



Australian
Centre for
Disease
Control

Guidance on climate risk assessment and adaptation planning for Australian health system organisations

Climate and Health Hazard Data for South Australia

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Introduction

This document provides scientific climate information to help health system organisations assess, prepare for and effectively manage climate-related risks across short-, medium-, and long-term planning horizons. A digital version of the information in this document can be found [here](#). Further detail about the information contained in this document can be found in the accompanying methodological report.

The document presents climate hazard information summarised for health districts across South Australia. For each health district, information is provided about six hazards – heat and humidity, fire, drought, rainfall, storms, and coastal inundation – across three different time horizons and two climate scenarios. This structure enables users to assess how climate risks may evolve over time and under different emissions pathways. The information is presented both in narrative form and through a series of detailed tables containing quantitative data. Further information on the information presented in this document is outlined below.

Health districts

This document presents climate information for 7 health districts, corresponding to the 9 geographically based SA Health Local Health Networks, with the three Adelaide Local Health Networks (Central Adelaide, Northern Adelaide and Southern Adelaide) combined into a single Adelaide health district.

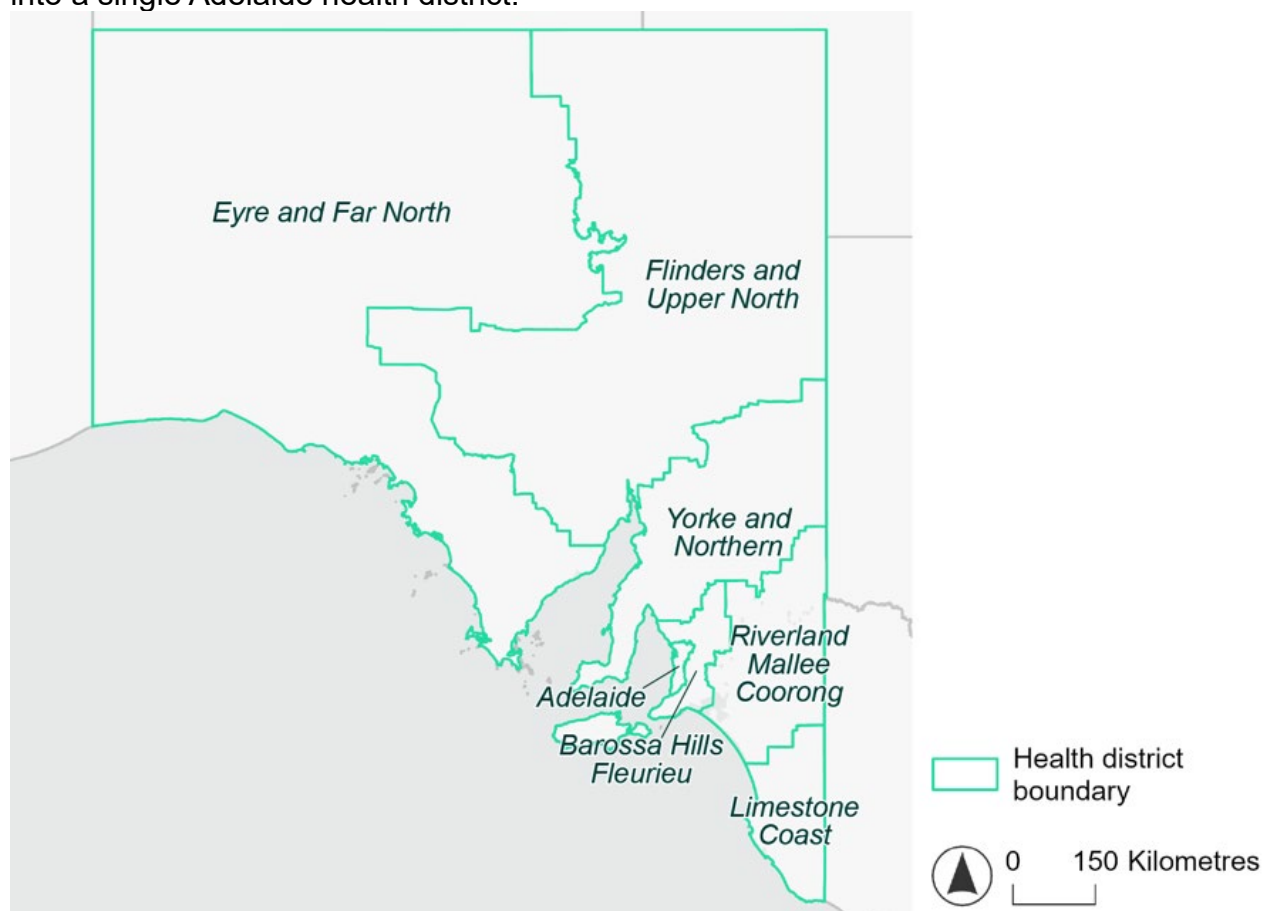


Figure 1. Map of South Australian health districts used in this document.

Time horizons

This document provides climate information on each climate hazard for the following time horizons:

Time horizon	Years	Description	Use in risk assessment
Baseline	Observed data from 1985-2014	Historical baseline position	Understand current risks and ensure they are being managed effectively
Mid-century (2050)	2035–2064	Medium-term climate projections	Identify and manage emerging risks to population health and health systems
Late century (2085)	2070–2099	Long-term climate projections	Identify long-term risks when planning infrastructure or policy with long-lasting consequences

Climate scenarios

The document provides climate information on each hazard for two different climate scenarios. A climate scenario is a plausible representation of what the future climate might look like. These scenarios are based on different assumptions about greenhouse gas emissions and other factors that influence the future climate.

This document uses Shared Socioeconomic Pathways (SSPs) as the basis for different climate scenarios. SSPs describe how socioeconomic factors (such as population, economic growth, education, urbanisation and technology development) could change over the next century and have an effect on future greenhouse gas emissions and global temperatures.

There are five main SSPs, each of which outlines a different scenario, ranging from a sustainable future with low emissions, to one with high fossil fuel uses and high emissions. The most recent iteration of SSPs incorporate information from what were previously called Representative Concentration Pathways (RCPs), which measure the expected change in radiative forcing (in W/m²) under the scenario from 1750 to 2100. SSP2-4.5 denotes what would previously have been called a scenario involving SSP2 and RCP4.5 – the reasoning for merging them being that SSP2 describes socioeconomic conditions likely to give rise to RCP4.5.

The two main scenarios used in this document are:

- **A ‘middle of the road’ scenario (SSP2-4.5):** this scenario assumes emissions remain at current levels until the middle of the 21st century, and that net zero emissions are not reached by 2100. This scenario sees temperatures rising by about 2.7°C by the end of the century. In this document this is the lower emissions scenario across all climate hazards, except for the fire hazard (see below note).
- **A ‘reasonable worst-case’ scenario (SSP3-7.0):** this scenario assumes both emissions and temperatures continue to rise to the end of the century due to delayed climate action. This scenario sees temperatures rise by about 3.6°C by 2100.¹ In this document this is the higher emissions scenario across all climate hazards.

¹ Another scenario, SSP5-8.5, was previously considered the reasonable worst-case scenario, but it is now considered to be very unlikely to be realised due to climate action already undertaken [4].

Fire hazard projections are not available for SSP2-4.5, so SSP1-2.6 is used as the lower emissions scenario for this hazard instead of SSP2-4.5. Under SSP1-2.6, global emissions are reduced but do not reach net zero until after 2050 and warming stabilises at about 1.8°C by 2100. This document refers to SSP1-2.6 as the 'sustainability' scenario.

Climate hazard projections

For each health district, the following information is provided for each climate hazard, across the different time horizons and climate scenarios:

- **Heat and humidity:** projected average, extreme and apparent temperatures; projected heatwave duration and frequency; and projected number of very hot days.
- **Fire:** projected area affected by different fire hazard categories for a 1-in-20 year fire event and a 1-in-100 year event.
- **Drought:** projected average number of months per year experiencing drought.
- **Rainfall and flooding:** projected number of extreme rainfall days per year, as well as projected frequency of urban and rural flood events.
- **Storms:** projected number of storms per year, grouped into four intensity categories based on wind speed.
- **Coastal inundation:** projected area of land affected by tidal inundation and storm surge and tidal inundation (coastal districts only).

The climate hazard projections in this document are based on data from nine CMIP6 Global Climate Models (ACCESS-CM2, ACCESS-ESM1-5, CESM2, CMCC-ESM2, CNRM-ESM2-1, EC-Earth3, MPI-ESM1-2-HR, NorESM2-MM, UKESM1-0-LL). These models simulate how climate hazards may change under different SSPs. Where hazard projections are based on these models, this document reports the median projected value as its primary estimate, and reports the range across all nine models in square brackets.

Adelaide health district

Health district overview

The Adelaide health district includes Northern Adelaide Local Health Network, Central Adelaide Local Health Network and Southern Adelaide Local Health Network. The Adelaide health district covers 1,563 square kilometres and contains eight hospitals:

- Royal Adelaide Hospital
- The Queen Elizabeth Hospital
- Hampstead Rehabilitation Hospital
- Royal Adelaide Hospital
- The Queen Elizabeth Hospital
- Hampstead Rehabilitation Hospital
- Flinders Medical Centre
- Noarlunga Hospital

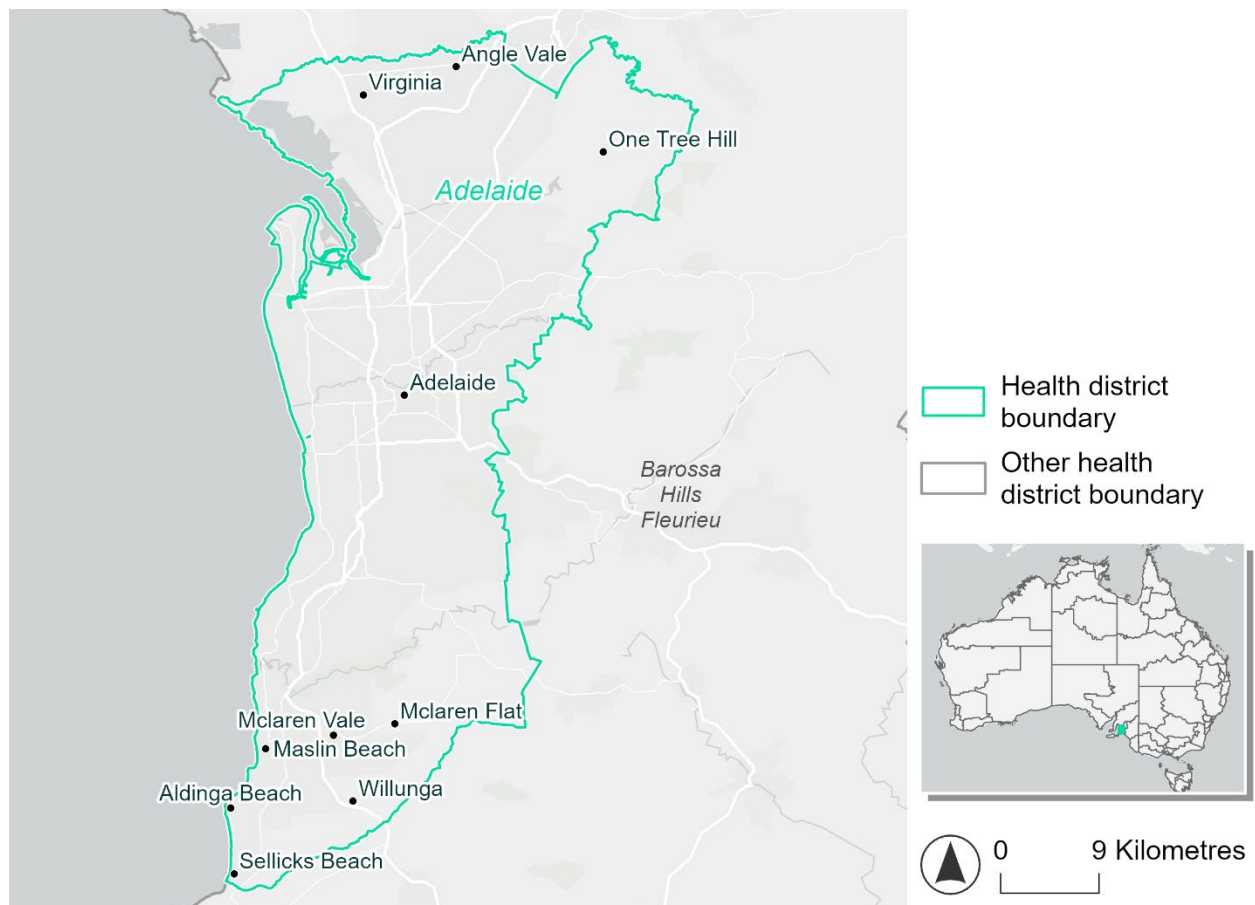


Figure 2. Map of Adelaide health district

How will climate change affect this health district?

- **Heat and humidity:** Higher average temperatures, hotter and more frequent hot days, warmer night time temperatures and more frequent heatwaves.
- **Fire:** 20% of this health district currently experiences very high fire hazard category and this will increase slightly in the future.
- **Drought:** Number of months experiencing drought will increase.
- **Rainfall and flood:** More flood events in urban areas.
- **Coastal inundation:** Increased area flooded during tidal and storm surge and tidal inundation.

Adelaide health district demographic data

Demographic Data	Total
Number of households	492,868
Persons 15 and older	902,829
Total families	341,884
Persons did not complete high school	312,534
One parent families with dependents	36,406 (10.6%)
Persons aged 65 and older	239,166 (18.4%)
Persons aged 4 and younger	70,561 (5.4%)
Aboriginal and Torres Strait Islander persons	22,071 (1.7%)
Persons speaks language other than English	290,199 (22.4%)
Persons working age (15-65)	836,301 (64.5%)
Population Health Data	Total
Persons with core needs for assistance	84,421 (6.5%)
Persons with arthritis	122,478 (9.4%)
Persons with asthma	112,232 (8.7%)
Persons with cancer	39,547 (3.1%)
Persons with dementia	12,542 (1%)
Persons with diabetes	71,097 (5.5%)
Persons with heart disease	56,714 (4.4%)
Persons with kidney disease	11,330 (0.9%)
Persons with lung condition	23,730 (1.8%)
Persons with mental health condition	126,535 (9.8%)
Persons with stroke	13,051 (1%)
Persons with any other condition	115,646 (8.9%)
Persons no health condition	771,443 (59.5%)
Socio-economic Data	Total
Persons providing unpaid care	168,642 (13%)
Persons homeless	5,331 (0.4%)
Household with lone person	139,006 (28.2%)
Households with rent and mortgage stress	215,979 (43.8%)
Households total equivalised income below \$1000 (weekly)	236,904 (48.1%)
Households with no motor vehicle	39,093 (7.9%)
Persons unemployed	60,898 (5.8%)

The sections that follow outline projected climate hazards for this district. Further information on this health district, including population demographics, is provide in the online dashboard.

Heat and humidity hazard

Key projections:

- **More heatwaves:** Heatwave events are likely to last longer and the number of heatwave events per year will increase. By 2050, under a reasonable worst-case scenario the number of heatwaves will increase from two events per year to three. By 2085, under a reasonable worst-case scenario the number of heatwaves per year will more than double.
- **Hotter days and warmer nights:** The maximum temperature on hot days will increase with night time temperatures on hot nights also increasing.
- **More days above 35°C and 40°C:** The number of days per year greater than 35°C and 40°C will increase under both middle of the road and reasonable worst-case scenarios across both time horizons.

	Baseline	2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Average temperature (°C)	16.6	17.7 [17.1, 18]	17.9 [17.2, 18.4]	18.5 [17.6, 19.1]	19.2 [18, 20.2]
Maximum temperature on hot days (°C) ^(a)	34.7	36 [35.5, 36.4]	36.3 [35.3, 37.1]	36.8 [35.9, 37.6]	37.7 [36.7, 38.5]
Minimum temperature on hot nights (°C) ^(b)	21.1	22.3 [21.3, 22.9]	22.5 [21.6, 23]	23.1 [21.8, 23.7]	23.9 [22.8, 24.7]
Average apparent temperature on hot days (°C) (NOAA Heat Index) ^(c)	33.5	34.2 [34, 34.4]	34.3 [33.9, 34.8]	34.5 [34.1, 35]	35.1 [34.6, 35.6]
Average heatwave duration in days ^(d)	4	5 [4, 5]	5 [5, 5]	5 [4, 5]	5 [5, 5]
Number of heatwaves per year ^(d)	2	3 [2, 3]	3 [2, 4]	4 [3, 5]	5 [3, 6]
Number of days per year > 35°C	17	24 [21, 26]	25 [20, 30]	28 [23, 33]	34 [28, 40]
Number of days per year > 40°C	3	5 [4, 6]	6 [3, 8]	7 [5, 10]	10 [6, 13]

Table notes: The heat and humidity hazard uses climate projections from the CMIP6 Global Climate Models [1]. Daily projections of maximum and minimum near-surface temperature and mean relative humidity are used to calculate eight heat and humidity indicators. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) Based on the 95th percentile of daily maximum air temperature. (b) Based on the 95th percentile of daily minimum air temperature, representing the coldest part of the night on very hot nights. (c) The [National Oceanic and Atmospheric Administration \(NOAA\) Heat Index](#) is a measure of how hot it feels when relative humidity is factored in alongside actual air temperature. It is calculated on days with a maximum temperature of 27°C and above. Interpretation of Heat Index values: 27°C to 32°C indicates caution, 33°C to 41°C indicates extreme caution, 42°C to 54°C indicates danger and over 54°C indicates extreme danger. See methodology document for further explanation of Heat Index categories. (d) A heatwave is defined as three or more consecutive days where both daytime and overnight temperatures (daily mean temperatures) are unusually high for the location, based on the [Bureau of Meteorology's Excess Heat Factor](#) method. For this district, an unusually high daily mean temperature is approximately 27.4°C or above.

Fire hazard

Key projections:

- **Majority of district area experiences moderate to high hazard:** Under baseline conditions, the majority (61-62%) of the district experiences moderate to high fire hazard. Very high and low fire hazard cover roughly equal portions of the remaining area during a 1-in-20-year fire weather event. During a 1-in-100-year event, the very high hazard area covers a little more of the district than low hazard.
- **Slight increase in overall fire hazard:** In a future climate, hazard levels are projected to increase slightly over time and in higher-emissions scenarios. For a 1-in-20-year fire weather event, these increases could see the proportions of the district experiencing moderate to high hazard increase by up to 2.2 percentage points, and very high hazard by up to 1.4. In a 1-in-100-year fire weather event more of this increase is seen in the very high fire hazard area, which could increase by up to 2.1 percentage points in this more severe event.

	Baseline	2050 Scenarios		2085 Scenarios	
		Sustainability	Reasonable worst-case	Sustainability	Reasonable worst-case
Hazard for a '1-in-20 year' fire weather event^(a)					
Proportion (%) of district experiencing 'Low' fire hazard	19.7% (30,726) ^(b)	19.1% [18.2%, 20.3%]	18.2% [14.8%, 19.9%]	18.2% [16.2%, 21.3%]	16.2% [7.9%, 20.2%]
Proportion (%) of district experiencing 'Moderate to High' fire hazard	61.3% (95,830) ^(b)	61.6% [60.0%, 63.0%]	62.2% [59.4%, 67.0%]	61.9% [58.2%, 65.3%]	63.5% [56.6%, 74.9%]
Proportion (%) of district experiencing 'Very High' fire hazard	19.0% (29,725) ^(b)	19.4% [18.7%, 19.6%]	19.6% [18.9%, 20.5%]	19.9% [18.3%, 20.3%]	20.4% [18.8%, 22.5%]
Hazard for a '1-in-100 year' fire weather event^(a)					
Proportion (%) of district experiencing 'Low' fire hazard	17.3% (27,109) ^(b)	16.7% [15.7%, 17.9%]	16.0% [12.6%, 17.6%]	15.8% [13.3%, 18.6%]	14.0% [5.9%, 18.0%]
Proportion (%) of district experiencing 'Moderate to High' fire hazard	62.0% (96,877) ^(b)	62.2% [60.7%, 64.0%]	62.5% [59.8%, 67.0%]	62.6% [58.9%, 66.7%]	63.1% [56.8%, 73.9%]
Proportion (%) of district experiencing 'Very High' fire hazard	20.7% (32,294) ^(b)	21.1% [20.2%, 21.5%]	21.6% [20.6%, 22.7%]	21.7% [19.5%, 22.7%]	22.8% [20.5%, 25.5%]

Table notes: The Fire Hazard uses the National Bushfire Intelligence Capability (NBIC) Phase 2 fire line intensity modelling based on CMIP6 climate projections. Fire Hazard is assessed using the projected Fireline Intensity (FLI) for weather events with two different return intervals (i.e. a 1-in-20 year event and a 1-in-100 year event). FLI considers slope, vegetation and weather to produce a rate of heat output per unit length (kW/m) along a bushfire's front. Fire hazard is categorized as a low for $FLI < 4000$ kW/m, moderate to high for $4,000 \text{ kW/m} \leq FLI < 12,500 \text{ kW/m}$, and very high for $FLI \geq 27,501 \text{ kW/m}$. This is broadly consistent with the literature [3]. The assessment considers climate change effects based on changes in fire weather and the associated hazard that is anticipated for a meteorological event of a given return interval. This approach is different to the one adopted for the Flood Hazard, where the event magnitude is given (fixed) and the likelihood of that event varies as a result of climate change. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) The area subject to different categories of fire hazard is determined for a '1-in-20 year' and '1-in-100 year' fire weather event, in current and future climates. Values at year 2050 are interpolated using data from baseline (2025) and 2085, assuming linear change over time. (b) Values in round brackets are the area (ha) of the health district subject to a given fire hazard.

The figures below show the proportion of the health district experiencing different fire hazard categories across different time horizons and climate scenarios during a '1-in-20 year' fire weather event (Figure 3) and a '1-in-100 year' fire weather event (Figure 4).

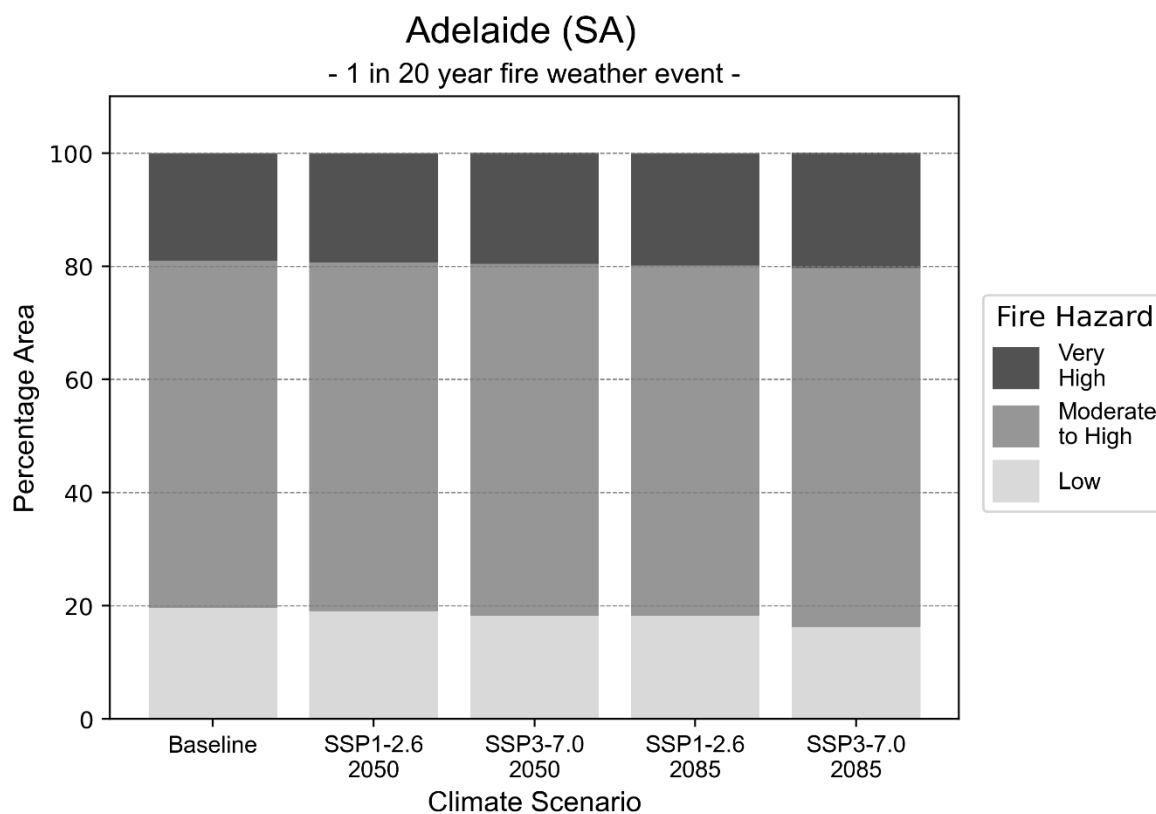


Figure 3: Stacked column chart showing the percentages of the Adelaide health district's total geographic area experiencing each fire hazard level during a 1-in-20-year fire weather event.

