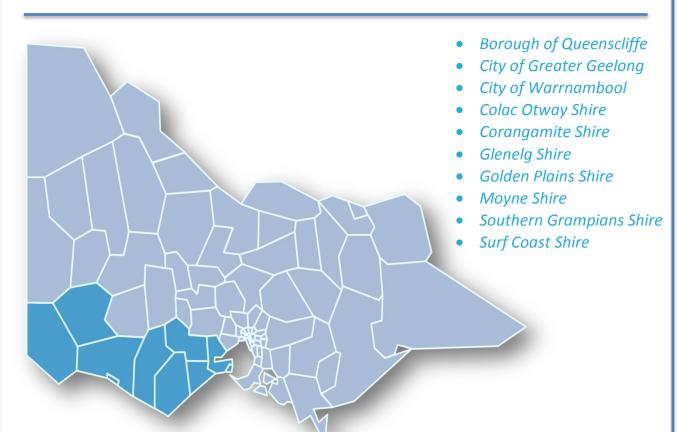


Climate Resilient Communities of the Barwon South West

Regional Climate Adaptation Priorities Report



This report details the shared regional risks and vulnerabilities applicable to the Barwon South West region as a result of a changing climate. Adaptation actions are prioritised and themed to produce a set of priority regional actions







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Executive Summary

Climate change and disasters do not respect organisational or geographic boundaries. Efforts to adapt to and mitigate the impacts of climate change likewise require an approach that goes beyond local government divisions. The *Climate Resilient Communities of the Barwon South West* project has helped deliver adaptation plans for each participating Council, but an integrated and regional approach is also necessary. This report highlights the key findings of this project at the regional level, articulating critical local government adaptation principles for regional application, identifying eight regional risks and proposing 11 adaptation actions to enhance regional resilience.

This document has been developed in partnerships with the 10 Councils of the Barwon South West region, however this does not represent a formal endorsement nor does it commit any Council to deliver upon the actions herein.

Introduction

The Climate Resilient Communities of the Barwon South West Project (the CRC BSW Project) is a regional partnership project with includes 10 Councils and a range of partner agencies. It commenced in 2012 and is supported primarily by the Department of Environment, Land, Water and Planning. The aim of the project is to build the capacity of Councils and partner agencies to implement appropriate responses to climate change impacts with a specific focus on managing extreme weather events.

The purpose of the project was to both undertake climate change risk assessments for council operations and services and to undertake adaptation planning with each council to address the priority risks identified.

There were three key stages in the project (see stages 2-4 in Figure 1) contextualisation, risk assessment and adaptation planning. The key findings for each of these three phases are outlined below with emphasis on the actions that can be undertaken at a regional level to respond to climate change.

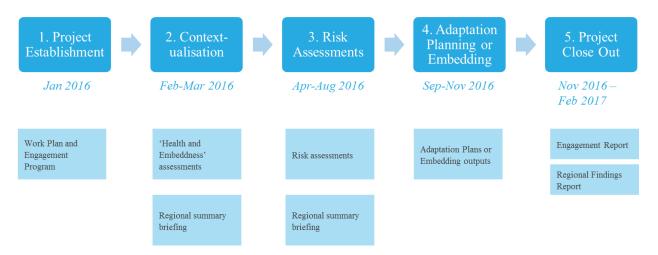


Figure 1 Key stages of BSW project

For more details of the methodology see Project methodology overview document.

Regional findings for the contextualisation

In Stage 2, a health and embeddedness check was undertaken, rating each council against seven strategies identified as important for enhancing adaptation actions (see list of strategies below). The ratings were determined based on information collected through a desktop review of relevant council documents and engagement with key staff through a day long face to face workshop.

The seven strategies include:

- Align with existing policies and strategies Strategies and policies often set the objectives and work plans for councils. Therefore, an important first step is to integrate climate considerations into relevant strategies and policies.
- Collaboration within and across organisations Collaboration is essential when dealing with climate change impacts, as impacts will not respect organisational or geographic boundaries.
- Garner senior management support Senior management is important as members can decide which initiatives are given funding and resources, and also act as gatekeepers for most decisions of council.
- 4) Embrace the need for organisational change The willingness of an organisation to change. This can be measured through the level of staff awareness and desire to implement change generally and change associated with climate change.
- 5) Building knowledge and ability Knowledge of the issue and the ability to respond are key when it comes to considering and responding to climate change.

