## Regional Adaptation Snapshot Barwon South West

The Barwon South West region extends from the tip of Queenscliff Heads on Port Phillip Bay to the border of South Australia. About half the population lives in Geelong and other regional centres include Warrnambool, Colac and Portland.

## State of adaptation in Barwon South West 2018

Over the last year, DELWP Community and Partnership Officers organised a stocktake of climate adaptation projects underway in the Barwon South West region. We conducted a survey or held in-depth discussions with a total of 67 stakeholders to identify community views and ask people what is already happening and what else could be done to adapt to climate change in the region.

There are over 40 adaptation projects in Barwon South West. Among them, there's a big focus on the natural environment in one major initiative, the catchment management authorities are collaboratively mapping the vulnerability of natural assets. Other projects include municipal adaptation plans, climate literacy sessions by Agriculture Victoria, and health organisations partnering on a climate resilience program.

Eight out of ten people surveyed have a high understanding of climate change but fewer are aware about climate change adaptation. There remains confusion between adaptation and mitigation—reducing carbon emissions. Around half of the stakeholders said farmers are the most vulnerable to climate change, which reflects the importance of agriculture to the region.

## What are the regional adaptation snapshots?

In 2017 the Victorian Government committed another \$9.3 million over three years to support regional solutions through the *Supporting our Regions to Adapt* program. To ensure this funding addresses the most critical needs, officers from the Department of Environment, Land, Water and Planning (DELWP) examined regional impacts of climate change and existing adaptation projects and strategies. Officers spoke to community members, businesses, researchers and government bodies in each region and assessed priorities for communities based on the impacts they're facing as well as their needs and values.

In early 2018, DELWP completed climate change gap analyses in six regions across the state. This report presents a high-level summary of the analysis in Barwon South West. It provides a snapshot of impacts, actions, gaps and priorities in the region.

Climate change impacts are already being felt in Victoria—and successful adaptation requires solutions that are identified, owned and driven locally.

Within Victoria, communities, industry and local government are already leading the way.



Environment, Land, Water and Planning

## What we heard - regional priorities

During the consultation, people identified many projects that could help the region adapt to climate change. Some of the priorities include:

- » improving levels of climate change understanding and the capacity of organisations and sectors to respond to impacts
- » improving understanding of climate change risks to assets, particularly in forestry, fisheries, energy, tourism, ports and rail
- » translating risk assessments into actionable, localised plans for managing risks and vulnerabilities identified at regional or sectoral scales
- identifying regional leaders in adaptation planning,
   to better build shared capacity, avoid duplication of effort
   and streamline investment
- » identifying champions among credible industry bodies and similar groups to disseminate information on climate change impacts
- researching potential opportunities presented by climate change; for example, in tourism and primary industries
- » coordinating tourism operators to work closely with emergency management organisations to plan for disasters and long-term climate impacts
- updating and expanding the South West Climate Change Portal to include all sectors and to support collaboration across sectors

## Project spotlight: Port Fairy Local Coastal Hazard Assessment

The Port Fairy Local Coastal Hazard Assessment drew upon collaboration between Moyne Shire and a coastal monitoring group of local citizens. The group members provided information on beach erosion. They also translated the complex outputs of the hazard assessment into a series of interpretive posters that were used in a survey on values and priorities, which received over 800 responses.

East Beach has been receding at 0.1 to 0.3 metres per year over the past 150 years. Although East Beach has a long rock wall built for coastal defence, approximately 30 buildings are vulnerable to the impacts of sea level rise, coastal erosion and increased storm events. Should the East Beach retaining wall fail, the number of buildings at risk increases to 120. If sea level rises by 0.8 metres by 2080 and the revetment fails, 200 buildings in the East Beach area would be vulnerable. Moyne Shire has released a Port Fairy Coastal Climate Change adaptation plan discussion paper to continue the conversation.

## Project spotlight: Climate Resilient Communities

Climate Resilient Communities of the Barwon South West brings together all nine municipalities of the region, in addition to Golden Plains Shire and partner agencies, to begin to understand and respond to future climatic changes. The project has established a collaborative forum for managing shared impacts.

In phase one, the project identified key vulnerabilities and high priority research to increase the understanding of resilience to climate risks. In phase two, all councils developed an adaptation plan based on their key vulnerabilities. Through the process, councils have opted to embed climate change into their decision-making processes and build further staff capability to manage risks. Also as a part of phase two, the partners established regional adaptation priorities, based on an analysis of the strengths and weaknesses across councils.