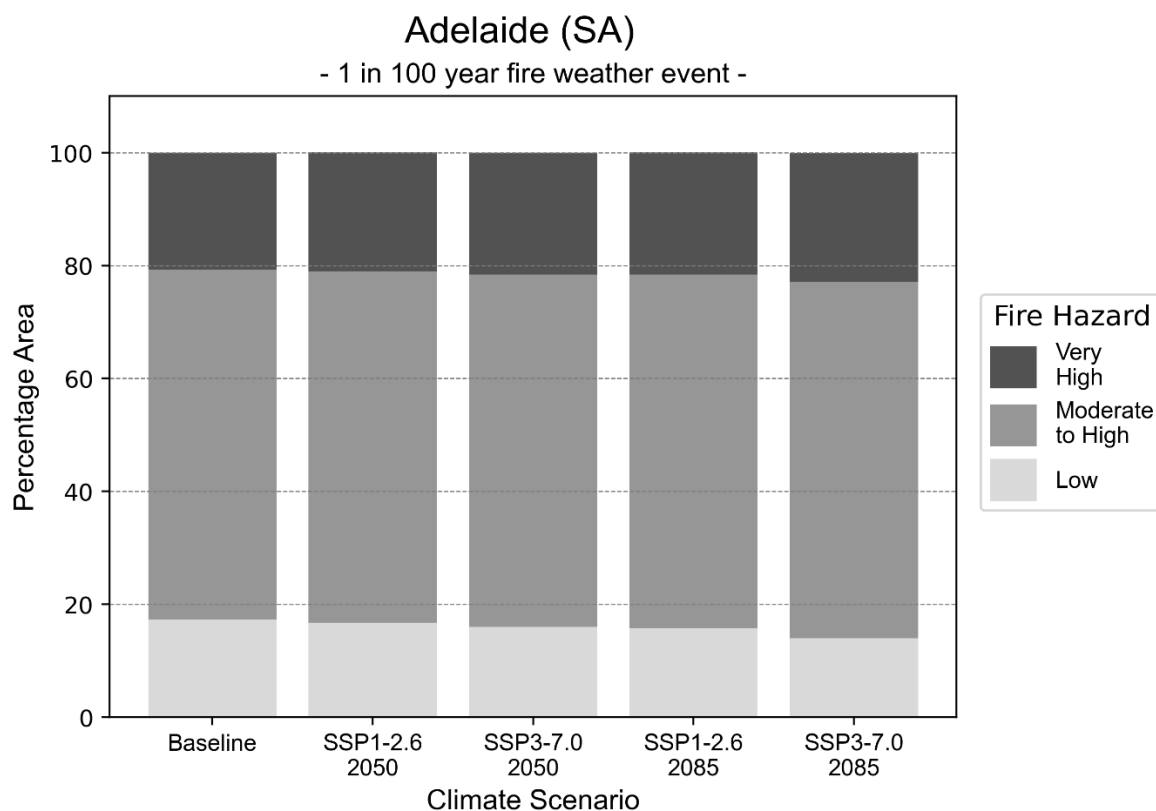


Figure 4: Stacked column chart showing the percentages of the Adelaide health district's total geographic area experiencing each fire hazard level during a 1-in-100-year fire weather event.

Drought hazard

Key projections:

- **Drought occurrence:** The occurrence of drought will increase across both middle of the road and reasonable worst-case scenarios and both time horizons, with the largest increase occurring under the reasonable worst-case scenario by 2085.

	Baseline	2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Number of months per year in drought ^(a)	1.7	3.3 [0.9, 5.9]	3.3 [1.3, 7.8]	4.1 [1.7, 8.0]	4.7 [1.0, 10.5]

Table notes: The drought hazard indicator uses climate projections from the CMIP6 Global Climate Models [1]. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) The number of months per year in drought is based on the Standardised Precipitation Index (SPI). SPI is a widely used index to characterise meteorological drought on a range of timescales. This indicator uses the timescale of 12 months which calculates the average months in a year within the moderate drought range. A moderate drought range is classified as SPI score of ≤ -1 . SPI is calculated from accumulated rainfall over 12 months and the mean and standard deviation from historical rainfall records.

Storm hazard

Key projections:

- **Less frequent high-intensity storms:** The frequency of high-intensity storms will decrease across both middle of the road and reasonable worst-case scenarios with the greatest decrease occurring by 2085.

	Baseline	2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Number of low-intensity storms (40-62 km/hr) per year	78.4	72.3 [63.6, 79.5]	72.5 [63.8, 79.7]	69.5 [61.2, 76.5]	69.3 [61.0, 76.2]
Number of medium-intensity storms (63-87 km/hr) per year	54.4	53.4 [47.0, 58.8]	50.2 [44.2, 55.2]	48.1 [42.3, 52.9]	45.2 [39.8, 49.8]
Number of high-intensity storms (88-117 km/hr) per year	13.4	12.8 [11.2, 14.0]	10.7 [9.4, 11.8]	11.1 [9.8, 12.2]	10.2 [9.0, 11.2]
Number of very-high-intensity storm (> 117 km/hr) per year	0.2	0.2 [0.2, 0.2]	0.1 [0.1, 0.1]	0.2 [0.1, 0.2]	0.1 [0.1, 0.1]

Table notes: The storm hazard uses climate projections from the CMIP6 Global Climate Models [1]. Daily maximum surface wind speed is used to calculate the number of annual storms across four storm intensity categories (low, medium, high and very high). The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Rainfall and flood hazard

Key projections:

- **Decrease in number of extreme rainfall days per year:** The number of extreme rainfall days will remain decrease across both middle of the road and reasonable worst-case scenarios and both time horizons, with the largest decrease seen in the reasonable worst-case scenario where the number of number of extreme rainfall days will reduce from 12 to ten by 2085.
- **Increased flood frequency:** The frequency of flood events will increase in urban environments but decrease in rural environments. The largest increase in flood frequency is seen in the reasonable worst-case scenario where frequency of a '1-in-100 year' flood will triple by 2050 and become seven times more likely by 2085 in urban environments.

Baseline		2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Rainfall hazard^(a)					
Average number of extreme rainfall days per year (> 10 mm/day) ^(a)	12.2	11.1 [9.4,13.9]	11.0 [8.2,13.2]	10.6 [8.6,12.2]	10.5 [6.8,13.5]
Urban flood risk (flooding caused by a 1-hour rainfall event)^(b)					
Frequency of a '1-in-1 year' flood (rainfall depth of 13 mm) ^(c)		2.0 events in 1 year	2.1 events in 1 year	2.6 events in 1 year	3.6 events in 1 year
Frequency of a '1-in-10 year' flood (rainfall depth of 25 mm) ^(c)		2.4 events in 10 years	2.5 events in 10 years	3.4 events in 10 years	5.2 events in 10 years
Frequency of a '1-in-100 year' flood (rainfall depth of 44 mm) ^(c)		2.8 events in 100 years	3.0 events in 100 years	4.2 events in 100 years	7.3 events in 100 years
Rural flood risk (flooding caused by a 24-hour rainfall event)^(b)					
Frequency of a '1-in-1 year' flood (rainfall depth of 36 mm) ^(c)		0.9 events in 1 year	0.8 events in 1 year	0.9 events in 1 year	0.4 events in 1 year
Frequency of a '1-in-10 year' flood (rainfall depth of 64 mm) ^(c)		0.9 events in 10 years	1.0 events in 10 years	0.9 events in 10 years	0.2 events in 10 years
Frequency of a '1-in-100 year' flood (rainfall depth of 100 mm) ^(c)		0.8 events in 100 years	0.8 events in 100 years	0.4 events in 100 years	0.08 events in 100 years

Table notes: The rainfall hazard indicator uses climate projections from the CMIP6 Global Climate Models [1]. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets. The flood hazard indicators use climate change considerations from the Australian Rainfall and Runoff guideline to estimate the climate the climate projections [2].

Table footnotes: (a) Extreme rainfall is defined as rainfall above the 95th percentile of historical average daily rainfall in this health district in the period 1985-2014. The value in mm/day quoted in the indicator name is the 95th percentile of historic average daily rainfall for this health district. (b) See Methodology document for reasons for focusing on a 1-hour flood for urban areas and a 24-hour flood for rural areas. (c) The rainfall depths in mm quoted in the indicator names in this table report 1 in 1-, 10- and 100-year depths for this health district.

Coastal inundation hazard

Key projections:

- **Greater area inundated:** There will be an increase in the area affected by tidal inundation (i.e. area submerged during high tide) and storm surge and tidal inundation (i.e. the area submerged during a storm surge and high tide) across both middle of the road and reasonable worst-case scenarios. In the reasonable worst-case scenario, by 2085 the area inundated during a '1-in-1000-year' event will increase by nearly 4,000 ha.

Baseline		2050 Scenarios		2085 Scenarios ^(a)	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Tidal inundation (ha inundated) ^(b)	3,631.8	4,072.4 (+440.6)	4,097.3 (+465.5)	4,948.5 (+1,316.7)	5,226.3 (+1,594.5)
Storm surge + tidal inundation – '1-in-100 year' event (ha inundated) ^(c)	8,794.1	9,767.4 (+973.2)	9,815.3 (+1,021.2)	11,376.2 (+2,582.0)	11,993.9 (+3,199.8)
Storm surge + tidal inundation – '1-in-1000 year' event (ha inundated) ^(c)	9,892.5	10,742.2 (+849.7)	10,792.3 (+899.8)	13,151.1 (+3,258.6)	13,691.2 (+3,798.7)

Table notes: The coastal inundation hazard provides an indication of flooding in coastal areas that can be attributed to sea level rise and storm inundation. The coastal inundation hazard is only reported for health districts adjoining the coastline. This table includes the projected inundation levels as well as the change from baseline conditions (in brackets).

Table footnotes: (a) For the 2085 Scenarios planning horizon, 2100 was adopted as it provides a conservative representation of the end of this period. This horizon aligns with many State planning regulations requiring consideration of sea level rise and storm tide to 2100, making the 2100 scenario particularly valuable for planning new health facilities in coastal areas. (b) The tidal inundation indicator reports the number of hectares inundated during high tide. The baseline value reports existing inundation patterns, while the 2050 and 2085 values report high tide inundation taking account of projected sea level rise due to climate change. (c) The storm surge + tidal inundation indicators report the combined effect, in hectares inundated, of high tide, sea level rise (for the 2050 and 2085 projections), and storm surge (for 1-in-100 year and 1-in-1000 year events).

Barossa Hills Fleurieu health district

Health district overview

The Barossa Hills Fleurieu Local Health Network covers 15,353 square kilometres. The Barossa Hills Fleurieu Local Health Network contains 12 hospitals and health services:

- Angaston District Hospital
- Eudunda Hospital
- Gawler Health Service
- Kangaroo Island Health Service
- Kapunda Hospital
- Country Health Connect
- Mount Barker District Soldiers' Memorial Hospital
- Mount Pleasant District Hospital
- Tanunda War Memorial Hospital
- Southern Fleurieu Health Service
- Strathalbyn and District Health Service
- Gumeracha District Soldiers' Memorial Hospital.

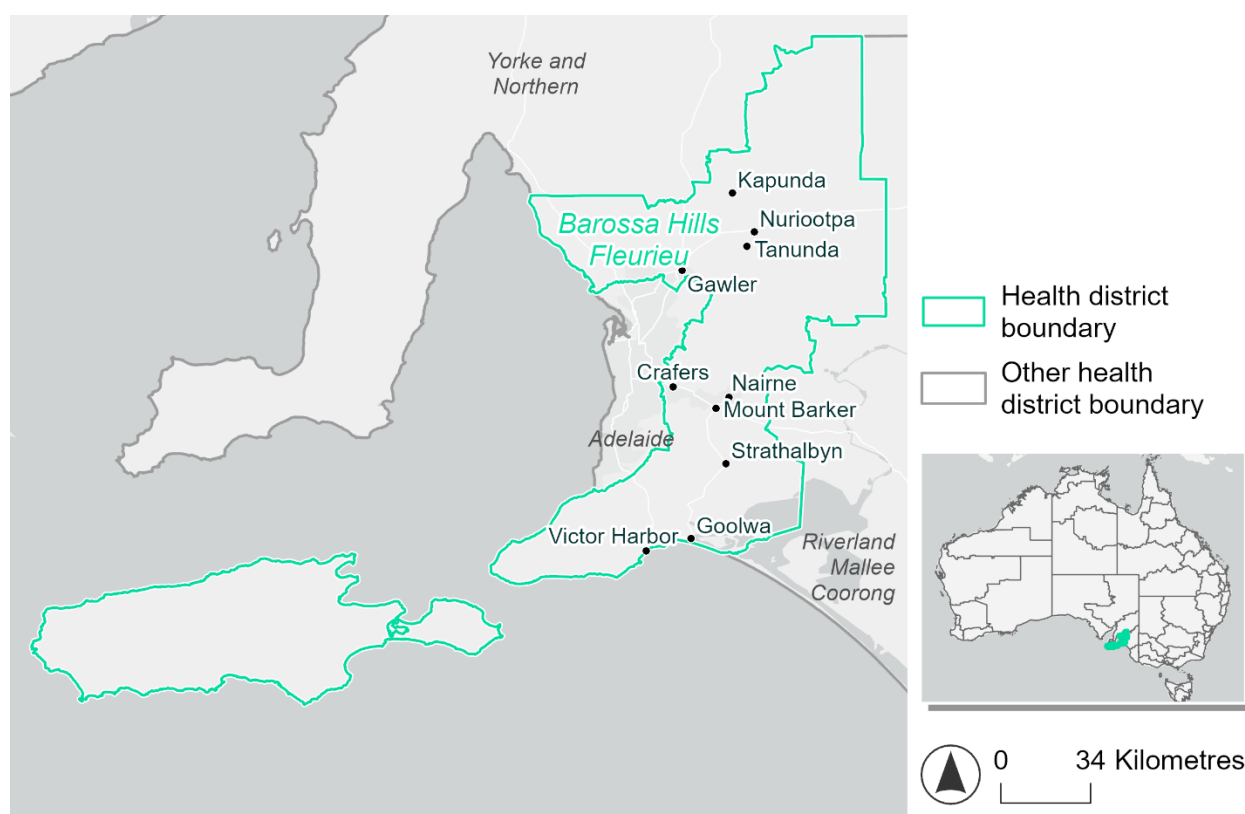


Figure 5. Map of Barossa Hills Fleurieu health district.

How will climate change affect this health district?

- **Heat and humidity:** Higher average temperatures, hotter and more frequent hot days, warmer night time temperatures and more frequent heatwaves.
- **Fire:** Over 20% of this health district experiences very high fire hazard category and this will continue in the future.
- **Drought:** Number of months experiencing drought will increase.
- **Rainfall and flood:** More flood events in urban areas.
- **Coastal inundation:** Increased area flooded during tidal and storm surge and tidal inundation.

Barossa Hill Fleurieu health district demographic data

Demographic Data	Total
Number of households	82,512
Persons 15 and older	146,866
Total families	60,952
Persons did not complete high school	63,445
One parent families with dependents	5,318 (8.7%)
Persons aged 65 and older	52,376 (23.5%)
Persons aged 4 and younger	11,288 (5.1%)
Aboriginal and Torres Strait Islander persons	3,239 (1.5%)
Persons speaks language other than English	8,705 (3.9%)
Persons working age (15-65)	131,529 (59.1%)
Population Health Data	Total
Persons with core needs for assistance	13,430 (6%)
Persons with arthritis	25,683 (11.5%)
Persons with asthma	21,356 (9.6%)
Persons with cancer	8,383 (3.8%)
Persons with dementia	2,056 (0.9%)
Persons with diabetes	12,168 (5.5%)
Persons with heart disease	11,399 (5.1%)
Persons with kidney disease	1,905 (0.9%)
Persons with lung condition	4,837 (2.2%)
Persons with mental health condition	23,364 (10.5%)
Persons with stroke	2,446 (1.1%)
Persons with any other condition	20,426 (9.2%)
Persons no health condition	123,011 (55.3%)
Socio-economic Data	Total
Persons providing unpaid care	31,367 (14.1%)
Persons homeless	368 (0.2%)
Household with lone person	20,930 (25.4%)
Households with rent and mortgage stress	38,106 (46.2%)
Households total equivalised income below \$1000 (weekly)	41,856 (50.7%)
Households with no motor vehicle	2,857 (3.5%)
Persons unemployed	7,395 (4.2%)

The sections that follow outline projected climate hazards for this district. Further information on this health district, including population demographics, is provided in the online dashboard.

Heat and humidity hazard

Key projections:

- **More heatwaves:** Heatwave events are likely to last longer and the number of heatwave events per year will increase. By 2050, under a reasonable worst-case scenario the number of heatwaves will increase from two events per year to three. By 2085, under a reasonable worst-case scenario the number of heatwaves per year will more than double.
- **Hotter days and warmer nights:** The maximum temperature on hot days will increase with night time temperatures on hot nights also increasing.
- **More days above 35°C and 40°C:** The number of days per year greater than 35°C and 40°C will increase under both middle of the road and reasonable worst-case scenarios.

	Baseline	2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Average temperature (°C)	14.9	16 [15.3, 16.3]	16.2 [15.5, 16.7]	16.8 [15.9, 17.4]	17.5 [16.3, 18.5]
Maximum temperature on hot days (°C) ^(a)	33.5	34.8 [34.3, 35.3]	35.1 [34.1, 36]	35.6 [34.8, 36.4]	36.5 [35.5, 37.4]
Minimum temperature on hot nights (°C) ^(b)	18.3	19.6 [18.6, 20.1]	19.8 [18.8, 20.3]	20.3 [19, 21]	21.2 [20.1, 22]
Average apparent temperature on hot days (°C) (NOAA Heat Index) ^(c)	34.4	35.3 [35, 35.6]	35.4 [34.9, 36]	35.7 [35.3, 36.3]	36.4 [35.7, 36.9]
Average heatwave duration in days ^(d)	4	5 [4, 5]	5 [4, 5]	5 [4, 5]	5 [5, 5]
Number of heatwaves per year ^(d)	2	3 [2, 3]	3 [2, 4]	4 [2, 5]	5 [3, 6]
Number of days per year > 35°C	13	19 [17, 21]	20 [16, 24]	23 [18, 27]	28 [22, 33]
Number of days per year > 40°C	2	4 [3, 5]	4 [3, 6]	5 [4, 7]	8 [5, 10]

Table notes: The heat and humidity hazard uses climate projections from the CMIP6 Global Climate Models [1]. Daily projections of maximum and minimum near-surface temperature and mean relative humidity are used to calculate eight heat and humidity indicators. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) Based on the 95th percentile of daily maximum air temperature. (b) Based on the 95th percentile of daily minimum air temperature, representing the coldest part of the night on very hot nights. (c) The [National Oceanic and Atmospheric Administration \(NOAA\) Heat Index](#) is a measure of how hot it feels when relative humidity is factored in alongside actual air temperature. It is calculated on days with a maximum temperature of 27°C and above. Interpretation of Heat Index values: 27°C to 32°C indicates caution, 33°C to 41°C indicates extreme caution, 42°C to 54°C indicates danger and over 54°C indicates extreme danger. See methodology document for further explanation of Heat Index categories. (d) A heatwave is defined as three or more consecutive days where both daytime and overnight temperatures (daily mean temperatures) are unusually high for the location, based on the [Bureau of Meteorology's Excess Heat Factor](#) method. For this district, an unusually high daily mean temperature is approximately 25.5°C or above.

Fire hazard

Key projections:

- **Majority of district area experiences moderate to high fire hazard:** Under baseline conditions, for a 1-in-20-year fire weather event 73.8% of the district experiences moderate to high fire hazard. 19.4% experiences very high hazard, with only 6.8% experiencing low fire hazard. For a 1-in-100-year event, the area experiencing very high hazard increases by 2 percentage points to 21.4%
- **Very high hazard area to increase:** In a future climate across both 2050 and 2085 scenarios the area experiencing very high fire hazard will increase. This change is relatively small for a 1-in-20-year fire weather event, with an increase of up to 2.4 percentage points from baseline levels. The areas experiencing both low and moderate to high hazard decrease slightly as a result. The change is slightly larger for a 1-in-100-year fire, where by 2085 in the reasonable worst-case scenario an extra 4% of the district area could be experiencing very high fire hazard compared to baseline.

	Baseline	2050 Scenarios		2085 Scenarios	
		Sustainability	Reasonable worst-case	Sustainability	Reasonable worst-case
Hazard for a '1-in-20 year' fire weather event^(a)					
Proportion (%) of district experiencing 'Low' fire hazard	6.8% (104,401) ^(b)	6.7% [6.3%, 7.3%]	6.4% [6.1%, 6.8%]	6.5% [5.7%, 7.9%]	5.9% [5.1%, 6.9%]
Proportion (%) of district experiencing 'Moderate to High' fire hazard	73.8% (1,132,490) ^(b)	73.6% [70.0%, 77.1%]	73.2% [69.8%, 76.0%]	73.3% [64.7%, 81.7%]	72.3% [64.2%, 79.1%]
Proportion (%) of district experiencing 'Very High' fire hazard	19.4% (298,449) ^(b)	19.8% [19.2%, 20.2%]	20.4% [19.9%, 21.5%]	20.3% [18.9%, 21.2%]	21.8% [20.5%, 24.5%]
Hazard for a '1-in-100 year' fire weather event^(a)					
Proportion (%) of district experiencing 'Low' fire hazard	6.0% (92,283) ^(b)	5.8% [5.6%, 6.5%]	5.6% [5.3%, 6.0%]	5.6% [5.0%, 7.1%]	5.1% [4.4%, 6.1%]
Proportion (%) of district experiencing 'Moderate to High' fire hazard	72.6% (1,114,153) ^(b)	72.0% [69.7%, 74.7%]	70.9% [68.4%, 73.2%]	71.1% [65.8%, 77.7%]	68.6% [62.6%, 74.1%]
Proportion (%) of district experiencing 'Very High' fire hazard	21.4% (328,905) ^(b)	22.2% [20.9%, 22.9%]	23.5% [22.1%, 25.6%]	23.3% [20.1%, 25.0%]	26.4% [23.1%, 31.5%]

Table notes: The Fire Hazard uses the National Bushfire Intelligence Capability (NBIC) Phase 2 fire line intensity modelling based on CMIP6 climate projections. Fire Hazard is assessed using the projected Fireline Intensity (FLI) for weather events with two different return intervals (i.e. a 1-in-20 year event and a 1-in-100 year event). FLI considers slope, vegetation and weather to produce a rate of heat output per unit length (kW/m) along a bushfire's front. Fire hazard is categorized as a low for $FLI < 4000$ kW/m, moderate to high for $4,000 \text{ kW/m} \leq FLI < 12,500 \text{ kW/m}$, and very high for $FLI \geq 27,501 \text{ kW/m}$. This is broadly consistent with the literature [3]. The assessment considers climate change effects based on changes in fire weather and the associated hazard that is anticipated for a meteorological event of a given return interval. This approach is different to the one adopted for the Flood Hazard, where the event magnitude is given (fixed) and the likelihood of that event varies as a result of climate change. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) The area subject to different categories of fire hazard is determined for a '1-in-20 year' and '1-in-100 year' fire weather event, in current and future climates. Values at year 2050 are interpolated using data from baseline (2025) and 2085, assuming linear change over time. (b) Values in round brackets are the area (ha) of the health district subject to a given fire hazard.

The figures below show the proportion of the health district experiencing different fire hazard categories across different time horizons and climate scenarios during a '1-in-20 year' fire weather event (Figure 6) and a '1-in-100 year' fire weather event (Figure 7).

