

Acronyms and Abbreviations

BVSC	Bega Valley Shire Council
CBD	Central Business District
CEA	Coastal Environment Area
CM Act	Coastal Management Act 2016
CMA	Coastal Management Area
CMP	Coastal Management Program
CMP-CH	Draft Coastal Management Program to address coastal hazards in the Bega Valley Shire
CPHDS	Coastal Processes and Hazard Definition Study
CSP	Community Strategic Plan
CUA	Coastal Use Area
CVA	Coastal Vulnerability Area
CWLRA	Coastal Wetlands and Littoral Rainforest Area
DCP	Development Control Plan
DCCEEW	Department of Climate Change, Energy, Environment and Water (NSW)
DPIRD	Department of Primary Industries and Regional Development
EMP	Estuary Management Plan
IP&R	Integrated Planning and Reporting Framework
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
LGA	Local Government Area
LLS	Local Land Services
MBGLAC	Merimbula Big Game and Lakes Angling Club
MEMA	Marine Estate Management Authority
NPWS	National Parks and Wildlife Service
SAMS	Sustainability Assessment and Management Strategy
SCWO	Sapphire Coast Wilderness Oysters
SEPP	State Environmental Planning Policy
TfNSW	Transport for NSW

1 Introduction

1.1 Background and Introduction to the CMP

1.1.1 Developing the Merimbula and Back Lake Coastal Management Program

Through the preparation of formalised Coastal Management Programs, councils in NSW set the long term strategy for management of the coast, consistent with the objectives of the *Coastal Management Act 2016* (CM Act) and the *Resilience and Hazards State Environmental Planning Policy* (Resilience and Hazards SEPP). The *Merimbula and Back Lake Coastal Management Program* sets out a framework for management of threats and pressures impacting on the values of the lakes, and to realise opportunities that enhance the lakes. The *Merimbula and Back Lake CMP* provides a pathway for sustainable management of the coastal zone around the estuaries over the coming decade.

Under the previous estuary management framework in NSW, the *Merimbula Lake and Back Lake Estuary Management Plan and Management Study* (WMA, 1997) provided an aspirational set of objectives for management of the lakes and their catchment areas, as well as strategies and actions to achieve the objectives. This was followed by updated management actions within the Sustainability Assessment and Management Strategy (SAMS) developed for Merimbula Lake (DECCW, 2009) and Back Lake (DECCW, 2007). In developing this CMP for the estuaries, we have again undertaken a review of the previous action plans to assess which actions have been completed, if the intent of the management objectives has been achieved, and to understand which objectives remain relevant for the updated Coastal Management Program. The previous management objectives have been re-considered in view of updated coastal management legislation in NSW and the present threats, pressures and opportunities for the lakes, to now provide the backbone of the *Merimbula and Back Lake CMP*.

The *Bega Valley Shire Coastal Management Program Stage 1: Scoping Study* (BVSC, 2022b) identified Merimbula and Back Lakes as high priority estuaries for the establishment of a CMP, to update the understanding of threats and pressures acting on the estuaries, and to identify targeted management strategies. While much work has been undertaken around both lakes over the past 20 years, the scoping study found that the intent of many of the management objectives has not yet been met, and that the lakes have a range of high risk management challenges.

The *Merimbula and Back Lake Coastal Management Program* builds on the objectives of the previous *Estuary Management Plan*, extends the understanding of the current issues affecting the estuaries as set out in the Scoping Study (BVSC, 2022b), and establishes a tangible series of management interventions to reduce the risks for the estuaries. The process followed to identify threats to the estuaries, and to subsequently plan and evaluate management responses is shown in Figure 1.1.

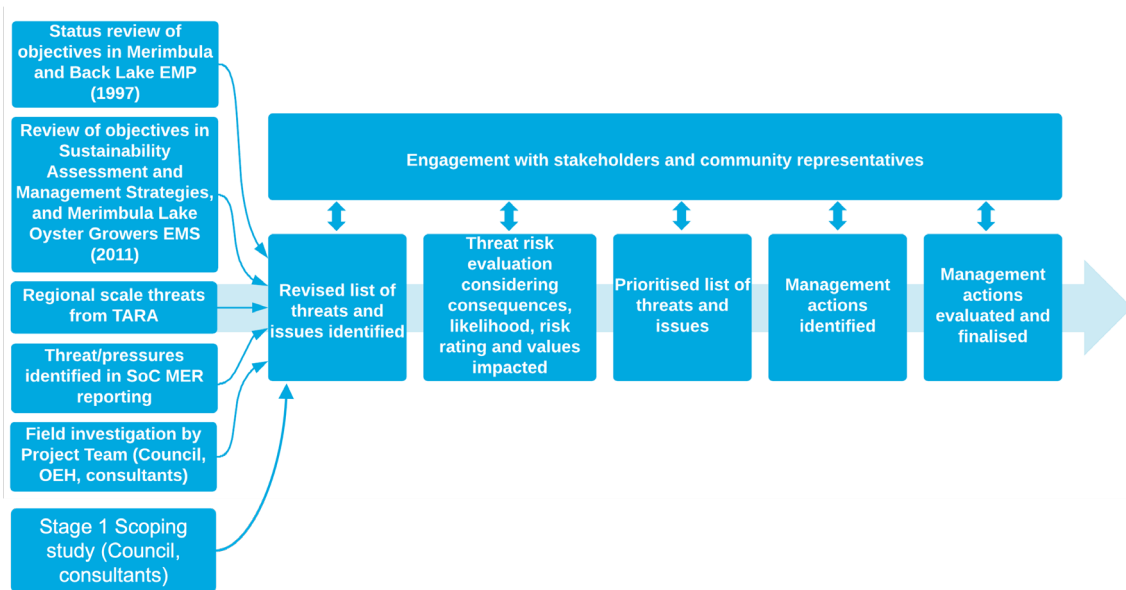


Figure 1.1: Estuary Threat Identification, Evaluation and Management Process

The process followed for developing the CMP was based on the five stages outlined in the *Coastal Management Manual (2018)*, and is shown in Figure 1.2.

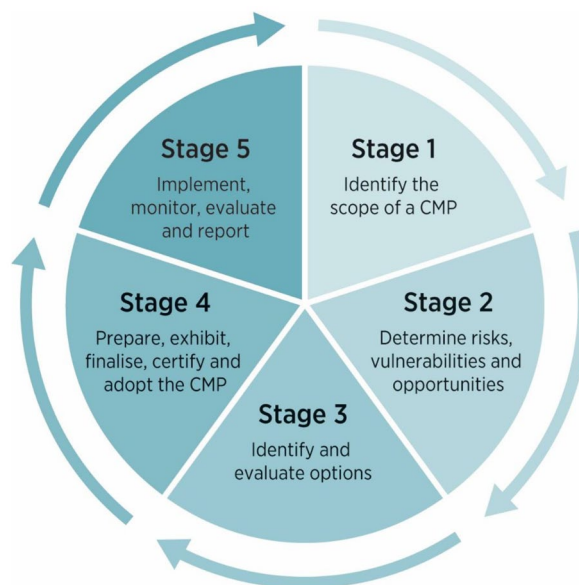


Figure 1.2: Five Stages of Developing a Coastal Management Program

Developing the CMP was a phased process spanning a number of years and included a range of activities completed within each of the five CMP development stages:

- CMP Stage 1:
 - Scoping and identifying the needs for the CMP within the context of the broader coastal zone of the Bega Valley Shire Local Government Area (see CMP Scoping Study, (BVSC, 2022b));

- CMP Stage 2:
 - Collating and reviewing existing information and management plans (see CMP Scoping Study (BVSC, 2022b), Synthesis of Information (BVSC, 2024a), CMP Estuary Threats and Pressures Assessment (BVSC, 2024b));
 - Combining existing information with new field observations to build a contemporary understanding of threats and issues to the estuaries (see CMP Estuary Threats and Pressures Assessment (BVSC, 2024b));
 - Evaluating and prioritising the threats in a risk assessment framework (see CMP Estuary Threats and Pressures Assessment (BVSC, 2024b));
- CMP Stage 3:
 - Developing a range of achievable management responses to further inform, and where possible reduce, the risks posed by threats (presented in this report);
 - Evaluating and prioritising these management responses on the basis of their feasibility, viability and acceptability (presented in this report);
- CMP Stage 4:
 - Preparation of the CMP report (this document)
 - Collating feedback from stakeholders and community through formal review and exhibition processes.

Consistent with the *Coastal Management Manual*, there are a range of documents that provide background information and/or are supporting documents to *Merimbula and Back Lake CMP* that should be consulted for background information on the preparation of this program:

- Merimbula Lake and Back Lake Compendium of Data Report (WMA, 1994);
- Merimbula Lake and Back Lake Estuary Processes Study (WMA, 1995);
- Merimbula Lake and Back Lake Estuary Management Plan and Management Study (WMA, 1997);
- Back Lake Sustainability Assessment and Management Strategy (DECCW, 2007);
- Merimbula Lake Sustainability Assessment and Management Strategy (DECCW, 2009);
- Merimbula and Back Lake CMP – Synthesis of Information Report (BVSC, 2024a);
- Merimbula and Back Lake CMP – Estuary Threats and Pressures Report (BVSC, 2024b);
- Stakeholder and Community Engagement Plan – Wallaga Lake, Merimbula and Back Lake, and Lake Curalo CMPs (UNSW, 2017).

1.1.2 Scope and Coverage of the CMP

Recognising that Councils along the NSW coast each have different experiences, issues, challenges and opportunities with regards to coastal management, the *Coastal Management Manual* permits the scope of CMPs to be tailored to suit the specific local circumstances, community and coastal environment. Consistent with this concept, BVSC has opted to manage the coastline through a series of individual Coastal Management Programs that each define the management aspirations for individual estuaries within the Shire. This approach was a recommendation from the CMP Scoping Study (BVSC, 2022b), which considered the overall

management of the Bega Valley Shire Coastline, a first-pass assessment of coastal management risks, and identified a phased process for the development of CMPs to address the highest risks first. Several high priority CMPs were identified in the Scoping Study that each cover a specific estuary, including Merimbula and Back Lakes.

The Merimbula and Back Lake CMP takes a holistic approach, considering management issues and providing management aspirations that align with the objectives of all Coastal Management Areas including the Coastal Environment Areas, Coastal Use Areas, and Coastal Wetland and Littoral Rainforest Areas. While Coastal Vulnerability Areas are yet to be mapped for Bega Valley Shire under the *Resilience and Hazards SEPP*, the *Merimbula and Back Lake CMP* has considered the best available mapping of coastal hazards, and provided a series of management actions to reduce the corresponding risks.

Merimbula Lake and Back Lake are both located within the township of Merimbula, within the BVSC Local Government Area (LGA) on the Sapphire Coast of NSW (Figure 1.3). The local area immediately around the estuaries is shown in Figure 1.4, along with the major tributaries that flow into the lakes, being Boggy Creek and Bald Hills Creek for Merimbula Lake and Merimbula Creek for Back Lake. Back Lake is an Intermittently Closed and Open Lake and Lagoon (ICOLL), with the mouth of the lake opening across Short Point Beach. In contrast, the entrance to Merimbula Lake is untrained but considered permanently open, with the lake opening across Main Beach. Both Short Point Beach and Main Beach are part of the Merimbula sediment compartment.

The *Merimbula and Back Lake CMP* has considered threats and issues that arise from all areas within the broader catchment of the estuaries as shown in Map 01a. This is important, as many issues for the estuaries stem from further afar than the estuaries themselves, coming from the lower and in some cases, the upper catchment of the estuaries and their tributaries.

Under the *Coastal Management Act 2016*, management actions proposed within CMPs are restricted to the zones identified as Coastal Management Areas mapped within the *Resilience and Hazards SEPP*. The coverage area for management actions within the *Merimbula and Back Lake CMP* has therefore been formed by the envelope of mapped Coastal Management Areas surrounding the estuaries, as well as the southern end of Short Point Beach and the Northern end of Main Beach. While not a part of the estuaries, these beach areas have been included in the CMP coverage area as they play a direct role in the management of the estuary entrance areas, and are also well-integrated with the estuaries from a recreational use perspective. Between Bar Beach and Short Point Beach, the boundary of the CMP has been assigned as the catchment boundary for the lakes. This excludes the open coast areas of Long Point and Middle Beach from the CMP coverage area, as these areas are considered to have no influence on the management of the estuaries.

Map 01a shows the coverage area for management actions under the *Merimbula and Back Lake CMP*, while Map 01b shows the Coastal Management Areas surrounding the lakes as mapped within the *Resilience and Hazards SEPP*.