- 6) Encourage organisational learning An organisation must learn from previous experience to continuously improve the way it operates- this learning can be through formal and informal channels.
- 7) **Develop a shared understanding of adaptation purpose** It is important for an organisation to have a clear and communicated frame for climate change. Often climate change and its impacts can be interpreted differently by each stakeholder, which can mean that organisational staff are not working towards the same vision of adaptation.

For more information on the health and embeddedness check see: *The Health and Embeddedness Check explained*.

Regional strengths and weaknesses

Across the region, the greatest strength of Councils was in relation Strategy 3 (garnering senior management support) and Strategy 5 (building knowledge and ability. Strategy 7 (Developing a shared understanding of adaptation purpose) scored lowest across the Councils.

Details of these assessments are outlined in Tables 1 and 2 (below).

Table 1: Insights for regional strengths

Strength	Garner senior management support
Description	Support from senior management is important as they can decide which initiatives are given funding and resources. Senior managers also act as gatekeepers for most decisions of council.
Findings from region	Most of the senior managers across the region are committed to adaptation work. They have signed off this project, and are committed to their councils responding. In many instances, experiences of climate impacts within the shire have been a driver of executive support for adaptation action.
Comparison to other councils	Learnings from other councils suggest that often it is managers and coordinators, rather than senior executives, which are more of a barrier to action. Working specifically with this level of staff can therefore be useful to encourage broader up take of adaptation.
Strength	Building knowledge and ability
Description	Knowledge of the issue and the ability to respond are key when it comes to considering and responding to climate change.
Findings from region	While adaptation plans have not been developed in councils participating in this project, action is occurring and lessons are being learnt. Most coastal councils are experiencing coastal erosion, and therefore have been required to investigate

the issue and potential climate change impacts in their region. Emergency management particularly in relation to heatwaves and bushfires has been high priority. This has seen great improvement in emergency management procedures and responses. This strategy has also been assisted by State and Federal government funding of research into specific areas at risk to climate change, such as coasts and native vegetation. Comparison These findings from the BSW councils are very similar to other councils across to other Victoria. While some specific pieces of work are useful to demonstrate the councils potential impacts of climate change, care needs to be taken when it comes to attempting to have complete information and the capacity to respond with partial information. Climate change is uncertain and therefore, full information is impossible.

Table 2 Insights for regional weakness

Weakness	Develop a shared understanding of adaptation purpose
Description	It is important for an organisation to have a clear and communicated frame for climate change. Often climate change and its impacts can be interpreted differently by each stakeholder, which can mean that organisational staff are not working towards the same vision of adaptation.
Findings from region	For most councils, staff did not demonstrate a clear understanding of the adaptation objectives at the council or have a common frame for adaptation. This is understandable, as this should be an outcome of this project.
Comparison to other councils	This is a strategy that many councils struggle with, and one that is often overlooked within council adaptation planning. Many councils' adaptation objectives are simply to reduce high and extreme climate change risks. However, given the importance of getting individual teams to take on adaptation and integrate it into their own work, and the limitations in perceiving future risks, a broader discussion on objectives and establishing of a general approach is needed to set clear boundaries for action.

Strategies for supporting regional adaptation action

While all seven of these strategies can theoretically be supported through the Climate Resilient Communities of the Barwon South West Project, three in particular were deemed to be most valuable for regional adoption. Approaches for building on these strategies were identified by the PRG and outlined in Table 3, Table 4 and Table 5.

Although these strategies do not directly represent adaptation actions, they are important for regionally embedding adaptation across each council to creating a facilitating environment to improve adaptation outcomes. These principles also support the implementation of the regional adaptation action outlined in section 5 below.

Table 3. Recommended strategies for supporting regional adaptation action - Collaboration

	Description							
Embedding Strategy	Collaboration within and across organisations - Collaboration is essential when dealing with climate change impacts, as impacts will not respect organisational or geographic boundaries.							
PRG Recommendations	1. The Climate Resilient Communities of the Barwon South West (CRC for BSW) grouping has been successful in the fostering of collaboration on climate change between local government and other relevant agencies. For this collaboration to continue ongoing funding is sought for a dedicated secretariat to continue to drive this collaboration.							
	2. Collaboration across councils by setting up a network of regional sustainability officers, who will liaise with each other as a regional partnership.							
	3. Understanding existing regional groupings of other council professions, such as public health and engineering and encourage the consideration of climate change as a standing item.							
	4. Utilise existing regional groupings, such as the Regional Partnerships Group, G21 and the Great South Coast Group and subject specific (emergency management and the regional floodplain management strategy grouping) to introduce / advocate for consideration of climate change issues.							
	5. Understand and engage with regional documents being developed by others, e.g. Natural Resource Management Climate Adaptation Plans being developed by Catchment Management Authorities, to explore synergies and opportunities to collaborate.							