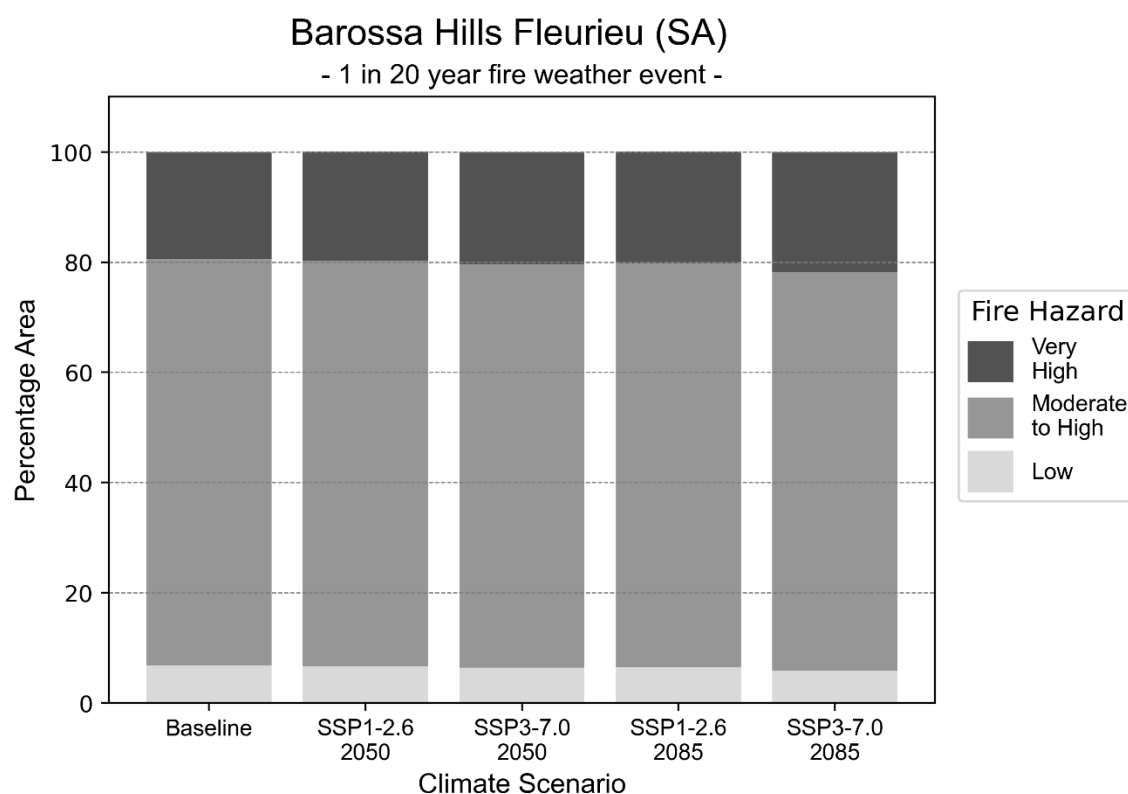


Figure 6: Stacked column chart showing the percentages of Barossa Hills Fleurieu health district's total geographic area experiencing each fire hazard level during a 1-in-20-year fire weather event.

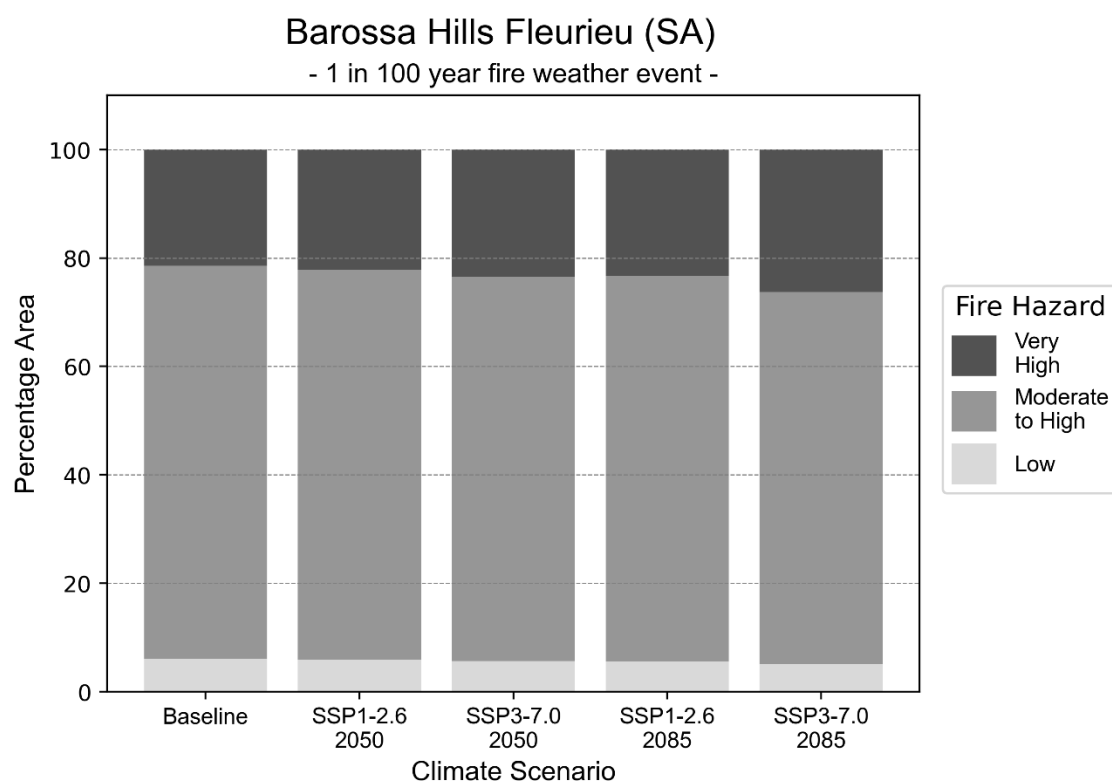


Figure 7: Stacked column chart showing the percentages of Barossa Hills Fleurieu health district's total geographic area experiencing each fire hazard level during a 1-in-100-year fire weather event.

Drought hazard

Key projections:

- **Drought occurrence:** The occurrence of drought will increase across both middle of the road and reasonable worst-case scenarios and both time horizons, with the largest increase occurring under the reasonable worst-case scenario by 2085.

Baseline		2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
No. months per year in drought ⁽¹⁾	1.7	3.1 [1.7, 4.3]	3.3 [1.5, 6.2]	4.0 [1.7, 6.3]	4.9 [1.6, 9.1]

Table notes: The drought hazard indicator uses climate projections from the CMIP6 Global Climate Models [1]. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes:(a) The number of months per year in drought is based on the Standardised Precipitation Index (SPI). SPI is a widely used index to characterise meteorological drought on a range of timescales. This indicator uses the timescale of 12 months which calculates the average months in a year within the moderate drought range. A moderate drought range is classified as SPI score of ≤ -1 . SPI is calculated from accumulated rainfall over 12 months and the mean and standard deviation from historical rainfall records.

Storm hazard

Key projections:

- **Less frequent high and very-high-intensity storms:** The frequency of high and very-high-intensity storms will decrease across both middle of the road and reasonable worst-case scenarios with the greatest decrease occurring by 2085.

Baseline		2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Number of low-intensity storms (40-62 km/hr) per year	72.9	69.5 [61.1, 76.4]	68.8 [60.5, 75.6]	67.7 [59.6, 74.5]	67.6 [59.5, 74.3]
Number of medium-intensity storms (63-87 km/hr) per year	69.5	66.6 [58.6, 73.3]	64.1 [56.4, 70.5]	61.0 [53.7, 67.1]	59.4 [52.3, 65.3]
Number of high-intensity storms (88-117 km/hr) per year	32.8	30.9 [27.2, 34.0]	28.4 [25.0, 31.2]	26.8 [23.6, 29.5]	24.5 [21.6, 27.0]
Number of very-high-intensity storm (> 117 km/hr) per year	7.9	7.4 [6.5, 8.2]	5.4 [4.8, 5.9]	7.3 [6.4, 8.0]	5.9 [5.2, 6.5]

Table notes: The storm hazard uses climate projections from the CMIP6 Global Climate Models [1]. Daily maximum surface wind speed is used to calculate the number of annual storms across four storm intensity categories (low, medium, high and very high). The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Rainfall and flood hazard

Key projections:

- **Four extreme rainfall days per year:** The number of extreme rainfall days will decrease slightly across both middle of the road and reasonable worst-case scenarios and both time horizons, with an average of approximately nine extreme rainfall days per year.
- **Increased flood frequency:** The frequency of flood events will increase in urban environments but decrease in rural environments. The largest increase in flood frequency is seen in the reasonable worst-case scenario where frequency of a '1-in-100 year' flood will more than triple by 2050 and become ten times more likely by 2085 in urban environments.

Baseline		2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Rainfall hazard^(a)					
Average number of extreme rainfall days per year (> 7 mm/day) ^(a)	4.2	3.9 [3.4,4.8]	3.9 [3.1,4.5]	3.7 [3.2,4.4]	3.7 [2.6,4.8]
Urban flood risk (flooding caused by a 1-hour rainfall event)^(b)					
Frequency of a '1-in-1 year' flood (rainfall depth of 14 mm) ^(c)		2.3 events in 1 year	2.4 events in 1 year	3.2 events in 1 year	4.5 events in 1 year
Frequency of a '1-in-10 year' flood (rainfall depth of 24 mm) ^(c)		3.0 events in 10 years	3.2 events in 10 years	4.8 events in 10 years	7.4 events in 10 years
Frequency of a '1-in-100 year' flood (rainfall depth of 39 mm) ^(c)		3.3 events in 100 years	3.5 events in 100 years	5.3 events in 100 years	10 events in 100 years
Rural flood risk (flooding caused by a 24-hour rainfall event)^(b)					
Frequency of a '1-in-1 year' flood (rainfall depth of 50 mm) ^(c)		0.9 events in 1 year	0.9 events in 1 year	0.8 events in 1 year	0.2 events in 1 year
Frequency of a '1-in-10 year' flood (rainfall depth of 85 mm) ^(c)		1.1 events in 10 years	1.1 events in 10 years	0.5 events in 10 years	0.2 events in 10 years
Frequency of a '1-in-100 year' flood (rainfall depth of 135 mm) ^(c)		1.0 events in 100 years	0.8 events in 100 years	0.6 events in 100 years	0.2 events in 100 years

Table notes: The rainfall hazard indicator uses climate projections from the CMIP6 Global Climate Models [1]. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets. The flood hazard indicators use climate change considerations from the Australian Rainfall and Runoff guideline to estimate the climate the climate projections [2].

Table footnotes: (a) Extreme rainfall is defined as rainfall above the 95th percentile of historical average daily rainfall in this health district in the period 1985-2014. The value in mm/day quoted in the indicator name is the 95th percentile of historic average daily rainfall for this health district. (b) See Methodology document for reasons for focusing on a 1-hour flood for urban areas and a 24-hour flood for rural areas. (c) The rainfall depths in mm quoted in the indicator names in this table report 1 in 1-, 10- and 100-year depths for this health district.

Coastal inundation hazard

Key projections:

- **Greater area inundated:** There will be an increase in the area affected by tidal inundation (i.e. area submerged during high tide) and storm surge and tidal inundation (i.e. the area submerged during a storm surge and high tide) across both middle of the road and reasonable worst-case scenarios. In the reasonable worst-case scenario, by 2085 the area inundated during a '1-in-1000-year' event will increase by over 3,000 ha.

	Baseline	2050 Scenarios		2085 Scenarios ^(a)	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Tidal inundation (ha inundated)^(b)	27,681.3	29,935.6 (+2,254.3)	30,039.0 (+2,357.7)	32,569.7 (+4,888.4)	33,234.4 (+5,553.1)
Storm surge + tidal inundation – '1-in-100 year' event (ha inundated)^(c)	35,633.0	36,592.5 (+959.5)	36,639.4 (+1,006.5)	38,312.2 (+2,679.2)	38,668.7 (+3,035.7)
Storm surge + tidal inundation – '1-in-1000 year' event (ha inundated)^(c)	36,479.0	37,438.6 (+959.6)	37,477.8 (+998.8)	39,405.9 (+2,926.9)	39,771.5 (+3,292.5)

Table notes: The coastal inundation hazard provides an indication of flooding in coastal areas that can be attributed to sea level rise and storm inundation. The coastal inundation hazard is only reported for health districts adjoining the coastline. This table includes the projected inundation levels as well as the change from baseline conditions (in brackets).

Table footnotes: (a) For the 2085 Scenarios planning horizon, 2100 was adopted as it provides a conservative representation of the end of this period. This horizon aligns with many State planning regulations requiring consideration of sea level rise and storm tide to 2100, making the 2100 scenario particularly valuable for planning new health facilities in coastal areas. (b) The tidal inundation indicator reports the number of hectares inundated during high tide. The baseline value reports existing inundation patterns, while the 2050 and 2085 values report high tide inundation taking account of projected sea level rise due to climate change. (c) The storm surge + tidal inundation indicators report the combined effect, in hectares inundated, of high tide, sea level rise (for the 2050 and 2085 projections), and storm surge (for 1-in-100 year and 1-in-1000 year events).

Eyre and Far North health district

Health district overview

The Eyre and Far North health district consists of the Eyre Peninsula and the Far North of South Australia and covers 337,626 square kilometres, making it one of the largest health districts in Australia (Figure 8). It takes in the Eyre Peninsula, the western part of South Australia, and north to Coober Pedy.

The Eyre and Far North health district services a resident population of just over 40,000 including hospital, community, in-home and residential aged care, early childhood and disability support, and community-based mental health services. The health district includes 11 public hospitals:

- Ceduna
- Cleve
- Cowell
- Coober Pedy
- Cummins
- Elliston
- Kimba
- Port Lincoln
- Streaky Bay
- Tumby Bay
- Wudinna.

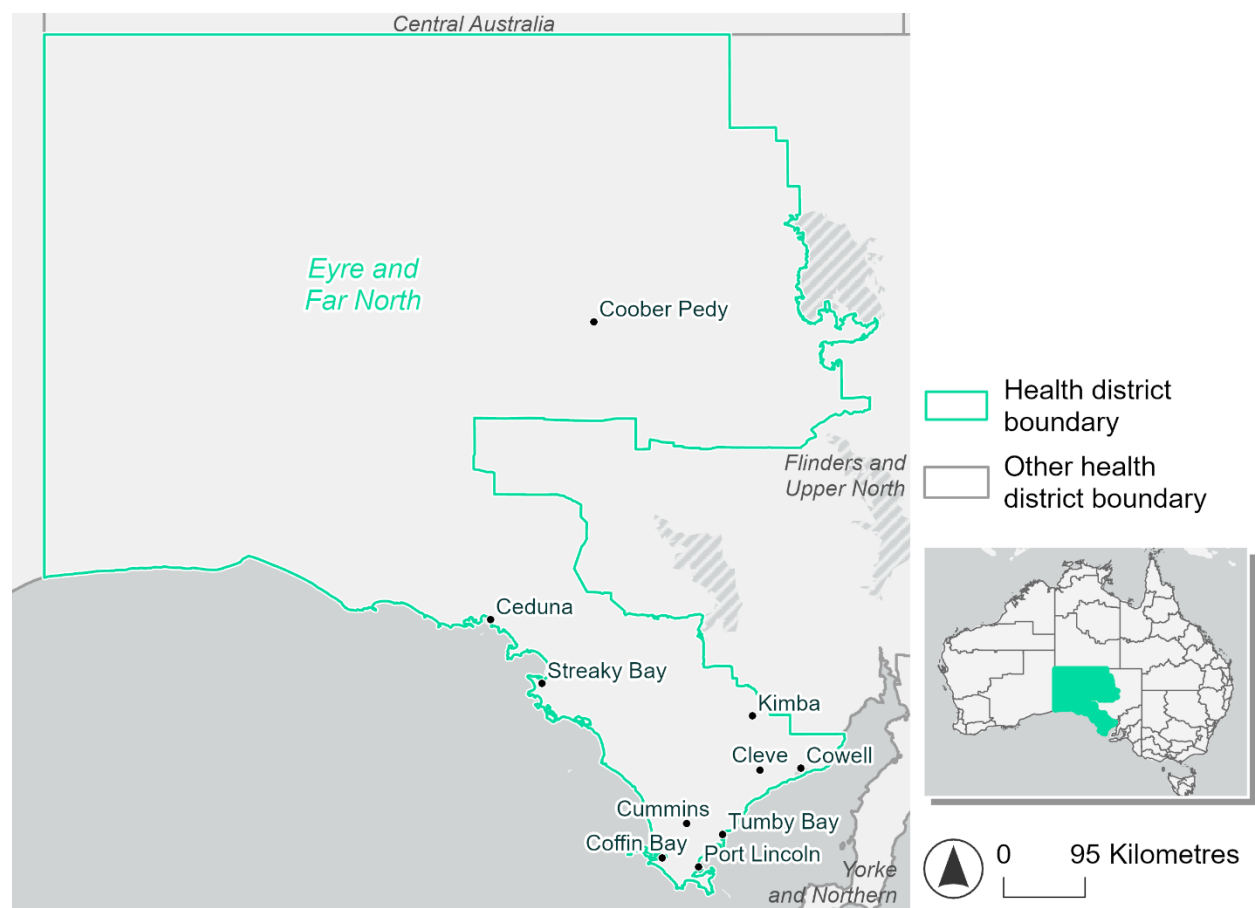


Figure 8. Map of Eyre and Far North health district.

How will climate change affect this health district?

- **Heat and humidity:** Higher average temperatures, hotter and more frequent hot days, warmer night time temperatures and more frequent heatwaves.
- **Fire:** Over 20% of this health district experiences very high fire hazard category and this will increase slightly in the future.
- **Drought:** Number of months experiencing drought will increase.
- **Rainfall and flood:** More flood events in urban areas.
- **Coastal inundation:** Increased area flooded during tidal and storm surge and tidal inundation.

Eyre and Far North health district demographic data

Demographic Data	Total
Number of households	15,067
Persons 15 and older	27,947
Total families	10,290
Persons did not complete high school	14,364
One parent families with dependents	1,043 (10.1%)
Persons aged 65 and older	8,693 (20.9%)
Persons aged 4 and younger	2,394 (5.7%)
Aboriginal and Torres Strait Islander persons	5,013 (12%)
Persons speaks language other than English	3,945 (9.5%)
Persons working age (15-65)	25,175 (60.4%)
Population Health Data	Total
Persons with core needs for assistance	2,109 (5.1%)
Persons with arthritis	3,550 (8.5%)
Persons with asthma	3,386 (8.1%)
Persons with cancer	1,210 (2.9%)
Persons with dementia	337 (0.8%)
Persons with diabetes	2,405 (5.8%)
Persons with heart disease	1,814 (4.4%)
Persons with kidney disease	311 (0.7%)
Persons with lung condition	829 (2%)
Persons with mental health condition	2,903 (7%)
Persons with stroke	345 (0.8%)
Persons with any other condition	2,603 (6.2%)
Persons no health condition	24,319 (58.3%)
Socio-economic Data	Total
Persons providing unpaid care	5,144 (12.3%)
Persons homeless	554 (1.3%)
Household with lone person	4,672 (31%)
Households with rent and mortgage stress	4,620 (30.7%)
Households total equivalised income below \$1000 (weekly)	7,812 (51.8%)
Households with no motor vehicle	1,026 (6.8%)
Persons unemployed	1,795 (5.5%)

The sections that follow outline projected climate hazards for this district. Further information on this health district, including population demographics, is provide in the online dashboard.

Heat and humidity hazard

Key projections:

- **More heatwaves:** The number of heatwave events per year will increase. By 2050, under a reasonable worst-case scenario the number of heatwaves will increase from two events per year to three. By 2085, under a reasonable worst-case scenario the number of heatwaves per year will more than double.
- **Hotter days and warmer nights:** The maximum temperature on hot days will increase with night time temperatures on hot nights also increasing.
- **More days above 35°C and 40°C:** The number of days per year greater than 35°C and 40°C will increase under both middle of the road and reasonable worst-case scenarios for both time horizons.

	Baseline	2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Average temperature (°C)	17.6	18.7 [18.2, 19.1]	18.9 [18.2, 19.6]	19.5 [18.6, 20.2]	20.3 [19, 21.3]
Maximum temperature on hot days (°C) ^(a)	36.6	38 [37.6, 38.5]	38.2 [37.4, 39.2]	38.8 [38.1, 39.7]	39.7 [38.7, 40.7]
Minimum temperature on hot nights (°C) ^(b)	19.9	21.2 [20.3, 21.6]	21.4 [20.6, 22]	21.9 [20.7, 22.6]	22.8 [21.5, 23.7]
Average apparent temperature on hot days (°C) (NOAA Heat Index) ^(c)	36	37 [36.6, 37.6]	37.2 [36.6, 37.7]	37.5 [37, 38.2]	38.2 [37.4, 38.9]
Average heatwave duration in days ^(d)	5	5 [5, 5]	5 [5, 5]	5 [5, 5]	5 [5, 6]
Number of heatwaves per year ^(d)	2	3 [2, 4]	3 [2, 4]	4 [3, 5]	5 [4, 7]
Number of days per year > 35°C	32	43 [40, 46]	45 [40, 52]	50 [44, 57]	57 [49, 66]
Number of days per year > 40°C	7	13 [12, 16]	14 [11, 19]	18 [14, 23]	23 [18, 30]

Table notes: The heat and humidity hazard uses climate projections from the CMIP6 Global Climate Models [1]. Daily projections of maximum and minimum near-surface temperature and mean relative humidity are used to calculate eight heat and humidity indicators. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) Based on the 95th percentile of daily maximum air temperature. (b) Based on the 95th percentile of daily minimum air temperature, representing the coldest part of the night on very hot nights. (c) The [National Oceanic and Atmospheric Administration \(NOAA\) Heat Index](#) is a measure of how hot it feels when relative humidity is factored in alongside actual air temperature. It is calculated on days with a maximum temperature of 27°C and above. Interpretation of Heat Index values: 27°C to 32°C indicates caution, 33°C to 41°C indicates extreme caution, 42°C to 54°C indicates danger and over 54°C indicates extreme danger. See methodology document for further explanation of Heat Index categories. (d) A heatwave is defined as three or more consecutive days where both daytime and overnight temperatures (daily mean temperatures) are unusually high for the location, based on the [Bureau of Meteorology's Excess Heat Factor](#) method. For this district, an unusually high daily mean temperature is approximately 27.9°C or above.

Fire hazard

Key projections:

- **Fire hazard evenly spread currently:** Under baseline conditions for a 1-in-20-year fire weather event, 32.3% of the district area experiences low fire hazard, 46.1% experiences moderate to high hazard, while the remaining 21.6% experiences very high fire hazard. During a 1-in-100-year event, the area experiencing low hazard reduces to 31.2% of the district and there is an increase of 2.2 percentage points to 23.8% of the district experiencing very high fire hazard during this more severe event.
- **Current fire hazard conditions to persist:** In a future climate across both 2050 and 2085 scenarios overall hazard levels remain fairly similar to baseline, with changes of no more than 1.6 percentage points in hazard level areas across both the 1-in-20-year and 1-in-100-year fire weather events.

	Baseline	2050 Scenarios		2085 Scenarios	
		Sustainability	Reasonable worst-case	Sustainability	Reasonable worst-case

Hazard for a '1-in-20 year' fire weather event^(a)

Proportion (%) of district experiencing 'Low' fire hazard	32.3% (16,052,90) (b)	32.1% [31.8%, 32.4%]	31.8% [31.6%, 32.0%]	31.7% [31.2%, 32.5%]	31.0% [30.5%, 31.5%]
Proportion (%) of district experiencing 'Moderate to High' fire hazard	46.1% (22,911,34) (b)	46.3% [45.9%, 46.8%]	46.7% [45.9%, 47.8%]	46.6% [45.7%, 47.7%]	47.4% [45.7%, 50.1%]
Proportion (%) of district experiencing 'Very High' fire hazard	21.6% (10,715,05) (b)	21.6% [21.2%, 22.0%]	21.6% [21.3%, 21.8%]	21.7% [20.6%, 22.7%]	21.6% [20.9%, 22.1%]

Hazard for a '1-in-100 year' fire weather event^(a)

Proportion (%) of district experiencing 'Low' fire hazard	31.2% (15,501,95) (b)	30.9% [30.6%, 31.3%]	30.5% [30.3%, 30.8%]	30.5% [29.7%, 31.4%]	29.6% [29.0%, 30.2%]
Proportion (%) of district experiencing 'Moderate to High' fire hazard	45.0% (22,332,01) (b)	45.1% [44.5%, 45.5%]	45.5% [44.8%, 46.7%]	45.2% [43.9%, 46.3%]	46.3% [44.7%, 49.1%]
Proportion (%) of district experiencing 'Very High' fire hazard	23.8% (11,845,33) (b)	24.0% [23.3%, 24.9%]	24.0% [23.5%, 24.5%]	24.3% [22.6%, 26.4%]	24.1% [22.9%, 25.3%]

Table notes: The Fire Hazard uses the National Bushfire Intelligence Capability (NBIC) Phase 2 fire line intensity modelling based on CMIP6 climate projections. Fire Hazard is assessed using the projected Fireline Intensity (FLI) for weather events with two different return intervals (i.e. a 1-in-20 year event and a 1-in-100 year event). FLI considers slope, vegetation and weather to produce a rate of heat output per unit length (kW/m) along a bushfire's front. Fire hazard is categorized as a low for $FLI < 4000$ kW/m, moderate to high for $4,000 \text{ kW/m} \leq FLI < 12,500 \text{ kW/m}$, and very high for $FLI \geq 12,500 \text{ kW/m}$. This is broadly consistent with the literature [3]. The assessment considers climate change effects based on changes in fire weather and the associated hazard that is anticipated for a meteorological event of a given return interval. This approach is different to the one adopted for the Flood Hazard, where the event magnitude is given (fixed) and the likelihood of that event varies as a result of climate change. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) The area subject to different categories of fire hazard is determined for a '1-in-20 year' and '1-in-100 year' fire weather event, in current and future climates. Values at year 2050 are interpolated using data from baseline (2025) and 2085, assuming linear change over time. (b) Values in round brackets are the area (ha) of the health district subject to a given fire hazard.