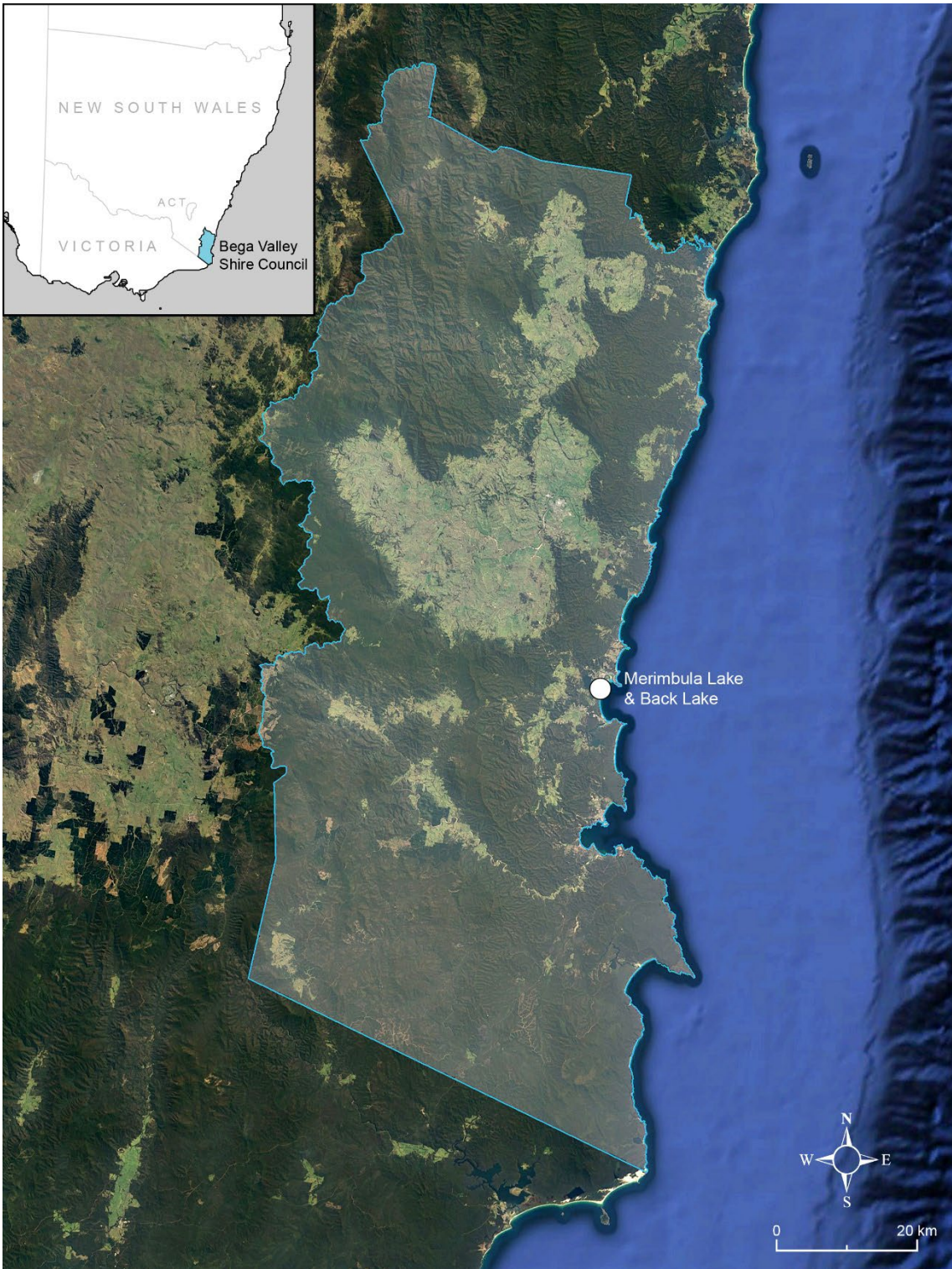
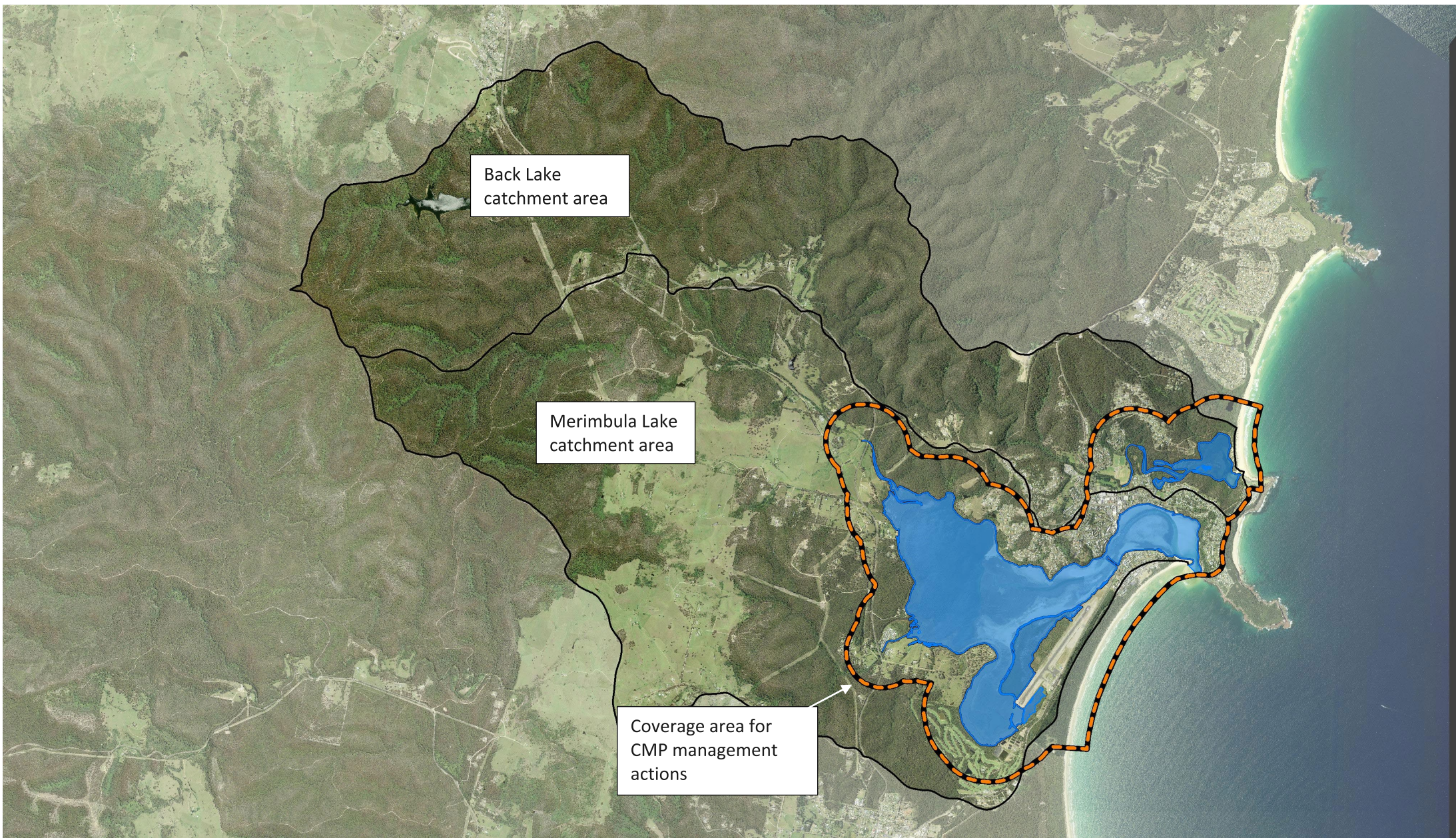


Figure 1.3: Location of Merimbula Lake and Back Lake within the Bega Valley Shire LGA



Figure 1.4: Location of Merimbula and Tributaries of Merimbula Lake and Back Lake



Merimbula and Back Lake
Coastal Management
Program

Map Location: Merimbula/Back Lake Catchment

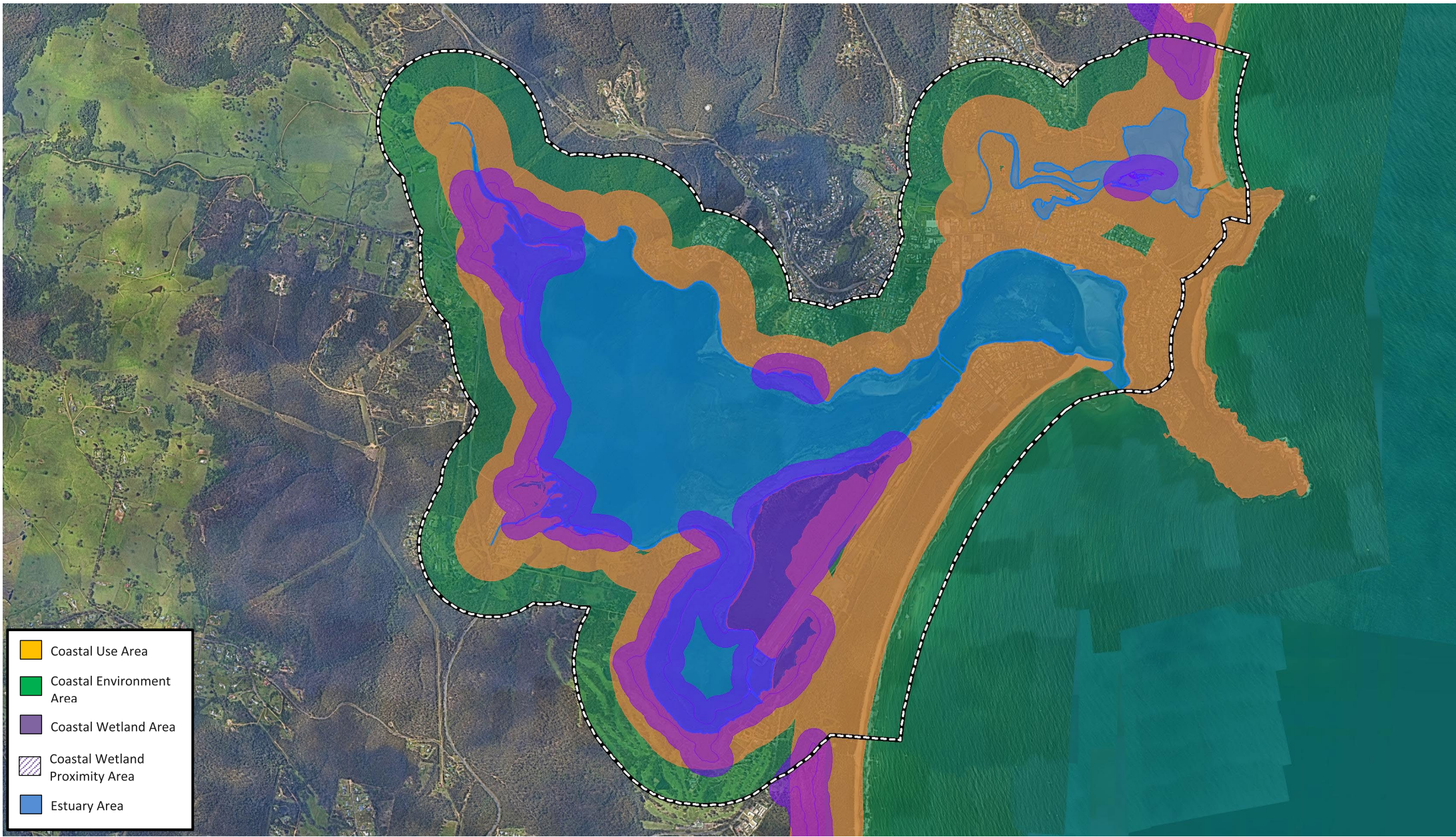
Map Title: Merimbula and Back Lake CMP Coverage Area

Map 01a

Date: 18/07/2024

Rev: 1





Merimbula and Back Lake
Coastal Management
Program

Map Location: Merimbula Lake and Back Lake

Map Title: Merimbula and Back Lake Coastal Management
Areas

Map 01b

Date: 18/07/2024

Rev: 1



1.2 Legislative Framework for Coastal Management in NSW

Coastal management policy and guidelines in NSW have been developed over the last 50 years and the latest reforms of our coastal management legislation and regulatory framework were completed in 2018. This CMP has been completed under the *Coastal Management Act 2016* and supporting documents that include the *Coastal Management Manual (2018)* and the *State Environmental Planning Policy (Resilience and Hazards) 2021*.

1.2.1 State Government Acts, Policies and Guidelines

Coastal management policy is largely legislated by the State Government in NSW. The main instruments of relevance include:

- Environmental Planning and Assessment Act 1979;
- Coastal Management Act 2016 (replacing the Coastal Protection Act 1979);
- SEPP (Resilience and Hazards) 2021. This consolidated various other planning policies including the SEPP (Coastal Management) 2018, which incorporated former SEPP 14 (Coastal Wetlands), SEPP 26 (Littoral Rainforests) and SEPP 71 (Coastal Protection);
- Coastal Management Manual (2018).

Figure 1.5 provides an overview of how the main State Government Acts, Policies and guidelines provide a legislative framework for the development of a Coastal Management Program. Further detail of the *Coastal Management Act 2016* and the *Coastal Management Manual (2018)* are provided below. In addition to these primary documents, several supporting Acts, Policies and guideline documents are also relevant to the development of a CMP, including:

- Marine Estate Management Act 2014 and Marine Estate Management Strategy;
- Local Government Act 1993;
- SEPP (Transport and Infrastructure) 2021;
- Fisheries Management Act 1994;
- National Parks and Wildlife Act 1974;
- Crown Land Management Act 2016;
- Biodiversity Conservation Act 2016;
- Environmental Protection and Biodiversity Act 1999;
- Local Land Services Act 2013;
- Water Management Act 2000;
- Aboriginal Land Rights Act 1983;
- Forestry Act 2012;
- Heritage Act 1977;
- Biosecurity Act 2015;
- Environment Protection and Biodiversity Conservation Act 1999; and
- Native Title Act 1993.

