

23 July 2024



# **Version control**

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Version 1.1	20191212 Merimbula_Back CMP Draft	12/12/2019	Duncan Rayner	Grantley Smith
Version 2.0	20240723 Merimbula_Back CMP Draft	23/07/2024	Francois Flocard	Francois Flocard

This CMP has been prepared by Bega Valley Shire Council with contribution, support and writing of the documents provided by the Water Research Laboratory (WRL) of the University of New South Wales School of Civil and Environmental Engineering.

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# Acknowledgement of Country

Bega Valley Shire Council acknowledges the traditional custodians of the lands and waters of the Shire, the people of the Yuin nation, and show our respect to the elders past, present and emerging. We also pay respect to the Thaua and Djiringanj people, the traditional owners of the lands and waters around Merimbula and Back Lakes.

# **Executive Summary**

# ES.1 Snapshot of the Merimbula and Back Lake CMP

The coastal zone of the Bega Valley Shire is recognised as one of the most significant natural assets of the region, contributing to the environmental, cultural, social and economic value of the area. The *Merimbula and Back Lake Coastal Management Program* represents one of Council's long-term investments in these natural assets, to preserve and enhance the environmental value and the ecosystem services that the estuaries provide, to preserve and sustain the significant cultural value of the estuaries and their catchment, and to strengthen the contribution to the economic profile of the Shire.

Developed within the NSW Coastal Management Framework, the CMP is a 10-year program of activities that include improved planning, research and investigation, monitoring, physical works, community engagement and education. These initiatives target a reduction in risks to the estuaries and surrounding assets from environmental stressors, coastal hazards and climate change, as well as improving the recreational value of the estuaries to the community. Implementation of the CMP will:

- Improve the health of the estuaries through reduction of catchment-related impacts on sensitive marine ecosystems, aquaculture and environmental processes;
- Preserve aquatic and terrestrial ecosystems through improvement of water quality and removal of invasive and exotic vegetation;
- Preserve the cultural value of the estuaries, their foreshore and catchment through improved management of cultural sites;
- Identify and progress opportunities to improve recreational amenity and value of the lakes; and
- Enable climate-resilient and future proof development through risk-informed planning and development controls.

The overall cost for implementation of the Merimbula and Back Lake CMP is estimated at \$2,975,000 across the 10-year implementation period. This includes investment in management actions to understand and monitor the health of the estuaries (\$0.45 million), to reduce the impacts of catchment runoff on water quality and aquaculture (\$0.86 million), to rehabilitate lower catchment, riparian and foreshore areas (\$0.81 million), and to manage the impacts of coastal hazards and climate change (\$0.44 million). While the major financial commitment for CMP is focussed on a small number of high priority threats, there are also a large number of lower value actions spread throughout the 10-year implementation period which aim to reduce the risk of all of the identified threats to the estuaries.

The overarching objective of the CMP is to manage the coastal zone around both lakes in a manner that is consistent with the principles of ecologically sustainable development for the social, cultural and economic well-being of the people of the Shire. The CMP reflects the overarching themes of the *Bega Valley Shire Community Strategic Plan 2042*, as outlined in Figure ES.1.

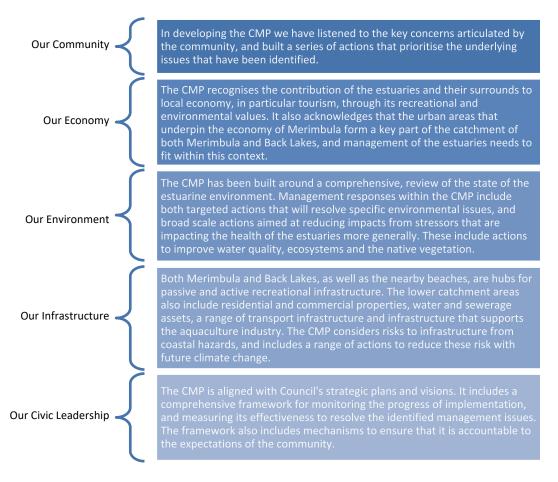


Figure ES.1 Bega Valley Shire Community Strategic Plan themes and links to Merimbula and Back Lake CMP