The figures below show the proportion of the health district experiencing different fire hazard categories across different time horizons and climate scenarios during a '1-in-20 year' fire weather event (Figure 9) and a '1-in-100 year' fire weather event (Figure 10).

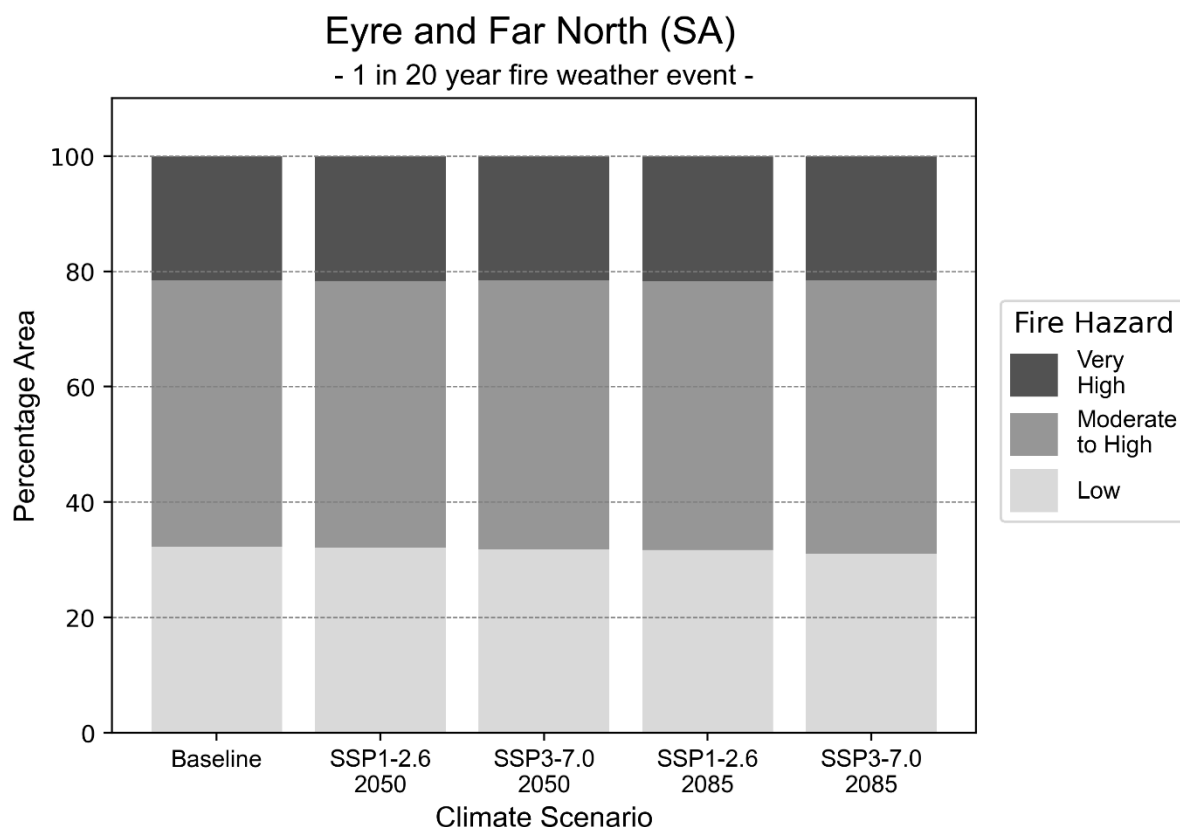


Figure 9: Stacked column chart showing percentages of Eyre and Far North health district's total geographic area experiencing each fire hazard level during a 1-in-20-year fire weather event.

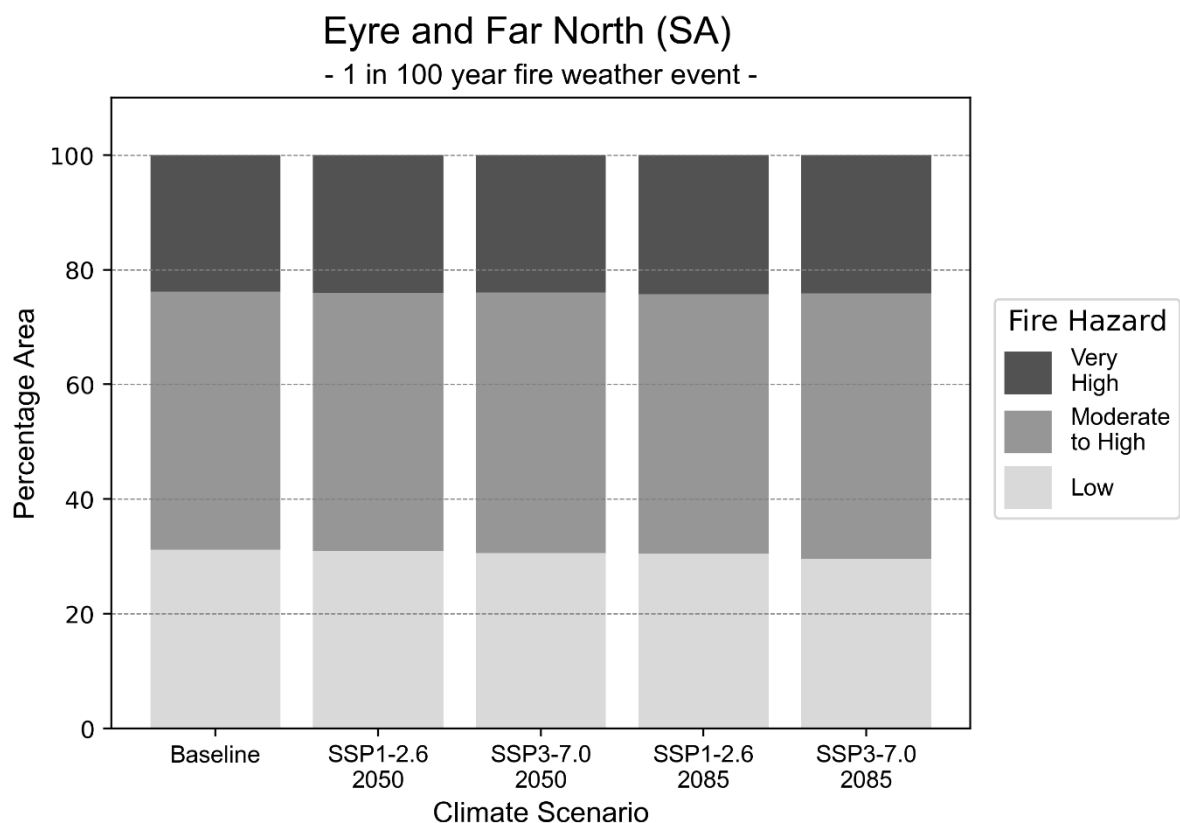


Figure 10: Stacked column chart showing percentages of Eyre and Far North health district's total geographic area experiencing each fire hazard level during a 1-in-100-year fire weather event.

Drought hazard

Key projections:

- **Drought occurrence:** The occurrence of drought will increase across both middle of the road and reasonable worst-case scenarios and both time horizons, with the largest increase occurring under the reasonable worst-case scenario by 2085.

Baseline		2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Number of months per year in drought ^(a)	1.6	2.5 [0.9, 4.6]	2.2 [0.5, 5.0]	2.7 [0.5, 5.1]	3.1 [0.2, 7.4]

Table notes: The drought hazard indicator uses climate projections from the CMIP6 Global Climate Models [1]. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) The number of months per year in drought is based on the Standardised Precipitation Index (SPI). SPI is a widely used index to characterise meteorological drought on a range of timescales. This indicator uses the timescale of 12 months which calculates the average months in a year within the moderate drought range. A moderate drought range is classified as SPI score of ≤ -1 . SPI is calculated from accumulated rainfall over 12 months and the mean and standard deviation from historical rainfall records.

Storm hazard

Key projections:

- **Less frequent low-intensity storms:** The frequency of low-intensity storms will decrease across both middle of the road and reasonable worst-case scenarios and both time horizons. High and very-high-intensity storms will increase under the middle of the road scenario by 2050, but decrease across all other scenarios and horizons.

Baseline		2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Number of low-intensity storms (40-62 km/hr) per year	73.0	70.8 [62.3, 77.8]	72.6 [63.9, 79.9]	69.3 [61.0, 76.2]	70.4 [61.9, 77.4]
Number of medium-intensity storms (63-87 km/hr) per year	46.2	46.4 [40.8, 51.0]	45.2 [39.8, 49.7]	41.1 [36.2, 45.2]	42.6 [37.5, 46.9]
Number of high-intensity storms (88-17 km/hr) per year	48.9	50.4 [44.4, 55.4]	46.6 [41.0, 51.3]	46.7 [41.1, 51.4]	43.5 [38.3, 47.9]
Number of very-high-intensity storm > 117 km/hr) per year	15.4	17.0 [15.0, 18.7]	13.7 [12.1, 15.1]	13.9 [12.2, 15.3]	12.5 [11.0, 13.8]

Table notes: The storm hazard uses climate projections from the CMIP6 Global Climate Models [1]. Daily maximum surface wind speed is used to calculate the number of annual storms across four storm intensity categories (low, medium, high and very high). The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Rainfall and flood hazard

Key projections:

- **Ten extreme rainfall days per year:** The number of extreme rainfall days will decline slightly across both middle of the road and reasonable worst-case scenarios and both time horizons, with an average of approximately ten extreme rainfall days per year.
- **Increased flood frequency:** The frequency of flood events will increase in urban environments. The largest increase in flood frequency is seen in the reasonable worst-case scenario where frequency of a '1-in-100 year' flood will more than double by 2050 and become nearly six times more likely by 2085 in urban environments. Flood events in rural areas will remain consistent across 2050 scenarios but will reduce across 2085 scenarios, particularly the reasonable worst-case scenario.

Baseline		2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Rainfall hazard^(a)					
Average number of extreme rainfall days per year (> 4 mm/day) ^(a)	10.7	10.3 [7.6,12.9]	10.6 [7.8,14.1]	10.0 [7.7,13.3]	10.1 [6.5,16.6]
Urban flood risk (flooding caused by a 1-hour rainfall event)^(b)					
Frequency of a '1-in-1 year' flood (rainfall depth of 10 mm) ^(c)		1.6 events in 1 year	1.7 events in 1 year	2.0 events in 1 year	2.5 events in 1 year
Frequency of a '1-in-10 year' flood (rainfall depth of 25 mm) ^(c)		2.1 events in 10 years	2.1 events in 10 years	2.6 events in 10 years	3.6 events in 10 years
Frequency of a '1-in-100 year' flood (rainfall depth of 48 mm) ^(c)		2.6 events in 100 years	2.7 events in 100 years	3.7 events in 100	5.9 events in 100 years
Rural flood risk (flooding caused by a 24-hour rainfall event)^(b)					
Frequency of a '1-in-1 year' flood (rainfall depth of 25 mm) ^(c)		1.0 events in 1 year	0.9 events in 1 year	1.0 events in 1 year	0.4 events in 1 year
Frequency of a '1-in-10 year' flood (rainfall depth of 63 mm) ^(c)		1.0 events in 10 years	0.8 events in 10 years	0.9 events in 10 years	0.4 events in 10 years
Frequency of a '1-in-100 year' flood (rainfall depth of 125 mm) ^(c)		1.0 events in 100 years	1.0 events in 100 years	0.7 events in 100	0.3 events in 100 years

Table notes: The rainfall hazard indicator uses climate projections from the CMIP6 Global Climate Models [1]. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets. The flood hazard indicators use climate change considerations from the Australian Rainfall and Runoff guideline to estimate the climate the climate projections [2].

Table footnotes: (a) Extreme rainfall is defined as rainfall above the 95th percentile of historical average daily rainfall in this health district in the period 1985-2014. The value in mm/day quoted in the indicator name is the 95th percentile of historic average daily rainfall for this health district. (b) See Methodology document for reasons for focusing on a 1-hour flood for urban areas and a 24-hour flood for rural areas. (c) The rainfall depths in mm quoted in the indicator names in this table report 1 in 1-, 10- and 100-year depths for this health district.

Coastal inundation hazard

Key projections:

- **Greater area inundated:** There will be an increase in the area affected by tidal inundation (i.e. area submerged during high tide) and storm surge and tidal inundation (i.e. the area submerged during a storm surge and high tide) across both middle of the road and reasonable worst-case scenarios. In the reasonable worst-case scenario, by 2085 the area inundated during a '1-in-1000-year' event will increase by over 13,000 ha.

	Baseline	2050 Scenarios		2085 Scenarios ^(a)	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Tidal inundation (ha inundated)^(b)	28,733.5	31,735.3 (+3,001.8)	31,967.7 (+3,234.2)	38,103.0 (+9,369.5)	40,393.7 (+11,660.2)
Storm surge + tidal inundation – '1-in-100 year' event (ha inundated)^(c)	46,826.0	50,442.5 (+3,616.5)	50,674.0 (+3,848.0)	56,446.6 (+9,620.6)	58,546.7 (+11,720.8)
Storm surge + tidal inundation – '1-in-1000 year' event (ha inundated)^(c)	49,323.2	52,554.8 (+3,231.5)	52,791.8 (+3,468.6)	60,522.7 (+11,199.4)	62,756.5 (+13,433.2)

Table notes: The coastal inundation hazard provides an indication of flooding in coastal areas that can be attributed to sea level rise and storm inundation. The coastal inundation hazard is only reported for health districts adjoining the coastline. This table includes the projected inundation levels as well as the change from baseline conditions (in brackets).

Table footnotes: (a) For the 2085 Scenarios planning horizon, 2100 was adopted as it provides a conservative representation of the end of this period. This horizon aligns with many State planning regulations requiring consideration of sea level rise and storm tide to 2100, making the 2100 scenario particularly valuable for planning new health facilities in coastal areas. (b) The tidal inundation indicator reports the number of hectares inundated during high tide. The baseline value reports existing inundation patterns, while the 2050 and 2085 values report high tide inundation taking account of projected sea level rise due to climate change. (c) The storm surge + tidal inundation indicators report the combined effect, in hectares inundated, of high tide, sea level rise (for the 2050 and 2085 projections), and storm surge (for 1-in-100 year and 1-in-1000 year events).

Flinders and Upper North health district

Health district overview

The Flinders and Upper North Local Health Network covers 330,425 square kilometres and contains eight hospitals and health services:

- Hawker Memorial Hospital
- Leigh Creek Health Service
- Port Augusta Hospital and Regional Health Service
- Community Health Service of Flinders and Upper North Local Health Network
- Quorn Health Service
- Roxby Downs Hospital
- Whyalla Hospital and Health Service.

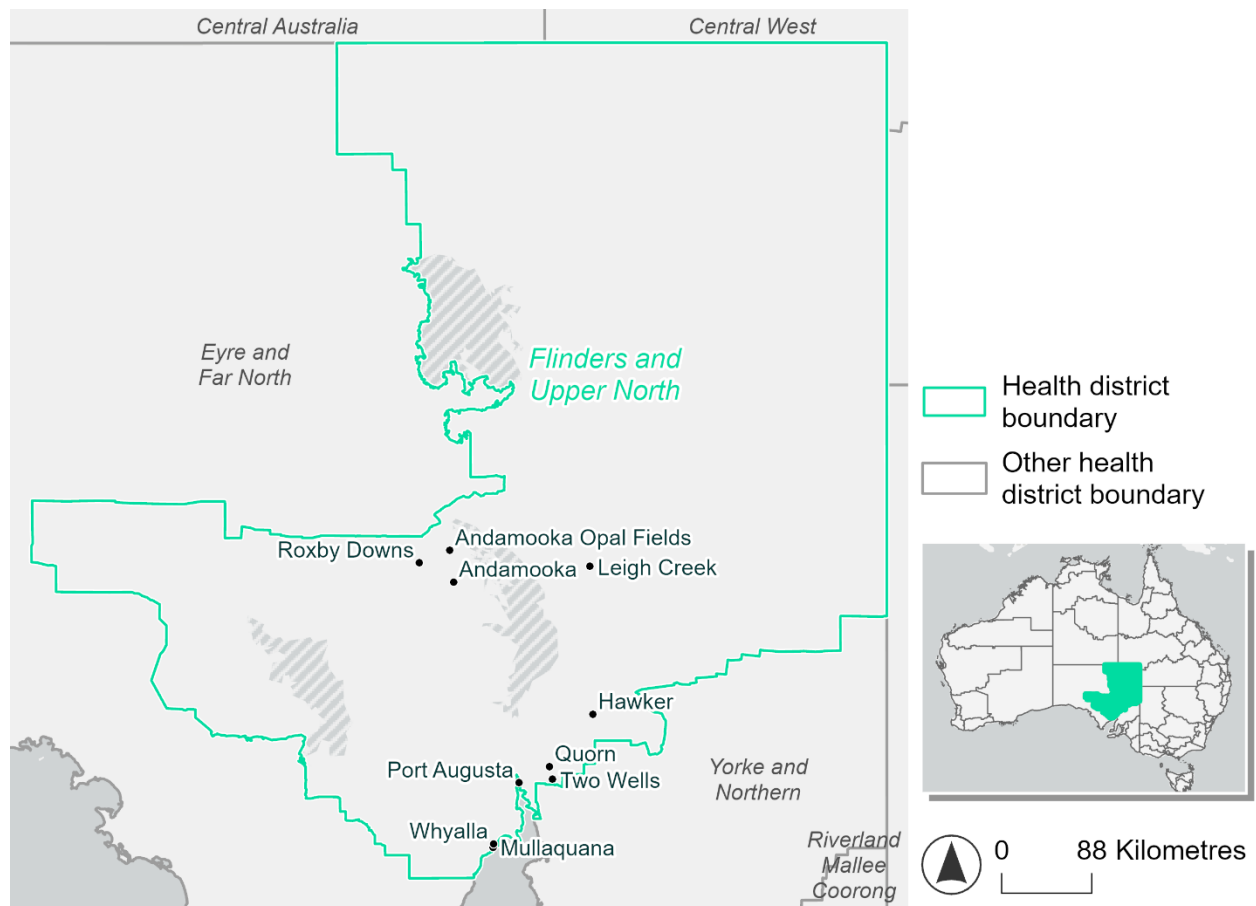


Figure 11. Map of Flinders and Upper North health district

How will climate change affect this health district?

- **Heat and humidity:** Higher average temperatures, hotter and more frequent hot days, warmer night time temperatures and more frequent heatwaves.
- **Fire:** Over 15% of this health district experiences very high fire hazard category and this will continue in the future.
- **Drought:** Number of months experiencing drought will increase.
- **Rainfall and flood:** More flood events in urban areas.
- **Coastal inundation:** Increased area flooded during tidal and storm surge and tidal inundation.

Flinders and Upper North health district demographic data

Demographic Data	Total
Number of households	16,532
Persons 15 and older	30,301
Total families	10,457
Persons did not complete high school	15,705
One parent families with dependents	1,437 (13.7%)
Persons aged 65 and older	7,426 (17%)
Persons aged 4 and younger	2,531 (5.8%)
Aboriginal and Torres Strait Islander persons	4,630 (10.6%)
Persons speaks language other than English	2,874 (6.6%)
Persons working age (15-65)	28,095 (64.4%)
Population Health Data	Total
Persons with core needs for assistance	2,753 (6.3%)
Persons with arthritis	4,594 (10.5%)
Persons with asthma	4,548 (10.4%)
Persons with cancer	1,299 (3%)
Persons with dementia	384 (0.9%)
Persons with diabetes	3,161 (7.2%)
Persons with heart disease	1,985 (4.5%)
Persons with kidney disease	522 (1.2%)
Persons with lung condition	1,130 (2.6%)
Persons with mental health condition	4,043 (9.3%)
Persons with stroke	452 (1%)
Persons with any other condition	3,403 (7.8%)
Persons no health condition	23,258 (53.3%)
Socio-economic Data	Total
Persons providing unpaid care	5,105 (11.7%)
Persons homeless	306 (0.7%)
Household with lone person	5,760 (34.8%)
Households with rent and mortgage stress	4,626 (28%)
Households total equivalised income below \$1000 (weekly)	8,221 (49.7%)
Households with no motor vehicle	1,692 (10.2%)
Persons unemployed	2,215 (6.4%)

The sections that follow outline projected climate hazards for this district. Further information on this health district, including population demographics, is provide in the online dashboard.

Heat and humidity hazard

Key projections:

- **More heatwaves:** The number of heatwave events per year will increase. By 2050, under a reasonable worst-case scenario the number of heatwaves will more than double. By 2085, under a reasonable worst-case scenario the number of heatwaves per year will more than triple.
- **Hotter days and warmer nights:** The maximum temperature on hot days will increase with night time temperatures on hot nights also increasing.
- **More days above 35°C and 40°C:** The number of days per year greater than 35°C and 40°C will increase under both middle of the road and reasonable worst-case scenarios.

	Baseline	2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Average temperature (°C)	18.2	19.5 [19, 19.9]	19.7 [19, 20.4]	20.4 [19.5, 21.1]	21.3 [20, 22.5]
Maximum temperature on hot days (°C) ^(a)	38	39.7 [39.1, 40.4]	40 [39, 41.3]	40.7 [39.9, 42]	41.8 [40.9, 43.3]
Minimum temperature on hot nights (°C) ^(b)	20.8	22.4 [21.5, 22.9]	22.6 [21.5, 23]	23.3 [22.2, 24.2]	24.3 [22.9, 25.4]
Average apparent temperature on hot days (°C) (NOAA Heat Index) ^(c)	35.5	36.6 [35.9, 37.4]	36.7 [36.2, 37.3]	37.1 [36.2, 38.1]	37.8 [36.5, 39]
Average heatwave duration in days ^(d)	5	5 [5, 5]	5 [5, 6]	5 [5, 6]	6 [5, 6]
Number of heatwaves per year ^(d)	2	3 [3, 4]	4 [2, 5]	5 [3, 7]	7 [4, 9]
Number of days per year > 35°C	39	53 [47, 59]	56 [49, 67]	63 [55, 74]	74 [63, 90]
Number of days per year > 40°C	10	18 [15, 21]	20 [14, 27]	24 [18, 32]	31 [25, 42]

Table notes: The heat and humidity hazard uses climate projections from the CMIP6 Global Climate Models [1]. Daily projections of maximum and minimum near-surface temperature and mean relative humidity are used to calculate eight heat and humidity indicators. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) Based on the 95th percentile of daily maximum air temperature. (b) Based on the 95th percentile of daily minimum air temperature, representing the coldest part of the night on very hot nights. (c) The [National Oceanic and Atmospheric Administration \(NOAA\) Heat Index](#) is a measure of how hot it feels when relative humidity is factored in alongside actual air temperature. It is calculated on days with a maximum temperature of 27°C and above. Interpretation of Heat Index values: 27°C to 32°C indicates caution, 33°C to 41°C indicates extreme caution, 42°C to 54°C indicates danger and over 54°C indicates extreme danger. See methodology document for further explanation of Heat Index categories. (d) A heatwave is defined as three or more consecutive days where both daytime and overnight temperatures (daily mean temperatures) are unusually high for the location, based on the [Bureau of Meteorology's Excess Heat Factor](#) method. For this district, an unusually high daily mean temperature is approximately 28.9°C or above.