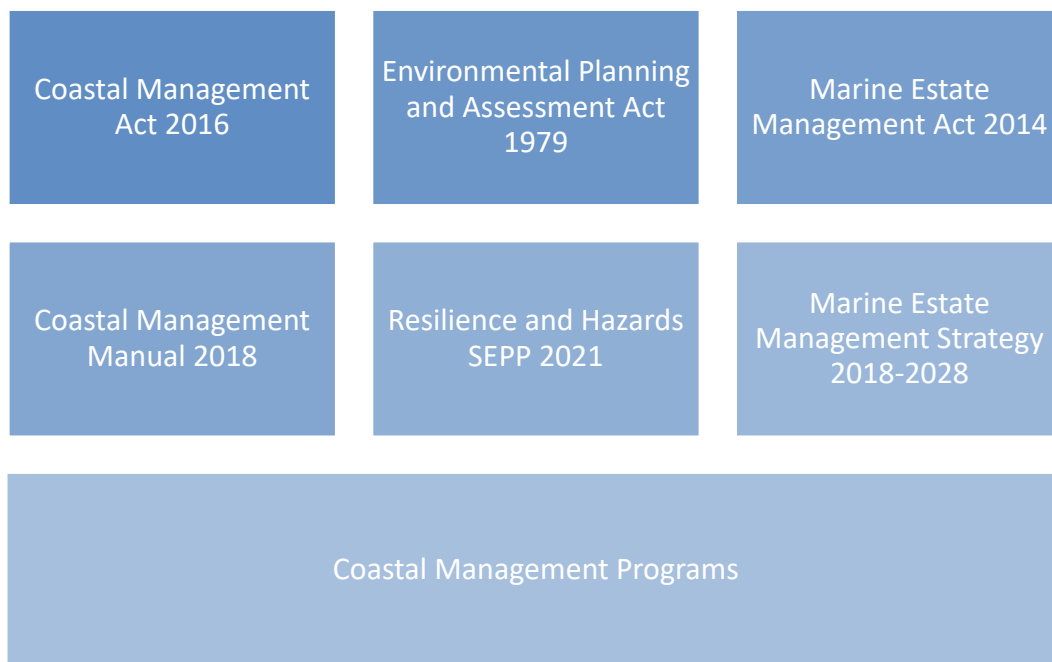


Figure 1.5: NSW Legislative Framework for Coastal Management

1.2.2 Overview of Primary Legislative Framework

As shown in Figure 1.5, the *Environmental and Planning Assessment Act 1979* underpins the planning framework in NSW. This Act ensures proactive management of environmental resources while balancing the needs of local communities. It underpins the standardised State Environmental Planning Policies (SEPP) and Local Environmental Plans (LEP) that provide input into the final development of the CMP.

The *Coastal Management Act 2016* promotes ecologically sustainable development of the coastal zone and identifies the importance of the natural, social, cultural and economic values of the coast. It provides a legislative framework for coordinated coastal planning across the state, and defines the requirements for a local CMP. The Act is aimed at providing improved decision making criteria for coastal management that will preserve natural coastal resources throughout the state without inhibiting social, cultural and economic values in the coastal region.

The *SEPP (Resilience and Hazards)*, referred to as the *Resilience and Hazards SEPP*, defines the coastal zone, including mapping of key Coastal Management Areas that require specific management approaches. It also provides management objectives and development controls for each area, and management approaches based on the mapping which are to be used across the state. This standardises coastal management between Councils, and ensures that a minimum level of environmental planning and policy is required in high-risk or high-value areas.

Finally, the *Coastal Management Manual* is the supporting document which provides guidance on how to develop a Coastal Management Program in accordance with the *Coastal Management Act 2016*. It is an important guideline document that sets out the 5-stage procedure for the development of a Coastal Management Program (Figure 1.2).

1.2.3 Regional and Local Planning Documents

Council has several strategic documents, plans and policies that guide planning and development within the coastal zone of the LGA, and the Merimbula and Back Lake CMP gives consideration to these broader plans where necessary:

- Bega Valley Community Strategic Plan (2017)
- Bega Valley Local Environment Plan (2013)
- Bega Valley Development Control Plan (2013)
- Local Strategic Planning Statement 2040 (2020)
- Residential Land Strategy 2040 (2020)
- Rural Residential Strategy (2020)
- Commercial Land Strategy 2040 (2020)
- Bega Valley Climate Resilience Strategy (2020)
- Back Lake Entrance Management Policy (BVSC, 2017)
- Various site specific blueprints, master plans, and plans of management.

NSW Government plans and strategies relevant to the CMP include:

- South East and Tablelands Regional Plan 2036 (NSW Government, 2017);
- NSW Marine Estate Strategy 2018-2028

1.3 Coastal Management Objectives

1.3.1 Objects of the Coastal Management Act 2016

The objectives for integrated management of the Bega Valley Shire coastal zone via our Coastal Management Programs are set out in the *Coastal Management Act 2016* and the Coastal Management Manual. As outlined in the Act, the overall objective is to manage the coastal environment in a manner consistent with the principles of ecologically sustainable development for the social, cultural and economic well-being of the people of the Shire. Table 1.1 outlines the ways in which the *Merimbula and Back Lake CMP* considers and promotes each of the 13 Objects of the Coastal Management Act.

Table 1.1: How the Merimbula and Back Lake CMP Considers and Promotes the Objects of the Coastal Management Act 2016

Object	CMP Sections that Consider and Promote the Object
a) To protect and enhance natural coastal processes and coastal environmental values including natural character, scenic value, biological diversity and ecosystem integrity and resilience.	The CMP includes a range of management actions that will reduce the risk of threats within CEAs and CUAs around the estuaries. The methodology for evaluating risks and prioritising management actions was underpinned by the social, cultural and environmental values of these areas, including the scenic value, biological diversity and ecosystem integrity. Within the CMP specific actions have been identified to:
a) To support the social and cultural values of the coastal zone and maintain public access, amenity, use and safety;	<ul style="list-style-type: none"> • Protect and enhance natural coastal processes and coastal environmental values: R1.1, R1.2, R1.3a, R1.3b, R1.4, R2.1, R2.1, R2.2, R2.3, R3.1, R4.1, R5.5, R6.1.

Table 1.1: How the Merimbula and Back Lake CMP Considers and Promotes the Objects of the Coastal Management Act 2016

Object	CMP Sections that Consider and Promote the Object
	<ul style="list-style-type: none"> Support the social and cultural values of the coastal zone and maintain public access, amenity, use and safety: R5.1, R5.2, R5.4, R5.6, R6.1e, R6.2, R7.1, R7.2, R8.1, R8.2, R8.3, R8.4, R8.5, R8.6.
b) To acknowledge Aboriginal peoples' spiritual, social, customary and economic use of the coastal zone;	The CMP acknowledges the importance of the traditional use and practices in managing catchment and estuarine areas and provides opportunity to raise awareness and share this knowledge as an integral part of CMP implementation (R8.2, R8.3).
c) To recognise the coastal zone as a vital economic zone and to support sustainable coastal economies;	The CMP acknowledges the role of tourism as a sustainable coastal economy and includes management actions to reduce the risks of climate change on assets that support tourism values and operations (R5.1, R5.2, R5.4, R6.1, R6.2, R7.1, R7.2). The CMP also acknowledges the importance of commercial aquaculture, and the need to manage this industry sustainably through ongoing environmental monitoring and maintaining good water quality (R1.1, R1.2, R1.3, R1.4, R2.1, R2.2, R2.3, R4.1).
d) To facilitate ecologically sustainable development in the coastal zone and promote sustainable land use planning decision-making;	Section 1.6 of the CMP considers the need for future development in the Merimbula area and broader LGA, as identified in local and regional plans and strategies. This includes consideration of sustainable land use planning and opportunities for land development in line with land zoning. The assessment of threats and pressures completed in the CMP (BVSC, 2024b) includes a detailed risk assessment for coastal hazards on properties within the coastal zone (summarised in Section 2 of the CMP), and includes analysis of the evolving risk profile with climate change. Section 3 of the CMP presents a series of management actions (R5.1 to R5.6) that aim to address the identified risks through revised land use planning, asset management, revisions to planning controls and instruments, and building natural resilience of coastal buffer zones to coastal hazards.
e) To mitigate current and future risks from coastal hazards, taking into account the effects of climate change;	
f) To recognise that the local and regional scale effects of coastal processes, and the inherently ambulatory and dynamic nature of the shoreline may result in the loss of coastal land to the sea, (including estuaries and other arms of the sea), and to manage coastal use and development accordingly;	
g) To promote integrated and co-ordinated coastal planning, management and reporting;	The CMP has been aligned with Council's Integrated Planning and Reporting (IP&R) framework (CMP Section 1.3.2). The CMP Business Plan (Section 5) demonstrates integration of the CMP with the IPR framework, linking each management action to specific goals of Council's Community Strategic Plan.
h) To encourage and promote plans and strategies to improve the resilience of coastal assets to the impacts of an uncertain climate future including impacts of extreme storm events;	Coastal hazards present a threat to a number of key assets within the coastal zone around Merimbula Lake and Back Lake, with risks expected to increase due to climate change. Several actions are proposed in the CMP to understand, plan and manage adaptation of the assets (R5.1, R5.4).
i) To ensure co-ordination of the policies and activities of government and public authorities relating to the coastal zone and to facilitate the proper integration of their management activities;	The CMP was developed via a consultative process including guidance from a stakeholder Focus Group that comprised representatives from all Government agencies and public authorities having a role in managing the coastal zone (Section 1.4).

Table 1.1: How the Merimbula and Back Lake CMP Considers and Promotes the Objects of the Coastal Management Act 2016

Object	CMP Sections that Consider and Promote the Object
	Implementation of the CMP will occur under the guidance of Council’s Coast and Flood Management Committee as set out in the Monitoring, Evaluation and Reporting plan of the CMP (Section 7). This will ensure continued integration of coastal zone management across Government agencies as representatives to this committee.
j) To support public participation in coastal management and planning and greater public awareness, education and understanding of coastal processes and management;	The CMP includes a range of actions to promote public participation in management of the estuaries. These actions include the support of active community environmental groups (R8.1), awareness, education and engagement activities (R8.2, R8.3, R8.5).
k) To facilitate the identification of land in the coastal zone for acquisition by public or local authorities in order to promote the protection, enhancement, maintenance and restoration of the environment of the coastal zone;	The CMP also includes analysis of land areas (public and private) subject to current and future tidal inundation (BVSC, 2024b), and includes recommendations for analysis and management works to restore and enhance these areas for the protection and sustainability of the marine environment.
l) To support the objects of the Marine Estate Management Act 2014.	The CMP provides for the management of the marine estate consistent with the principals of ecologically sustainable development, including the promotion of a biodiverse, healthy and productive marine estate. This includes a range of actions that promote cultural, social and recreational use of the coastal zone, as well as scientific research and education (R1.4, R5.1, R5.4, R6.1, R6.2, R7.1, R7.2, R8.1, R8.2, R8.3, R8.4, R8.5, R8.6).

For management purposes, the coastal zone is comprised of four Coastal Management Areas, as defined and mapped in the *Resilience and Hazards SEPP*, with each management area having a different set of objectives (Table 1.2). Recognising that individual sections of land around Merimbula Lake and Back Lake are part of multiple Coastal Management Areas (Map 01b), there may be occurrences where the management objectives are inconsistent or even opposing. In these occurrences, the management objectives of the highest of the Coastal Management Areas as ordered in Table 1.2, will take priority.

Table 1.2: Management Objectives for Coastal Management Areas (Coastal Management Act 2016)

Specific Management Objectives	CMP Sections that Achieve Objectives
Coastal Wetlands and Littoral Rainforest Areas	
<p>m) To protect coastal wetlands and littoral rainforests in their natural state, including their biological diversity and ecosystem integrity.</p> <p>n) To promote the rehabilitation and restoration of degraded coastal wetlands and littoral rainforests.</p> <p>o) To improve the resilience of coastal wetlands and littoral rainforests to the impacts of climate change, including opportunities for migration.</p>	<p>In developing the CMP, a detailed assessment of risks to mapped CWLR areas was completed (BVSC, 2024b). The CMP methodology for evaluating risks and prioritising management actions was underpinned by the social, cultural and environmental values of CWLR areas. Within the CMP specific actions have been identified to:</p> <ul style="list-style-type: none"> Better understand the location, health and hydrology of wetland areas: R1.1, R3.1, R4.1, R5.3, R5.6

Table 1.2: Management Objectives for Coastal Management Areas (Coastal Management Act 2016)	
Specific Management Objectives	CMP Sections that Achieve Objectives
<p>p) To support the social and cultural values of coastal wetlands and littoral rainforests.</p> <p>q) To promote the objectives of State policies and programs for wetlands or littoral rainforest management.</p>	<ul style="list-style-type: none"> • Protect CWLR areas and reduce impacts from development in catchment areas: R1.2, R2.1, R2.2, R2.3, R7.2 • Restore and rehabilitate CWLR areas: R1.3, R1.4, R2.1, R6.1 • Understand and improve resilience of CWLR areas to climate change: R5.2, R5.6 • Promote and support the cultural and social values: R8.1, R8.2, R8.3, R8.4, R8.5, R8.6

