on how to minimise the impact to you and your family visit: www.sa.gov.au/topics/emergencies-and-safety/types/extreme-heat



Risk Assessment Scenarios

To understand the impact of extreme heat on the Zone, the following scenarios were considered as part of the risk assessment:

Scenario 1 - In March 2008 a heat event with 15 consecutive days with a max temp >37.8˚C (in Adelaide), caused at least $150 million in damage and reduced income for South Australia. There was a threefold increase in heat related hospital admissions.

Scenario 2 - The January / February 2009 heat event which ran for 13 consecutive days across South Australia with temperatures up to almost 49˚C recorded and over 34 deaths in South Australia.

Scenario 3 - A hypothetical heat scenario - **a combination of the extended period of the 2008 event and the intensity of the 2009 event** with expected breakdown of critical infrastructure such as electricity, transport network and communications. Likely impacts included increased demand on ambulance and hospitals, hundreds of deaths, outdoor work ceases and food shortages.

RECENT EXTREME HEAT EVENTS

Heat Event of 2014

- 38 deaths
- 294 heat-related emergency presentations at hospitals

2. BUSHFIRE

The Australasian Fire and Emergency Services Authorities Council (AFAC) defines bushfire as:

"An unplanned vegetation fire. A generic term which includes grass fires, forest fires and scrub fires."

South Australia can expect 6 or 7 serious fires every 10 years. The Zone has a history of being affected by rural fire events.

The bushfire risk assessment, showed that the main risks to people were death and injury, resulting from last minute evacuations, traffic accidents, people staying to defend their homes or protect their animals. Disabled people, children, elderly, outdoor workers and emergency services personnel are especially vulnerable.

Bushfire also significantly affects the economy through disruption and damage to infrastructure such as electricity and telecommunications, loss of stock and primary production and damage to, or loss of, buildings.

The social fabric of the community is affected when people are unable to return to community due to loss of houses or businesses, interruption to public services and amenities or impaired access to their properties.

It is important to be aware of your bushfire risk and have a plan in case a bushfire threatens your home.

For information on how to minimise the impact to you and your family, visit: http://www.sa.gov.au/topics/emergencies-and-safety/types/bushfire

Risk Assessment Scenarios

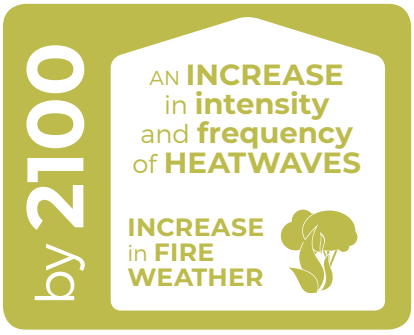
To understand the impact of bushfire on the Zone, the following scenarios were considered as part of the risk assessment:

Scenario 1 - Cygnet River Fire (Kangaroo Island) - February 2013

- 80 hectares of farm and bushland burnt
- Telstra telephone exchange damaged

Scenario 2 - Ash Wednesday - January 1983

- 28 fatalities, over 600 injuries
- Estimated loss of up to $400m in 1983 $
- 190 homes lost
- 250,000 sheep and cattle lost
- 21,000 hectares of pine plantation burnt



RECENT BUSHFIRE EVENTS

- 13 January 2009 at Proper Bay, on the outskirts of City of Port Lincoln
- 23 December 2009 bushfire at Port Lincoln
- Ceduna complex of fires on 17 January 2014 during a period of extreme heat

3. EXTREME STORM

Extreme storms are more commonly observed than any other natural hazard in South Australia and the Zone experiences storms several times per year. The Bureau of Meteorology has identified two types of extreme storm that can impact the Zone. These are:

Thunderstorm:

- Heavy rainfall leading to flash flooding (>30 mm/h)
- Wind gusts (90 km/h or greater)
- Damaging hailstones (2cm diameter or greater)
- Tornadoes

Synoptic Storm (could include some/all of the above but also):

- Mean wind speed 63 km/h or greater (land gale)
- Storm tide/surge higher than astronomical tide causing damage/destruction to foreshore.

The extreme storm risk assessment identified a number of risks to the Zone. Extreme storms can cause injury or death as well as increased demand on health services. They may cause houses to become unliveable due to damage or lack of essential services.

