



West Gippsland Regional NRM Climate Change Strategy Summary

Introduction

Natural resource managers across the West Gippsland region are very familiar with the effects of a variable and changing climate. They have faced challenging climate related events in recent times, including wildfire, flood and drought. These major events have caused substantial damage to the natural environment in some areas of the region and have had an impact on the region's economy and communities.

To help understand and better prepare for the impacts of climate change on the natural environment, we have developed a Regional Natural Resource Management (NRM) Climate Change Strategy in collaboration with our partner organisations, through funding from the Australian Government.

About the Strategy

The Strategy is a sub-strategy of the West Gippsland Regional Catchment Strategy (RCS). It is based on the latest climate projections, a literature review, an impact and vulnerability assessment and regional stakeholder consultation. The Strategy aims to support the integration of climate change knowledge into the current RCS implementation program and help inform future regional planning efforts. It provides a suite of options for natural resource managers to consider implementing, designed to help improve the capacity of highly valued, vulnerable natural ecosystems to adapt to a drier, warmer, and more variable future climate. The Strategy identifies areas within the region that may be suitable for establishing vegetation to help improve landscape connectivity and sequester carbon. It also explores emerging opportunities to store blue carbon through the protection and restoration of coastal ecosystems such as saltmarsh, mangrove and seagrass communities.

Future climate

The latest climate projections from the Bureau of Meteorology and CSIRO indicate that the region will be subject to a warmer, drier and more variable climate in the future. The frequency and magnitude of flood, fire and drought is projected to increase and rising sea levels and storm surge are anticipated. A summary of the climate change projections are provided below:

Climate projections for the West Gippsland Region

Temperature

Average temperatures are predicted to increase across all seasons

More very hot days and longer duration of warm spells

Rainfall

Less rainfall, particularly in winter and spring

More frequent and intense heavy rainfall events

Drought

Increased frequency and duration of extreme droughts

Snow

Continued decline in snowfall and maximum snow depth

Wind

Higher wind speeds during the cooler months (July to October)

Fewer but more intense east coast lows

Fire

Harsher fire weather and longer fire seasons

Sea level

Higher sea levels and more frequent sea level extreme events (including storm surge)

Ocean

Warmer and more acidic oceans

Climate Change Planning Areas

Five broad climate change planning areas are described in the Strategy. These areas were identified as sharing similar landscape and socio-demographic features, as well as clusters of high value natural assets that are vulnerable to climate change. A suite of climate change adaptation and mitigation strategies and options for their implementation are provided in the Strategy for each of the planning areas.