Fire hazard

Key projections:

- **Fire hazard evenly spread currently:** Under baseline conditions, about half (50-51%) of the district experiences low fire hazard in both the 1-in-20-year and 1-in-100-year fire weather events. 15.2% of the district experiences very high fire hazard during a 1-in-20-year event, increasing to 16.8% during the more severe 1-in-100-year event. About a third (32-33%) experiences moderate to high hazard under both event types.
- **Current fire hazard conditions to persist:** In a future climate across both 2050 and 2085 scenarios, fire hazard levels are expected to remain similar to their baseline levels. For both the 1-in-20-year and 1-in-100-year fire weather events, the proportions of the district experiencing each hazard level change by no more than 0.8 percentage points.

Baseline		2050 Scenarios		2085 Scenarios	
		Sustainability	Reasonable worst-case	Sustainability	Reasonable worst-case
Hazard for a '1-in-20 year' fire weather event^(a)					
Proportion (%) of district experiencing 'Low' fire hazard	51.2% (16,924,19) (b)	51.1% [51.0%, 51.3%]	51.0% [50.9%, 51.4%]	50.9% [50.6%, 51.3%]	50.8% [50.4%, 51.6%]
Proportion (%) of district experiencing 'Moderate to High' fire hazard	33.6% (11,095,88) (b)	33.7% [32.8%, 34.5%]	33.8% [33.0%, 34.5%]	33.8% [31.8%, 35.8%]	34.2% [32.2%, 35.7%]
Proportion (%) of district experiencing 'Very High' fire hazard	15.2% (5,022,530) (b)	15.2% [15.0%, 15.4%]	15.2% [15.0%, 15.2%]	15.2% [14.8%, 15.7%]	15.1% [14.7%, 15.2%]
Hazard for a '1-in-100 year' fire weather event^(a)					
Proportion (%) of district experiencing 'Low' fire hazard	50.5% (16,698,20) (b)	50.4% [50.1%, 50.6%]	50.3% [50.1%, 50.6%]	50.1% [49.4%, 50.7%]	49.9% [49.5%, 50.6%]
Proportion (%) of district experiencing 'Moderate to High' fire hazard	32.7% (10,806,15) (b)	32.7% [31.3%, 34.2%]	33.0% [32.0%, 34.4%]	32.8% [29.4%, 36.3%]	33.5% [31.0%, 36.7%]
Proportion (%) of district experiencing 'Very High' fire hazard	16.8% (5,538,162) (b)	16.9% [16.4%, 17.5%]	16.7% [16.3%, 16.8%]	17.1% [16.0%, 18.5%]	16.6% [15.7%, 16.9%]

Table notes: The Fire Hazard uses the National Bushfire Intelligence Capability (NBIC) Phase 2 fire line intensity modelling based on CMIP6 climate projections. Fire Hazard is assessed using the projected Fireline Intensity (FLI) for weather events with two different return intervals (i.e. a 1-in-20 year event and a 1-in-100 year event). FLI considers slope, vegetation and weather to produce a rate of heat output per unit length (kW/m) along a bushfire's front. Fire hazard is categorized as a low for $FLI < 4000$ kW/m, moderate to high for $4,000 \text{ kW/m} \leq FLI < 12,500$ kW/m, and very high for $FLI \geq 27,501$ kW/m. This is broadly consistent with the literature [3]. The assessment considers climate change effects based on changes in fire weather and the associated hazard that is anticipated for a meteorological event of a given return interval. This approach is different to the one adopted for the Flood Hazard, where the event magnitude is given (fixed) and the likelihood of that event varies as a result of climate change. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) The area subject to different categories of fire hazard is determined for a '1-in-20 year' and '1-in-100 year' fire weather event, in current and future climates. Values at year 2050 are interpolated using data from baseline (2025) and 2085, assuming linear change over time. (b) Values in round brackets are the area (ha) of the health district subject to a given fire hazard.

The figures below show the proportion of the health district experiencing different fire hazard categories across different time horizons and climate scenarios during a '1-in-20 year' fire weather event (Figure 12) and a '1-in-100 year' fire weather event (Figure 13).

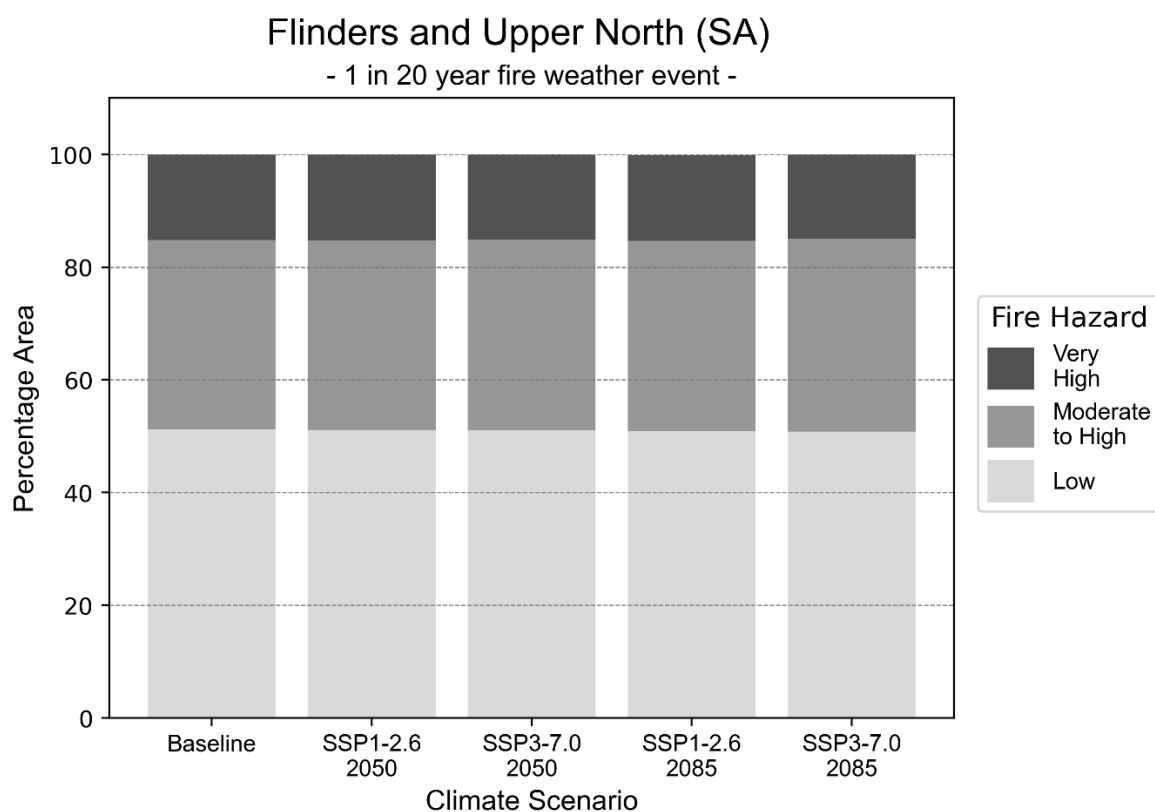


Figure 12: Stacked column chart showing percentages of Flinders and Upper North health district's total geographic area experiencing each fire hazard level during a 1-in-20-year fire weather event.

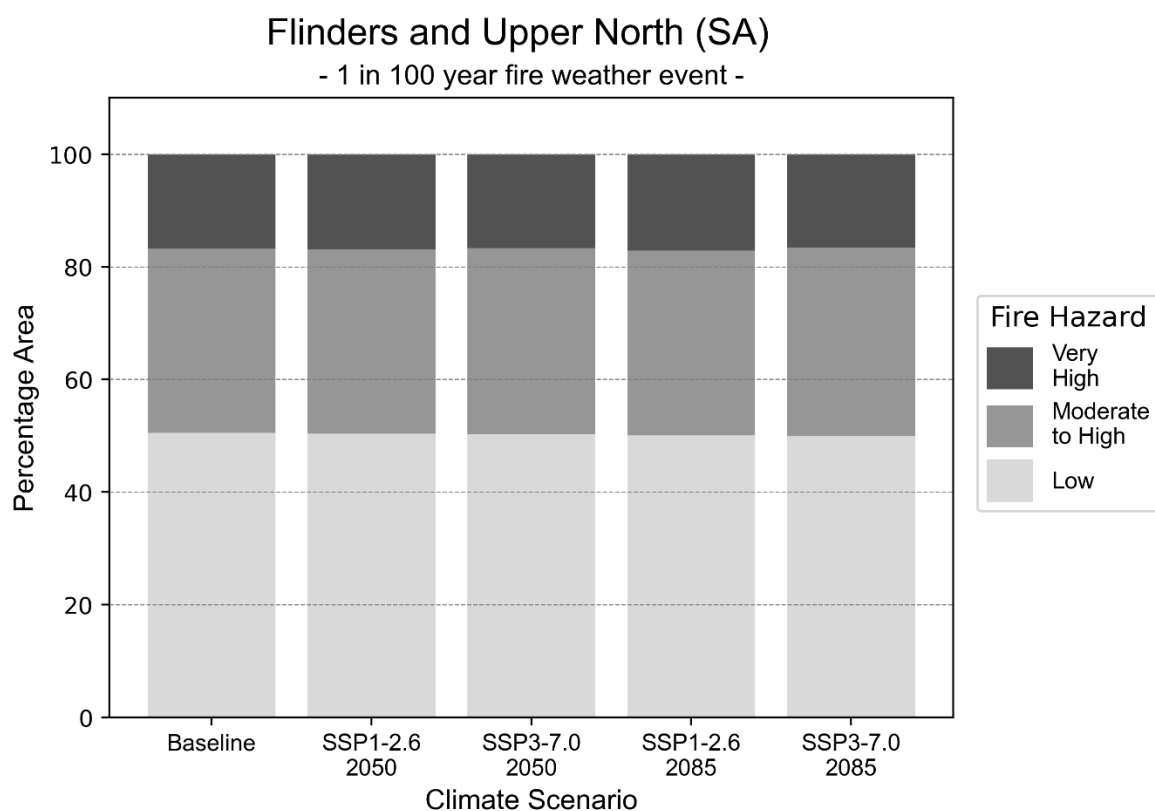


Figure 13: Stacked column chart showing the percentages of Flinders and Upper North health district's total geographic area experiencing each fire hazard level during a 1-in-100-year fire weather event.

Drought hazard

Key projections:

- **Drought occurrence:** The occurrence of drought will increase across both middle of the road and reasonable worst-case scenarios and both time horizons, with the largest increase occurring under the reasonable worst-case scenario by 2085.

Baseline		2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Number of months per year in drought ^(a)	1.6	2.4 [0.8, 4.6]	2.1 [0.9, 4.6]	2.5 [0.5, 4.8]	2.8 [0.1, 7.0]

Table notes: The drought hazard indicator uses climate projections from the CMIP6 Global Climate Models [1]. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) The number of months per year in drought is based on the Standardised Precipitation Index (SPI). SPI is a widely used index to characterise meteorological drought on a range of timescales. This indicator uses the timescale of 12 months which calculates the average months in a year within the moderate drought range. A moderate drought range is classified as SPI score of ≤ -1 . SPI is calculated from accumulated rainfall over 12 months and the mean and standard deviation from historical rainfall records.

Storm hazard

Key projections:

- **More frequent very-high-intensity storms:** The frequency of very-high-intensity storms will increase across both middle of the road and reasonable worst-case scenarios with the greatest increase occurring for the middle of the road scenario by 2050.

Baseline		2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Number of low-intensity storms (40-62 km/hr) per year	73.0	70.1 [61.7, 77.1]	69.8 [61.5, 76.8]	69.3 [61.0, 76.3]	68.1 [59.9, 74.9]
Number of medium-intensity storms (63-87 km/hr) per year	70.4	67.3 [59.2, 74.0]	63.7 [56.1, 70.1]	64.8 [57.1, 71.3]	63.8 [56.2, 70.2]
Number of high-intensity storms (88-117 km/hr) per year	33.3	35.5 [31.2, 39.0]	34.1 [30.0, 37.5]	32.7 [28.8, 36.0]	32.8 [28.8, 36.0]
Number of very-high-intensity storm (> 117 km/hr) per year	6.9	8.5 [7.5, 9.4]	8.2 [7.2, 9.0]	7.6 [6.7, 8.4]	7.0 [6.2, 7.7]

Table notes: The storm hazard uses climate projections from the CMIP6 Global Climate Models [1]. Daily maximum surface wind speed is used to calculate the number of annual storms across four storm intensity categories (low, medium, high and very high). The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Rainfall and flood hazard

Key projections:

- **Ten extreme rainfall days per year:** The number of extreme rainfall days will remain consistent across both middle of the road and reasonable worst-case scenarios and both time horizons, with an average of approximately ten extreme rainfall days per year.
- **Increased flood frequency:** The frequency of flood events will increase in urban environments. The largest increase in flood frequency is seen in the reasonable worst-case scenario where frequency of a '1-in-100 year' flood will more than double by 2050 and become nearly six times more likely by 2085 in urban environments. Flood events in rural areas will remain consistent across 2050 scenarios but will reduce across 2085 scenarios, particularly the reasonable worst-case scenario.

Baseline		2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Rainfall hazard^(a)					
Average no. of extreme rainfall days per year (> 3 mm/day) ^(a)	10.3	9.8 [7.6,12.4]	9.8 [7.6,11.5]	9.5 [7.8,12.3]	9.6 [6.5,15.3]
Urban flood risk (flooding caused by a 1-hour rainfall event)^(b)					
Frequency of a '1-in-1 year' flood (rainfall depth of 12 mm) ^(c)		1.5 events in 1 year	1.5 events in 1 year	1.7 events in 1 year	2.1 events in 1 year
Frequency of a '1-in-10 year' flood (rainfall depth of 29 mm) ^(c)		2.0 events in 10 years	2.1 events in 10 years	2.6 events in 10 years	3.5 events in 10 years
Frequency of a '1-in-100 year' flood (rainfall depth of 56 mm) ^(c)		2.5 events in 100 years	2.6 events in 100 years	3.6 events in 100 years	5.7 events in 100 years
Rural flood risk (flooding caused by a 24-hour rainfall event)^(b)					
Frequency of a '1-in-1 year' flood (rainfall depth of 30 mm) ^(c)		1.0 events in 1 year	0.9 events in 1 year	0.9 events in 1 year	0.5 events in 1 year
Frequency of a '1-in-10 year' flood (rainfall depth of 76 mm) ^(c)		1.0 events in 10 years	1.0 events in 10 years	1.0 events in 10 years	0.5 events in 10 years
Frequency of a '1-in-100 year' flood (rainfall depth of 148 mm) ^(c)		1.1 events in 100 years	1.1 events in 100 years	0.8 events in 100 years	0.5 events in 100 years

Table notes: The rainfall hazard indicator uses climate projections from the CMIP6 Global Climate Models [1]. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets. The flood hazard indicators use climate change considerations from the Australian Rainfall and Runoff guideline to estimate the climate the climate projections [2].

Table footnotes: (a) Extreme rainfall is defined as rainfall above the 95th percentile of historical average daily rainfall in this health district in the period 1985-2014. The value in mm/day quoted in the indicator name is the 95th percentile of historic average daily rainfall for this health district. (b) See Methodology document for reasons for focusing on a 1-hour flood for urban areas and a 24-hour flood for rural areas. (c) The rainfall depths in mm quoted in the indicator names in this table report 1 in 1-, 10- and 100-year depths for this health district.

Coastal inundation hazard

Key projections:

- **Greater area inundated:** There will be an increase in the area affected by tidal inundation (i.e. area submerged during high tide) and storm surge and tidal inundation (i.e. the area submerged during a storm surge and high tide) across both middle of the road and reasonable worst-case scenarios. In the reasonable worst-case scenario, by 2085 the area inundated during a '1-in-1000-year' event will nearly double.

	Baseline	2050 Scenarios		2085 Scenarios ^(a)	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Tidal inundation (ha inundated)^(b)	511.8	574.1 (+62.3)	579.0 (+67.2)	736.2 (+224.4)	821.9 (+310.1)
Storm surge + tidal inundation – '1-in-100 year' event (ha inundated)^(c)	2,798.7	3,717.1 (+918.5)	3,872.7 (+1,074.1)	5,794.5 (+2,995.9)	6,400.1 (+3,601.4)
Storm surge + tidal inundation – '1-in-1000 year' event (ha inundated)^(c)	4,752.4	5,597.1 (+844.7)	5,658.9 (+906.5)	8,264.8 (+3,512.5)	9,063.3 (+4,310.9)

Table notes: The coastal inundation hazard provides an indication of flooding in coastal areas that can be attributed to sea level rise and storm inundation. The coastal inundation hazard is only reported for health districts adjoining the coastline. This table includes the projected inundation levels as well as the change from baseline conditions (in brackets).

Table footnotes: (a) For the 2085 Scenarios planning horizon, 2100 was adopted as it provides a conservative representation of the end of this period. This horizon aligns with many State planning regulations requiring consideration of sea level rise and storm tide to 2100, making the 2100 scenario particularly valuable for planning new health facilities in coastal areas. (b) The tidal inundation indicator reports the number of hectares inundated during high tide. The baseline value reports existing inundation patterns, while the 2050 and 2085 values report high tide inundation taking account of projected sea level rise due to climate change. (c) The storm surge + tidal inundation indicators report the combined effect, in hectares inundated, of high tide, sea level rise (for the 2050 and 2085 projections), and storm surge (for 1-in-100 year and 1-in-1000 year events).

Limestone Coast health district

Health district overview

The Limestone Coast Local Health Network covers 21,337 square kilometres. The Limestone Coast Local Health Network contains 16 hospitals and health service facilities:

- Bordertown Memorial Hospital
- Keith and District Healthcare
- Kingston Multi-Purpose Service
- Millicent and Districts Hospital and Health Service
- Mount Gambier and Districts Health Service
- Naracoorte Health Service
- Penola Multi-Purpose Service
- Country Health Connect (Penola)
- Country Health Connect (Naracoorte)
- Country Health Connect (Wehl St, Mount Gambier)
- Country Health Connect (James St, Mount Gambier)
- Country Health Connect (Millicent)
- Country Health Connect (Kingston)
- Country Health Connect (Lucindale)
- Country Health Connect (Keith)
- Country Health Connect (Tatiara)

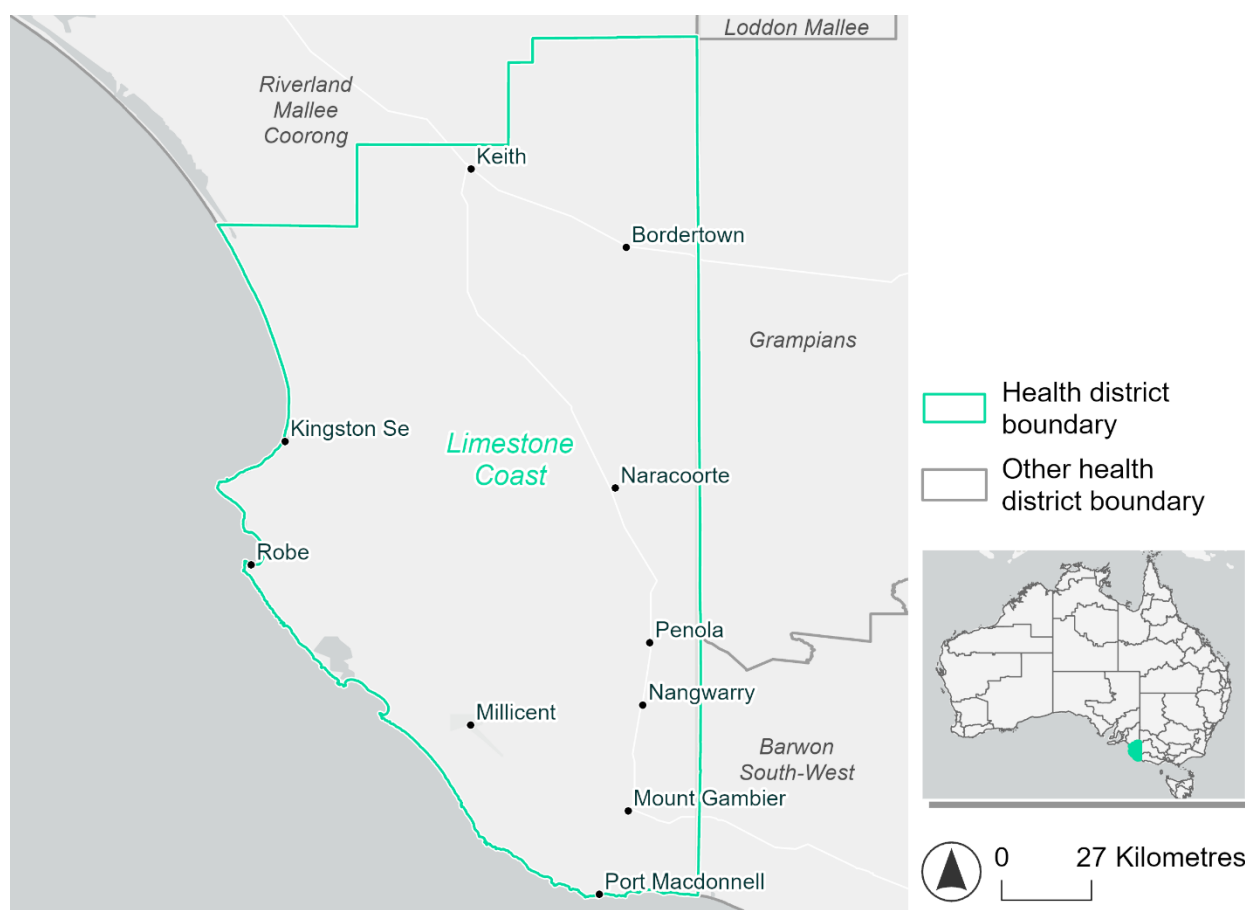


Figure 14. Map of Limestone Coast health district

How will climate change affect this health district?

- **Heat and humidity:** Higher average temperatures, hotter and more frequent hot days, warmer night time temperatures and more frequent heatwaves.
- **Fire:** Over 12% of this health district experiences very high fire hazard category and this will increase in the future.
- **Drought:** Number of months experiencing drought will increase.
- **Rainfall and flood:** More flood events in urban areas.
- **Coastal inundation:** Increased area flooded during tidal and storm surge and tidal inundation.

Limestone Coast health district demographic data

Demographic Data	Total
Number of households	25,902
Persons 15 and older	46,290
Total families	17,624
Persons did not complete high school	23,949
One parent families with dependents	1,734 (9.8%)
Persons aged 65 and older	14,971 (21.8%)
Persons aged 4 and younger	3,645 (5.3%)
Aboriginal and Torres Strait Islander persons	1,593 (2.3%)
Persons speaks language other than English	3,931 (5.7%)
Persons working age (15-65)	41,809 (60.8%)
Population Health Data	Total
Persons with core needs for assistance	4,088 (5.9%)
Persons with arthritis	7,038 (10.2%)
Persons with asthma	6,349 (9.2%)
Persons with cancer	2,105 (3.1%)
Persons with dementia	605 (0.9%)
Persons with diabetes	3,966 (5.8%)
Persons with heart disease	3,389 (4.9%)
Persons with kidney disease	649 (0.9%)
Persons with lung condition	1,571 (2.3%)
Persons with mental health condition	6,261 (9.1%)
Persons with stroke	742 (1.1%)
Persons with any other condition	5,124 (7.5%)
Persons no health condition	38,207 (55.6%)
Socio-economic Data	Total
Persons providing unpaid care	8,468 (12.3%)
Persons homeless	238 (0.3%)
Household with lone person	7,887 (30.4%)
Households with rent and mortgage stress	8,258 (31.9%)
Households total equivalised income below \$1000 (weekly)	13,961 (53.9%)
Households with no motor vehicle	1,305 (5%)
Persons unemployed	2,057 (3.7%)

The sections that follow outline projected climate hazards for this district. Further information on this health district, including population demographics, is provided in the online dashboard.

Heat and humidity hazard

Key projections:

- **More heatwaves:** The number of heatwave events per year will increase. By 2050, under a reasonable worst-case scenario the number of heatwaves will increase from two events per year to three. By 2085, under a reasonable worst-case scenario the number of heatwaves per year will more than double.
- **Hotter days and warmer nights:** The maximum temperature on hot days will increase with night time temperatures on hot nights also increasing.
- **More days above 35°C and 40°C:** The number of days per year greater than 35°C and 40°C will increase under both middle of the road and reasonable worst-case scenarios.