Table 4 Recommended strategies for supporting regional adaptation action – Building knowledge

Description

	Description
Embedding Strategy	Building knowledge and ability - Knowledge of the issue and the ability to respond are key when it comes to considering and responding to climate change.
PRG Recommendations	1. On the basis of the CRC for BSW receiving ongoing funding there is opportunity to continue to pool resources and support ongoing regional training programs, workshops and seminars to build knowledge.
	2. To formalise a process of distributing climate change information, such as that produced by the Department of Environment, Land, Water and Planning.
	3. Where there are consistent actions from individual council adaptation plans, working in partnership on these actions where appropriate to build knowledge and ability. An example is the local coastal hazard assessments.

Table 5 Recommended strategies for supporting regional adaptation action – Organisational learning

	Description					
Embedding Strategy	Encourage organisational learning - An organisation must learn from previous experience to continuously improve the way it operates, this learning can be through formal and informal channels.					
PRG Recommendations	 Advocate to the Department of Environment, Land, Water and Planning be more prominent in developing training and providing transparency on "tools" to support organisational learning. To utilise knowledge sharing events to: 					
	 i. identify and consider the application of climate change adaptation training and tools developed from other councils (e.g. City of Greater Geelong and City of Yarra), with or within the CRC for BSW to support organisational learning; 					
	ii. learn from the experiences of other council's in the BSW.3. Host an annual climate change forum with streams relevant to differing council professions.					

Regional priority climate risks

Regional risks were identified during professionally facilitated risk assessment workshops. The risk assessment process involves identification of risks, a risk assessment attributing the likelihood and consequence of each risk, and the development of risk treatments.

Regional priority risks were agreed during the Project Reference Group meeting on 26 May 2016. Regional priorities were obtained through a prioritisation process of relevant risks identified at each council's risk assessment workshop. Risks were ranked based on the likelihood and consequence at the regional level.

Regional priority risks are those risks that were ranked as extreme or high in the 6-50 year timeframe, and any beneficial risks. There are a total of nine regional priority risks including one beneficial risk. See Table 6 below for details of risks, rating and level of council control.

Table 6 Regional priority climate risks

Priority risk	Risk type	Rating 0-5 years	Rating 6-50 years	Council control
Increased bushfire risk to community homes and local residential properties lost or impacted by fire	Residential private property	High	Extreme	М
Increase in damage to coastal assets (including marinas and boat ramps) Restrictions on access to key assets in low lying areas	Infrastructu re and Financial and Resourcing	Medium	Extreme	М
Increased pressure on non - reticulated water supplies	Economic	Medium	Extreme	L
Increase in heat stress and solar exposure to the community	Human health	Medium	Extreme	М
Increased intensity and severity of bushfires, extended bushfire season and increased impacts on native vegetation	Environmen t and open space	Medium	High	L
Increase in localised flooding and increased incidence of infrastructure assets being flooded	Infrastructu re and services	Medium	High	М

Priority risk	Risk type	Rating 0-5 years	Rating 6-50 years	Council control
Increased runoff and localised flood events and increased incidence of private and community assets being flooded	Social and cultural	Medium	High	М
Damage to tourism attractions/facilities reducing tourism opportunities / visitation / reduction in regional revenue from bushfire, heatwaves	Economic	Low	High	L
Increased summer community and tourist participation in outdoor activities	Economic	Beneficia I	Beneficia I	М

Adaptation actions

Adaptation actions were determined and prioritised at each council for inclusion in their respective Climate Change Adaptation Plans. Across the eight councils there were a total of 160 actions addressing a range of climate risks. These actions primarily cluster around climate risks, including heatwaves, bushfires, flooding and drought, but also around common themes relating to tourism, coastal management, embedding action within Council operations and establishing monitoring and evaluation frameworks.

Climate change does not respect geographic or local government boundaries. The actions taken at each council level will help to reduce climate risks and build community capacity, but a regional approach is also needed to ensure common risks are addressed. Regional actions are strongly focussed on advocating to regional and state authorities to prioritise adaptation and managing climate risks.

Regional actions

During the engagement with each council a number of actions were recommended to be regional level actions. These suggested actions were then workshopped with Project Reference Group (PRG) in December 2016 and refined. The agreed list of regional actions is summarised in Table 7 and expanded on in Table 8.

Table 7 Regional adaptation actions

Great Ocean Road and Tourism

Councils to advocate to regional tourism bodies such as "Great Ocean Road Regional Tourism" and 'Grampians Tourism" to appropriately consider climate risk in all strategic planning documents and operations.

