

# Natural Environment Climate Change Adaptation Action Plan 2022-2026

Supporting document - Stocktake

## Stocktake

The Climate Change Strategy sets our adaptation objectives for the next decade and priorities for the next 5 years. This consists of priority focus areas to:

- address current climate change impacts
- reduce barriers to adaptation
- lay the foundations for transformational adaptation

The *Climate Change Act 2017* requires a gap analysis be undertaken to assess the extent to which existing Victorian Government policies address the priorities of the Climate Change Strategy. The gap analysis is in the Natural Environment Climate Change Adaptation Action Plan 2022-2026. This document is a stocktake that outlines existing policies and programs being undertaken across the Victorian natural environment sector (including government and non-government). These policies and programs informed the gap analysis.

This stocktake has two parts:

- **Part A:** is an overview of relevant policies and strategies that support adaptation in the natural environment
- **Part B:** is a summary of key projects and programs that relate directly to climate change adaptation that have been, and are being, undertaken.

### Part A: Policies and Strategies

Policies and strategies can help to identify and address climate impacts at different scales. They can lay the foundation for transformational change and reducing barriers to adaptation.

The following table highlights some of the policy and strategy work that supports adaptation in the natural environment sector.

**Table 1: Policy and strategy work that supports climate change adaptation in the natural environment sector**

Policy/Strategy	Description
Victoria's Climate Change Adaptation Plan 2017-2020	Victoria's Climate Change Adaptation Plan 2017-2020 was developed to consider climate change risks, help the community understand and manage the risks of climate change and to encourage adaptation action across all policy and sectors. This plan has been superseded by the seven system-based adaptation action plans.
Regional Adaptation Strategies 2020-2025	Regional Adaptation Strategies have been prepared for six regions across Victoria. They are five-year practical strategies developed by the community to address the unique challenges and opportunities that climate change brings to Victoria's regions and guide locally relevant practical action.
Protecting Victoria's Environment – Biodiversity 2037 (& associated projects)	Protecting Victoria's Environment – Biodiversity 2037 is the Victorian government's 20-year plan to stop the decline of Victoria's biodiversity and ensure that our natural environment is healthy, valued and actively cared for. An evaluation of this plan's implementation is due to be completed in 2022.

Regional Forest Agreements 2020-2030	The Regional Forest Agreements support the consideration of biodiversity needs in forest management planning, including consideration of climate sensitivities for forest-dependent threatened species.
Nature Conservation Strategy for Victoria's Parks 2021-2031	The Nature Conservation Strategy for Victoria's Parks 2021-2031 outlines an approach to conserving and protecting nature on Victoria's parks estate for 2021-2031.
Catchment Management Authorities Climate Change Adaptation Plans	Each of Victoria's ten Catchment Management Authorities has developed their own Climate Change Adaptation Plan which includes priority areas for carbon sequestration and planting. These have been developed in collaboration with community and a range of stakeholders.
Marine and Coastal Policy 2020	The Marine and Coastal Policy 2020 sets a 15-year vision for, "a healthy, dynamic and biodiverse marine and coastal environment that is valued in its own right, and that benefits the Victorian community, now and in the future". It provides strategic direction and specific considerations for planning, management and decision making in the marine and coastal environment. The Marine and Coastal Policy 2020 includes a Marine Spatial Planning Framework.
Marine Spatial Planning Framework (part of the Marine and Coastal Policy 2020)	The Marine Spatial Planning Framework (included in the Marine and Coastal Policy 2020) provides guidance and a process for integrated and coordinated planning, management, and decision-making by marine sectors.  The Marine Spatial Planning Framework consists of two parts that complement the other content of the Policy. Part A provides guidance and policies for marine planning and management, with Part B outlining Victoria's approach to marine spatial planning.
Marine and Coastal Strategy ( <i>under development</i> )	The Marine and Coastal Strategy will identify actions to achieve the vision of the Marine and Coastal Policy 2020. It is the first of three five-year strategies. It outlines priority actions for the next 5 years that lay the foundations to achieve the intended outcomes of the Policy over the next 15 years. It also outlines timeframes and responsibilities for delivery.
Victoria Waterway Management Strategy ( <i>under development</i> )	The Victoria Waterway Management Strategy aims to maintain or improve the environmental condition of waterways, which support environmental, social, cultural and economic values.
Bushfire Sector Strategy ( <i>under development</i> )	The Bushfire Sector Strategy will guide all stages of bushfire management for the next 10 years.

