

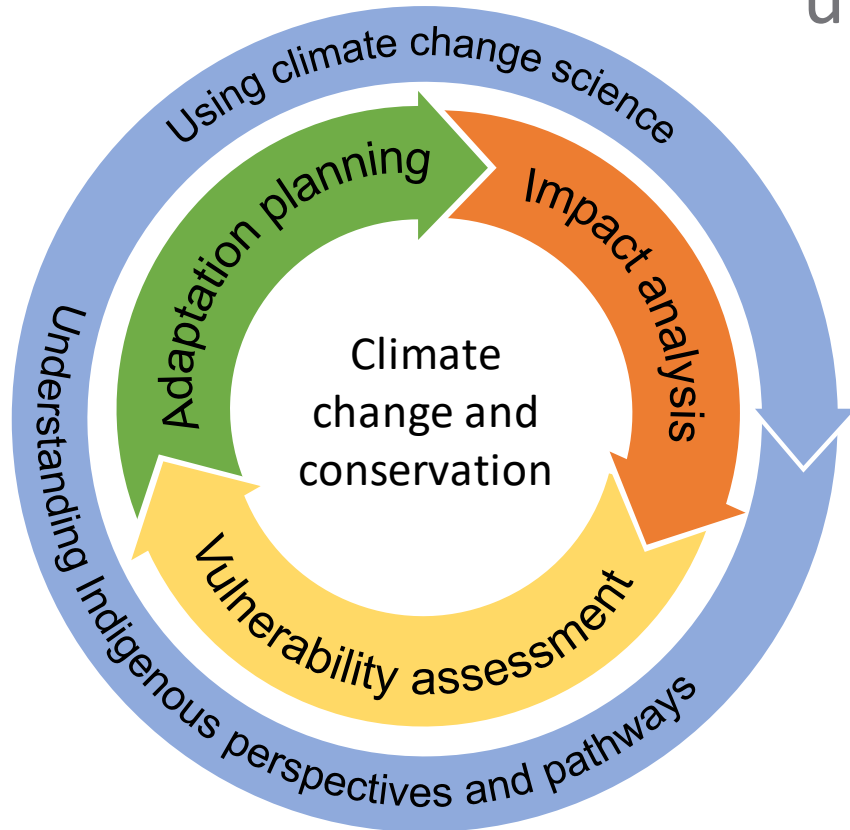


Adaptation for protected places

Understanding the vulnerability of
coastal wetlands to climate change

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Understanding climate change impacts and vulnerability underpins adaptation planning



“Vulnerability is considered as the risk of failing to maintain features that could persist under future climate change...

...rather than failure to prevent inevitable change”

Coastal wetlands

Values

- Biodiversity
- Ecological character (Ramsar)
- Aboriginal cultural heritage
- Tourism & recreation
- Coastal protection
- Carbon sequestration