Coastal Vulnerability Areas	
<p>a) To ensure public safety and prevent risks to human life.</p> <p>b) To mitigate current and future risk from coastal hazards by taking into account the effects of coastal processes and climate change.</p> <p>c) To maintain the presence of beaches, dunes and the natural features of foreshores, taking into account the beach system operating at the relevant place.</p> <p>d) To maintain public access, amenity and use of beaches and foreshores.</p> <p>e) To encourage land use that reduces exposure to risks from coastal hazards, including through siting, design, construction and operational decisions.</p> <p>f) To adopt coastal management strategies that reduce exposure to coastal hazards:</p> <ol style="list-style-type: none"> i. in the first instance and wherever possible, by restoring or enhancing natural defences including coastal dunes, vegetation and wetlands; and ii. if that is not sufficient, by taking other action to reduce exposure to those coastal hazards. <p>g) If taking that other action to reduce exposure to coastal hazards:</p> <ol style="list-style-type: none"> i. to avoid significant degradation of biological diversity and ecosystem integrity; ii. to avoid significant degradation of, or disruption to, ecological, biophysical, geological and geomorphological coastal processes; iii. to avoid significant degradation of, or disruption to, beach and foreshore amenity and social and cultural values; iv. to avoid adverse impacts on adjoining land, resources or assets; and v. to provide for the restoration of a beach, or land adjacent to the beach, if any increased erosion of the beach or adjacent land is caused by actions to reduce exposure to coastal hazards. <p>h) To prioritise actions that support the continued functionality of essential infrastructure during and immediately after a coastal hazard emergency.</p> <p>i) To improve the resilience of coastal development and communities by improving adaptive capacity and reducing reliance on emergency responses.</p>	<p>In developing the CMP, a detailed assessment of risks from coastal hazards was completed, and included risks around the estuaries and adjacent areas of open coast (BVSC, 2024b). This assessment was underpinned by the best available information on local coastal processes, hazards and climate change projections through the <i>Coastal Processes and Hazard Definition Study</i> (BMT, 2015).</p> <p>Within the CMP specific actions have been identified to:</p> <ul style="list-style-type: none"> • Enhance the natural protection of dunes through active dune management and effective entrance management: R5.5, R5.7, R6.2 • Reduce exposure to coastal hazards through improved land use planning and planning of protection strategies: R5.1, R5.2, R5.3, R5.4, R5.6. • Plan and improve resilience of infrastructure and coastal development to cope with coastal hazards and climate change: R5.1, R5.4, R5.6 • Reduce impacts and degradation of ecosystems, and disruptions to ecological, biophysical, and geomorphological processes: R1.2, R1.3, R1.4, R2.1, R2.2, R2.3, R7.2, R6.1
Coastal Environment Areas	
<p>a) To protect and enhance the coastal environmental values and natural processes of coastal waters, estuaries, coastal lakes and</p>	<p>In developing the CMP, a detailed assessment of risks to environmental values and natural processes of the estuary was completed (BVSC, 2024b). The</p>

<p>coastal lagoons, and enhance natural character, scenic value, biological diversity and ecosystem integrity.</p> <p>b) To reduce threats to and improve the resilience of coastal waters, estuaries, coastal lakes and coastal lagoons, including in response to climate change.</p> <p>c) To maintain and improve water quality and estuary health.</p> <p>d) To support the social and cultural values of coastal waters, estuaries, coastal lakes and coastal lagoons.</p> <p>e) To maintain the presence of beaches, dunes and the natural features of foreshores, taking into account the beach system operating at the relevant place.</p> <p>f) To maintain and, where practicable, improve public access.</p>	<p>CMP methodology for evaluating risks and prioritising management actions was underpinned by the social, cultural and environmental values of the estuaries.</p> <p>Within the CMP specific actions have been identified to:</p> <ul style="list-style-type: none"> • Protect and enhance the coastal environmental values of the estuaries, improve biodiversity and integrity of terrestrial and aquatic ecosystems: R1.1, R1.2, R1.3, R1.4, R1.5, R1.6, R2.1, R2.3, R4.1 • Reduce the risk of threats to the environmental processes and natural ecosystems of the estuaries and beach, including climate change: R1.3, R1.4, R2.1, R3.1, R5.3, R5.5, R5.6, R5.7 • To understand threats, monitor and improve estuarine water quality: R1.1, R1.4, R2.1, R2.2, R3.1, R4.1 • Enhance the natural protection of dunes through active dune management and effective entrance management: R5.5, R5.7, R6.2
Coastal Use Areas	
<p>a) To protect and enhance the scenic, social and cultural values of the coast by ensuring that:</p> <ol style="list-style-type: none"> i. the type, bulk, scale and size of development is appropriate for the location and natural scenic quality of the coast; ii. adverse impacts of development on cultural and built environment heritage are avoided or mitigated; iii. urban design, including water sensitive urban design, is supported and incorporated into development activities; iv. adequate public open space is provided, including for recreational activities and associated infrastructure; and v. the use of the surf zone is considered. <p>b) To accommodate both urbanised and natural stretches of coastline.</p>	<p>In consultation with the local community and stakeholders, a number of threats were identified that impinge on the scenic, social and cultural values of the Coastal Use Area around the estuaries and beach. This includes the risk of climate and climate change impacts on the recreational and economic benefit of both built and natural assets.</p> <p>Within the CMP specific actions have been identified to:</p> <ul style="list-style-type: none"> • Minimise the impacts of development and commercial activities within the lower catchment: R2.1, R2.3, R5.6 • Enhance the climate resilience of recreational and essential infrastructure into future management of the estuaries: R5.1, R5.4, R5.6, R5.7, R7.1 • Balance the multi-use nature of the catchment across the needs of the aquaculture sector, semi-urban villages and the natural ecosystem services and values provided by the estuaries and coastline: R2.2, R2.2, R5.6, R7.2

1.3.2 Community Strategic Plan 2040 Objectives

The *Bega Valley Shire Community Strategic Plan 2042* (BVSC, 2022) is a long-term visionary plan, aligning Council's operations with the priorities and aspirations of the community. It is Council's overarching strategic planning document developed in partnership with the community and stakeholders, with its main purpose to help build a stronger and better Bega Valley Shire for the community. The *Community Strategic Plan* was prepared to complement key directions established in broader strategic documents such as the State Government's *Plan NSW 2021* (NSW Government, 2011), the *South East and Tablelands Regional Plan 2036* (NSW Government, 2017) and the strategies and actions from Council's *Climate Resilience Strategy 2050* (BVSC, 2020) and *Community Engagement Strategy* (BVSC, 2019a).

The *Bega Valley Shire Community Strategic Plan 2042* is Council’s overarching planning document within the Integrated Planning and Reporting (IP&R) framework (Figure 1.6), legislated under the *Local Government Act 1993* and informing Council’s long term strategic, infrastructure and financial framework.

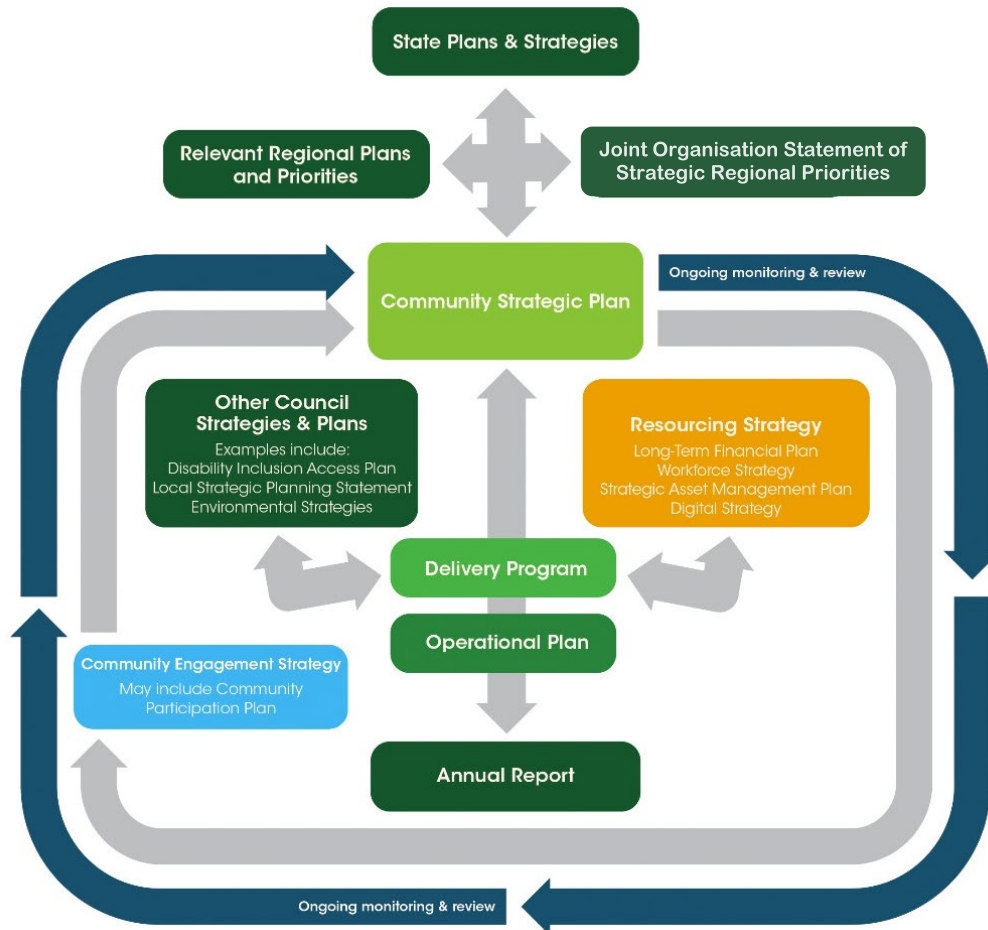


Figure 1.6: IP&R Framework within BVSC

The *Community Strategic Plan* is based around five priority themes:

- a. Our community
- b. Our economy
- c. Our environment
- d. Our infrastructure
- e. Our civic leadership

A series of 16 Strategic Objectives and 39 actionable Strategies are identified in the Plan, reflecting the community’s feedback across the five themes. The objectives and management responses of the Merimbula and Back Lake CMP are consistent with several of the strategies from the *Community Strategic Plan*, as outlined in Table 1.3.

Table 1.3: Relevant Strategies of the Bega Valley Shire Community Strategic Plan 2042

Theme (a): Our Community: A connected and vibrant community where people are happy, safe and well.	
Strategic Objective: We are a vibrant, respectful, inclusive and connected community that enjoys a culturally rich community life.	Strategy A.2: Respect and promote our cultural heritage and diversity and partner with and acknowledge Traditional Owners and First Nations people.
Strategic Objective: We are a resilient and caring community that supports the health and wellbeing of our residents.	Strategy A.5: Provide and advocate for accessible services and initiatives that contribute to wellbeing across all stages of life.
Strategic Objective: We value the role of community in supporting and enhancing the life of all Bega Valley Shire residents.	Strategy A.6: Acknowledge and collaborate with local groups to advance local priorities – environmental impact, community infrastructure, housing and economic growth.
Strategic Objective: Our shire continues to be a safe and affordable place to live.	Strategy A.8: Ensure community safety is planned for and partner with other agencies to address issues related to community safety.
Theme (c): Our Environment We embrace sustainable living and value and conserve our natural environment.	
Strategic Objective: Our air and water are pristine, and our natural environment and rural landscapes are protected.	Strategy C.1: Deliver and support integrated water management. Strategy C.2: Ensure land use planning and resource use supports sustainable growth whilst protecting the quality of the natural environment and our rural landscapes.
Strategic Objective: We act to adapt to and mitigate the effects of climate change.	Strategy C.5: Lead climate change mitigation and adaptation through implementation of our Climate Resilience Strategy focusing on natural systems, preparing for natural hazards, liveable and connected places, safe, healthy and inclusive community, diverse and thriving economy, energy security and food security.
Theme (d): Our Infrastructure Our infrastructure complements our natural surroundings and character while enhancing the lives of our community.	
Strategic Objective: Our public and private infrastructure and community services meet community needs.	Strategy D.1: Plan for community infrastructure and services that will meet current and future needs.
Strategic Objective: Our community has access to good quality open space, recreation and sporting facilities that support health and wellbeing.	Strategy D.5: Collaborate with partners to provide open space, facilities, activities and services that encourage more people to have active and healthy lifestyles and improve accessibility to our natural environment.
Theme (e): Our Civic Leadership	
Strategic Objective: We are an informed and engaged community with a transparent, consultative and responsive Council.	Strategy E.2: Ensure the community has opportunities to actively engage and contribute in a

Table 1.3: Relevant Strategies of the Bega Valley Shire Community Strategic Plan 2042	
	<p>timely manner to the things that affect their daily lives using relevant and varied communication channels.</p> <p>Strategy E.3: Councillors, council staff and the community work in partnership to identify and deliver community aspirations.</p>
<p>Strategic Objective: Council has strong organisational practices to ensure a viable organisation that delivers services and facilities to meet community needs.</p>	<p>Strategy E.6: Council decision making seeks to optimise environmental, social and economic outcomes for our community, while mitigating financial, legal, environmental, reputational and safety risks.</p>

1.4 Community and Stakeholder Engagement During the Development of the CMP

Engagement of key stakeholders and the broader community during preparation of the *Merimbula and Back Lake CMP* was essential to developing a program that was both evidence-based and tangible. The supporting document “*Stakeholder and Community Engagement Plan – Wallaga Lake, Merimbula and Back Lake, and Lake Curralo CMPs*”, (UNSW, 2017), sets out the aspirational engagement activities that were largely followed during the development of the CMP. These activities include:

- Establishing a CMP focus group to oversee the CMP development process, consult on key aspects, and form a conduit to provide information to their respective agencies and constituencies. The focus group comprised key representatives from the community, BVSC (technical staff and elected councillors), DCCEEW, DPIRD Fisheries, National Parks, Crown Lands, LLS, Bega LALC, Transport for NSW and NSW Forestry and UNSW;
- A dedicated website for the development of the suite of BVSC CMPs, including a section specifically for the *Merimbula and Back Lake CMP*;
- Formal and social media releases;
- An email contact group used to distribute project updates and for community members to provide input;
- Information drop-in sessions;
- Formal exhibition of the draft CMP.