The Merimbula and Back Lake CMP responds to a contemporary, risk-based evaluation of threats and issues that considered the estuaries themself, as well as the broader catchment areas and adjacent Short Point, Bar and Main Beaches. The CMP comprises a suite of management actions that will reduce the identified risks and sit within an implementation area defined by the envelope of *Coastal Management Areas* around the estuaries. Seven broad threats were identified for Merimbula and Back Lakes during the development of the CMP, each containing one or more specific management issues:

- 1. Decline in Ecological Health and Diversity;
- 2. Catchment Runoff and Urban Pollutants;
- 3. Structure and Function of Lake (Back Lake);
- 4. Lack of knowledge of Estuary Processes, Health and Condition;
- 5. Coastal Hazards;
- 6. Degradation of Foreshore and Beach Integrity;
- 7. Reduced Amenity, Recreational Value and Community Satisfaction.

The CMP includes 36 tangible management actions arranged within seven different management responses. Each of the seven management responses have been developed to address the seven identified threats to the estuaries. The CMP also includes an eighth

management response which contains a series of cross-cutting actions that reduce the risk of multiple threats. Table ES.1 provides an overview of the eight management responses, including a summary of the 36 individual management actions and the issues that they aim to address. Summary maps for each management response are included in Map ES01 to Map ES08.

Many of the actions are targeted at improving the health of the estuaries, which underpins the environmental, social and cultural value that the estuaries provide to the local area and broader LGA. Other actions are proposed that will address the current and future risk posed by coastal hazards for assets located within the Coastal Use Area around the lakes and adjacent areas. Management actions generally fall into the categories of:

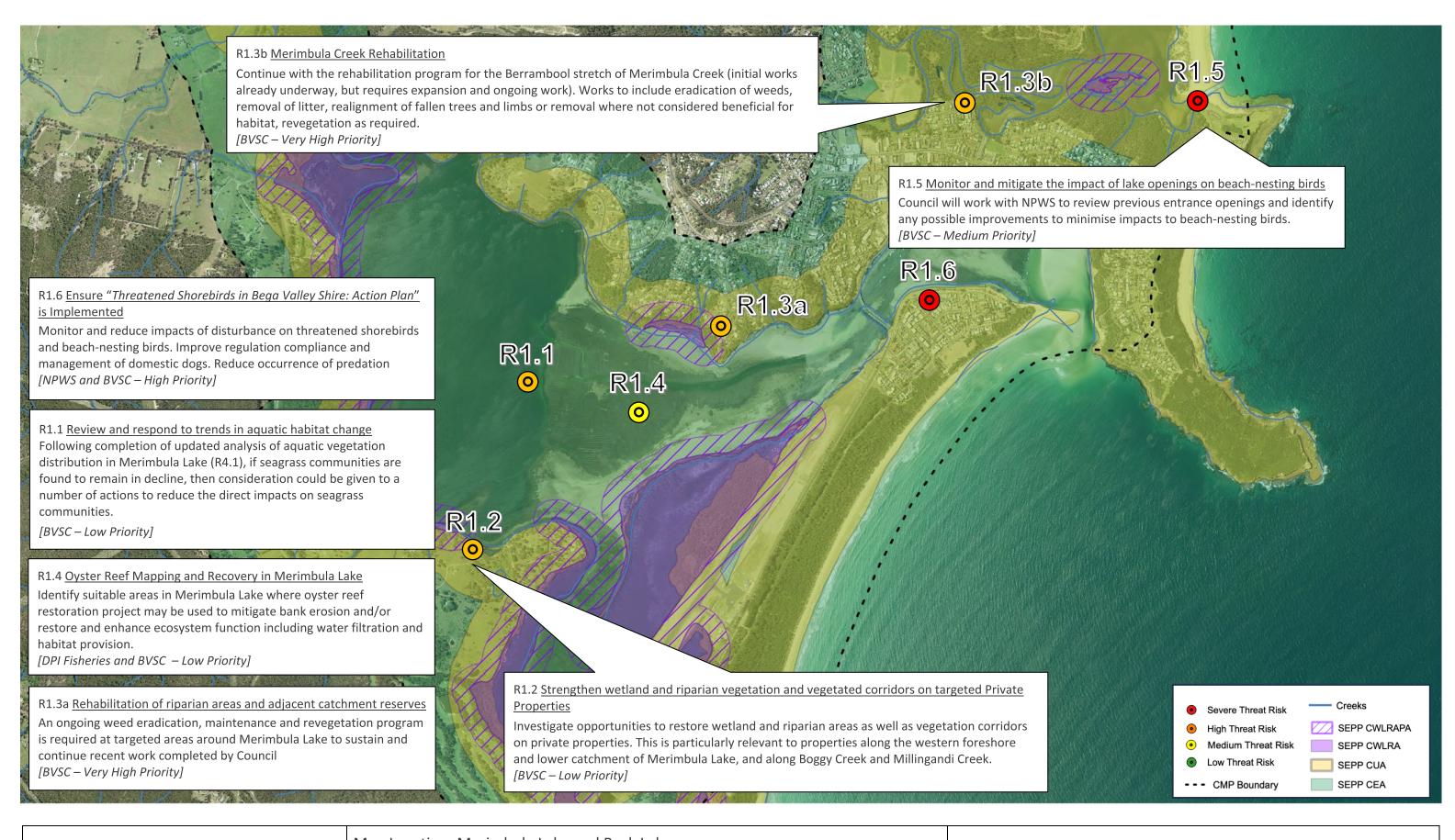
- Implementing site specific works at various locations around the foreshore to rehabilitate existing coastal protection or to reduce the impacts of current coastal erosion issues;
- Rehabilitating specific foreshore areas, including removal of exotic plants, removal of debris and litter, and/or revegetation works;
- Actions to reduce and/or better understand pollutants entering the lakes from the catchment including stormwater, sediment and sewage;
- Strengthened planning controls (e.g. updated CMA mapping, updates to LEP and DCP to reflect contemporary coastal hazard mapping);
- Education, awareness and engagement activities; and
- Environmental data collection, analysis and monitoring programs.