## Part B: Projects and Programs

Projects and programs operate across different scales and in different contexts to implement adaptation actions. These project and programs may address one or more of the priority focus areas of the Climate Change Strategy. This section is a summary of some of the key projects and programs that have been, and are being, undertaken across Victoria that relate directly to climate change adaptation in the natural environment.

The following tables show how key projects and programs in the natural environment sector may fit into each of the Climate Change Strategy's priority focus areas. Many of the programs will contribute to multiple focus areas even if they are listed under only one. There are a broad range of organisations and stakeholders that manage the natural environment in Victoria and operate in different locations and at different scales. The following list is not an exhaustive account of all past and current adaptation projects and programs.

**Table 2: Projects and programs that contribute to the Priority Focus Area 1 *Address current impacts***

Project/Program	Description
<b>Government-led biodiversity response and recovery programs</b>	
Bushfire biodiversity response and recovery program	<p>Following the 2019-2020 bushfires that significantly affected biodiversity in parts of Victoria, DELWP has worked alongside species experts, academics, and land managers to prioritise actions for fire-affected threatened species and habitats. This forms an overarching, multi-year program of initiatives. The 2019–20 bushfires demanded and received a swift recovery response. They also provided impetus to look beyond a single fire event and consider long-term strategies for maximising ecosystem resilience throughout Victoria.</p> <p>The Bushfire Biodiversity Response and Recovery program includes the following focus areas and associated actions:</p> <ul style="list-style-type: none"> <li>• Landscape resilience, which includes actions relevant to adaptation, such as: <ul style="list-style-type: none"> <li>– Create and support a safe haven network of ecological refuges across the state</li> <li>– Revegetation and reseeded</li> <li>– Spread the risk to a species from population failures through genetic mixing to improve the fitness of populations and manage threats e.g. Wilson’s Promontory Sanctuary (Parks Victoria), and genetic rescue of the Southern Brown Bandicoot (DELWP)</li> <li>– Applying a cultural landscape lens to species renewal and resilience– using cultural knowledge and practices</li> </ul> </li> <li>• Knowledge and preparedness, which includes actions relevant to adaptation, such as: <ul style="list-style-type: none"> <li>– Developing strategic guidance to prioritise direct interventions in species populations (e.g. to address genetic risk)</li> <li>– Better targeting of research and monitoring of management effectiveness</li> </ul> </li> </ul>
Biodiversity Response Planning projects	<p>Biodiversity Response Planning is a mechanism for the Victorian Government to support on-ground biodiversity action through a range of on-ground initiatives and funding. The funding focuses on protecting and managing a range of native plants and animals, threatened species and habitats through collaborative planning, increased engagement and alignment of natural resources, scientific, educational and community sectors.</p> <p>Several actions supported through this program have an adaptation focus, such as the Parks Victoria initiative in the marine environment where Eastern Zone Abalone Drivers Association and Victorian Fisheries Authority led a project to remove Black-spined Urchins over a large area of reef for abalone harvesting in East Gippsland. Similarly, University of Melbourne with Deakin University and Parks Victoria led a project to undertake culling trials of Black-spined Urchins and other overabundant native species at Beware Reef.</p>
<b>Planning and management projects for future climate</b>	
Exploratory case study into using adaptation pathways in a natural resource management context – The Western District Lakes	<p>Corangamite Catchment Management Authority in partnership with academics undertook a project from 2016 to 2018 which aimed to progress climate change adaptation in a natural resource management context. This project considered the future for the Western Lakes District under climate change. By combining significant expertise and experience, this research-policy collaboration has progressed adaptation practice and theory in the sector.</p>
Exploratory case study into using adaptation pathways in a	<p>Goulburn Broken Catchment Management Authority in partnership with academics undertook a project from 2016 to 2018 which aimed to progress climate change adaptation in a natural resource management context. This project considered the future for the Strathbogie Ranges under climate change. By combining significant</p>