Councils to advocate for regional level coordination of tourism communication and messaging, specifically:

- better communication from incident control centres to tourist bodies; and
- to clarify with regional tourism bodies responsibilities for communications and messaging during and after events.

•

Advocate to VicRoads for state level access routes in Barwon South West to support increased population levels during peak tourist season (Great Ocean Road, Grampians etc.)

Emergency Response and Vulnerable People (includes heatwaves)

Councils to advocate to DHHS for clarity on management of "Vulnerable persons register" in light of changes at state/federal level and provide clarity at regional level.

Flooding and Assets

Councils to advocate to the Local Government Infrastructure Design Association for consideration of climate risk in Infrastructure Design Manual (IDM) and other design standards applicable for all councils.

Participate in the development of a regional floodplain management strategy to inform the development of municipal flood emergency management plans.

Water Availability

Investigate water security opportunities for Barwon South West communities and support implementation of the 'Water for Victoria' plan.

Land Use Planning and Agriculture

Advocate for increased flexibility in agricultural zoning to support appropriate agricultural controls to deal with future climate variation.

Advocate for expansion of existing Deakin University studies on the future of agriculture under climate change to the entire Barwon South West.

Coastal Risks

Advocate for completion of Barwon South West coast assessments (sea level rise hazard mapping, risk assessment and adaptation planning).

Advocate for funding for implementation of identified coastal adaptation actions.

Table 8 Barwon South West Regional Actions

	Action	Action activities	Relevant risks	Timelines	Action partnerships	KPIs
at Ocean Road and Tourism	Councils to advocate to egional tourism bodies such as "Great Ocean Road Regional Tourism" and Grampians Tourism" to appropriately consider climate risk in all strategic planning documents and operations.	 a) Identify all relevant regional tourism bodies b) Review existing and / or proposed strategic planning and operational documents to determine opportunities to address regional climate risk considerations. c) Revise documentation to embed approaches to addressing regional climate risk. 	Damage to tourism attractions/facilities reducing tourism opportunities/ visitation/ reduction in regional revenue from bushfire and heatwaves.	Short (0-2 years)	Regional Tourism Bodies Tourism Victoria	Regional tourism bodies include climate risks in strategic planning documents

	Action	Action activities	Relevant risks	Timelines	Action partnerships	KPIs
oad and Tourism	Councils to advocate for regional level coordination of tourism communication and messaging, specifically: a) better communication from incident control centres to tourist bodies; and b) to clarify with regional tourism bodies responsibilities for communications and messaging during and after events.	 a) Better Communication i. Understand current communication channels ii. Identify opportunities for improvement iii. Develop mechanisms to realise opportunities. b) Event Communication i. Map existing event and post event communication responsibilities and mechanisms ii. Review to understand opportunities for improvement iii. Implement improvement opportunities and provide capacity building to communicate. 	Damage to tourism attractions/facilities reducing tourism opportunities/ visitation/ reduction in regional revenue from bushfire and heatwaves.	Short (0-2 years)	Regional Emergency Management Group Regional Tourism Bodies Tourism Victoria Department of Environment, Land, Water and Planning Emergency Management Victoria	Clarity of responsibilities for regional communication during and after events
cean Road and Tourism	Advocate to VicRoads for state level access routes in Barwon South West to support increased population levels during peak tourist season (Great Ocean Road, Grampians etc.).	 a) Identify key tourist areas across BSW b) Determine increase in population levels during peak tourist season c) Assess current state level access routes d) Prioritise routes for development across the Barwon South West. 	Damage to tourism attractions/facilities reducing tourism opportunities/ visitation/ reduction in regional revenue from bushfire and heatwaves.	Long (5 year +)	Victoria Police CFA Ambulance Victoria	Alternative routes prioritised across the Barwon South West Routes utilised across the Barwon South West.

Action	Action activities	Relevant risks	Timelines	Action partnerships	KPIs
Councils to advocate to the Department of Health (DHHS) and Human Services for clarity on management of "Vulnerable persons register" in light of changes at state/federal level and provide clarity at regional level.	 a) Document current understanding of responsibility for management b) At a regional level write to DHHS seeking clarity on responsibility 	Increase in heat stress and solar exposure to the community leading to increased heat-related illness. Increased bushfire risk to community homes and local residential properties lost or impacted by fire	Short (0-2 years)	DHHS Regional Community Health and Wellbeing groups	DHHS providing clarity on responsibility
Councils to advocate to the Local Government Infrastructure Design Association for consideration of climate risk in Infrastructure Design Manual (IDM) and other design standards applicable for all councils.	 a) Understand existing approach to addressing climate risk within the IDM. b) Understand gaps in the context of key climate risks to the Barwon South West c) Liaise with Local Government Infrastructure Design Association to understand review process. d) Provide appropriate support as required to include additional climate risk considerations in the IDM. 	Increase in damage to coastal assets (including marinas and boat ramps) Increase in localised flooding and increased incidence of infrastructure assets being flooded	Medium (2 – 5 years)	Local Government Infrastructure Design Association	Relevant climate risks for the Barwon South West are addressed in the IDM.