	Baseline	2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Average temperature (°C)	14.5	15.5 [14.8, 15.9]	15.7 [15, 16.2]	16.3 [15.3, 16.9]	17 [15.7, 17.9]
Maximum temperature on hot days (°C) ^(a)	32.2	33.3 [32.6, 34]	33.6 [32.8, 34.5]	34.1 [33.2, 35.1]	34.9 [33.8, 36.1]
Minimum temperature on hot nights (°C) ^(b)	16.5	17.6 [16.6, 18]	17.8 [17, 18.3]	18.3 [17.1, 18.9]	19.2 [17.8, 20.3]
Average apparent temperature on hot days (°C) (NOAA Heat Index) ^(c)	35.9	36.7 [36.2, 37.4]	36.8 [36.1, 37.6]	37.2 [36.5, 38.1]	37.7 [37.1, 38.4]
Average heatwave duration in days ^(d)	4	4 [4, 4]	4 [4, 4]	4 [4, 4]	4 [4, 5]
Number of heatwaves per year ^(d)	2	3 [2, 3]	3 [2, 4]	3 [2, 4]	5 [3, 6]
Number of days per year > 35°C	10	13 [11, 16]	14 [11, 18]	16 [13, 20]	19 [15, 24]
Number of days per year > 40°C	2	3 [2, 4]	3 [2, 5]	4 [3, 6]	5 [4, 8]

Table notes: The heat and humidity hazard uses climate projections from the CMIP6 Global Climate Models [1]. Daily projections of maximum and minimum near-surface temperature and mean relative humidity are used to calculate eight heat and humidity indicators. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) Based on the 95th percentile of daily maximum air temperature. (b) Based on the 95th percentile of daily minimum air temperature, representing the coldest part of the night on very hot nights. (c) The [National Oceanic and Atmospheric Administration \(NOAA\) Heat Index](#) is a measure of how hot it feels when relative humidity is factored in alongside actual air temperature. It is calculated on days with a maximum temperature of 27°C and above. Interpretation of Heat Index values: 27°C to 32°C indicates caution, 33°C to 41°C indicates extreme caution, 42°C to 54°C indicates danger and over 54°C indicates extreme danger. See methodology document for further explanation of Heat Index categories. (d) A heatwave is defined as three or more consecutive days where both daytime and overnight temperatures (daily mean temperatures) are unusually high for the location, based on the [Bureau of Meteorology's Excess Heat Factor](#) method. For this district, an unusually high daily mean temperature is approximately 24.1 °C or above.

Fire hazard

Key projections:

- **Most of district area experiences moderate to high fire hazard:** Under baseline conditions, for a 1-in-20-year fire weather event 81.8% of the district experiences moderate to high fire hazard, with 12.8% experiencing very high hazard. For a 1-in-100-year event, 80.3% experiences moderate to high hazard while 15.3% experiences very high fire hazard.
- **Current conditions to persist depending on emissions:** In a future climate, fire hazard levels during a 1-in-20-year fire weather event remain about the same as baseline. For a 1-in-100-year fire weather event, the proportion of the district experiencing very high hazard will increase, but this increase will be smaller under the higher-emissions reasonable worst-case scenario. This scenario sees increases of 0.9 percentage points by 2050 and an additional 1.2 by 2085, while the lower-emissions sustainability scenario sees the very high hazard area increase by 2.1 percentage points by 2050 and an additional 3 percentage points by 2085.

Baseline		2050 Scenarios		2085 Scenarios	
		Sustainability	Reasonable worst-case	Sustainability	Reasonable worst-case
Hazard for a '1-in-20 year' fire weather event^(a)					
Proportion (%) of district experiencing 'Low' fire hazard	5.3% (114,131) ^(b)	5.2% [5.0%, 5.7%]	5.2% [4.9%, 5.7%]	5.0% [4.5%, 6.3%]	5.1% [4.3%, 6.2%]
Proportion (%) of district experiencing 'Moderate to High' fire hazard	81.8% (1,745,515) ^(b)	81.5% [75.0%, 87.8%]	81.5% [76.4%, 85.9%]	81.0% [65.4%, 96.1%]	81.0% [68.8%, 91.7%]
Proportion (%) of district experiencing 'Very High' fire hazard	12.8% (274,036) ^(b)	13.3% [12.7%, 13.8%]	13.3% [12.9%, 13.9%]	14.0% [12.4%, 15.2%]	13.9% [12.9%, 15.3%]
Hazard for a '1-in-100 year' fire weather event^(a)					
Proportion (%) of district experiencing 'Low' fire hazard	4.4% (93,967) ^(b)	4.2% [4.1%, 4.7%]	4.3% [4.1%, 4.7%]	4.0% [3.7%, 5.2%]	4.2% [3.6%, 5.2%]
Proportion (%) of district experiencing 'Moderate to High' fire hazard	80.3% (1,713,369) ^(b)	78.3% [75.4%, 83.8%]	79.5% [76.6%, 82.4%]	75.6% [68.6%, 88.8%]	78.4% [71.4%, 85.3%]
Proportion (%) of district experiencing 'Very High' fire hazard	15.3% (326,347) ^(b)	17.4% [14.3%, 20.4%]	16.2% [15.1%, 17.9%]	20.4% [12.9%, 27.5%]	17.4% [14.8%, 21.6%]

Table notes: The Fire Hazard uses the National Bushfire Intelligence Capability (NBIC) Phase 2 fire line intensity modelling based on CMIP6 climate projections. Fire Hazard is assessed using the projected Fireline Intensity (FLI) for weather events with two different return intervals (i.e. a 1-in-20 year event and a 1-in-100 year event). FLI considers slope, vegetation and weather to produce a rate of heat output per unit length (kW/m) along a bushfire's front. Fire hazard is categorized as a low for $FLI < 4000$ kW/m, moderate to high for $4,000 \text{ kW/m} \leq FLI < 12,500 \text{ kW/m}$, and very high for $FLI \geq 12,501 \text{ kW/m}$. This is broadly consistent with the literature [3]. The assessment considers climate change effects based on changes in fire weather and the associated hazard that is anticipated for a meteorological event of a given return interval. This approach is different to the one adopted for the Flood Hazard, where the event magnitude is given (fixed) and the likelihood of that event varies as a result of climate change. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) The area subject to different categories of fire hazard is determined for a '1-in-20 year' and '1-in-100 year' fire weather event, in current and future climates. Values at year 2050 are interpolated using data from baseline (2025) and 2085, assuming linear change over time. (b) Values in round brackets are the area (ha) of the health district subject to a given fire hazard.

The figures below show the proportion of the health district experiencing different fire hazard categories across different time horizons and climate scenarios during a '1-in-20 year' fire weather event (Figure 15) and a '1-in-100 year' fire weather event (Figure 16).

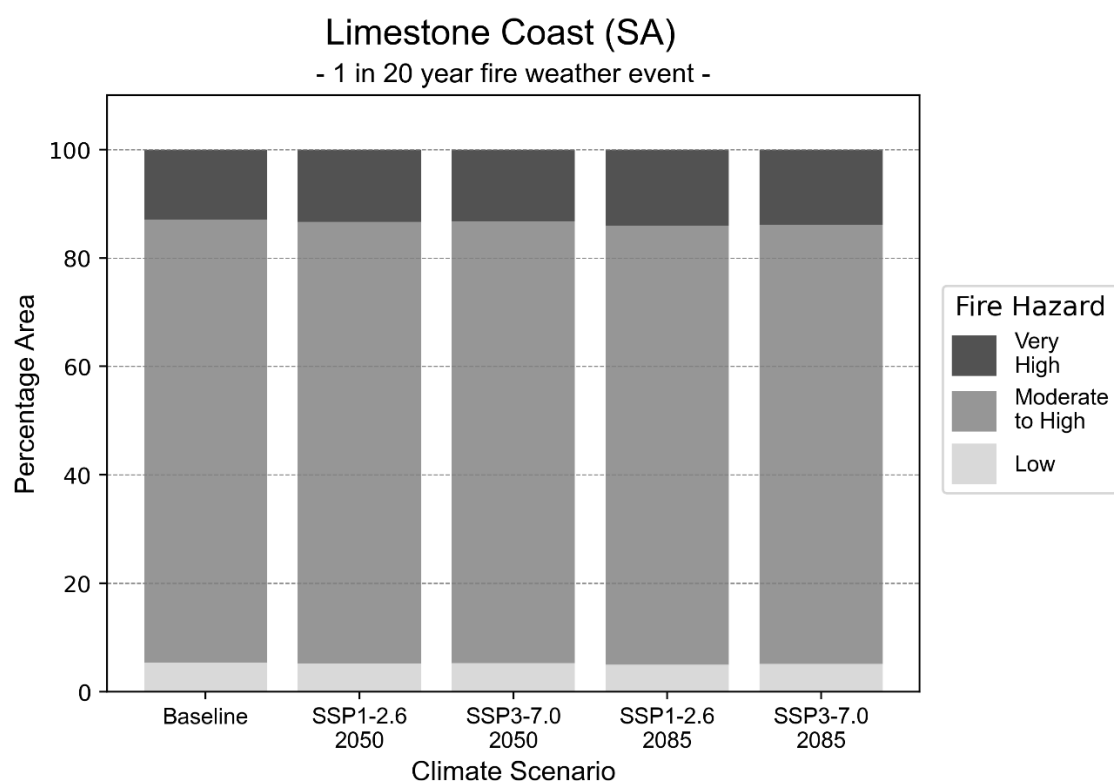


Figure 15: Stacked column chart showing the percentages of Limestone Coast health district's total geographic area experiencing each fire hazard level during a 1-in-20-year fire weather event.

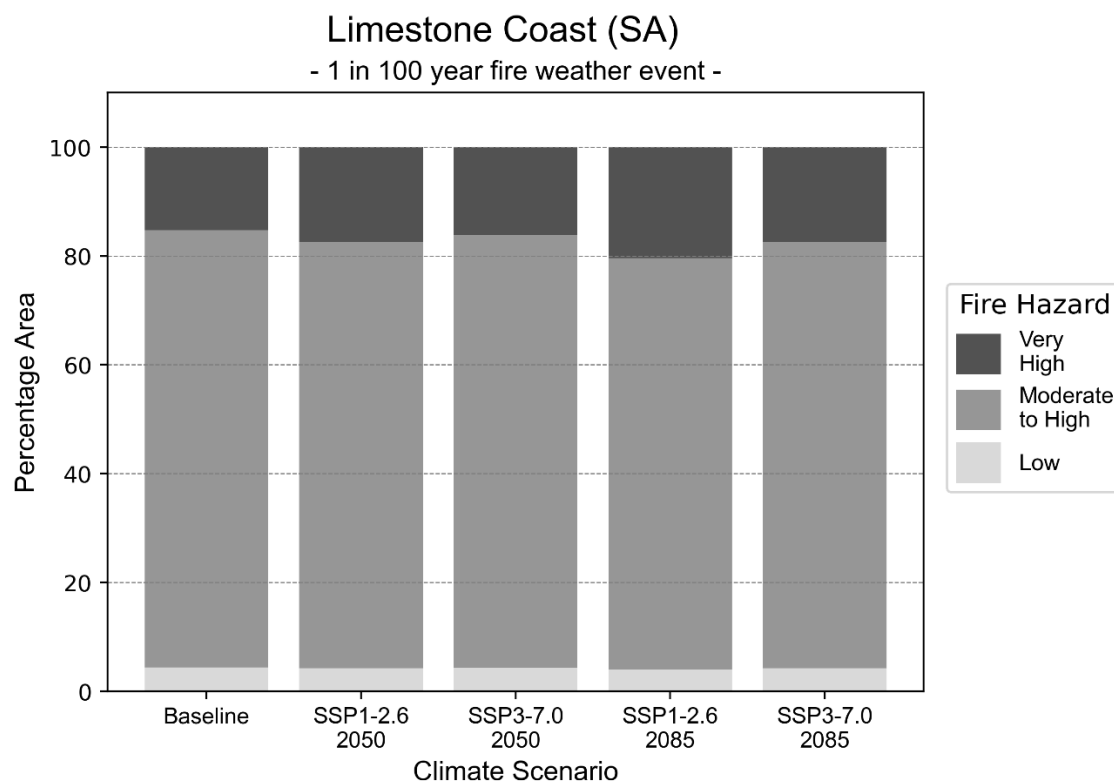


Figure 16: Stacked column chart showing the percentages of Limestone Coast health district's total geographic area experiencing each fire hazard level during a 1-in-100-year fire weather event.

Drought hazard

Key projections:

- **Drought occurrence:** The occurrence of drought will increase across both middle of the road and reasonable worst-case scenarios and both time horizons, with the largest increase occurring under the reasonable worst-case scenario by 2085.

	Baseline	2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Number of months per year in drought ^(a)	1.7	3.2 [1.0, 5.7]	3.5 [1.4, 7.0]	4.2 [1.9, 6.4]	5.1 [1.2, 9.3]

Table notes: The drought hazard indicator uses climate projections from the CMIP6 Global Climate Models [1]. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) The number of months per year in drought is based on the Standardised Precipitation Index (SPI). SPI is a widely used index to characterise meteorological drought on a range of timescales. This indicator uses the timescale of 12 months which calculates the average months in a year within the moderate drought range. A moderate drought range is classified as SPI score of ≤ -1 . SPI is calculated from accumulated rainfall over 12 months and the mean and standard deviation from historical rainfall records.

Storm hazard

Key projections:

- **Less frequent high and very-high-intensity storms:** The frequency of high and very-high-intensity storms will decrease across both middle of the road and reasonable worst-case scenarios for both time horizon.

	Baseline	2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Number of low-intensity storms (40-62 km/hr) per year	86.8	83.3 [73.3, 91.6]	84.1 [74.0, 92.5]	81.9 [72.1, 90.1]	82.6 [72.7, 90.9]
Number of medium-intensity storms (63-87 km/hr) per year	60.2	58.4 [51.4, 64.2]	55.0 [48.4, 60.5]	52.2 [45.9, 57.4]	49.4 [43.5, 54.3]
Number of high-intensity storms (88-117 km/hr) per year	33.1	30.7 [27.0, 33.7]	29.1 [25.6, 32.0]	29.2 [25.7, 32.2]	27.1 [23.9, 29.8]
Number of very-high-intensity storm (> 117 km/hr) per year	4.0	3.4 [3.0, 3.7]	2.7 [2.3, 2.9]	3.6 [3.2, 4.0]	3.4 [3.0, 3.7]

Table notes: The storm hazard uses climate projections from the CMIP6 Global Climate Models [1]. Daily maximum surface wind speed is used to calculate the number of annual storms across four storm intensity categories (low, medium, high and very high). The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Rainfall and flood hazard

Key projections:

- **Decrease in number of extreme rainfall days per year:** The number of extreme rainfall days will decrease across both middle of the road and reasonable worst-case scenarios and both time horizons, with the largest decrease seen in the reasonable worst-case scenario where the number of extreme rainfall days will reduce from 13 to 12 by 2085.
- **Increased flood frequency:** The frequency of flood events will increase in urban environments, but decrease in rural environments. The largest increase in flood frequency is seen in the reasonable worst-case scenario where frequency of a '1-in-100 year' flood will more than triple by 2050 and become eight times more likely by 2085 in urban environments.

Baseline		2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Rainfall hazard^(a)					
Average number of extreme rainfall days per year (> 8 mm/day) ^(a)	13.5	12.5 [11.0,14.9]	12.3 [9.9,14.7]	12.1 [10.6,14.4]	11.9 [9.0,15.5]
Urban flood risk (flooding caused by a 1-hour rainfall event)^(b)					
Frequency of a '1-in-1 year' flood (rainfall depth of 12 mm) ^(c)		2.0 events in 1 year	2.1 events in 1 year	2.6 events in 1 year	3.7 events in 1 year
Frequency of a '1-in-10 year' flood (rainfall depth of 22 mm) ^(c)		2.6 events in 10 years	2.7 events in 10 years	3.8 events in 10 years	5.9 events in 10 years
Frequency of a '1-in-100 year' flood (rainfall depth of 38 mm) ^(c)		3.0 events in 100 years	3.2 events in 100 years	4.7 events in 100 years	8.4 events in 100 years
Rural flood risk (flooding caused by a 24-hour rainfall event)^(b)					
Frequency of a '1-in-1 year' flood (rainfall depth of 34 mm) ^(c)		0.7 events in 1 year	0.9 events in 1 year	0.8 events in 1 year	0.2 events in 1 year
Frequency of a '1-in-10 year' flood (rainfall depth of 62 mm) ^(c)		0.9 events in 10 years	0.9 events in 10 years	0.3 events in 10 years	0.2 events in 10 years
Frequency of a '1-in-100 year' flood (rainfall depth of 101 mm) ^(c)		0.9 events in 100 years	0.9 events in 100 years	0.4 events in 100 years	0.09 events in 100 years

Table notes: The rainfall hazard indicator uses climate projections from the CMIP6 Global Climate Models [1]. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets. The flood hazard indicators use climate change considerations from the Australian Rainfall and Runoff guideline to estimate the climate the climate projections [2].

Table footnotes: (a) Extreme rainfall is defined as rainfall above the 95th percentile of historical average daily rainfall in this health district in the period 1985-2014. The value in mm/day quoted in the indicator name is the 95th percentile of historic average daily rainfall for this health district. (b) See Methodology document for reasons for focusing on a 1-hour flood for urban areas and a 24-hour flood for rural areas. (c) The rainfall depths in mm quoted in the indicator names in this table report 1 in 1-, 10- and 100-year depths for this health district.

Coastal inundation hazard

Key projections:

- **Greater area inundated:** There will be an increase in the area affected by tidal inundation (i.e. area submerged during high tide) and storm surge and tidal inundation (i.e. the area submerged during a storm surge and high tide) across both middle of the road and reasonable worst-case scenarios. In the reasonable worst-case scenario, by 2085 the area inundated during a '1-in-1000-year' event will increase by over 14,000 ha.

	Baseline	2050 Scenarios		2085 Scenarios ^(a)	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Tidal inundation (ha inundated)^(b)	27,033.0	28,943.6 (+1,910.5)	29,083.8 (+2,050.8)	33,599.5 (+6,566.4)	35,218.9 (+8,185.8)
Storm surge + tidal inundation – '1-in-100 year' event (ha inundated)^(c)	37,276.3	40,699.1 (+3,422.8)	40,884.5 (+3,608.3)	47,648.0 (+10,371.8)	49,496.1 (+12,219.8)
Storm surge + tidal inundation – '1-in-1000 year' event (ha inundated)^(c)	38,890.1	42,602.3 (+3,712.3)	42,799.1 (+3,909.0)	51,187.5 (+12,297.4)	53,125.6 (+14,235.6)

Table notes: The coastal inundation hazard provides an indication of flooding in coastal areas that can be attributed to sea level rise and storm inundation. The coastal inundation hazard is only reported for health districts adjoining the coastline. This table includes the projected inundation levels as well as the change from baseline conditions (in brackets).

Table footnotes: (a) For the 2085 Scenarios planning horizon, 2100 was adopted as it provides a conservative representation of the end of this period. This horizon aligns with many State planning regulations requiring consideration of sea level rise and storm tide to 2100, making the 2100 scenario particularly valuable for planning new health facilities in coastal areas. (b) The tidal inundation indicator reports the number of hectares inundated during high tide. The baseline value reports existing inundation patterns, while the 2050 and 2085 values report high tide inundation taking account of projected sea level rise due to climate change. (c) The storm surge + tidal inundation indicators report the combined effect, in hectares inundated, of high tide, sea level rise (for the 2050 and 2085 projections), and storm surge (for 1-in-100 year and 1-in-1000 year events).

Riverland Mallee Coorong health district

Health district overview

The Riverland Mallee Coorong Local Health Network covers 42,773 square kilometres and contains 19 hospitals and health services:

- Barmera Hospital
- Loxton Hospital Complex
- Riverland General Hospital
- Tailem Bend District Hospital
- Mallee Medical Practice Karoonda
- Lameroo District Health Service
- Mallee Medical Practice, Lameroo
- Mallee Medical Practice, Pinnaroo
- Mannum District Hospital
- Waikerie Health Service
- Pinnaroo Soldiers' Memorial Hospital
- Renmark Paringa District Hospital
- Country Health Connect (Meningie Community Health Centre)
- Country Health Connect (Murray Mallee Community Health Service)
- Country Health Connect (Riverland Community Health Service)
- Country Health Connect (Coonalpyn and Tintinara Clinics)
- Karoonda and District Soldiers' Memorial Hospital
- Meningie and Districts Memorial Hospital and Health Services
- Murray Bridge Soldiers' Memorial Hospital

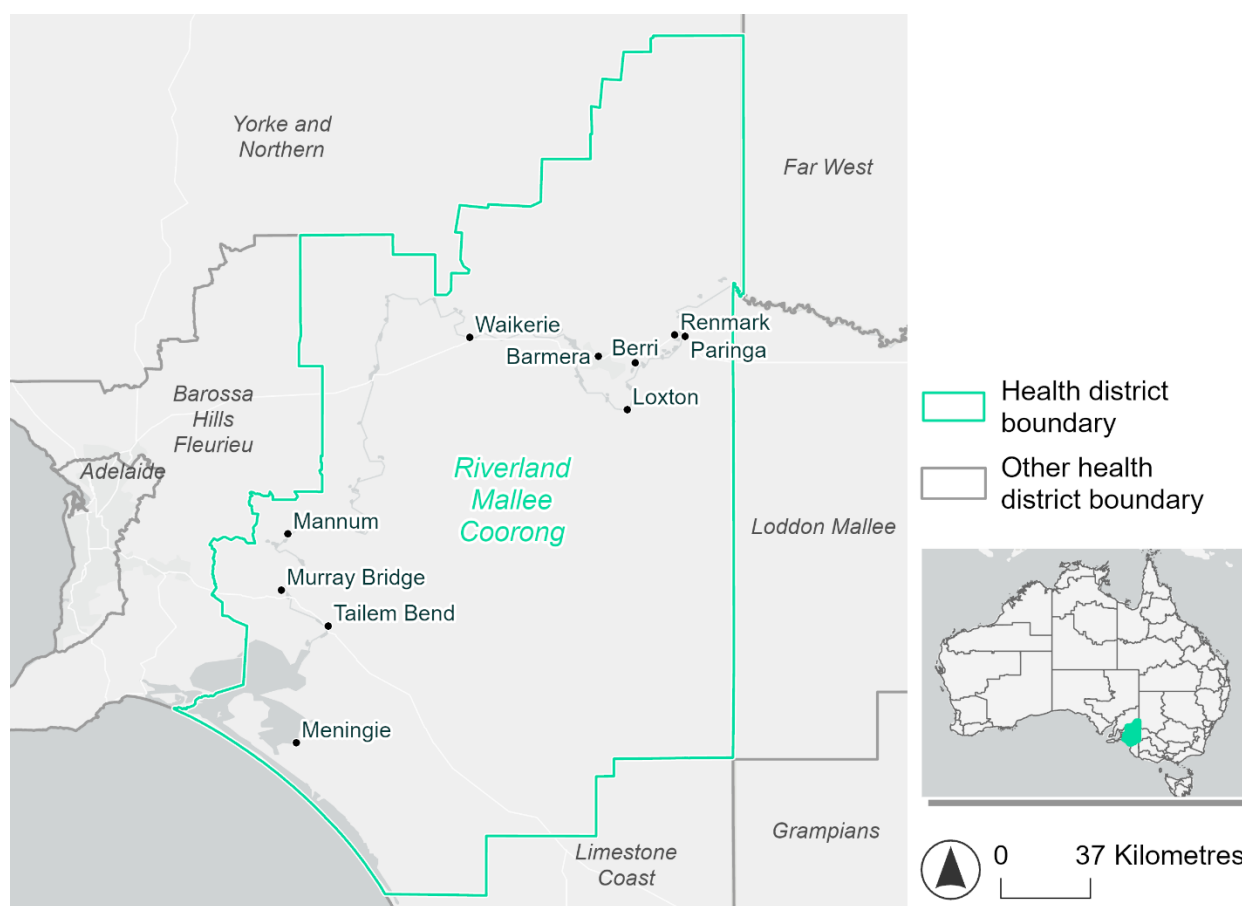


Figure 17. Map of Riverland Mallee Coorong health district

How will climate change affect this health district?

- **Heat and humidity:** Higher average temperatures, hotter and more frequent hot days, warmer night time temperatures and more frequent heatwaves.
- **Fire:** Over 11% of this health district experiences very high fire hazard category and this will continue in the future.
- **Drought:** Number of months experiencing drought will increase.
- **Rainfall and flood:** More flood events in urban areas.
- **Coastal inundation:** Increased area flooded during tidal and storm surge and tidal inundation.