During the preparation of the CMP, there was a pause to evaluate the overall coastal management priorities across the full coastal zone of the LGA, documented through a revision to Council’s CMP Scoping Study. This provided opportunity to update the scope of the Merimbula and Back Lake CMP and improve alignment with coastal management aspirations and legislation. Further to the engagement activities presented in the Stakeholder and Community Engagement Plan (UNSW, 2017), an additional meeting of the CMP Focus Group was held in May 2023 to discuss the updated CMP scope with key stakeholders, to present an extended analysis of threats and pressures, and to discuss revised management actions. This was followed by additional one-on-one consultation with key stakeholders to agree and finalise management actions. A one-on-one consultation was also held with Bega LALC in May 2023 to discuss management issues and actions relevant to local Aboriginal heritage, and how

best to capture these within the CMP. These additional stakeholder engagement sessions helped to guide the final stages of the CMP.

The development of the *Merimbula and Back Lake CMP* was undertaken in parallel with other CMPs for the Shire, with many synergistic opportunities to share and gather information from all CMPs with the community. An example of this was the results of the “*Community Uses and Values*” questionnaire (BVSC, 2017b, Draft) presented as a supporting document to the draft *CMP – Coastal Hazards* (BVSC, 2019b, Draft), which provided broad information on the community’s values for the coastal zone, including the estuaries.

1.5 Overview of the Merimbula and Bake Lake Estuaries

1.5.1 Catchment and Estuary Overview

Merimbula Lake has a catchment area of 35.5 km² and the estuary occupies 5.6 km². Back Lake has a catchment area of a comparable size, 31 km², however, the estuary is considerably smaller with an area of only 0.4 km² (OEH, 2011). Merimbula Lake is classified as a wave dominated barrier estuary, and is permanently open to the ocean at the northern end of Merimbula Main Beach through a natural, untrained entrance channel. The main tributary into Merimbula Lake is Boggy Creek which enters at the north-western corner of the lake at Millingandi (Figure 1.4). Back Lake is technically classified as a saline coastal lagoon, and is intermittently open to the ocean via an entrance channel across through the beach berm at the southern end of Short Point Beach, adjacent to Short Point. The main tributary into Back Lake is Merimbula Creek (Figure 1.4).

The combined catchments include sections of Yurammie State Forest, Yurammie State Conservation Area, Bournda Nature Reserve and South East Forests National Park. Almost the entire Back Lake catchment is forested aside from lower urbanised areas of the immediate estuary catchment (Figure 1.4, Map 01a). The upper parts of the Merimbula Lake catchment is also predominantly vegetated, while the central sections have large amounts of agricultural land and moderate levels of rural use. The urbanised town of Merimbula lies on the coastal section between the two lakes, while the township of Pambula sits on the south eastern border of the Merimbula Lake catchment. The area of Millingandi forms the western boundary of Merimbula Lake and predominantly consists of small rural/environmental lots. Yellow Pinch Dam is located in the upper sections of the Back Lake catchment. As well as the township of Merimbula that forms the southern and eastern fringes of Back Lake, areas immediately to the north of the lake include the urban developments of Mirador and Tura Beach. Table 1.4 summarises the catchment land use properties, as available from the Coastal Eutrophication Risk Assessment Tool (OEH, 2011) on the Geoscience Australia (2012) website. More recent mapping of catchment land use from DCCEEW is shown in Figure 1.7 and Figure 1.8.

Table 1.4: Land Uses from CERAT Modelling (OEH, 2011)			
Land Use	Merimbula Lake Area (km ²)	Back Lake Area (km ²)	% of Total Area
Cleared Land	0.00	0.09	0.14%
Forest	18.02	26.64	67.1%
Urban	6.00	2.39	12.6%
Grazing	10.59	1.87	18.7%
Irrigated Forbs	0.02	0.02	0.1%
Other	0.92	0.02	1.4%

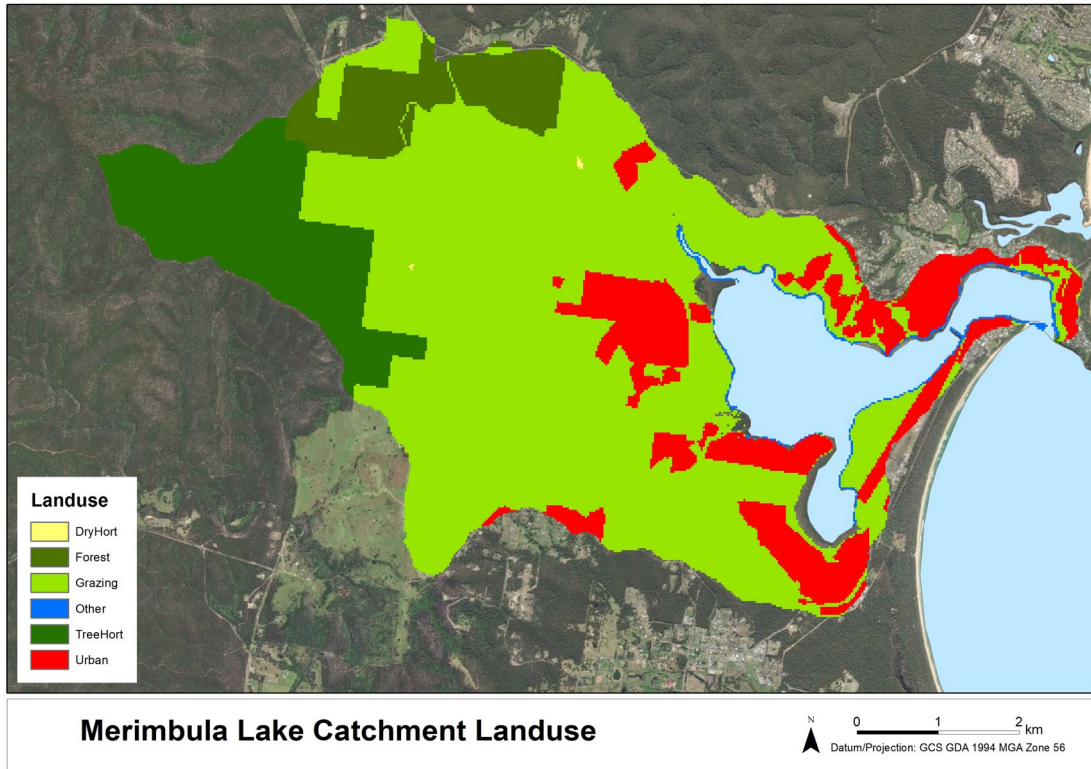


Figure 1.7: Merimbula Lake Catchment Landuse (DCCEEW, 2023)

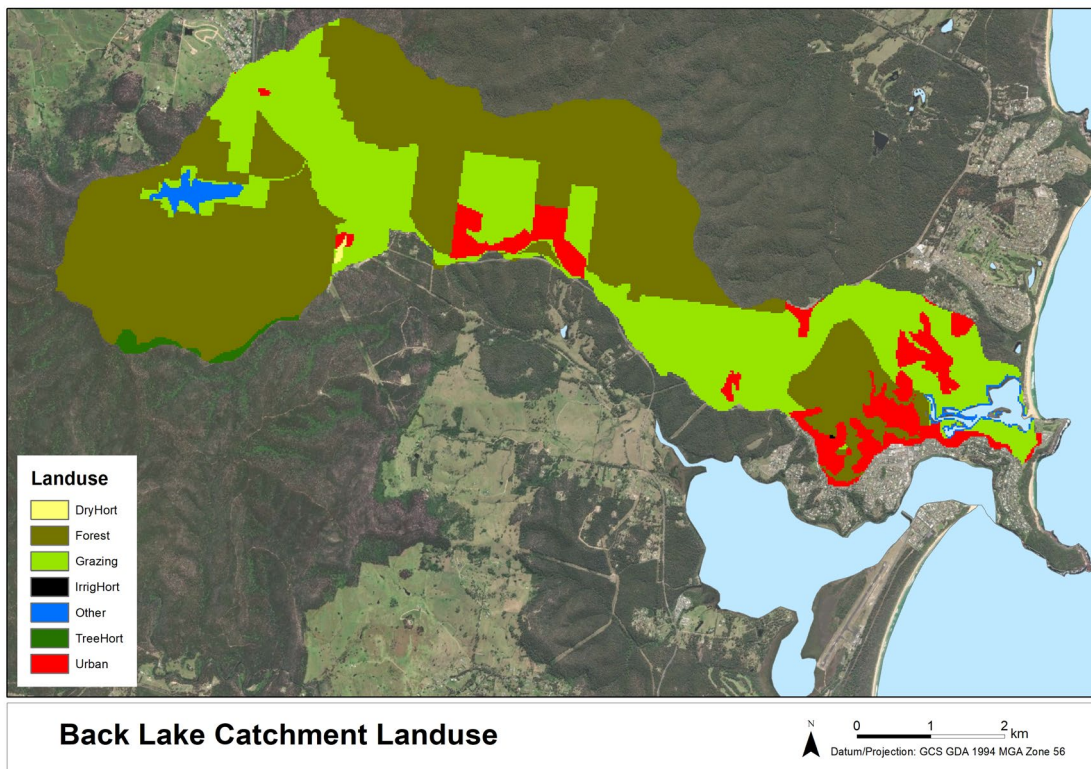


Figure 1.8: Back Lake Catchment Landuse (DCCEEW, 2023)

1.5.2 Back Lake Entrance Dynamics

Back Lake is an intermittently closed and open coastal lagoon (ICOLL), meaning that it is only periodically open to the ocean. At other times a coastal barrier dune builds up in the entrance to the lake on Short Point Beach as a result of wave and wind driven sand movement, and separates the lake from tidal ocean flushing. Once closed, the lake entrance would naturally open and scour when water levels in the lake reached a suitably high level to overtop the entrance berm, however, the entrance is almost always mechanically opened at lower water levels to alleviate the impacts of flooding on low lying development in the Berrambool area. The *Back Lake Entrance Management Policy* (2016) has a trigger water level of 1.4 m AHD (measured on the Manly Hydraulics Laboratory water level gauge), at which point the entrance is mechanically opened by Council. Analysis of entrance data records shows that over the longer term, Back Lake spends a greater majority of time closed to the ocean than open, with dynamics of the entrance summarised as:

- Entrance closed for 83% of the time, with closure durations ranging from as little as one month to as long as one year;
- Entrance open for 17% of the time, with open durations ranging from approximately one day to several months.

Historically, prior to the development of the low-lying land (predominantly in the Berrambool area), the dune accretion and erosion processes would have happened naturally. It is likely that the barrier dune at Short Point would routinely have built to a height of 3 m AHD and breakthroughs would have only occurred after prolonged, large rainfall events which elevated water levels within the lake above the dune height. As a result, it is postulated that breakthrough of the dune would have occurred less frequently in the past and under natural processes, but more energetic entrance breakouts would have provided better opportunity to scour built-up sediment from within the estuary.

1.5.3 Back Lake Hydrodynamics

As an intermittently closed coastal lagoon, the hydrodynamics of Back Lake are highly dependent on the entrance conditions. The hydrodynamics can therefore be split into two cases:

When the entrance is closed:

- The water budget is dependent on freshwater catchment runoff, wave overtopping of the entrance bar, direct rainfall, groundwater flow and evaporation losses;
- Inflow is dominated by catchment surface and groundwater flows after rainfall events;
- As the catchment is relatively large compared to the estuary area, the water level is very sensitive to catchment rainfall;
- Water level monitoring from 2009 – 2016 showed water levels up to 2.4 m AHD in the lagoon prior to the entrance being opened, however, the entrance management policy typically sees the entrance opened when water levels reach 1.4 m AHD; and
- Evaporation is estimated to be 420 ML/year.

When the entrance is open;

- Initially, floodwaters will dominate the flow out of the lake;
- Once flood waters recede, tidal action dominates the water level;

- Significant attenuation of the open ocean tides is observed, and typically tidal ranges are around 50% of the ocean tidal range. On large tides after a significant flood event (which caused significant scour of the entrance), the lagoon tends to experience the full upper range of the tide, although is generally restricted at low tide by a berm level of approximate 0 m AHD.

1.5.4 Back Lake Sedimentation

Sediments in the lower sections of Back Lake are predominantly marine sands, with increasing fluvial fines found further upstream near Merimbula Creek (WMA, 1995). WMA (1995) noted that aerial images from 1948 – 1993 showed little change in the depositional deltas inside Back Lake, and suggested that the Berrambool playing fields immediately upstream of the lake appear to be acting as a sediment trap for eroded material from the upper catchment. Core samples from Berrambool Creek show a change in the sediment supplied to the lake in recent years, with more clay being deposited into the system, most likely as a result of the removal of vegetation from the adjacent lands in the lower catchment (Borrell, 2013). Sedimentation rates in Back Lake have been estimated to be 2.2 – 4.7 mm/year (Borrell, 2013) since 1940 and (BVSC, 2016) identifies that there has been increased erosion potential within the catchment in recent years, related to new urban developments, and that sedimentation is an issue of concern to the local community.

1.5.5 Merimbula Lake Hydrodynamics

Merimbula Lake is permanently open to the ocean via a relatively deep (though variable), natural channel. The “Bottom Lake” includes the area between the lake entrance and the road causeway, which constricts tidal flows to the “Top Lake” upstream of the bridge (Figure 1.5). WMA (1995) performed an analysis of the tidal planes at three locations within the lake and compared it to the tide gauge at Eden. Tidal attenuation varied throughout the lake, showing that mean spring tidal range of the ocean was 1.11 m, inside the entrance a range of 0.7 m was reported, upstream of the bridge the range was 0.56 m and at Top Lake was only 0.28 m. There is also a phase lag of 2 – 4 hours between the ocean and Top Lake. Nevertheless, Merimbula Lake is highly tidal, and the water balance is largely driven by tidal actions. The flushing time of the lake is highly variable, depending on the condition of the entrance, with estimates varying between 2 – 70 days for the upper sections of the Top Lake (WMA, 1995; BMT WBM, 2009).