Extreme storms also significantly affect the economy through disruption and damage to infrastructure such as electricity and telecommunications, loss of productivity due to outdoor workers being unable to work, and damage to, or loss of buildings. Local and State Government agencies may experience service disruptions and damage to maintenance depots. Erosion of top soils may not only impact the agricultural industry, but the run off from the land to sea may cause loss of ecosystems including increased algal blooms due to nutrient rich soil entering waterways.

To stay safe people should:

- Move vehicles under cover or away from trees;
- Secure or put away loose items around your property.
- Stay indoors, away from windows, while conditions are severe.

Risk Assessment Scenarios

To understand the impact of storm on the Zone, the following scenarios were considered as part of the risk assessment:

Scenario 1 – 31 July 2010 Penola Tornado

- Lasted 5 minutes and left 6 km path of destruction
- 40 buildings damaged
- Roofs, fences, light poles were damaged
- Estimated cost of $7 million
- 2 injuries and many trees uprooted

Scenario 2 – hypothetical storm – synoptically driven extreme storm event, triggering smaller scale, very dangerous supercell thunderstorms. Long lived and widespread.

- Long term power outages
- Extensive damage to homes
- Large number of deaths and/or injuries
- Roads blocked by trees
- Health and other response agencies overwhelmed

RECENT EXTREME STORM EVENTS

September 2016 - an extreme storm led to extensive statewide power outage causing:

- Loss of electricity to Eyre Peninsula for more than 4 days
- flooding in the Zone
- $8.33 million loss to local businesses, predominantly in regional city of Pt Lincoln
- Stock and property damage
- Inability to access ATMs or credit cards for transactions especially impacting Ceduna where there are restrictions on certain social benefit cards

For information on how to minimise the impact to you and your family or business visit: www.sa.gov.au/topics/emergencies-and-safety/types/extreme-storm

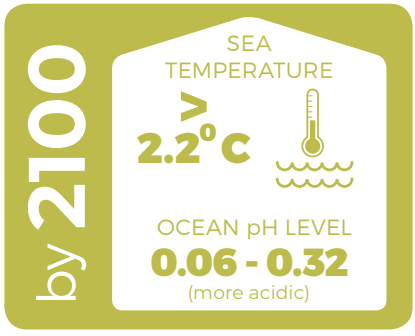
4. ANIMAL AND PLANT DISEASE

A major outbreak of an animal or plant disease could cost billions of dollars in lost earnings. It could affect farmers, their produce and livelihoods. Exotic pests and diseases may also risk the state's reputation for producing premium food and wine, and risk trade overseas and locally. The specific diseases chosen as representative of the Animal and Plant disease hazard were Foot and Mouth disease, Karnal Bunt disease and Pacific Oyster Mortality Syndrome (POMS).

Exotic diseases won't always look spectacular, many can easily be mistaken for common diseases seen on South Australian farms every day. The Department of Primary Industries and Regions South Australia (PIRSA) subsidises investigation of illness and deaths to ensure exotic diseases are not the cause.

Foot and Mouth Disease (FMD)

- FMD is highly contagious and one of the most serious viral diseases affecting livestock
- FMD can cause serious production losses but the most serious impact is to livestock trade
- Australia's major trading partners either do not import or impose serious restrictions on livestock imports from infected areas
- It is important to seek veterinary assistance as soon as any problem is noticed to protect the future of the livestock industry



Karnal Bunt / Partial Bunt Disease

- A highly invasive fungal disease of wheat
- Infected grain has black powdery spores on the seed head and a strong fishy odour and flavour
- Karnal Bunt has potential to dramatically decrease grain yield and saleability
- Once introduced spores can persist for years, making eradication difficult
- Several chemical control methods exist for Karnal Bunt, but much work is needed in identifying resistant host varieties

Pacific Oyster Mortality Syndrome (POMS) Disease

- The first Australian case of POMS was recorded in 2010 in New South Wales, with the most recent outbreak detected in Port River in February 2018.
- Since February 2018, a state-wide surveillance program detected NO POMS virus in the oyster growing areas in the State (Eyre Peninsula and Kangaroo Island) and are declared as POMS free.
- A ban on the removal of all bivalve shellfish from the Port River estuary system, including West Lakes is declared to reduce the potential spread of the disease.
- General restrictions have been in place for importing oysters into SA to prevent disease introduction and safeguard South Australia's $32 million oyster growing industry

For more information regarding Animal and Plant Disease visit: www.sa.gov.au/topics/emergencies-and-safety/types/animal-and-plant-disease

5. EARTHQUAKE

An earthquake is shaking of the surface of the earth caused by underground movement, such as along a fault line or by volcanic activity. They range in strength from slight tremors to major shaking, lasting from a few seconds to a few minutes and may be followed by aftershocks. Apart from the damage caused by ground shaking, earthquakes can also lead to liquefaction (soil becoming liquid) which can cause extensive damage to buildings.