natural resource management context - Bogies and Beyond	expertise and experience, this research-policy collaboration has progressed adaptation practice and theory in the sector.
Goulburn Broken Catchment Management Authority renewal project	The Goulburn Broken Catchment Management Authority renewal project aims to help build resilience of the lower Goulburn river by partnering to deliver water in key times to target bank vegetation.
West Gippsland Catchment Management Authority Climate Change Adaptation Case Study	The West Gippsland Catchment Management Authority has worked with private landholders, and partners such as Greening Australia and Trust for Nature, to protect and restore nearly two thousand hectares of wetlands along the lower Latrobe, Thomson, and Avon rivers. These works have included fencing off areas to exclude stock, removing or infilling infrastructure to return surface hydrology, and native vegetation planting to restore habitat. This will improve species access to suitable habitats in the face of a changing climate.

### Building resilience and establishing 'climate-ready' options

Climate Future Plots 2020	Greening Australia and DELWP released updated revegetation standards in 2020 to describe the steps necessary to plan, establish and monitor Climate Future Plots, and promote methods and interventions that increase the resilience in restored and revegetated landscapes.
Nardoo Climate Ready Revegetation	Bush Heritage have initiated the Nardoo Climate Ready Revegetation project to provide long-term guidance on viable, climate-ready eucalypt revegetation options for the reserve and this region using a strategy called 'climate-adjusted provenancing'. The aim is to develop better climate adaptation options for its reserves.
Landscape Succession Strategy Melbourne Gardens 2016 – 2036	The Royal Botanic Gardens published a succession strategy in 2016 to guide the transition from existing plantings to a composition suited for the projected climate and environmental conditions of 2090. Projections based on IPCC 2013 on a scenario RCP8.5

**Table 3: Projects and programs that contribute to the Priority Focus Area 2 *Reduce barriers to adaptation***

Project/Program	Description
<b>Developing a better understanding of hazards and risks</b>	
Marine and Coastal Knowledge Framework 2020-2022	The Framework has been developed to inform better choices when protecting our marine and coastal ecosystems. It includes standards for data collection, management, and analysis to feed back into decision making. The Framework is supported by the CoastKit Knowledge Management System that provides managers and researchers with access to environmental data, observational records, models and map information products through knowledge portals. Coastkit currently delivers outputs from the Victorian Coastal Monitoring Program (below), statewide and local hazard assessments conducted at Port Fairy, Bellarine Peninsula, Western Port and Gippsland Lakes.
Coastal Hazard Assessments	DELWP has commissioned coastal hazard assessment projects at Port Phillip Bay and Cape Patterson to Cape Liptrap through the Cape resilience project (below). Updated statewide coastal hazard assessment outputs will be finalised by mid-2022 using data and modelling from the Victorian Coastal Monitoring Program.
Revise the sea level rise planning benchmark	The sea level rise planning benchmark is being reviewed with consideration of the latest projections and how they relate to the coast of Victoria from the Intergovernmental Panel on Climate Change (IPCC) as outlined in the 'Special Report on the Ocean and Cryosphere in a Changing Climate' (SROCC) released in 2019. Revised modelling of the extent of these projections is currently occurring.