## Climate Change Adaptation in Victoria

To find out more about adaptation in Victoria

<u>Victoria's Climate</u> <u>Change Adaptation</u> <u>Plan 2017-2020</u>

# Values and perceptions

We held discussions with a total of 67 stakeholders, including government and industry bodies, community groups and health care providers and Aboriginal organisations.

Eight out of ten people reported a good understanding of climate change, but they believe the broader community has a more limited understanding about the issue. Respondents weren't as aware about climate change adaptation, however, and there remains confusion between adaptation and mitigation, which is the reduction of carbon emissions. Half the people surveyed believe their organisation or broader sector isn't currently capable of responding adequately to climate impacts. They cited many barriers, including a lack of human resources and information, restrictive or outdated legislation, the absence of strategic leadership within sectors, and the gap between adaptation needs and funding.

Half the people said farmers are the most vulnerable to climate change—a proportion that recognises the significance of agriculture to the region. People were also concerned about the vulnerability of the elderly.

and spring

## Trends across Barwon South West Key demographic statistics



and fewer frosts

## Climate change sector impacts in Barwon South West

		HEALTH AND HUMAN SERVICES	PRIMARY PRODUCTION
KEY CLIMATE IMPACTS AND RISK FACTORS	<ul> <li>Increasing sea level and storm surges</li> <li>Increasing fire weather and heatwaves</li> <li>Wind farms concentrated along the power transmission line vulnerable to storm damage</li> </ul>	<ul> <li>» Increasing heatwaves, fire weather and solar radiation</li> <li>» Ageing population and areas of social disadvantage</li> <li>» Population growth concentrated in a few key locations</li> <li>» Coastal areas experience population influx in summer</li> </ul>	<ul> <li>Decreasing rainfall</li> <li>Increasing temperature, hot days and fire weather</li> <li>Lack of diversity in production— dairy industry accounts for half the region's exports</li> <li>Farm land and infrastructure exposed to fire and flood</li> </ul>
POTENTIAL IMPACTS	<ul> <li>» Erosion and infrastructure damage along the coastline</li> <li>» Increased infrastructure maintenance costs</li> <li>» Increased disruption to services and export sector</li> <li>» Increased threat to tourism infrastructure</li> </ul>	<ul> <li>» More stress on health and emergency services, especially during extreme events</li> <li>» More heat-related deaths, particularly among the elderly and disadvantaged</li> <li>» Mental health effects</li> <li>» Risks to tourists unfamiliar with conditions</li> </ul>	<ul> <li>Changed fodder or pasture production pattern</li> <li>Changed distribution of pests and diseases</li> <li>Heat stress on livestock and crops</li> <li>Reduced water security</li> <li>Declining log yield due to bushfires and reduced rainfall</li> </ul>
			WATER
KEY CLIMATE IMPACTS AND RISK FACTORS	<ul> <li>Decreasing rainfall</li> <li>Increasing sea level and ocean acidification</li> <li>Increasing fire weather and temperature</li> <li>Land clearing has already degraded some catchments and waterways</li> </ul>	<ul> <li>» Increasing flooding</li> <li>» Increasing fire weather</li> <li>» Great Ocean Road vulnerable to landslides, fire and flooding</li> <li>» Bushfire exposure to roads in west and Cape Otway region</li> </ul>	<ul> <li>» Increasing temperature and evaporation rates</li> <li>» Decreasing rainfall and environmental flows</li> <li>» Decreasing soil moisture</li> <li>» Lack of drought-proof water infrastructure</li> </ul>
POTENTIAL IMPACTS	<ul> <li>Amplification of existing threats to flora and fauna</li> <li>Coastal squeeze—species cannot move further south</li> <li>Erosion of shores and saline intrusion to the water table</li> <li>Changing dynamics of invasive species</li> <li>Damage to popular environmental sites</li> </ul>	<ul> <li>Increased maintenance and retrofit costs</li> <li>Disruption of transport routes via ports, roads, rail or air travel</li> <li>Blocked tourist access to holiday destinations, particularly along the Great Ocean Road</li> </ul>	<ul> <li>Damage to water infrastructure by fire or flood</li> <li>Increased pressure on water supply</li> <li>Saline intrusion to the water table</li> </ul>

**Fact Sheets** More on projected climate impacts for Barwon South West

> <u>Climate Ready</u> Barwon South West

**Climate Ready** 

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## Climate action in Barwon South West

We identified 41 adaptation action projects currently or recently implemented in Barwon South West, but we know there are many more. The majority were focused on actions to build more sustainable and resilient communities, including conducting coastal risk and hazard assessments and developing adaptation plans. With the primary production sector, climate modelling and scenario planning projects were conducted for agriculture and dairy as well as future land-use.