The effect of large rainfall events on water levels was found to be highly dependent on ocean water levels at the time, with water levels in the lake largely determined by the downstream conditions. WMA (1995) estimated the 100 year ARI storm level within the lake to be 2.1 – 2.2 m AHD, though these levels have recently been revised in the latest flood study (Cardno, 2016). Catchment inflows to Merimbula Lake total around 6,700 ML/year, which is significantly smaller than the tidal volume exchanged per year (~1,200,000 ML/year). As such it can be concluded that flood (or drought) conditions do not greatly impact on the water balance of Merimbula Lake (WMA, 1995).

1.5.6 Merimbula Lake Sedimentation

The two sediment inputs into Merimbula Lake are:

- Erosion from the catchment; and
- Sediment movement around the entrance through tidal and flood flows.

There is only minor natural soil erosion of the broader catchment surrounding Merimbula Lake, and natural erosion does not cause significant sedimentation of the lake (approximately 1 mm per year, higher after bushfires). However, erosion due to human activity, predominantly urban development and land clearing, has contributed much more significantly to sediment infill of the lake. Massey (2002) documented community concern of sediment increases into the lake, particularly with respect to its effect on oysters and other ecological systems, estimating that development in the catchment as of 1995 had approximately doubled the sediment and total suspended solid loadings compared to an idealised catchment with no development. These concerns are still reflected by the community and the aquaculture industry, as reflected during consultation for the preparation of this CMP. While the biggest contributor to sediments was previously found to be unsealed roads (Massey, 2002), these have been progressively improved and it is more likely shifted to development in the urban areas, with ongoing development of the lower catchment around Top Lake again identified as a risk for further sedimentation and impacts on aquaculture by the CMP Focus Group.

There have been no recorded closures of the entrance to Merimbula Lake indicating that tidal flow velocities are high enough to maintain the scoured level of the channel, though the depth of the channel varies due to range of environmental drivers. The tidal flows in and out of the lake are approximately equal, resulting in little net inflow of marine sands into the lake. Large flood events will scour the entrance channel while large ocean swell conditions will move sand into the channel, however as tidal flows are so dominant in the estuary most of the time, the entrance re-establishes to equilibrium conditions relatively quickly.

UNSW (2023) documents a more detailed analysis of entrance behaviour and sedimentation, completed in response to significant changes in the morphology of the main lake entrance channel, sand spit and bar. The investigation concluded that the entrance bar is generally a relatively stable morphological feature, that is in dynamic equilibrium with the dominant forcings (waves and estuarine hydrodynamics). While no long term seasonal trends were identified, it was noted that the sand spit does have a history of periodic erosion and subsequent recovery.

1.5.7 Ecosystem Health and Water Quality

Roper *et al.* (2011) presented the Monitoring, Evaluation and Reporting (MER) framework for assessing estuarine ecosystem health in NSW. A state-wide assessment of estuarine health using this framework was presented in the 'State of the Catchment' report series, with results for the Southern Rivers Region presented in Roper *et al.* (2010). This assessment evaluated available data on key health indicators in the MER framework, as well as pressures on estuary systems, to rate the condition of each estuary, including:

- eutrophication: chlorophyll a, macroalgae and turbidity;
- habitat distribution: change in seagrass, mangrove and saltmarsh (macrophytes) extent;
- fish assemblages: species diversity and composition, species abundance, nursery function and;
- trophic integrity (food web).

Table 1.5 summarises the results of the condition assessment for Back and Merimbula Lakes, noting that the overall condition score was 4 ('good') for Back Lake and 3.3 ('fair') for Merimbula Lake. The average rating of all the Southern Rivers region estuaries was 3.7 ('good'), comparable to the average score of the combined catchments of Merimbula and Back Lakes.

Table 1.5: Condition Assessment for Back and Merimbula Lakes
(adapted from Roper *et al.* 2010)

Indicator	Back Lake		Merimbula Lake	
	Condition Score	Condition Index Rating	Condition Score	Condition Index Rating
Chlorophyll a (old data)	no data	-	5	Very Good
Macroalgae	no data	-	no data	-
Turbidity	no data	-	no data	-
Seagrass	4	Good	3	Fair
Mangroves	N/A	-	N/A	-
Saltmarsh	5	Very Good	2	Poor
Fish (old data)	4	Good	3	Fair
Total	4	Good	3.3	Fair

Since the Roper *et al.* (2010) overview assessment, collection of MER water quality data has been undertaken in 2013, 2014, 2015 and 2020/21 for Merimbula Lake, and 2017/18 for Back Lake. For Merimbula Lake the water quality results showed both chlorophyll a and turbidity indicators to have a condition score of A (Very Good), which is the same as previously rated in Table 2.2. For Back Lake the water quality results also had a Chlorophyll a score of A (Very Good) and Turbidity of A (Very Good), and when combined with older data for other health indicators (Table 2.2), also indicates a similar overall estuary health score of Good to Very Good.

Updated mapping of estuarine vegetation extents has recently been completed for Merimbula Lake, though comparative analysis with previous mapping has not yet been completed to provide a contemporary indication of vegetation changes. Previously there was a trend of significant reduction in seagrass communities reported within Merimbula Lake. For Back Lake mapping of estuarine vegetation has not been undertaken since the analysis of aerial photography and field observations in the period 2001 – 2004.

Mapping from DCCEEW (Figure 1.9 and Figure 1.10) indicates that sources of catchment derived nutrients are predominantly the urban catchment areas of the Merimbula township for Back Lake, whereas for Merimbula Lake the sources include both urban areas and agricultural areas in the mid-catchment. Catchment sources of TSS are also dominated by urban areas and zones cleared for development or agriculture (Figure 1.11).

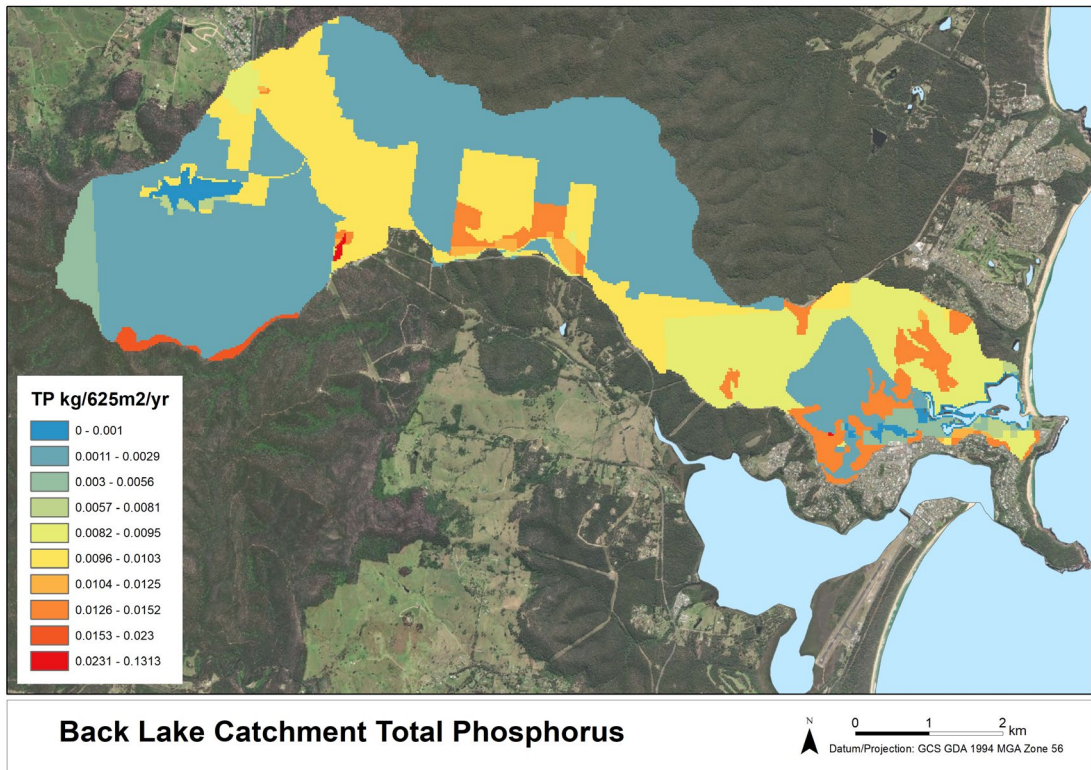
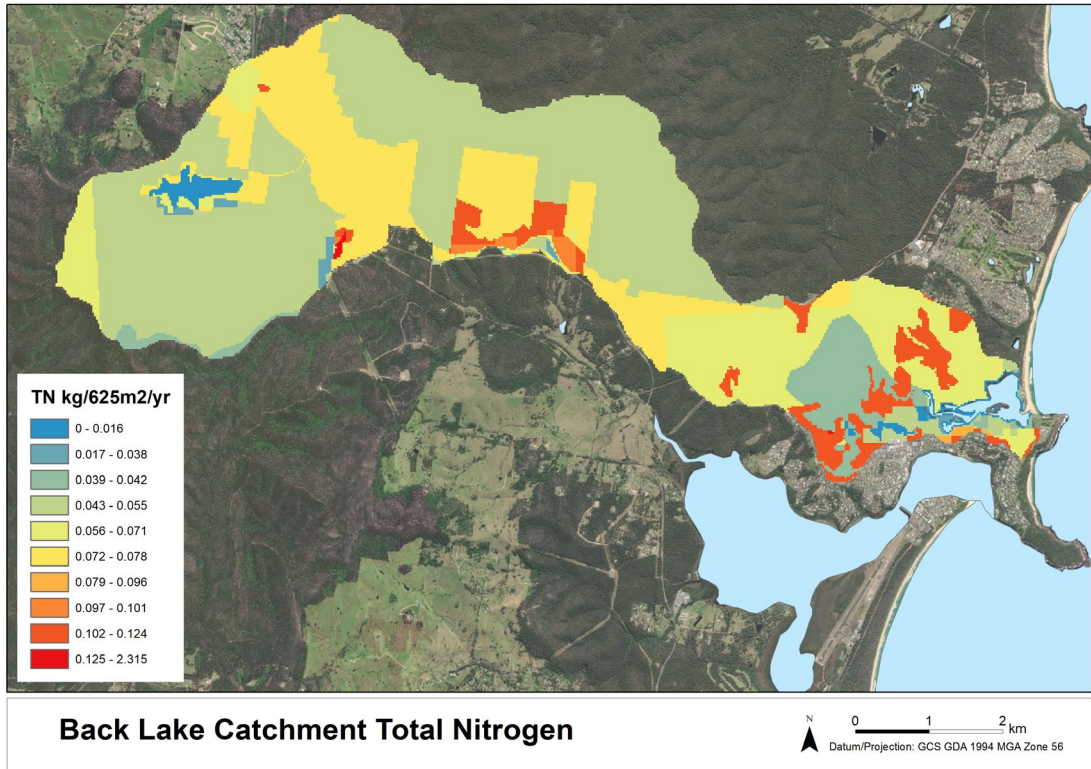


Figure 1.9: Catchment Derived Sources of Nutrients, Back Lake (DCCEEW, 2023)