	Any government approved changes to the benchmark will be reflected in the Marine and Coastal Policy.
Coastal and marine modelling	<p>Significant advances have been made in observing and modelling Victoria's wave climate. Wave buoy deployments began across the state in 2018 and there are now 13 buoy locations across the open coast and Port Phillip Bay, with live data available on vicwaves.com.au. The outputs of these wave models are now being incorporated to decision support tools and are being used to drive models predicting future shoreline change.</p> <p>A hybrid shoreface translation model is being developed by DELWP at a statewide level, that accounts for uncertainty and for varying substrate composition, to assess future potential shoreline trajectories across Victoria.</p> <p>For state-wide, multi-decadal observations, DELWP are working with Geoscience Australia on the Digital Earth Australia: Coastlines project and applying the CoastSat satellite shoreline extraction tool produced by the Water Research Lab at the University of New South Wales.</p> <p>The C-Fast Modelling Tool developed by CSIRO is being trialled in establishing adaptation pathways for coastal and catchment flooding.</p>
Bushfire Behaviour and Management Research Program	University of Melbourne are undertaking research to understand and predict fire behaviour and the impact on human and environmental features in the landscape, with the goal of better quantifying fire risk decisions.
<b>Improving our understanding of climate impacts and developing long-term approaches to management</b>	
Alpine Ash research project	University of Melbourne and DELWP are undertaking research to gain a better understanding of alpine ash seed ecology and how the population might be demonstrating local genetic adaptation to climate change.
Victorian Coastal Monitoring Programs 2017-Current	<p>DELWP initiated coastal monitoring programs in 2017 to explore the interconnectedness that drives shoreline changes in Victoria and develop predictive models of future shoreline behaviour through understanding sediment dynamics. To provide communities with information on changing coastal hazards and the expected longer-term impacts on the coast to support adaptation planning</p> <p>Citizen scientists are collecting imagery using drones and fixed cameras using CoastSnap to monitor shoreline position, and also apply machine learning techniques to track numbers of beach users.</p>
Victoria's Resilient Coast Adapting for 2100+	<p>A state-wide approach to long-term coastal hazard resilience and adaptation. That includes the development of a framework, guidelines, and funding program to:</p> <ul style="list-style-type: none"> <li>• Support local government, land managers and communities to adapt to the impacts of climate change on the coast.</li> <li>• Enable place-based, leading practice, long-term (2100+) coastal hazard adaptation.</li> <li>• Build on the directions in the Marine and Coastal Policy.</li> </ul>
Cape to Cape resilience project	The project is a plan for managing future changes to the coastline between Cape Paterson and Cape Liptrap. This project combines the latest science, technical assessments and community aspirations to develop a long-term plan to manage important places, assets and other values in the future. The project is be developed through a Regional and Strategic Partnership, the first Regional and Strategic Partnership established under the Marine and Coastal Act 2018. It brings ten agencies together to respond to key coastal hazard and climate change issues.
Implementing the Marine Spatial Planning Framework	DELWP is leading the implementation of the Marine Spatial Planning Framework, engaging with Traditional Owners and Aboriginal communities, industries, marine users and government agencies. To support implementation, a state-wide approach is being used to determine marine planning areas and identify where might benefit from a marine spatial planning process occurring. The state-wide approach will

consider where multiple activities, uses and values overlap and potentially conflict, and where marine spatial planning may be useful. Marine spatial planning guidelines are also being prepared to provide instructions on how to undertake marine spatial planning in a planning area.

**Table 4: Projects and programs that contribute to Priority Focus Area 3 *Lay foundations for transformational adaptation***

Project/Program	Description
<b>Preparing for a range of future management options</b>	
Cryodiversity banking feasibility assessment	Museums Victoria in partnership with DELWP are undertaking a cryodiversity banking feasibility assessment to assess whether Victoria is a good place to develop cryodiversity banking.
Genetic Risk Index	DELWP has developed a genetic risk index that identifies the genetic risk for species. This can be used to inform decision making.
Conserving rare species for future climates	The Royal Botanic Gardens plays a critical role in the conservation of rare and threatened species, through research and ex situ protection in seed banks and in living collections. This landmark project sought to identify a suite of nationally and globally threatened plant species that are not currently grown in Royal Botanic Gardens Victoria, but may be well suited to Melbourne's future climate.
Spore banking	DELWP is preparing a project aiming to collect and freeze spores from fern species in Victoria.
Improving knowledge on translocations and conservation	Environmental non-government organisations, Zoos Victoria, DELWP and Parks Victoria are investing in climate adaptation for wildlife species through translocations, habitat restoration, cryopreservation and captive breeding programs as well as conducting community conservation campaigns and a program to enhance preparedness for future catastrophic and extreme weather to help wildlife affected by events such as the 2020 bushfires.