Threats

- Pollution,
- Invasive species,
- Climate change and bushfires

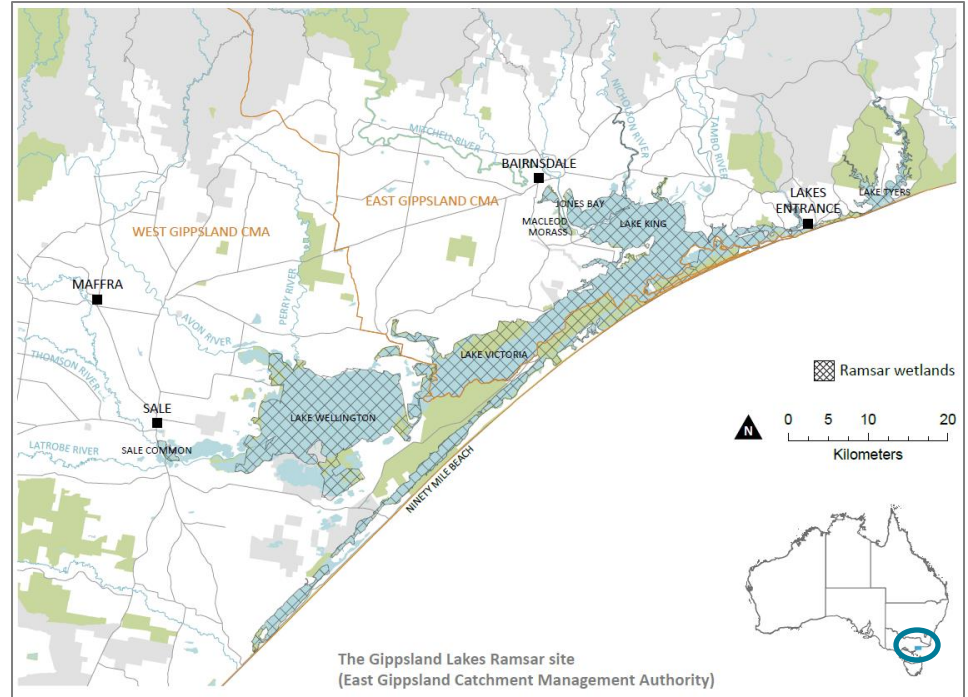
Example adaptation actions

- Manage nutrient and sediment inputs
- Manage freshwater flows
- Maintain and create new shoreline habitats
- Accommodate transitions to more saline wetlands
- Facilitate formation of shoreline feeding and nesting habitats
- Help communities understand ongoing and future changes

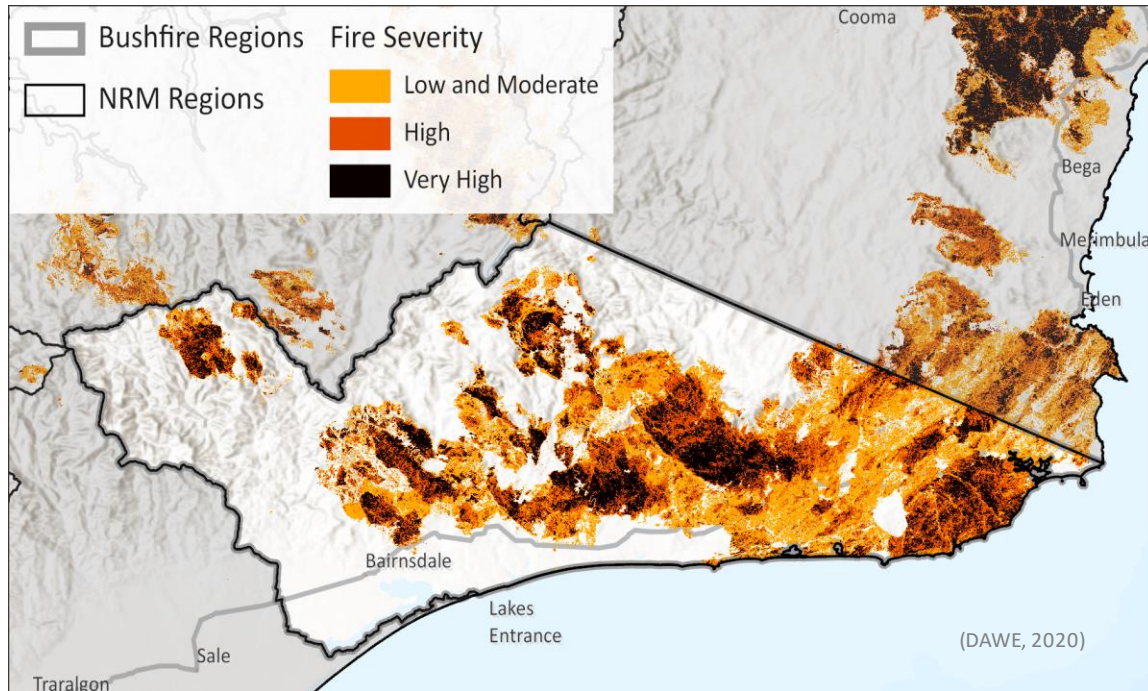


Case study: Gippsland Lakes Ramsar Site

- Listed as a Ramsar Site in 1982
 - a subset of a broader wetland system
 - the largest estuarine lagoon system in Australia; 13 lakes and fringing wetlands; 7 river systems
- CSIRO study addressed
 - impacts of the 2019-20 bushfire
 - climate change, impacts and vulnerability
 - knowledge gaps and recommendations to inform short- and long-term adaptation strategy