Riverland Mallee Coorong health district demographic data

Demographic Data	Total
Number of households	27,527
Persons 15 and older	47,181
Total families	18,387
Persons did not complete high school	25,777
One parent families with dependents	1,860 (10.1%)
Persons aged 65 and older	17,428 (24.5%)
Persons aged 4 and younger	3,585 (5%)
Aboriginal and Torres Strait Islander persons	2,976 (4.2%)
Persons speaks language other than English	5,230 (7.3%)
Persons working age (15-65)	42,097 (59.2%)
Population Health Data	Total
Persons with core needs for assistance	5,418 (7.6%)
Persons with arthritis	8,936 (12.6%)
Persons with asthma	6,910 (9.7%)
Persons with cancer	2,553 (3.6%)
Persons with dementia	750 (1.1%)
Persons with diabetes	4,904 (6.9%)
Persons with heart disease	3,841 (5.4%)
Persons with kidney disease	692 (1%)
Persons with lung condition	2,008 (2.8%)
Persons with mental health condition	7,326 (10.3%)
Persons with stroke	865 (1.2%)
Persons with any other condition	6,040 (8.5%)
Persons no health condition	37,224 (52.3%)
Socio-economic Data	Total
Persons providing unpaid care	9,384 (13.2%)
Persons homeless	349 (0.5%)
Household with lone person	8,728 (31.7%)
Households with rent and mortgage stress	10,480 (38.1%)
Households total equivalised income below \$1000 (weekly)	16,877 (61.3%)
Households with no motor vehicle	1,544 (5.6%)
Persons unemployed	3,034 (5.2%)

The sections that follow outline projected climate hazards for this district. Further information on this health district, including population demographics, is provided in the online dashboard.

Heat and humidity hazard

Key projections:

- **More heatwaves:** The number of heatwave events per year will increase. By 2050, under a reasonable worst-case scenario the number of heatwaves will double. By 2085, under a reasonable worst-case scenario the number of heatwaves per year will triple.
- **Hotter days and warmer nights:** The maximum temperature on hot days will increase with night time temperatures on hot nights also increasing.
- **More days above 35°C and 40°C:** The number of days per year greater than 35°C and 40°C will increase under both middle of the road and reasonable worst-case scenarios across both time horizons.

	Baseline	2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Average temperature (°C)	16.7	17.9 [17.2, 18.4]	18.1 [17.3, 18.7]	18.8 [17.8, 19.5]	19.6 [18.3, 20.7]
Maximum temperature on hot days (°C) ^(a)	36.3	37.9 [37.3, 38.6]	38.2 [37.2, 39.4]	38.8 [37.8, 39.9]	39.9 [38.8, 41.2]
Minimum temperature on hot nights (°C) ^(b)	18.8	20.3 [19.3, 20.9]	20.6 [19.4, 21.1]	21.2 [19.9, 22]	22.2 [20.8, 23.3]
Average apparent temperature on hot days (°C) (NOAA Heat Index) ^(c)	35.2	36.1 [35.6, 36.6]	36.2 [35.8, 37]	36.5 [35.8, 37.2]	37.2 [36.3, 38.1]
Average heatwave duration in days ^(d)	5	5 [5, 5]	5 [4, 5]	5 [5, 5]	5 [5, 5]
Number of heatwaves per year ^(d)	2	3 [2, 4]	4 [2, 5]	4 [3, 6]	6 [4, 8]
Number of days per year > 35°C	26	37 [32, 42]	40 [32, 48]	45 [37, 53]	54 [46, 66]
Number of days per year > 40°C	6	11 [9, 13]	12 [8, 17]	14 [10, 20]	19 [14, 26]

Table notes: The heat and humidity hazard uses climate projections from the CMIP6 Global Climate Models [1]. Daily projections of maximum and minimum near-surface temperature and mean relative humidity are used to calculate eight heat and humidity indicators. The average of each indicator is reported along with the maximum and minimum values across climate models reported in brackets.

Table footnotes: (a) Based on the 95th percentile of daily maximum air temperature. (b) Based on the 95th percentile of daily minimum air temperature, representing the coldest part of the night on very hot nights. (c) The [National Oceanic and Atmospheric Administration \(NOAA\) Heat Index](#) is a measure of how hot it feels when relative humidity is factored in alongside actual air temperature. It is calculated on days with a maximum temperature of 27°C and above. Interpretation of Heat Index values: 27°C to 32°C indicates caution, 33°C to 41°C indicates extreme caution, 42°C to 54°C indicates danger and over 54°C indicates extreme danger. See methodology document for further explanation of Heat Index categories. (d) A heatwave is defined as three or more consecutive days where both daytime and overnight temperatures (daily mean temperatures) are unusually high for the location, based on the [Bureau of Meteorology's Excess Heat Factor](#) method. For this district, an unusually high daily mean temperature is approximately 27.2 °C or above.

Fire hazard

Key projections:

- **Majority of district area experiences moderate to high hazard:** Under baseline conditions for a 1-in-20-year fire weather event, two-thirds of the district (67.8%) experiences moderate to high fire hazard. 20.6% experiences low fire hazard, with the remaining 11.6% experiencing very high fire hazard. In a more severe 1-in-100-year fire weather event, the proportion experiencing low fire hazard decreases by 2.5 percentage points with a corresponding increase in moderate to high fire hazard.
- **Some low hazard areas will see moderate to high fire hazard:** In a future climate across both 2050 and 2085 scenarios, the area experiencing very high fire hazard stays fairly steady for the two types of fire weather event. For a 1-in-20-year event, the area experiencing low hazard reduces by up to 1.5 percentage points, with up to an additional 2% of the district experiencing moderate to high fire hazard. During a 1-in-100-year fire weather event these changes will be slightly more pronounced, with a 2.1 percentage point reduction in low fire hazard area and an increase of 2.3 percentage points in moderate to high fire hazard.

Baseline		2050 Scenarios		2085 Scenarios	
		Sustainability	Reasonable worst-case	Sustainability	Reasonable worst-case
Hazard for a '1-in-20 year' fire weather event^(a)					
Proportion (%) of district experiencing 'Low' fire hazard	20.6% (883,072) ^(b)	20.3% [19.5%, 21.3%]	20.0% [19.0%, 20.9%]	19.9% [17.9%, 22.2%]	19.1% [16.7%, 21.2%]
Proportion (%) of district experiencing 'Moderate to High' fire hazard	67.8% (2,899,871) ^(b)	68.0% [64.6%, 71.0%]	68.6% [66.2%, 71.1%]	68.4% [60.1%, 75.4%]	69.8% [64.0%, 75.7%]
Proportion (%) of district experiencing 'Very High' fire hazard	11.6% (494,350) ^(b)	11.6% [11.4%, 11.8%]	11.4% [10.7%, 11.7%]	11.7% [11.1%, 12.1%]	11.2% [9.5%, 11.8%]
Hazard for a '1-in-100 year' fire weather event^(a)					
Proportion (%) of district experiencing 'Low' fire hazard	18.1% (772,615) ^(b)	17.5% [16.7%, 18.6%]	17.2% [16.3%, 18.2%]	16.8% [14.9%, 19.4%]	16.0% [13.8%, 18.5%]
Proportion (%) of district experiencing 'Moderate to High' fire hazard	69.9% (2,989,926) ^(b)	70.3% [66.2%, 74.0%]	70.9% [67.7%, 74.5%]	70.8% [60.9%, 79.8%]	72.2% [64.6%, 80.9%]
Proportion (%) of district experiencing 'Very High' fire hazard	12.0% (514,753) ^(b)	12.1% [11.9%, 12.3%]	11.9% [11.2%, 12.2%]	12.3% [11.7%, 12.7%]	11.8% [10.1%, 12.5%]

Table notes: The Fire Hazard uses the National Bushfire Intelligence Capability (NBIC) Phase 2 fire line intensity modelling based on CMIP6 climate projections. Fire Hazard is assessed using the projected Fireline Intensity (FLI) for weather events with two different return intervals (i.e. a 1-in-20 year event and a 1-in-100 year event). FLI considers slope, vegetation and weather to produce a rate of heat output per unit length (kW/m) along a bushfire's front. Fire hazard is categorized as a low for $FLI < 4000$ kW/m, moderate to high for $4,000 \text{ kW/m} \leq FLI < 12,500 \text{ kW/m}$, and very high for $FLI \geq 27,501 \text{ kW/m}$. This is broadly consistent with the literature [3]. The assessment considers climate change effects based on changes in fire weather and the associated hazard that is anticipated for a meteorological event of a given return interval. This approach is different to the one adopted for the Flood Hazard, where the event magnitude is given (fixed) and the likelihood of that event varies as a result of climate change. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) The area subject to different categories of fire hazard is determined for a '1-in-20 year' and '1-in-100 year' fire weather event, in current and future climates. Values at year 2050 are interpolated using data from baseline (2025) and 2085, assuming linear change over time. (b) Values in round brackets are the area (ha) of the health district subject to a given fire hazard.

The figures below show the proportion of the health district experiencing different fire hazard categories across different time horizons and climate scenarios during a '1-in-20 year' fire weather event (Figure 18) and a '1-in-100 year' fire weather event (Figure 19).

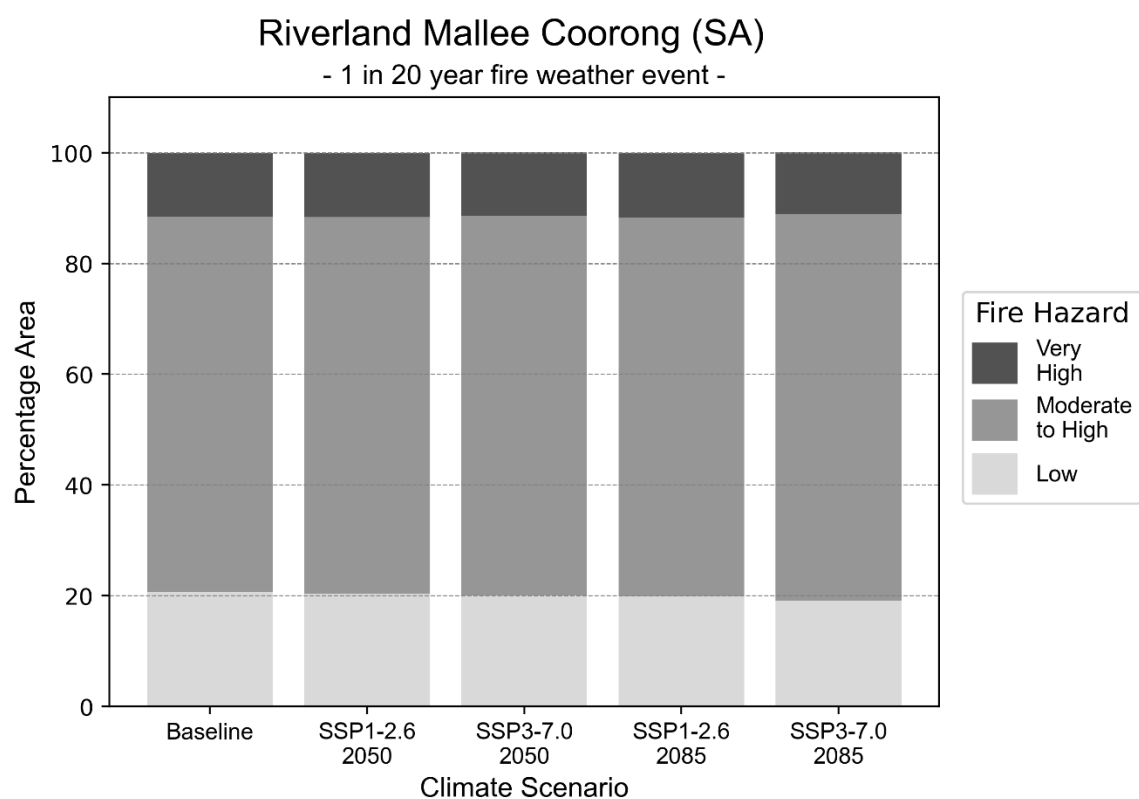


Figure 18: Stacked column chart showing the percentages of Riverland Mallee Coorong health district's total geographic area experiencing each fire hazard level during a 1-in-20-year fire weather event

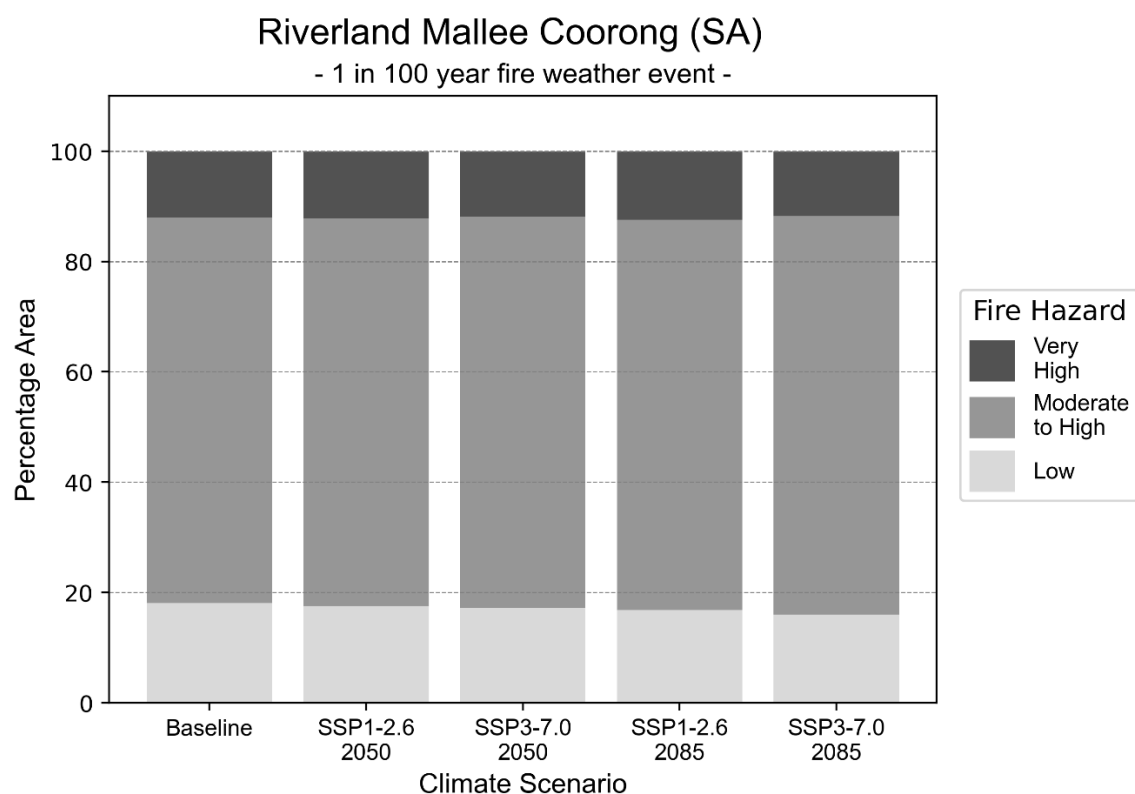


Figure 19: Stacked column chart showing the percentages of Riverland Mallee Coorong health district's total geographic area experiencing each fire hazard level during a 1-in-100-year fire weather event.

Drought hazard

Key projections:

- **Drought occurrence:** The occurrence of drought will increase across both middle of the road and reasonable worst-case scenarios and both time horizons, with the largest increase occurring under the reasonable worst-case scenario by 2085.

	Baseline	2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Number of months per year in drought ^(a)	1.5	2.7 [0.4, 4.6]	2.6 [0.9, 5.4]	3.2 [0.9, 5.9]	3.6 [0.4, 8.2]

Table notes: The drought hazard indicator uses climate projections from the CMIP6 Global Climate Models [1]. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) The number of months per year in drought is based on the Standardised Precipitation Index (SPI). SPI is a widely used index to characterise meteorological drought on a range of timescales. This indicator uses the timescale of 12 months which calculates the average months in a year within the moderate drought range. A moderate drought range is classified as SPI score of ≤ -1 . SPI is calculated from accumulated rainfall over 12 months and the mean and standard deviation from historical rainfall records.

Storm hazard

Key projections:

- **Less frequent high-intensity storms:** The frequency of high-intensity storms will decrease across both middle of the road and reasonable worst-case scenarios with the greatest decrease occurring by 2085. The number of very-high-intensity storms per year will remain consistent across both time horizons for the middle of the road scenario, but decrease across both horizons for the reasonable worst-case scenario.

	Baseline	2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Number of low-intensity storms (40-62 km/hr) per year	80.5	78.8 [69.3, 86.7]	77.4 [68.1, 85.2]	74.7 [65.7, 82.2]	73.8 [64.9, 81.2]
Number of medium-intensity storms (63-87 km/hr) per year	50.3	49.0 [43.1, 53.9]	46.0 [40.5, 50.6]	45.1 [39.7, 49.6]	42.8 [37.6, 47.0]
Number of high-intensity storms (88-117 km/hr) per year	32.5	30.4 [26.8, 33.5]	29.4 [25.8, 32.3]	27.7 [24.4, 30.5]	26.6 [23.4, 29.3]
Number of very-high-intensity storms (> 117 km/hr) per year	3.9	3.9 [3.4, 4.3]	3.2 [2.8, 3.5]	3.9 [3.5, 4.3]	3.6 [3.2, 4.0]

Table notes: The storm hazard uses climate projections from the CMIP6 Global Climate Models [1]. Daily maximum surface wind speed is used to calculate the number of annual storms across four storm intensity categories (low, medium, high and very high). The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Rainfall and flood hazard

Key projections:

- **Over eleven extreme rainfall days per year:** The number of extreme rainfall days will reduce across both middle of the road and reasonable worst-case scenarios and both time horizons, with an average of approximately eleven extreme rainfall days per year.
- **Increased flood frequency:** The frequency of flood events will increase in urban environments, but reduce in rural environments. The largest increase in flood frequency is seen in the reasonable worst-case scenario where frequency of a '1-in-100 year' flood will nearly triple by 2050 and become over six times more likely by 2085 in urban environments.

Baseline		2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Rainfall hazard^(a)					
Average number of extreme rainfall days per year (> 5 mm/day) ^(a)	11.6	11.2 [9.6,14.9]	11.1 [8.9,13.4]	10.7 [9.2,13.2]	10.7 [7.7,15.1]
Urban flood risk (flooding caused by a 1-hour rainfall event)^(b)					
Frequency of a '1-in-1 year' flood (rainfall depth of 11 mm) ^(c)		1.8 events in 1 year	1.9 events in 1 year	2.3 events in 1 year	3.0 events in 1 year
Frequency of a '1-in-10 year' flood (rainfall depth of 26 mm) ^(c)		2.1 events in 10 years	2.2 events in 10 years	2.8 events in 10 years	3.9 events in 10 years
Frequency of a '1-in-100 year' flood (rainfall depth of 46 mm) ^(c)		2.7 events in 100 years	2.9 events in 100 years	4.0 events in 100 years	6.6 events in 100 years
Rural flood risk (flooding caused by a 24-hour rainfall event)^(b)					
Frequency of a '1-in-1 year' flood (rainfall depth of 28 mm) ^(c)		0.9 events in 1 year	0.7 events in 1 year	0.8 events in 1 year	0.4 events in 1 year
Frequency of a '1-in-10 year' flood (rainfall depth of 58 mm) ^(c)		0.7 events in 10 years	0.9 events in 10 years	0.8 events in 10 years	0.2 events in 10 years
Frequency of a '1-in-100 year' flood (rainfall depth of 104 mm) ^(c)		0.8 events in 100 years	0.7 events in 100 years	0.5 events in 100 years	0.1 events in 100 years

Table notes: The rainfall hazard indicator uses climate projections from the CMIP6 Global Climate Models [1]. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets. The flood hazard indicators use climate change considerations from the Australian Rainfall and Runoff guideline to estimate the climate the climate projections [2].

Table footnotes: (a) Extreme rainfall is defined as rainfall above the 95th percentile of historical average daily rainfall in this health district in the period 1985-2014. The value in mm/day quoted in the indicator name is the 95th percentile of historic average daily rainfall for this health district. (b) See Methodology document for reasons for focusing on a 1-hour flood for urban areas and a 24-hour flood for rural areas. (c) The rainfall depths in mm quoted in the indicator names in this table report 1 in 1-, 10- and 100-year depths for this health district.

Coastal inundation hazard

Key projections:

- **Greater area inundated:** There will be an increase in the area affected by tidal inundation (i.e. area submerged during high tide) and storm surge and tidal inundation (i.e. the area submerged during a storm surge and high tide) across both middle of the road and reasonable worst-case scenarios. In the reasonable worst-case scenario, by 2085 the area inundated during a '1-in-1000-year' event will increase by over 8,000 ha.

	Baseline	2050 Scenarios		2085 Scenarios ^(a)	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Tidal inundation (ha inundated)^(b)	94,176.4	98,148.3 (+3,971.9)	98,355.1 (+4,178.7)	104,255.7 (+10,079.3)	105,604.8 (+11,428.4)
Storm surge + tidal inundation – '1-in-100 year'	107,138.1	109,645.8 (+2,507.7)	109,764.5 (+2,626.4)	113,459.1 (+6,321.0)	114,583.6 (+7,445.5)
Storm surge + tidal inundation – '1-in-1000 year' event (ha inundated)^(c)	108,139.5	110,583.9 (+2,444.4)	110,696.5 (+2,556.9)	115,495.1 (+7,355.5)	116,718.4 (+8,578.9)

Table notes: The coastal inundation hazard provides an indication of flooding in coastal areas that can be attributed to sea level rise and storm inundation. The coastal inundation hazard is only reported for health districts adjoining the coastline. This table includes the projected inundation levels as well as the change from baseline conditions (in brackets).

Table footnotes: (a) For the 2085 Scenarios planning horizon, 2100 was adopted as it provides a conservative representation of the end of this period. This horizon aligns with many State planning regulations requiring consideration of sea level rise and storm tide to 2100, making the 2100 scenario particularly valuable for planning new health facilities in coastal areas. (b) The tidal inundation indicator reports the number of hectares inundated during high tide. The baseline value reports existing inundation patterns, while the 2050 and 2085 values report high tide inundation taking account of projected sea level rise due to climate change. (c) The storm surge + tidal inundation indicators report the combined effect, in hectares inundated, of high tide, sea level rise (for the 2050 and 2085 projections), and storm surge (for 1-in-100 year and 1-in-1000 year events).

Yorke and Northern health district

Health district overview

The Yorke and Northern Local Health Network covers 75,764 square kilometres and contains 23 hospitals and health services:

- Balaklava Soldiers' Memorial District Hospital
- Booleroo Hospital
- Booleroo Medical Centre
- Burra Hospital
- Maitland Hospital
- Clare Hospital
- Crystal Hospital
- Gladstone Health Centre
- Jamestown Hospital
- Yorketown Hospital
- Laura and District Hospital
- Minlaton Health Centre
- Orroroo and District Health Service
- Orroroo Health Centre
- Peterborough Hospital
- Port Broughton District Hospital
- Port Pirie Hospital
- Riverton District Hospital
- Snowtown Hospital
- Wallaroo Hospital
- Country Health Connect (York Peninsula, Lower North and Mid North)

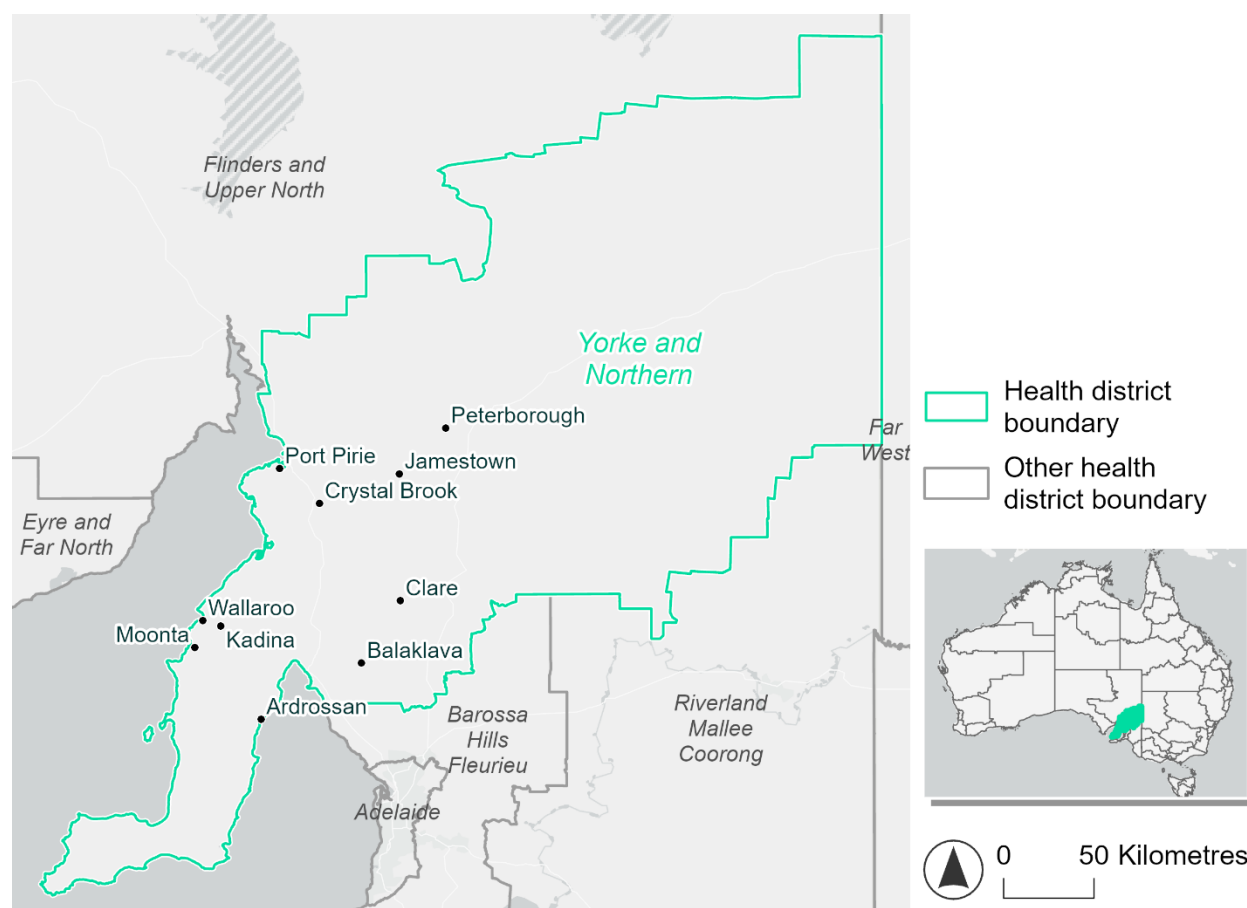


Figure 20. Map of Yorke and Northern health district.