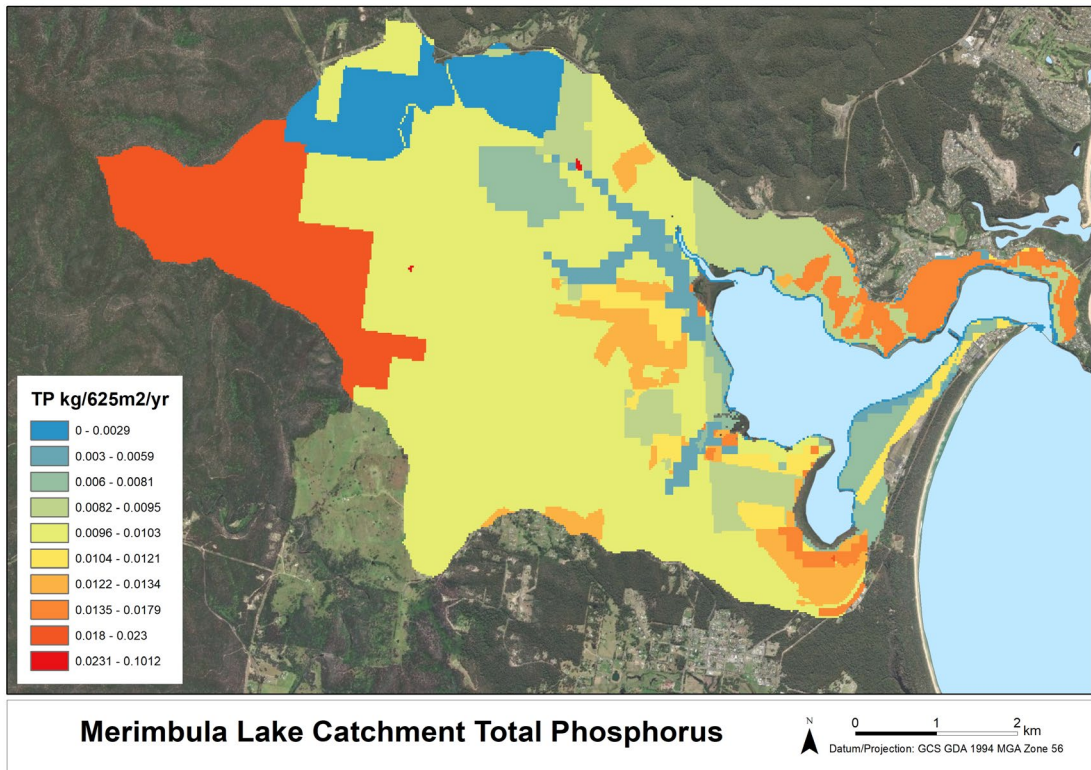
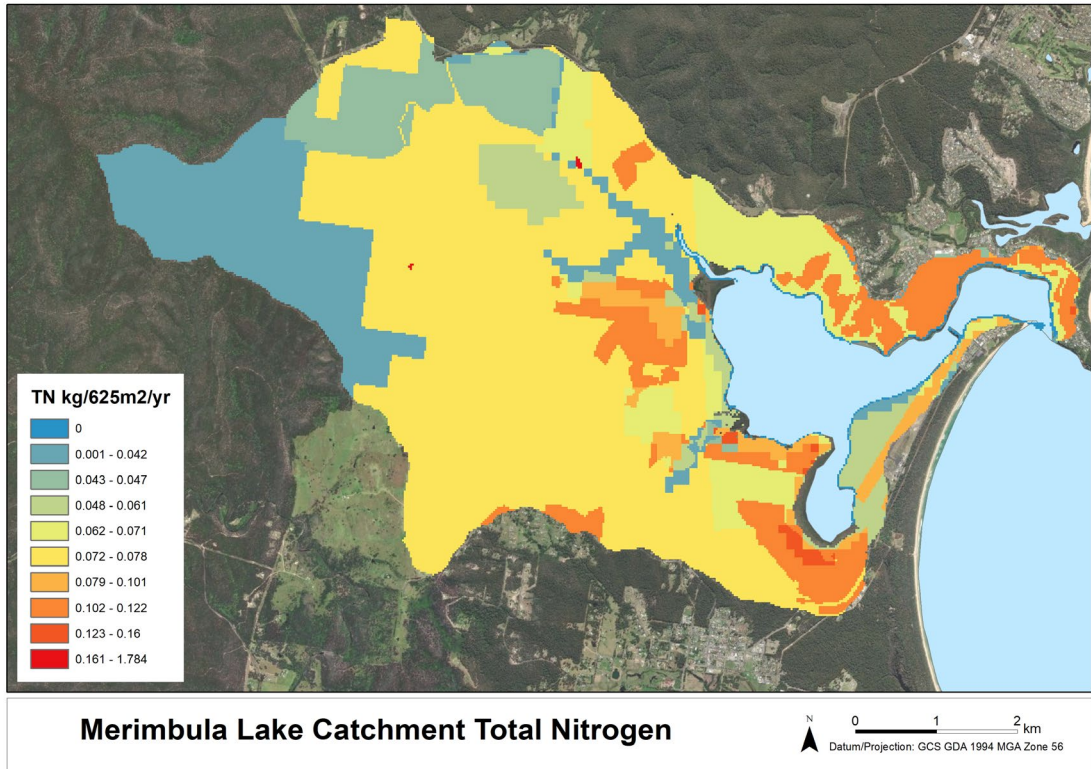


Figure 1.10: Catchment Derived Sources of Nutrients, Merimbula Lake (DCCEW, 2023)

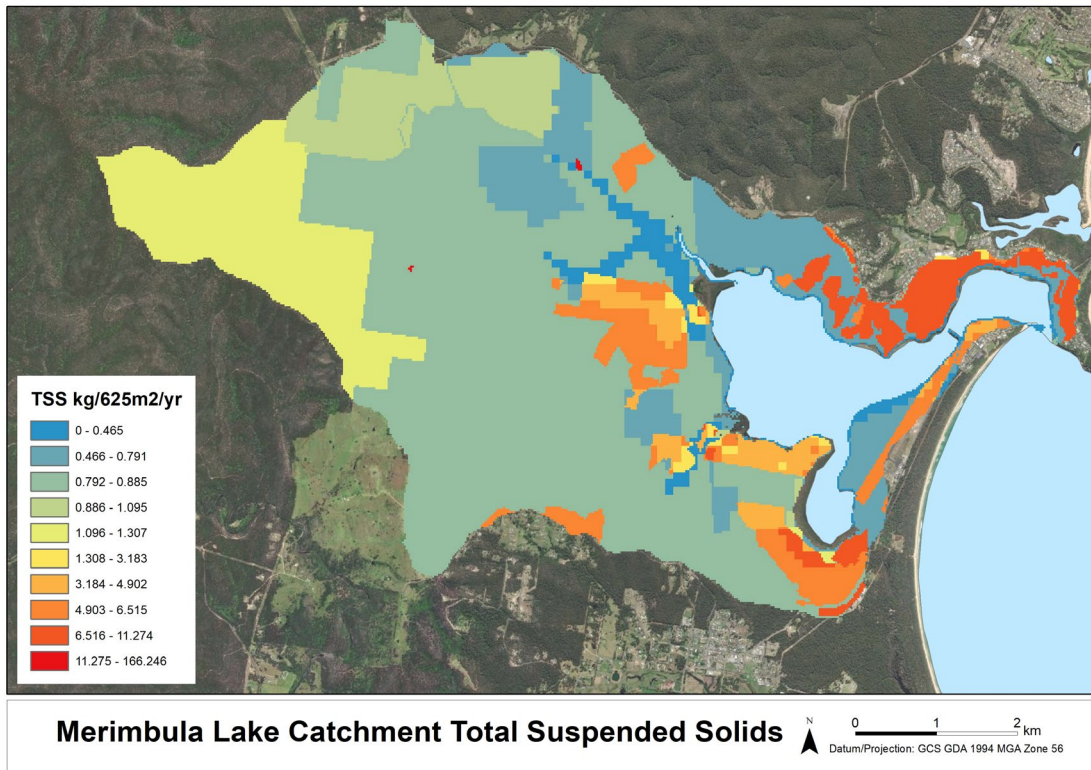
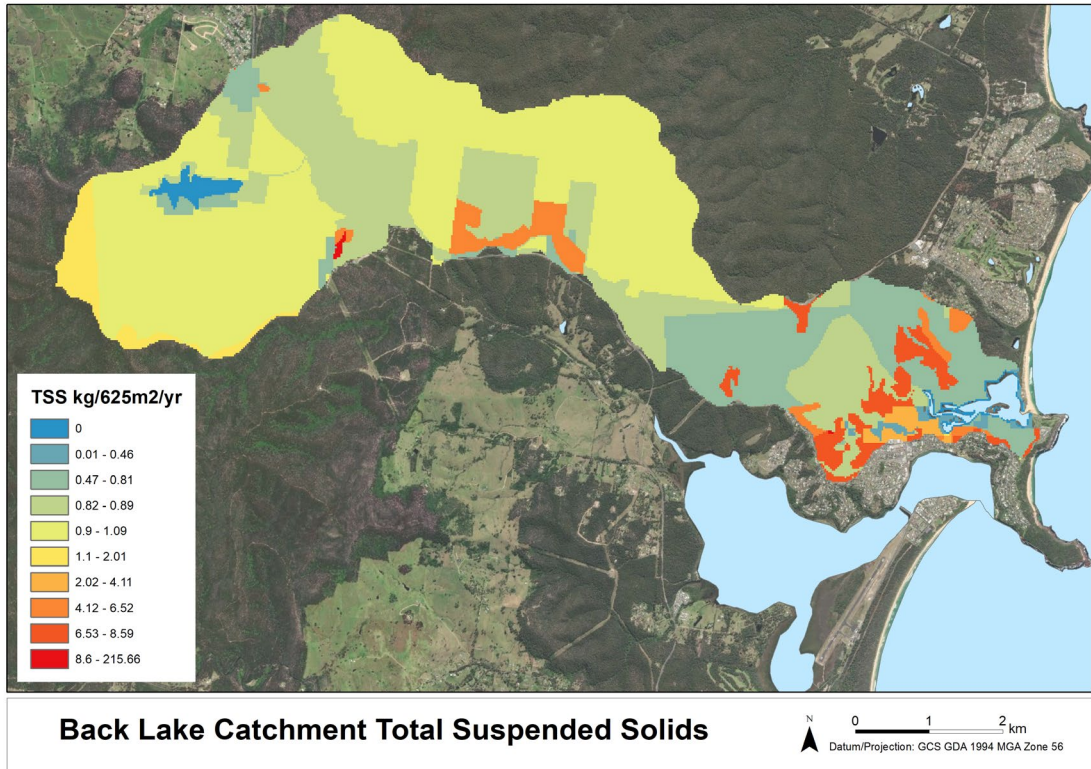


Figure 1.11: Catchment Derived Sources of TSS (DCCEW, 2023)

1.6 Estuary Uses and Values

1.6.1 Overview of Uses and Values for the Greater BVSC Coastal Zone

During the preparation of the Merimbula and Back Lake CMP and CMPs for several other areas within BVSC, a shire-wide review of uses and values of the greater Bega Valley Shire coastal zone was conducted (BVSC, 2017b). Information gained during this process, along with other specific engagement activities (as outlined in UNSW, 2017), was used to inform our understanding of uses and values of the coastal zone in the broader Merimbula area.

Within the coastal townships of BVSC, the Coastal Use Area is a place for urban development of varying densities and socio-economic characteristics, and these townships represent the commercial centres of the Bega Valley Shire. In this broad sense, the coastal zone represents a place for residing, working and enjoying recreational activities for the majority of the Shires' population. The immediate area around the lakes is home to several residential towns and localities that include Merimbula (town centre, Fishpen, Berrambool), Mirador and Millingandi.

The Bega Valley LGA has an estimated resident population of 36,279 as of June 2023 with five of the shire's six major settlements occurring in the coastal zone, including the township of Merimbula. Between 2019 and 2036, the population for Bega Valley Shire is forecast to increase by 3600 people (10.4% growth). The *South East and Tablelands Regional Plan 2036* identified that an additional 1,780 dwellings will be required in the Bega Valley to cope with population growth. Between 2019 and 2036 the population of the Merimbula-Millingandi district is expected to grow by 403 people (an increase of 8.5%), while the Tura-Mirador district will grow by 1,066 people (an increase of 26.9%), as outlined in the *Residential Land Strategy 2040* (BVSC, 2020c). The population is also ageing and the proportion of people over 60 is expected to increase from 20 per cent to 35 per cent in the next 20 years (id Consulting, 2023).

The majority of the Shire's population is situated in the major town centres, with a smaller percentage living in rural areas and smaller villages (Figure 1.10, BVSC, 2020b). Council currently has a critical housing shortage, following the impacts of bushfires and Covid-19 and the high proportion of housing in the short-term letting market, and is investigating ways to improve this through planning controls and partnerships with social and crisis housing providers.

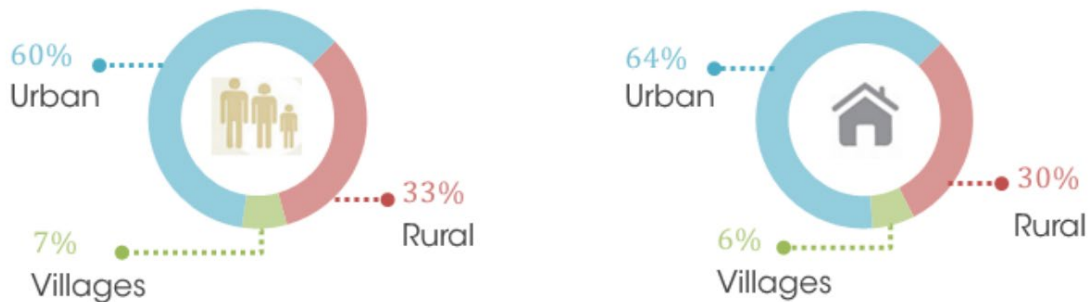


Figure 1.12: Distribution of population in BVSC

The *Residential Land Strategy* (BVSC, 2020c) identifies a need for a further 265 residential properties to be developed in the Merimbula-Millingandi district by 2036, and an estimated overall land available for 182 potential dwellings. In the Tura-Mirador district a further 350 residential dwellings are projected to be required by 2036, with land available for an estimated

259 dwellings. This indicates that over the coming decade there is deficit of available land to meet the forecast residential property demand within the broader Merimbula-Tura area.

The *Residential Land Strategy 2040* identifies potential areas considered for residential development within the Merimbula and Back Lake areas as shown in Figure 1.13. Identified areas include a land section at Top Lake adjacent to Merimbula Drive, as well as the Mirador Ridge Estate at Back Lake.

