



EAST GIPPSLAND
CATCHMENT
MANAGEMENT
AUTHORITY



Coastal and Marine Ecosystems

Maintain or, if possible improve the condition of the coastal and marine ecosystems that are in good condition.

Message from the East Gippsland Catchment Management Authority

East Gippsland's coastline is home to a wide range of plants and animals. These communities are there because of the good condition of the shore and marine waters along the coast.

Coastal and marine ecosystems are in excellent condition because 96% of Victorian coastal land is held by the Crown as marine reserves, national parks and sanctuaries.

However, marine and coastal ecosystems still face several threats. In this article, we describe some of the threats to biodiversity along the coastline in our region

PRESENT THREATS

East Gippsland's coastal and marine environments are mostly in excellent condition. The extent of National and Coastal Parks, and the limited development along the coastal strip have ensured that most of the coast has remained in natural condition. In the Far East in particular, the quality of water entering estuarine and marine environments is high, due to the extensive coverage of native vegetation in the area.

Despite their near-natural condition, our coastal and marine environments face threats such as natural events like fire and flood, habitat loss, pest plants and animals, alterations to natural flows, excess nutrients and coastal development. Potential threats may also result from coastal subsistence and climate change.



Headland Scrub on coastal headland

Fires in the river catchments destroy native vegetation and leave topsoil unprotected. Ash and sediment washed into rivers following heavy rain is carried downstream where it is deposited in coastal estuaries, or taken out to sea as occurred during the floods in July. This sediment can affect habitat and food sources for fish and other marine creatures, as well as contribute to the growth of blue-green algae in inlets and estuaries.



Sediment is a serious threat to coastal and marine environments

Habitat loss can also impact on coastal and marine ecosystems. Coastal plants and animals are adapted to cope with a harsh environment which is dominated by salt air, strong winds and sandy soils. While most of the coast is managed within state parks and reserves, poorly planned development can lead to wind and water erosion, damage of coastal vegetation and disturbance of wildlife. Recreational activities can also damage coastal vegetation and expose coastal dunes to wind erosion.



Foxes threaten native animals.
Photo: Dean Kleinitz

Pest plants and animals also pose a significant threat to coastal biodiversity. For instance, foxes prey on the eggs and chicks of birds such as Little Terns that nest on the beach. Rabbits destroy native vegetation which stabilises sandy dunes and prevents erosion. New pest species like the Pacific Sea Star could cause significant damage to our marine environment. Monitoring for the emergence of these types of pests is very important to maintain a healthy coast.



Little Tern chick

Pest plants can also be a problem. An example is Boneseed, a Weed of National Significance which grows in most soil types and can withstand salt spray. It can form dense thickets and smother native plants, displacing food sources for native birds and animals. Infestations of boneseed are currently receiving attention by the East Gippsland Shire in the coastal dunes at Lakes Entrance. Other examples of problem weeds in coastal areas in our region are Boxthorn and Bridal Creeper.



Boneseed plant

Alterations to natural river flows, such as extraction of water for irrigation purposes also pose threats. Variable river flows are important as they trigger breeding of marine species like Bream and Bass. Natural flows also provide passages for fish species passing between fresh and marine waters. Alterations to natural flows pose a threat to the species.

Gippsland Lakes

While inlets and estuaries along the coast are in excellent condition, the Gippsland Lakes are a special case. In 2001, the CSIRO *Gippsland Lakes Environmental Study* (www.gcb.vic.gov.au) found that increased levels of pollution from nutrients and sediments as well as reduced water flows

and increased salinity had impacted on the water quality and overall health of the Lakes.

To address this problem, the State Government released the *Gippsland Lakes Future Direction and Action Plan* in 2002 (www.gcb.vic.gov.au). The major aims of this plan are to reduce nutrient levels entering the Lakes by 40% by 2022; balance freshwater and salt water flows; maintain wetlands biodiversity; increase community awareness and participation; and continue planning and evaluation of the program's effectiveness.



Southern Brown Bandicoot, Cape Conran.

The delivery of this Action Plan is being overseen by the Gippsland Lakes Taskforce, made up from the leaders of many Government Agencies in the Region. The Gippsland Lakes are Precious; one of the most important natural assets in East Gippsland. They are the foundation for tourism, property development and the supporting service industries such as building and health. For these reasons we must ensure the Lakes are passed on to future generations in good health.

POSSIBLE FUTURE THREATS

Coastal subsistence

The extraction of water, oil, and natural gas from underground aquifers could result in a lowering of the land surface. In Gippsland, there is a risk that groundwater pumping from the Latrobe aquifer for off-shore oil and gas extraction, and irrigation in the Yarram area, may result in subsistence of the coast line. The mining of brown coal in the Latrobe Valley may also be a contributing factor.

Subsistence could lead to the breaching of sand dunes along the coast between the Gippsland Lakes and Bass Strait. If this occurred, flooding could have a serious impact on coastal towns, dune and estuary environments and recreational facilities.

An information sheet about Coastal Subsistence is available on the Gippsland Coastal Board website (www.gcb.vic.gov.au).

Climate change

Increases in temperature and greenhouse gases in the atmosphere, such as carbon dioxide, methane and nitrous oxide could result in changes in rainfall, wind patterns, and the frequency and severity of extreme weather events.

In our region, changes could impact on coastal areas in the form of rising sea levels, increased temperatures, and changed storm events. Estuaries, coastal dunes, wetlands and reefs may have difficulty in adapting to climate change, and may become increasingly vulnerable (www.greenhouse.vic.gov.au).

The dunes along the eastern coastline of Victoria could be vulnerable to the effects of climate change due to high wave activity from the southeast, greater erosion due to increasing sea levels, and possibly more extreme storm surges. Low lying wetlands could also be vulnerable to more frequent inundation due to sea level rise, storm surges, wave events and possibly more extreme run-off events.

In August this year, the Victorian Government announced a project called *Future Coasts* to further assess the vulnerability of coastal areas to climate change (www.greenhouse.vic.gov.au).

A detailed report about the effects of climate change on coastal wind and weather patterns, storm surges, and extreme sea levels on the Gippsland Lakes can be found on the Gippsland Coastal Board website (<http://www.gcb.vic.gov.au>).