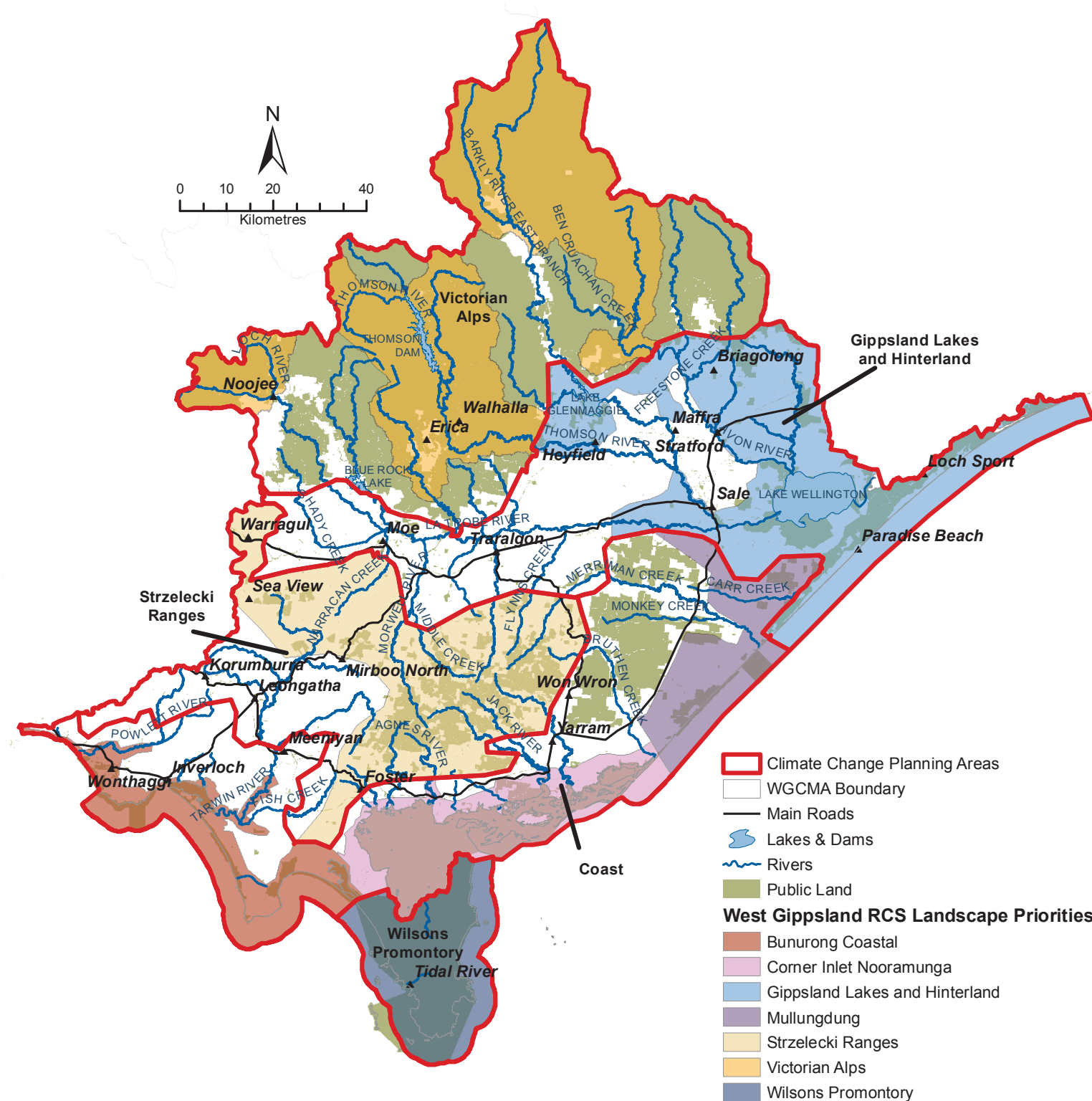
Examples of options for climate change adaptation and mitigation in natural resource management include:

Supporting the protection of core habitat areas of native habitat in good condition

- Enhance the condition of remnant vegetation, to conserve biodiversity and maintain ecological integrity.
- Identify and protect refugia.
- Develop buffers around rainforest remnants.
- Enhance riparian vegetation and support stream-bank protection.
- Preserve genetic diversity by conserving habitat over a gradient of climatic zones.

Building resilient landscapes and seascapes

- Build connectivity, especially between representative habitats, providing avenues for species migration.
- Promote a multi purpose, landscape mosaic to improve the functionality of natural and production focused ecosystems.
- Limit impediments to make space for the migration of coasts, rivers and coastal wetlands; and consider land swaps or offsets.
- Introduce genetics from drier, hotter areas.
- Remove or minimise existing stressors
- Manage invasive plants and animals, and diseases; including surveillance and prompt responses to incursions.
- Monitor the impacts of existing water allocations and factor climate change into water resource and salinity planning.
- Develop alternative water sources to reduce the pressure on stressed water assets.