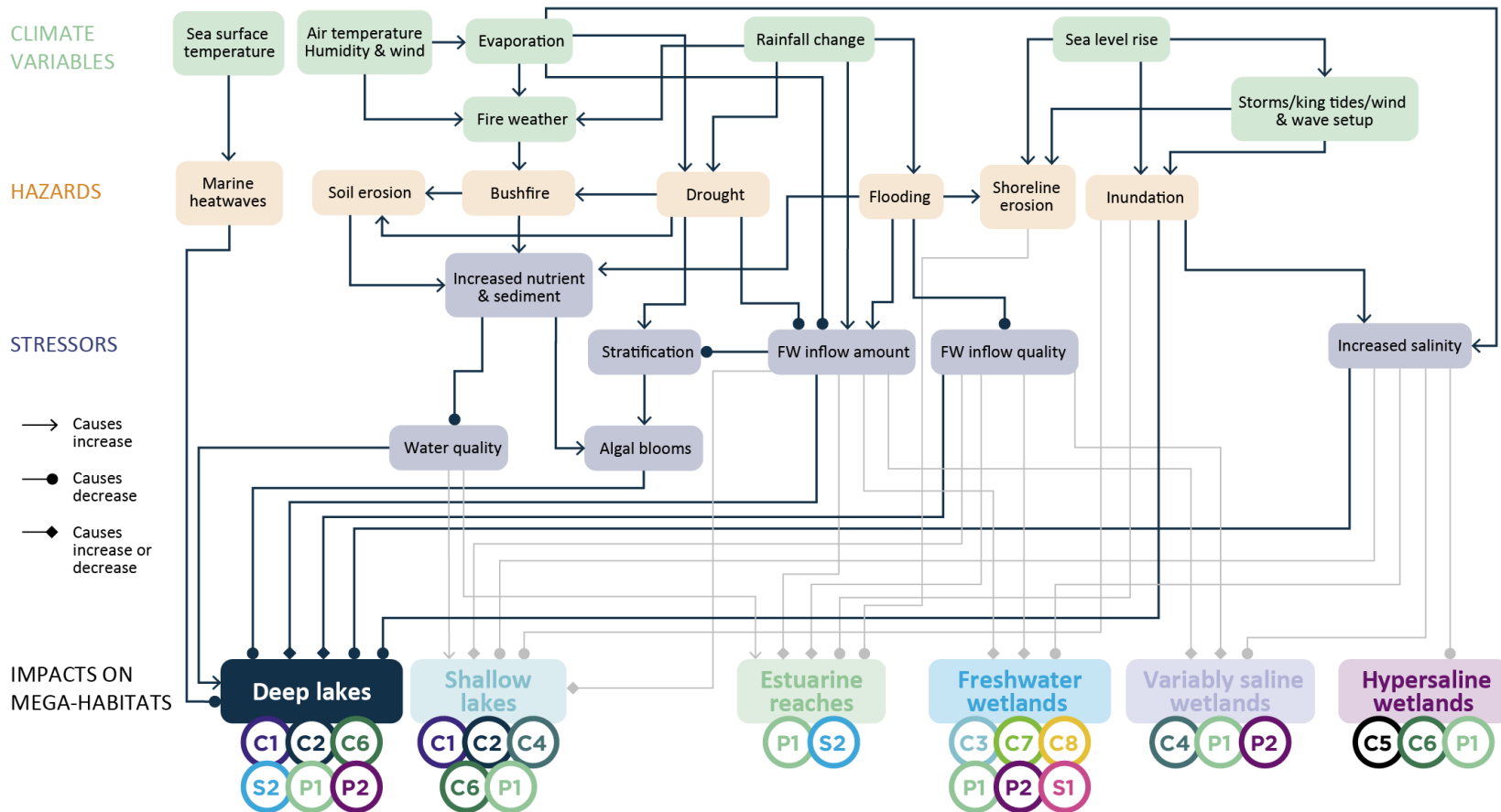


The 2019-20 bushfires in the east Gippsland region



>870,000 ha or 59% of the region was burned with high or very high severity.

Impact pathways for climate change



Vulnerability assessment

Greatest plausible change for 2050:

Temperature increases of 1.6 °C

Extreme temperatures rising by up to 2.9 °C

Sea-level rise of 25 cm

Decreased and more variable rainfall

More frequent bushfires

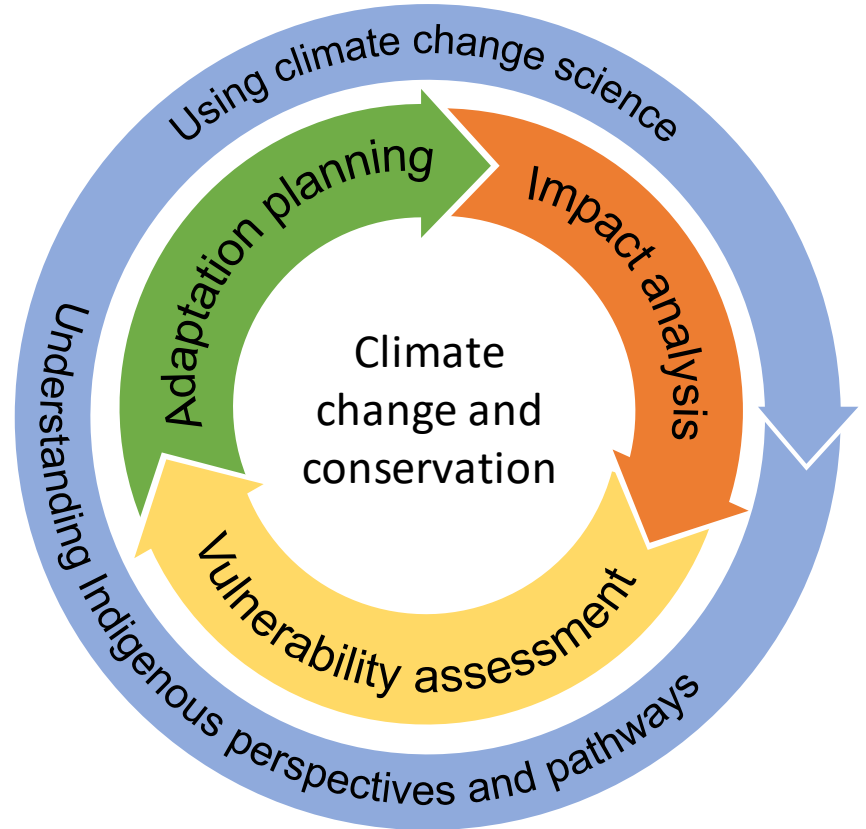
Adaptation actions to address vulnerabilities

- Secure and manage the flow of freshwater into the lakes
- Establish shoreline feeding and nesting habitats as sea level rises
- Reduce nutrient and other contaminants that come from bushfires
- Maintain healthy populations of aquatic and shoreline vegetation to slow nutrient cycling
- Minimise salt and nutrients that concentrate through evaporation
- Help the community understand ongoing and future changes, their impacts and the management options
- Development of indicators that can anticipate and track ecological and other impacts of climate change



Building capacity for climate adaptation planning (managing protected places)

- Increased capacity for using climate science and integrating Indigenous perspectives
- Building capacity may involve trial and error, negotiation, sharing, sourcing and interpreting new information, and changes in expectations
- Will require novel and more dynamic relationships between partners and stakeholders
- Managers should include capacity building for climate adaptation planning and implementation as a specific climate adaptation task in their planning





We acknowledge the Gunaikurnai people, Traditional Owners and custodians of the land and waters of the Gippsland Lakes region, and pay our respects to their Elders past and present.

This project has been commissioned by the Department of Agriculture, Water and the Environment (DAWE) (Reference ID: 2000011164). The Government's \$200 million Bushfire Recovery Program for wildlife and their habitat. The work has benefited from a high degree of cooperation with the Catchment Management Authority (EGCMA); the West Gippsland Catchment Management Authorities (WGCMA); CSIRO; and the project stakeholders.

We thank workshop participants and project stakeholders who represented the following organisations: DAWE; EGCMA; WGCMA; DELWP (Arthur Rylah Institute); DELWP (Bushfire Recovery, Water and Catchments); DELWP (Climate Change Division); DELWP (Climate Change Adaptation - Gippsland); DELWP (Wetland management); Environmental Justice Australia; Environmental Protection Agency; Greening Australia; Gunaikurnai Land and Waters Aboriginal Corporation; Parks Victoria; Trust for Nature; and local community groups.

We acknowledge Yasmin Aly, Roger Bilney, Kathryn Eyles, Rodger Grayson, Eleisha Keogh, Randall Lee, Bruce Lindsay, Gayle Partridge, Sean Phillipson, Katharine Sale, Ross Scott for their time and inputs of knowledge and information.

Kathryn Eyles, Kevin Hennessy, Paul Holper, Eleisha Keogh, Kathy McInnes, Gayle Partridge, Sean Phillipson, Katharine Sale, and Alex Tomlinson provided constructive review on the draft report document.

Acknowledgments