Earthquakes are measured on the Richter Scale, with 9.5 being the highest possible magnitude. Australia averages 80 earthquakes per year with a magnitude greater than 3.0. An earthquake of 5.5 is experienced approximately every two years and a 6.0 every five years.

Earthquake was considered as this Zone has been subject to earthquake activity in the past.

Earthquakes may cause injury and death. Damage to residential, commercial and industrial buildings, as well as stock and equipment are possible. Aerodromes and airstrips; communication network; Moomba to Adelaide gas pipeline, which supplies gas to GFG Alliance Steelworks and Whyalla; and waste water drainage may be impacted and/or damaged.

The social fabric of the community is affected when people are unable to return to community due to loss of houses or businesses, interruption to public services and amenities or access and egress to their properties.

In an earthquake, it's important that you quickly:

- **DROP** to the ground close to you, where you can avoid injury from flying debris.
- Take **COVER** under something strong, like a sturdy table.
- **HOLD** on to it until the shaking stops.

For information on how to minimise the impact to you and your family or business visit: https://www.sa.gov.au/topics/emergencies-and-safety/types/earthquake

Risk Assessment Scenarios

To understand the impact of earthquake on the Zone, the following scenarios were considered as part of the risk assessment:

Scenario 1 – 5.0 Magnitude – hypothetical event based on Kalgoorlie 2010 earthquake

- $62.6m damage to residential homes
- $7.5 million damage to commercial and industrial buildings
- 1 severe injury or death
- 2 light to moderate injuries

Scenario 2 – 5.6 Magnitude – hypothetical event based on New Castle 1989 earthquake

- $134m damage to residential homes
- $36 million damage to commercial and industrial buildings
- 1 severe injury or death
- 4 minor to moderate injuries

RECENT EARTHQUAKE EVENTS

- In July 2018, a 3.7 magnitude earthquake occurred northeast of Cleve towards Mangalo. While no major damage was caused, it was felt up to 47km away.
- An earthquake of 3.9 magnitude occurred north-west of Port Lincoln on April 4, 2009, with no reported damage. The Great Australian Bight has experienced around 20 earthquakes in the years between 2007 – 2017.

ARE YOU PREPARED?
Checklist

Are you prepared?

- [ ] Do you know what types of emergency and disasters might affect you?
- [ ] Does your household have an emergency plan? (more details on this page)
- [ ] In the last year, have you done anything to protect your home? (e.g. clear gutters or vegetation)
- [ ] Do you have appropriate and adequate insurance cover?
- [ ] Have you prepared an emergency kit? (visit sa.gov.au/emergencies/ and look up emergency preparation for more information)

To assist in your Emergency Management Planning, the following list provides questions to consider:

- [ ] Who will you include in the plan? Family, pets, neighbours, grandparents, children etc
- [ ] What will you do if some of you are not home?
- [ ] Consider when to evacuate during flood, storm, bushfire or other emergencies
- [ ] Where will you evacuate to? Meeting place near home, meeting place away from home?
- [ ] Can you keep your business going during and after disasters? (go to sa.gov.au/emergencies-and-safety/ for more information)

Think about the different kind of emergencies that could affect you.

Have you considered making a plan? For help with making a plan:

- **Red Cross**: redcross.org.au/prepare
- **CFS Bushfire plan**: cfs.sa.gov.au/site/prepare_for_a_fire/5_minute_bushfire_plan.jsp
- **Emergency plans**: sa.gov.au/topics/emergencies-and-safety/prepare-for-an-emergency/emergency-plan

Equipment connected over the nbn™ access network will not work during a power blackout.

Make sure you have a battery powered radio and your mobile phone is fully charged.

Disasters happen - don't think if, think when!

Government of South Australia

Sleaford Bay, Eyre Peninsula.

Warnings and advice can be obtained from a number of sources:

sa.gov.au/topics/emergencies-and-safety

your local radio station (ABC Radio 639 AM, Port Lincoln SA - 5CC, 765AM and 1485AM, Streaky Bay SA - 693AM, Port Augusta - 5AU and 1242AM)

bom.gov.au for Bureau of Meteorology (BoM) weather and warnings updates including local seven day forecasts.

Government of South Australia