	Action	Action activities	Relevant risks	Timelines	Action partnerships	KPIs
Flooding and Assets	Participate in the development of a regional floodplain management strategy to inform the development of municipal flood emergency management plans.	 a) Identify a lead agency for the development of a regional floodplain management strategy. b) Form a project reference group involving interested Councils to inform its development. c) Participate in the development of a regional strategy and communicate its progress to inform the development of municipal level plans. 	Restriction on access to key assets in low lying areas Increase in localised flooding and increased incidence of infrastructure assets being flooded Increased runoff and localised flood events and increased incidence of private and community assets being flooded	Medium (2 – 5 years)	Relevant catchment management authorities of the Barwon South West Relevant water authorities of the Barwon South West Department of Environment, Land, Water and Planning	Development of a regional floodplain management strategy.

	Action	Action activities	Relevant risks	Timelines	Action partnerships	KPIs
Water Availability	Investigate water security opportunities for Barwon South West communities and support implementation of the 'Water for Victoria' plan.	 a) Collate the current the water security issues across the region and current approaches to addressing b) Review approaches in the context of the Water for Victoria plan c) Identify options for addressing. Potential options include: i. Develop an "app" and online tool to help homes balance water. ii. Capitalize on state levy funding for areas of selfmanaged water supplies iii. Provide comment on IDM sustainability Standards 	Decreased potable water supply causing increased water restrictions Increased pressure on water supplies resulting in competition for scarce water supply between residents and business	Short (0 – 2 years)	Relevant water authorities of the Barwon South West Colac (\$50,000 fund)	Regional understanding of the water security issues of the Barwon South West Development of options to address water security issues Implementation of options to address water security issues
Land Use Planning and Agriculture	Advocate for increased flexibility in agricultural zoning to support appropriate agricultural controls to deal with future climate variation.	 a) Coordinate with other regions who may be interested in supporting this action, for example Gippsland. b) On the basis of the current research into the future agricultural land uses, prepare a paper outlining the options for expanded agricultural options. c) Apply the research of advocate for planning scheme changes at a state level. 		Long (5 years +)	Department of Environment, Land, Water and Planning Victorian Farmers Federation	Understanding of the potential agricultural zoning option changes Development of options to address

	Action	Action activities	Relevant risks	Timelines	Action partnerships	KPIs
Land Use Planning and Agriculture	Advocate for expansion of existing land use planning studies on the future of agriculture under climate change to the entire Barwon South West.	 a) Identify areas where studies are yet to be undertaken. b) Prepare brief for Deakin University. c) Commission Deakin University d) Develop an approach for communicating the results to relevant stakeholders 		Short (0 – 2 years)	Deakin University Victorian Farmers Federation	Completed assessment across the Barwon South West
Coastal Risks	Advocate for completion of Barwon South West coast assessments (sea level rise hazard mapping, risk assessment and adaptation planning).	a) Confirm State, local government, continued responsibilities for coastal mapping to ensure no duplicate efforts b) Complete scoping paper c) Complete grants d) Complete risk assessment e) SLR hazard mapping f) Risk assessment g) Prepare adaptation plan with relevant stakeholders to ensure a coordinated response.	Restriction on access to key assets in low lying areas Increase in damage to coastal assets (including marinas and boat ramps)	Medium (2 – 5 years)	Department of Environment, Land, Water and Planning Australian Coastal Councils Association	Completed assessment of Barwon South West coasts.

	Action	Action activities	Relevant risks	Timelines	Action partnerships	KPIs
10	Advocate for funding for	a) Collation and prioritisation of	Restriction on access to	Medium –	Department of	Funding secured
Risks	implementation of	adaptation actions from	key assets in low lying	Long	Environment,	for
Z	identified coastal	existing assessments	areas	(2 – 5+	Land, Water and	implementation
o	adaptation actions.			years)	Planning	of adaptation
astal			Increase in damage to			actions.
CO			coastal assets (including			
			marinas and boat ramps)			