## Virtual Centre for Climate Change Innovation

The Virtual Centre for Climate Change Innovation (VCCCI) has been established to strengthen Victoria's role as a climate change leader.



#### PROJECTS SUPPORTING PRIMARY PRODUCTION TO ADAPT

- Climate modelling on impacts to land-use, dairy and agriculture
- » Awareness raising
- » Native Agroforestry

#### WATER PROJECTS

- » Urban water strategy
- » Improving environmental flows
- » Mainstreaming climate change into business practices

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#### PROJECTS AIMED AT BUILDING SUSTAINABLE & RESILIENT COMMUNITIES

- » Strengthening leadership
- Council Adaptation Planning
- Mainstreaming climate change decision making
- Coastal risk and hazard assessments



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#### PROJECTS WORKING ON ECOSYSTEM AND BIODIVERSITY PROTECTION

- » Protecting marine environments
- Ecosystem protection and restoration
- Improving biodiversity knowledge

#### PROJECTS IMPROVING EMERGENCY MANAGEMENT AND PREPAREDNESS

- » Heatwave preparedness
- Reducing bushfire risk
- Emergency planning and preparedness



## Project leads

Of the 41 climate action projects identified in Barwon South West the majority were led by local councils and shires or state government agencies.

Community groups, such as Landcare groups, and private sector organisations, such as Powercor and Dairy Australia, also led a number of adaptation projects across the region.



## Project spotlight: Managing Great Ocean Road landslips

Landslips along the Great Ocean Road are an on-going concern, because bushfires and high rainfall in the area make the road vulnerable. In 2015 and 2016, there were up to 100 landslips in Wye River and Separation Creek. Bushfires in the Otway Ranges National Park spread to the townships and damaged up to 80 per cent of buildings. Shortly after, heavy rains increased the risk of landslides. By September 2016, road closures caused up to 300 accommodation cancellations, affecting profits for local businesses.

The Victorian Government has committed \$53 million to fund geotechnical hazard mitigation work along the Great Ocean Road. Without adequate planning and management, landslips will become an increasingly common occurrence as the intensity of bushfires increases across the Barwon South West and rainfall events become more extreme.

## Key gaps in Barwon South West

During the consultation, people identified many projects that could help the region adapt to climate change. Taking into account the measures already under way—and focussing on regional issues, rather than state or national—here are some gaps in Barwon South West:

- » uncertainty about current levels of capacity and capability to respond to climate change impacts
- » not all sectors have comprehensive risk assessments to assist them to understand how climate change may impact their assets, operations and services
- » lack of localised plans for managing risks and vulnerabilities identified at regional or sectoral scales
- » need for greater coordination of tourism operators with emergency management organisations to plan for disasters and long-term climate impacts
- » need to engage the expertise of education providers to better share climate change knowledge
- » organisations need to build more climate change knowledge of staff in non-environmental or sustainability roles, to better ensure climate change is incorporated in planning and decision-making
- » lack of clear long-term planning for cross sector collaboration to share climate change knowledge, skills and learning

## Project spotlight: Preparing the Barwon South Region for Climate Change

Funding of \$4.823 million over three years has been provided to Barwon South West to deliver a Barwon Regional Partnership priority project as well as local priority works to improve access to public land.

The project will build the region's capacity to respond to climate change impacts in the areas of:

- » emergency management
- » coastal and foreshore asset maintenance and replacement
- » landscape scale adaptation



## Enabling adaptation

We found that many sectors in Barwon South West don't have any adaptation projects underway, including forestry, fisheries, energy, tourism, ports and rail. Some cited a lack of funding; others, a lack of risk to justify action. Other challenges include finding the capacity, retaining skilled staff, accessing data and limited knowledge of impacts. Unsurprisingly, the organisations that haven't run any adaptation projects reported a lower level of understanding of climate change adaptation.

Conversely, the organisations planning new adaptation projects tended to have undertaken them in the past. So the biggest barrier is undertaking the first project once you start adapting, you keep on adapting.

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## What's next?

The information gathered through the Barwon South West climate change adaptation gap analysis will inform priorities for action under the *Supporting our Regions to Adapt* program over the next three years.

This program will ensure government works in partnership with regional communities. We'll collaborate to support action that reduces the risk presented by climate change and help Victorians meet the challenges and act on the opportunities of climate change.

## FOR MORE INFORMATION ON WHAT IS HAPPENING IN BARWON SOUTH WEST CONTACT:

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### Climate Action in Victoria

To find out about other Victorian Government climate actions visit:

climatechange.vic.gov.au

 $\odot$  The State of Victoria Department of Environment, Land, Water and Planning 2018



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