How will climate change affect this health district?

- **Heat and humidity:** Higher average temperatures, hotter and more frequent hot days, warmer night time temperatures and more frequent heatwaves.
- **Fire:** Over 9% of this health district experiences very high fire hazard category and this will increase in the future.
- **Drought:** Number of months experiencing drought will remain the same.
- **Rainfall and flood:** More flood events in urban areas.
- **Coastal inundation:** Increased area flooded during tidal and storm surge and tidal inundation.

Yorke and Northern health district demographic data

Demographic Data	Total
Number of households	30,935
Persons 15 and older	48,976
Total families	20,225
Persons did not complete high school	27,448
One parent families with dependents	1,889 (9.3%)
Persons aged 65 and older	21,823 (28.4%)
Persons aged 4 and younger	3,743 (4.9%)
Aboriginal and Torres Strait Islander persons	2,665 (3.5%)
Persons speaks language other than English	2,113 (2.8%)
Persons working age (15-65)	42,557 (55.5%)
Population Health Data	Total
Persons with core needs for assistance	6,166 (8%)
Persons with arthritis	11,286 (14.7%)
Persons with asthma	8,065 (10.5%)
Persons with cancer	3,053 (4%)
Persons with dementia	896 (1.2%)
Persons with diabetes	6,181 (8.1%)
Persons with heart disease	4,822 (6.3%)
Persons with kidney disease	988 (1.3%)
Persons with lung condition	2,517 (3.3%)
Persons with mental health condition	8,540 (11.1%)
Persons with stroke	1,064 (1.4%)
Persons with any other condition	6,910 (9%)
Persons no health condition	38,253 (49.9%)
Socio-economic Data	Total
Persons providing unpaid care	10,506 (13.7%)
Persons homeless	246 (0.3%)
Household with lone person	10,264 (33.2%)
Households with rent and mortgage stress	12,206 (39.5%)
Households total equivalised income below \$1000 (weekly)	18,856 (61%)
Households with no motor vehicle	1,681 (5.4%)
Persons unemployed	3,609 (5.7%)

The sections that follow outline projected climate hazards for this district. Further information on this health district, including population demographics, is provided in the online dashboard.

Heat and humidity hazard

Key projections:

- **More heatwaves:** The number of heatwave events per year will increase. By 2050, under a reasonable worst-case scenario the number of heatwaves will double. By 2085, under a reasonable worst-case scenario the number of heatwaves per year will triple.
- **Hotter days and warmer nights:** The maximum temperature on hot days will increase with night time temperatures on hot nights also increasing.
- **More days above 35°C and 40°C:** The number of days per year greater than 35°C and 40°C will increase under both middle of the road and reasonable worst-case scenarios across both time horizons.

	Baseline	2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Average temperature (°C)	16.7	17.9 [17.3, 18.3]	18.1 [17.4, 18.8]	18.8 [17.8, 19.4]	19.6 [18.3, 20.6]
Maximum temperature on hot days (°C) ^(a)	36	37.5 [37, 38.1]	37.8 [36.8, 38.9]	38.4 [37.5, 39.4]	39.3 [38.3, 40.5]
Minimum temperature on hot nights (°C) ^(b)	19.9	21.3 [20.4, 21.9]	21.6 [20.5, 22]	22.2 [21, 22.9]	23.1 [21.9, 24]
Average apparent temperature on hot days (°C) (NOAA Heat Index) ^(c)	34.6	35.6 [35.2, 36.1]	35.7 [35.2, 36.5]	36 [35.4, 36.9]	36.7 [35.9, 37.6]
Average heatwave duration in days ^(d)	5	5 [5, 5]	5 [5, 5]	5 [5, 5]	5 [5, 5]
Number of heatwaves per year ^(d)	2	3 [2, 4]	4 [2, 5]	4 [3, 5]	6 [4, 7]
Number of days per year > 35°C	24	35 [30, 39]	37 [30, 45]	42 [35, 50]	50 [41, 61]
Number of days per year > 40°C	5	9 [7, 11]	10 [6, 14]	12 [9, 17]	16 [12, 22]

Table notes: The heat and humidity hazard uses climate projections from the CMIP6 Global Climate Models [1]. Daily projections of maximum and minimum near-surface temperature and mean relative humidity are used to calculate eight heat and humidity indicators. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) Based on the 95th percentile of daily maximum air temperature. (b) Based on the 95th percentile of daily minimum air temperature, representing the coldest part of the night on very hot nights. (c) The [National Oceanic and Atmospheric Administration \(NOAA\) Heat Index](#) is a measure of how hot it feels when relative humidity is factored in alongside actual air temperature. It is calculated on days with a maximum temperature of 27°C and above. Interpretation of Heat Index values: 27°C to 32°C indicates caution, 33°C to 41°C indicates extreme caution, 42°C to 54°C indicates danger and over 54°C indicates extreme danger. See methodology document for further explanation of Heat Index categories. (d) A heatwave is defined as three or more consecutive days where both daytime and overnight temperatures (daily mean temperatures) are unusually high for the location, based on the [Bureau of Meteorology's Excess Heat Factor](#) method. For this district, an unusually high daily mean temperature is approximately 27.6°C or above.

Fire hazard

Key projections:

- **Fire hazard evenly spread currently:** Under baseline conditions 42-44% of the district experiences low fire hazard while 45-46% experiences moderate to high hazard. 9.2% of the district experiences very high fire hazard during a 1-in-20-year fire weather event, increasing to 11.5% for a 1-in-100-year event.
- **Very high hazard area to increase slightly:** In a future climate across both 2050 and 2085 scenarios, the proportion of the district experiencing very high fire hazard will increase slightly, by up to 2.2 percentage points for a 1-in-20-year fire weather event and up to 2.8 for a 1-in-100-year event. The low and moderate to high fire hazard areas both decline slightly, by up to 1.6 percentage point

	Baseline	2050 Scenarios		2085 Scenarios	
		Sustainability	Reasonable worst-case	Sustainability	Reasonable worst-case
Hazard for a '1-in-20 year' fire weather event^(a)					
Proportion (%) of district experiencing 'Low' fire hazard	44.0% (3,331,925) ^(b)	43.9% [43.5%, 44.4%]	43.6% [43.3%, 43.9%]	43.7% [42.9%, 44.9%]	43.0% [42.4%, 43.7%]
Proportion (%) of district experiencing 'Moderate to High' fire hazard	46.8% (3,547,138) ^(b)	46.5% [45.2%, 47.9%]	46.3% [45.1%, 47.6%]	46.0% [43.0%, 49.5%]	45.6% [42.8%, 48.8%]
Proportion (%) of district experiencing 'Very High' fire hazard	9.2% (697,328) ^(b)	9.7% [8.9%, 10.3%]	10.1% [9.1%, 11.2%]	10.3% [8.5%, 11.8%]	11.4% [9.0%, 14.0%]
Hazard for a '1-in-100 year' fire weather event^(a)					
Proportion (%) of district experiencing 'Low' fire hazard	42.9% (3,249,501) ^(b)	42.8% [42.2%, 43.3%]	42.4% [42.0%, 42.8%]	42.6% [41.3%, 43.9%]	41.7% [40.8%, 42.6%]
Proportion (%) of district experiencing 'Moderate to High' fire hazard	45.6% (3,457,582) ^(b)	45.2% [44.3%, 46.7%]	45.0% [43.5%, 46.5%]	44.5% [42.4%, 48.2%]	44.0% [40.6%, 47.7%]
Proportion (%) of district experiencing 'Very High' fire hazard	11.5% (869,309) ^(b)	12.1% [11.0%, 13.2%]	12.7% [11.5%, 13.9%]	12.9% [10.3%, 15.6%]	14.3% [11.5%, 17.3%]

Table notes: The Fire Hazard uses the National Bushfire Intelligence Capability (NBIC) Phase 2 fire line intensity modelling based on CMIP6 climate projections. Fire Hazard is assessed using the projected Fireline Intensity (FLI) for weather events with two different return intervals (i.e. a 1-in-20 year event and a 1-in-100 year event). FLI considers slope, vegetation and weather to produce a rate of heat output per unit length (kW/m) along a bushfire's front. Fire hazard is categorized as a low for $FLI < 4000$ kW/m, moderate to high for $4,000 \text{ kW/m} \leq FLI < 12,500 \text{ kW/m}$, and very high for $FLI \geq 27,501 \text{ kW/m}$. This is broadly consistent with the literature [3]. The assessment considers climate change effects based on changes in fire weather and the associated hazard that is anticipated for a meteorological event of a given return interval. This approach is different to the one adopted for the Flood Hazard, where the event magnitude is given (fixed) and the likelihood of that event varies as a result of climate change. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) The area subject to different categories of fire hazard is determined for a '1-in-20 year' and '1-in-100 year' fire weather event, in current and future climates. Values at year 2050 are interpolated using data from baseline (2025) and 2085, assuming linear change over time. (b) Values in round brackets are the area (ha) of the health district subject to a given fire hazard.

The figures below show the proportion of the health district experiencing different fire hazard categories across different time horizons and climate scenarios during a '1-in-20 year' fire weather event (Figure 21) and a '1-in-100 year' fire weather event (Figure 22).

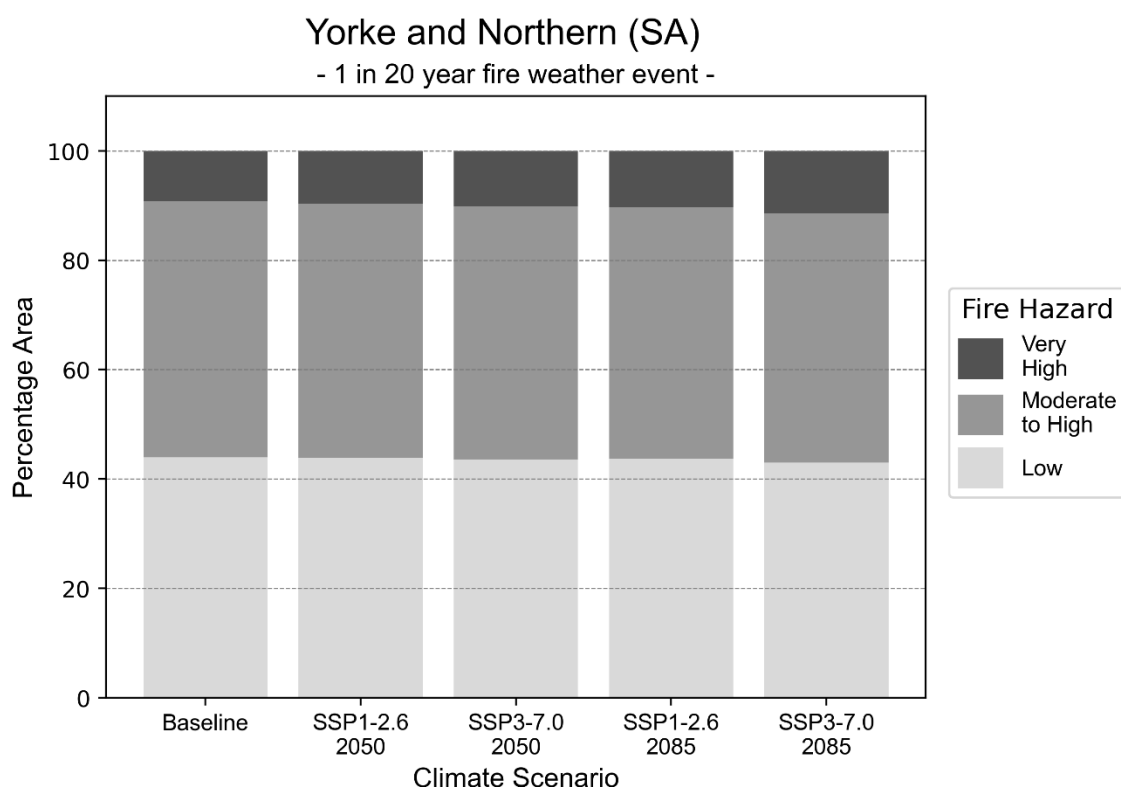


Figure 21: Stacked column chart showing the percentages of Yorke and Northern health district's total geographic area experiencing each fire hazard level during a 1-in-20-year fire weather event.

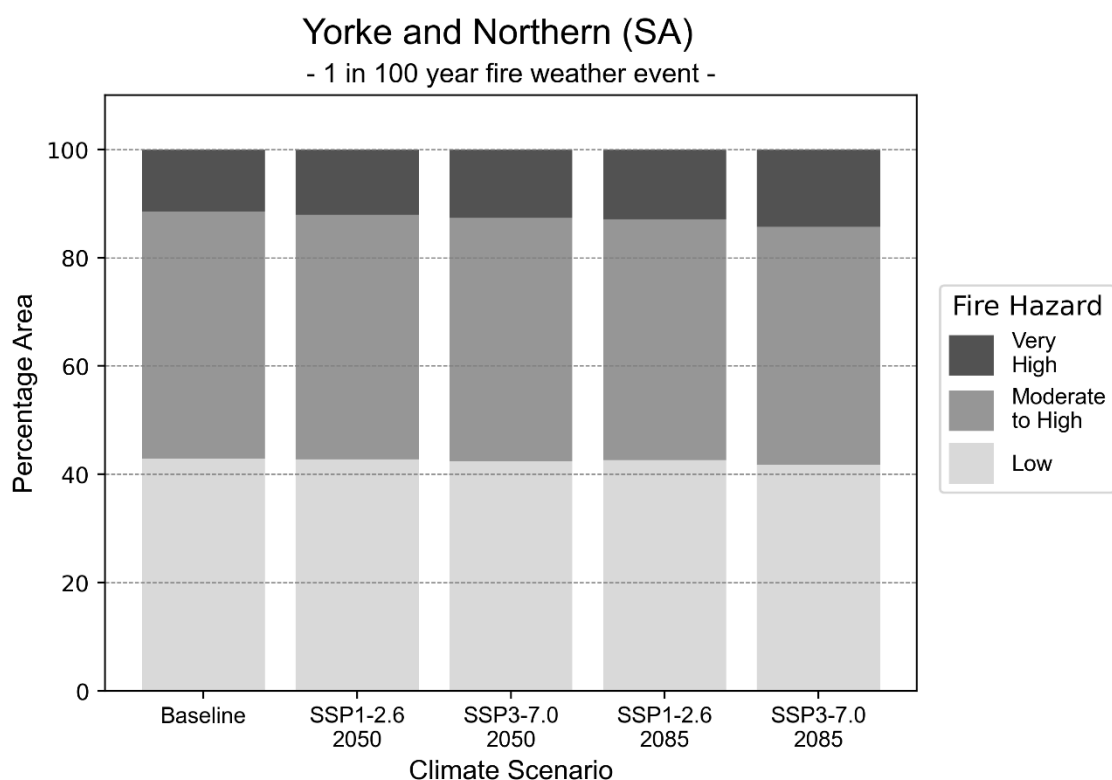


Figure 22: Stacked column chart showing the percentages of Yorke and Northern health district's total geographic area experiencing each fire hazard level during a 1-in-100-year fire weather event.

Drought hazard

Key projections:

- **Drought occurrence:** The occurrence of drought will increase across both middle of the road and reasonable worst-case scenarios and both time horizons, with the largest increase occurring under the reasonable worst-case scenario by 2085.

Baseline		2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Number of months per year in drought ^(a)	1.6	2.6 [0.7, 4.7]	2.6 [0.9, 5.5]	3.1 [0.8, 6.1]	3.6 [0.5, 8.6]

Table notes: The drought hazard indicator uses climate projections from the CMIP6 Global Climate Models [1]. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Table footnotes: (a) The number of months per year in drought is based on the Standardised Precipitation Index (SPI). SPI is a widely used index to characterise meteorological drought on a range of timescales. This indicator uses the timescale of 12 months which calculates the average months in a year within the moderate drought range. A moderate drought range is classified as SPI score of ≤ -1 . SPI is calculated from accumulated rainfall over 12 months and the mean and standard deviation from historical rainfall records.

Storm hazard

Key projections:

- **Less frequent high-intensity storms:** The frequency of high-intensity storms will decrease across both middle of the road and reasonable worst-case scenarios with the greatest decrease occurring by 2085. The number of very-high-intensity storms per year will remain consistent across both time horizons for the middle of the road scenario, but decrease across both horizons for the reasonable worst-case scenario.

Baseline		2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Number of low-intensity storms (40-62 km/hr) per year	74.5	69.1 [60.8, 76.0]	70.5 [62.1, 77.6]	70.6 [62.1, 77.6]	69.1 [60.8, 76.0]
Number of medium-intensity storms (63-87 km/hr) per year	73.1	71.9 [63.3, 79.1]	67.0 [59.0, 73.7]	64.5 [56.8, 71.0]	63.0 [55.5, 69.3]
Number of high-intensity storms (88-117 km/hr) per year	30.5	29.5 [25.9, 32.4]	28.5 [25.1, 31.4]	27.1 [23.8, 29.8]	26.0 [22.9, 28.6]
Number of very-high-intensity storm (> 117 km/hr) per year	5.7	6.0 [5.3, 6.6]	4.7 [4.2, 5.2]	5.7 [5.0, 6.2]	4.6 [4.0, 5.1]

Table notes: The storm hazard uses climate projections from the CMIP6 Global Climate Models [1]. Daily maximum surface wind speed is used to calculate the number of annual storms across four storm intensity categories (low, medium, high and very high). The primary indicator value reports the median from the nine climate models, with the range reported in square brackets.

Rainfall and flood hazard

Key projections:

- **Seven extreme rainfall days per year:** The number of extreme rainfall days will decrease slightly across both middle of the road and reasonable worst-case scenarios and both time horizons, with an average of approximately seven extreme rainfall days per year.
- **Increased flood frequency:** The frequency of flood events will increase in urban environments. The largest increase in flood frequency is seen in the reasonable worst-case scenario where frequency of a '1-in-100 year' flood will nearly triple by 2050 and become six times more likely by 2085 in urban environments. Flood events in rural areas will remain consistent across 2050 scenarios but will reduce across 2085 scenarios, particularly the reasonable worst-case scenario.

Baseline		2050 Scenarios		2085 Scenarios	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Rainfall hazard^(a)					
Average number of extreme rainfall days per year (> 5 mm/day) ^(a)	7.7	7.3 [6.0,9.3]	7.3 [5.9,8.7]	7.0 [5.9,8.9]	6.9 [4.8,10.0]
Urban flood risk (flooding caused by a 1-hour rainfall event)^(b)					
Frequency of a '1-in-1 year' flood (rainfall depth of 12 mm) ^(c)		1.7 events in 1 year	1.8 events in 1 year	2.2 events in 1 year	2.9 events in 1 year
Frequency of a '1-in-10 year' flood (rainfall depth of 28 mm) ^(c)		2.1 events in 10 years	2.2 events in 10 years	2.8 events in 10 years	3.9 events in 10 years
Frequency of a '1-in-100 year' flood (rainfall depth of 52 mm) ^(c)		2.6 events in 100 years	2.8 events in 100 years	3.9 events in 100 years	6.3 events in 100 years
Rural flood risk (flooding caused by a 24-hour rainfall event)^(b)					
Frequency of a '1-in-1 year' flood (rainfall depth of 34 mm) ^(c)		1.0 events in 1 year	0.9 events in 1 year	0.8 events in 1 year	0.4 events in 1 year
Frequency of a '1-in-10 year' flood (rainfall depth of 74 mm) ^(c)		0.9 events in 10 years	1.0 events in 10 years	1.0 events in 10 years	0.5 events in 10 years
Frequency of a '1-in-100 year' flood (rainfall depth of 129 mm) ^(c)		1.1 events in 100 years	1.1 events in 100 years	0.8 events in 100 years	0.3 events in 100 years

Table notes: The rainfall hazard indicator uses climate projections from the CMIP6 Global Climate Models [1]. The primary indicator value reports the median from the nine climate models, with the range reported in square brackets. The flood hazard indicators use climate change considerations from the Australian Rainfall and Runoff guideline to estimate the climate the climate projections [2].

Table footnotes: (a) Extreme rainfall is defined as rainfall above the 95th percentile of historical average daily rainfall in this health district in the period 1985-2014. The value in mm/day quoted in the indicator name is the 95th percentile of historic average daily rainfall for this health district. (b) See Methodology document for reasons for focusing on a 1-hour flood for urban areas and a 24-hour flood for rural areas. (c) The rainfall depths in mm quoted in the indicator names in this table report 1 in 1-, 10- and 100-year depths for this health district.

Coastal inundation hazard

Key projections:

- **Greater area inundated:** There will be an increase in the area affected by tidal inundation (i.e. area submerged during high tide) and storm surge and tidal inundation (i.e. the area submerged during a storm surge and high tide) across both middle of the road and reasonable worst-case scenarios. In the reasonable worst-case scenario, by 2085 the area inundated during a '1-in-1000-year' event will increase by just over 5,000 ha.

	Baseline	2050 Scenarios		2085 Scenarios ^(a)	
		Middle of the road	Reasonable worst-case	Middle of the road	Reasonable worst-case
Tidal inundation (ha inundated)^(b)	3,227.4	3,677.3 (+449.9)	3,862.8 (+635.4)	4,811.9 (+1,584.5)	5,125.1 (+1,897.8)
Storm surge + tidal inundation – '1-in-100 year' event (ha inundated)^(c)	6,660.7	7,559.0 (+898.3)	7,615.3 (+954.6)	9,432.2 (+2,771.5)	10,134.6 (+3,473.9)
Storm surge + tidal inundation – '1-in-1000 year' event (ha inundated)^(c)	7,452.1	8,494.5 (+1,042.4)	8,564.8 (+1,112.8)	11,496.5 (+4,044.4)	12,485.8 (+5,033.7)

Table notes: The coastal inundation hazard provides an indication of flooding in coastal areas that can be attributed to sea level rise and storm inundation. The coastal inundation hazard is only reported for health districts adjoining the coastline. This table includes the projected inundation levels as well as the change from baseline conditions (in brackets).

Table footnotes: (a) For the 2085 Scenarios planning horizon, 2100 was adopted as it provides a conservative representation of the end of this period. This horizon aligns with many State planning regulations requiring consideration of sea level rise and storm tide to 2100, making the 2100 scenario particularly valuable for planning new health facilities in coastal areas. (b) The tidal inundation indicator reports the number of hectares inundated during high tide. The baseline value reports existing inundation patterns, while the 2050 and 2085 values report high tide inundation taking account of projected sea level rise due to climate change. (c) The storm surge + tidal inundation indicators report the combined effect, in hectares inundated, of high tide, sea level rise (for the 2050 and 2085 projections), and storm surge (for 1-in-100 year and 1-in-1000 year events).

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