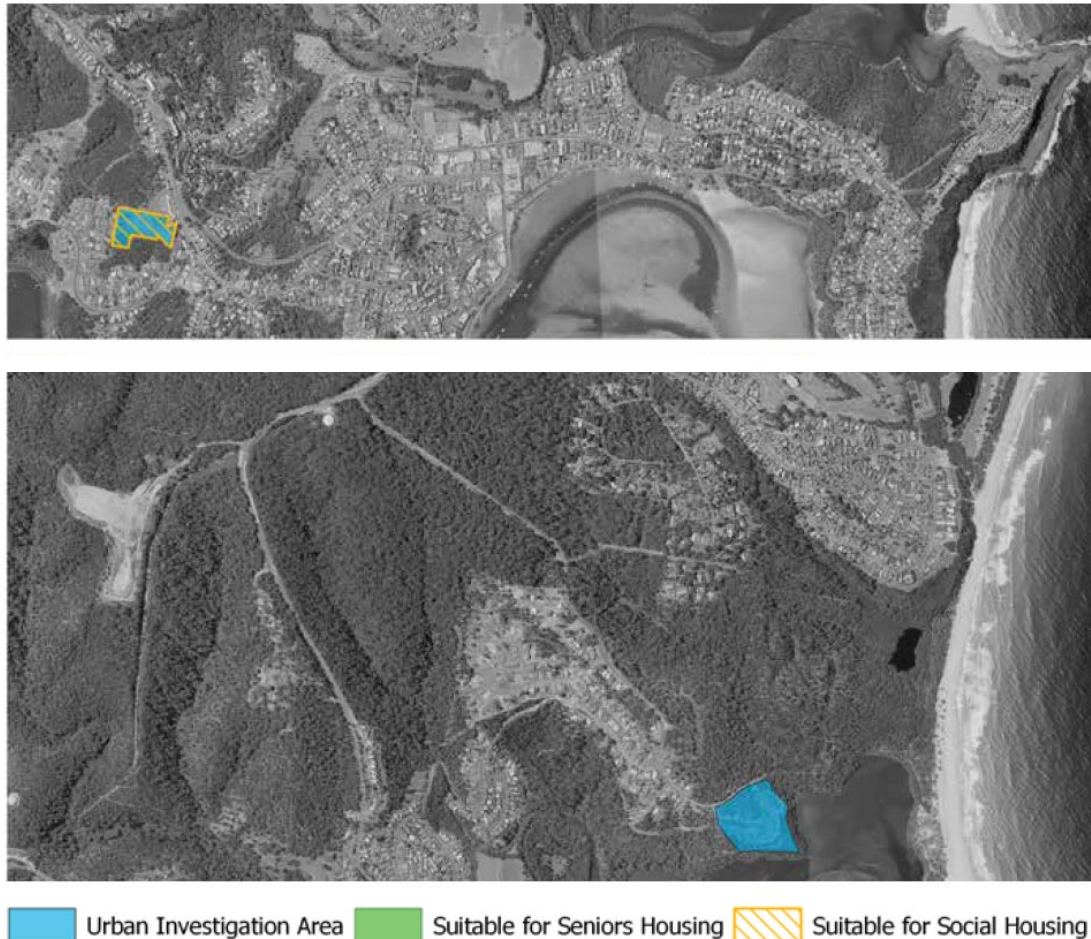


Figure 1.13: Merimbula (Top) and Mirador (Bottom) residential land investigation areas (BVSC, 2020c)

Both in and outside of the urban coastal townships, Bega Valley Shire’s coastal zone comprises a diverse range of natural features, highly valued by our local communities (BVSC, 2014). In terms of economic value, commercial fishing, aquaculture and tourism are significant areas of business for the Shire, and like other coastal areas of NSW, property within the coastal zone is of high economic value. Merimbula has a large number of holiday accommodations situated on the immediate foreshore of Merimbula Lake, with both lakes recognised as a recreational resource that supports the tourism industry. Merimbula airport is also situated on the foreshore of Merimbula Lake, which is the only air transport connection within the Sapphire Coast region. These characteristics see the population of the Merimbula area significantly increase during holiday periods.

The coastal zone is also an important area for both Aboriginal and European cultural heritage values for the shire. The foreshores of the estuaries and rivers, dunes and coastal fringe areas are home to a large number of significant Aboriginal sites, and are important traditional areas for our Aboriginal people. Coastal settlements also provide the roots of European

development of the Sapphire Coast region, with many industries historically relying on shipping and natural resources from our coastal settlements located on estuaries.

Across the Shire the coastal zone therefore has a broad range of values to our community and visitors alike, as well as being an important and unique part of the environment of the state and country. These values span social, economic, environmental and recreational groups, and protection of these values through our CMPs is highly important, and consistent with the Key Directions of our *Community Strategic Plan*.

1.6.2 Community's Values for the Coastal Zone

Council has undertaken a number of broad community surveys in recent years, and from these surveys have been able to develop a good understanding of the values of our community with regards to coastal areas. Of particular relevance is the information obtained from the *Understanding Our Place* survey, completed for the previous *Community Strategic Plan*. This shire-wide research compiled feedback from 2,000 community members, obtaining almost 25,000 comments, and helped to provide an overall understanding of what our community loves about the Bega Valley Shire and what they find challenging; as well as the community's ambitions and the direction they would like the Shire to head. Overall, the three things our community like best about the Bega Valley Shire, as reflected in the *Community Strategic Plan 2042* are the natural environment, peace and quiet and the sense of community.

Key results from the *Understanding our Place* survey related to management of our coastline include:

- When asked what sets the place we live in apart from others, 40% of respondents indicated it was the natural environment, while 6% said that it was the proximity to towns, services, coast and nature.
- When asked what they love most about the place we live, almost 9% of respondents said it was the coast, beach and sea, while 9% said it was the trees, forests, wildlife, waterways and mountains.

A theme coming through much of the survey was the community's love of the relaxed coastal country lifestyle, with 17% of respondents indicating this was currently the most important thing in their life.

Additional information specific to the coastal zone was collected in a "*Uses and Values of Your Coast*" questionnaire, distributed to the community as part of the development of the Shire's CMPs (BVSC, 2017b). This process assisted in understanding which parts of the coastline are most used by our community, what activities people enjoy at the beaches and estuaries, and why they value specific areas of the Bega Valley Shire coastal zone. The information collected has been captured within the Scoping Study for Stage 1 of the CMP (BVSC, 2022b). While this survey got a relatively small number of responses, they represented a broad spectrum of the community, and the main themes echoed the results of Council's wider community surveys.

Our residents and community members in the coastal areas of the Shire have expressed that the beaches and estuaries of the region are an extremely important factor that influences their enjoyment and value of their local area. With regards to community values of coastal areas, key feedback from the survey process indicated:

- The natural and pristine conditions, water quality and scenery are typically valued more highly than other aspects of our coastal areas;
- While people appreciate and use public infrastructure (e.g. recreational amenities and club houses), there appears to be little desire to expand the facilities to a greater

number of areas. While the community recognise the importance of well-maintained facilities at urban coastal areas, they also indicate that it is important to maintain some locations which have no or few public facilities beyond the natural amenity;

- While the numbers of people visiting our remote coastal locations may be fewer than our urban beaches, the availability of locations that are uncrowded and undeveloped is viewed by our community as a characteristic that is relatively unique to the Bega Valley Shire area of NSW, and seen as an essential characteristic to preserve.

The local community has a unique view of threats to the coastal region within Bega Valley Shire Council. Many people expressed a view that climate change, including sea level rise, is one of the biggest threats to their region. Other threats highlighted by the community which they would like to see be addressed in BVSC's Coastal Management Programs include:

- Storm erosion and inundation;
- Over development or poorly managed development;
- Rubbish, litter and pollution; and
- Sedimentation of the lake entrances.

1.7 Coastal Zone Values of Merimbula and Back Lakes

Within the surveys undertaken for the *Community Strategic Plan 2040* published in *Understanding Our Place*, it was identified that for people living in Merimbula, the “coast, beach and sea” along with “views, landscape and scenery” are two of the top three things people love most about living in the Shire. The “coast, beach and sea” was also one of the top three things people love most about the Merimbula area specifically. This information underpins our community's value for the coastal zone around Merimbula, and is linked heavily to the Merimbula and Back Lake estuaries.

1.7.1 Commercial and Economic Values

The Merimbula CBD lies directly along the foreshore of Merimbula Lake, with residential areas of the town also fringing the southern and western foreshores of Back Lake. Other satellite development areas to the town include Fishpen on the narrow peninsula between Merimbula Lake and the ocean, and Mirador on the northern side of Back Lake (Figure 1.4). Many of the commercial businesses within the Merimbula CBD benefit directly from the proximity and view over the lake, while property throughout the town of Merimbula has a high economic value in comparison with other towns of the Shire, primarily due to its setting within this unique coastal environment.

As with all coastal towns in the Bega Valley Shire, the tourism industry is a significant component of Merimbula's economy. It is estimated that almost 900,000 people visit the Bega Valley each year, and almost 70% of these people visit Merimbula (Tourism Research Australia, 2017). There are a large number of holiday accommodations situated around the direct catchment of both the Merimbula and Back Lakes, comprising a mixture of private holiday lets, apartments, motels and holiday parks. Shops, cafes and restaurants also depend to a large degree on tourism as a significant component of annual turnover. Tourists enjoy the recreational opportunities provided by the lakes, and these opportunities underpin the attraction to Merimbula as a holiday destination.

Merimbula Lake is one of the major oyster producing estuaries on the Sapphire Coast and NSW as a whole. There are 60 – 70 oyster leases held by 14 leaseholders within Merimbula Lake (Gillespie Economics 2006). For the 2004-05 financial year the total value of oysters produced in Merimbula Lake was \$1,070,690 (including all production methods and all oyster grades) (DPIRD Fisheries 2005b).

To identify and quantify the economic values of the natural resources and natural environments associated with Merimbula Lake and its catchment, Gillespie Economics (2006) attempted to value the direct use of resources (for example, commercial and non-commercial recreation), indirect use of resource (for example, ecosystem function values such as protection of biodiversity) and non-use (such as the preservation of natural ecosystems, species or special areas). It was determined that the value of the lake's natural resources total nearly \$21.8 million, in terms of tourism and recreation alone.

1.7.2 Ecological Values

Back Lake and its surrounds provide habitat for a number of significant flora and fauna species. A seagrass community composed of *Halophila ovalis* covers a significant proportion of the estuary bed, and in total this and other species of seagrasses occupy approximately 65% of the estuary. These seagrasses are highly productive, provide nursery and foraging habitat (for fish, crustaceans and molluscs), bind sediments against erosion and help regulate nutrient cycling. Several transitional and fringing threatened ecological communities (TECs) listed under either NSW and/or Australian Government legislation have been mapped within the Back Lake estuarine catchment, and include Coastal Saltmarsh, Bangalay Sand Forest, Estuarine Creekflat Scrub, Lowland Grassy Woodland, Swamp Oak Floodplain Forest and River Flat Eucalypt Forest. Wetlands at several locations within Back Lake are also formally mapped within the Resilience and Hazards SEPP.

The lower catchment of Back Lake provides habitat to a large range of threatened mammal, bird and frog species. Within the REF undertaken for the *Back Lake Entrance Management Policy* (BVSC, 2016), it was noted that almost 40 species protected under Government legislation were mapped within the Back Lake catchment by the Atlas of NSW Wildlife.

As shown in Map 01b, about half of the foreshore areas of Merimbula Lake are also mapped as high value wetlands within the Resilience and Hazards SEPP. The wetlands predominantly comprise mangrove and saltmarsh communities, with Merimbula Lake representing the southern limit of the River Mangrove species. The bed of Merimbula Lake has extensive seagrass beds in most areas, covering approximately 50% of the estuary and comprising *Posidonia Australis*, *Zostera* spp. and *Halophila* spp. These seagrass beds are the fourth largest in the NSW South Coast region. The extensive areas of seagrass and wetland habitats, and generally good water quality has enabled abundant and diverse aquatic fauna to thrive in Merimbula Lake, including finfish, prawns, crabs and shellfish. Aquatic birds likewise benefit from the aquatic flora and fauna and water quality of the lake, which, in combination with Pambula Lake, forms an important migratory wading bird habitat. BMT WBM (2009) identifies 33 species that live in nature reserves and national parks within the Merimbula Lake catchment that have been identified as threatened or endangered under NSW legislation.

When combined, it is clear that both lakes and their catchments are highly valued for their ecological significance not only within the local area, but for the greater South Coast region.

1.7.3 Recreational Values

Around Merimbula Lake the entrance area, town centre, lake foreshore, sheltered lake beaches and areas of the Top Lake basin are the focus of recreational activities for the town. Recreational activities include:

- Strolling and walking along the boardwalk, lake foreshore, and walking tracks, including between the shopping centre, public jetty, bridge, lake entrance and up to the Top Lake;
- Fishing within the lake (land and boat based), and open ocean fishing using the boat launching ramp in the lake;
- Swimming on sheltered lake beaches (particularly east of the bridge along the Fishpen foreshore and Mitchies Jetty areas, Spencer Park, Lake Beach, and the Bar Beach);
- Stand-up paddle boarding, kayaking, and other personal water craft sports;
- Surfboat and dragon boat training and racing;
- Kite surfing, paddle boarding and surfing around the entrance bar;
- Recreational boating;
- Access to whale watching vessels and fishing charters.

Back Lake also supports a range of recreational uses that include swimming, boating, kayaking and fishing. The network of walking tracks, including the foreshore when water levels are low, also provide an opportunity to be amongst nature, and a range of birds and reptiles can be observed within the natural bush environment. These walks provide an experience that is quite different Merimbula Lake, in terms of the natural scenery and wildlife.

1.7.4 Scenic Values

Despite their relative proximity and urban setting, the scenic values offered by the two lakes are remarkably different. Significant stretches of the foreshore and immediate catchment of Merimbula Lake are developed (residential and commercial), whereas Back Lake provides extensive views of natural shoreline and forested catchment. Merimbula Lake's beauty originates in the lake itself, while for Back Lake the appeal extends to the catchment and the broader natural ecological systems that it supports.

Both lakes provide the surrounding development with long estuarine views of high aesthetic (and economic) value.

1.7.5 Cultural Heritage Values

Sites of Aboriginal cultural significance, such as middens, camping areas, artefact scatters, shelters and other sites are frequent around Bega Valley Shire Council estuary shorelines, beaches and islands. There are also many areas of spiritual and cultural significance, the details of which are not generally known and are unlikely to be made known to people other than the traditional custodians of the knowledge. An extensive search of the Aboriginal Heritage Information Management System (AHIMS) web service was undertaken in the development of the CMP, identifying 97 mapped Aboriginal heritage sites within the combined Back and Merimbula Lake catchments. The mapped sites vary in nature and are spread throughout the catchments, including a range of sites located in close proximity to creeks and the lake foreshore areas. Many of the sites are middens on the northern foreshore of Merimbula Lake, mapped during the development of these areas.