Promoting best management practices on farms and in forests

- Manage soils to reduce erosion and nutrient loss risks on farms and in forests (e.g. revegetate gully heads, maintain optimal soil cover, and manage run-off).
- Manage grazing to protect vulnerable areas (e.g. remnant vegetation and riparian areas).
- Promote water use efficiency.
- Adopt engineering solutions to protect key natural assets.
- Manipulate hydrology of wetlands to maintain ecological processes.
- Manage the delivery of environmental flow allocations in response to changing conditions and understandings.
- Consider levees to protect key natural assets, if long-term protection is possible and has net benefits.

Adaptive management and effective monitoring

- Monitor the implications of new policies and emerging land and other resource uses, including changes in agriculture.
- Practice active adaptive management in the implementation and evaluation of NRM actions.
- Understand how, and why, landscapes are changing.

Promoting integrated catchment management and inter-agency collaboration.

- Integrate adaptation to climate change into natural resource management planning across all sectors of government.
- Prepare for more frequent bushfires and explore strategies that minimise risks to vulnerable assets.
- Conduct targeted education and awareness programs that promote understanding of climate change impacts, options and trends.

Pictured below L-R: Sustainable agriculture, coastal landscape, field monitoring, remnant rainforest habitat, riparian vegetation connectivity provides avenues for species migration.



Climate change projections and the natural environment

Climate change can impact on the natural environment in many ways and can intensify existing threatening processes (e.g. vegetation loss, habitat fragmentation, weeds, pest animals). Less average annual rainfall, higher rates of evaporation and reduced surface run-off will result in rivers, estuaries and wetlands receiving less water and changes in river flow regimes. More frequent intense rainfall events can cause increased flooding, soil erosion and reduced water quality. Coastal environments can become inundated or more saline as the result of sea level rise. Storm surge can erode coastal areas and damage vegetation communities. The impact of climate change on plants and animals is difficult to predict with any certainty, as changes will occur from individuals to ecosystems. Existing threats to native vegetation and habitat will be amplified, including weed invasion, fragmentation, drought and intense bushfires. A gradual change in the composition of vegetation communities may occur, as some species are replaced by those suited to warmer, drier environments. Fauna species may change their distribution, abundance, behaviour and the timing of events such as migration or breeding. The most susceptible species of plants and animals will be those with restricted or specialised habitat requirements, poor dispersal abilities or small populations. Aboriginal cultural values such as artefacts, scar trees, shell middens or burial sites may be damaged or lost as the result of climate change impacts (e.g. fire, flood, coastal erosion and shoreline retreat).

Definitions

Weather is the day-by-day variation in temperature, wind and rainfall. Weather usually changes from hour to hour and from town to town.

Climate is more stable and refers to the average weather conditions over at least a 30 year period (i.e. long term average).

Climate variability and climate change are different aspects of climate.

Climate variability refers to the year-to-year variations around the average weather conditions. For example not all consecutive summers will be identical - some summers will be cooler and some will be hotter than the long term average. Seasonal climate variability is a key feature in the West Gippsland region.

Climate change refers to any long-term trends or change in average weather conditions over many decades.

Climate change adaptation focuses on improving the ability of a system to adjust to climate change (including climate variability and extremes), to reduce potential damage, to take advantage of opportunities, or to cope with the consequences.

Climate change mitigation involves direct actions to reduce the rate of release to the atmosphere of greenhouse gases (e.g. emission reductions) and/or increasing the sequestration of carbon through activities such as revegetation and soil storage. In West Gippsland there are a range of activities, such as investment in renewable energy sources or transition away from high emission farming systems, which will decrease regional carbon emissions. The main focus of the Strategy however is on sequestration activities that have the ability to increase carbon storage in plants and soils, whilst protecting the values of priority regional assets including waterways, wetlands, terrestrial habitat, coastal ecosystems and agricultural land.

For a copy of the complete West Gippsland Regional NRM Climate Change Strategy go to www.wgcma.vic.gov.au or contact West Gippsland Catchment Management Authority, T: 1300 094 262, PO Box 1374, Traralgon VIC 3844.