Table ES1: Summary of CMP Actions				
ID and Title of Management Action	Responsible Organisation/s	Priority	Implementation Timeframe	Threats/Issues Targeted
Management Response for Threat 1: Decline in Ecolog	ical Health and Diversity			
R1.1 Review and respond to trends in aquatic habitat change	Responsible: BVSC Supporting: TfNSW, DPIRDFisheries	Low	Medium term	T1.1a Potential Loss of Aquatic Vegetation (seagrasses)
R1.2 Protect and enhance wetland and riparian vegetation and vegetated corridors on targeted private properties	Responsible: BVSC Supporting: LLS, DPIRDFisheries	Low	Medium to long term	T1.2 Terrestrial Habitat Fragmentation, Conservation and Rehabilitation
R1.3a Rehabilitation of riparian areas and adjacent lower catchment reserves	Responsible: BVSC	V. High	Initial intense program: Short term Maintenance: Ongoing through Medium and long terms	T1.3 Invasive Vegetation
R1.3b Merimbula Creek rehabilitation	Responsible: BVSC Supporting: Crown Lands	V. High	Short term	T1.3 Invasive Vegetation
R1.4 Oyster reef mapping and recovery in Merimbula Lake	Responsible: DPIRD Fisheries, BVSC Supporting: DCCEEW	Low	Initial mapping: Medium term Implementation of restoration site: Medium to long term	T4.1 Estuary Health Knowledge Gap T6.1 Degradation of foreshore and beach integrity
R1.5 Monitor and mitigate the impact of lake openings on beach-nesting birds	Responsible: BVSC Supporting: NPWS	Medium	Ongoing	T1.4 Impacts to threatened beach-nesting birds from excavator access and opening of entrance
R1.6 Ensure the "Threatened Shorebirds in Bega Valley Shire: Action Plan" is implemented	Responsible: NPWS, BVSC	High	Ongoing	T1.5 Decline of threatened migratory shorebirds and beach-nesting birds
Management Response for Threat 2: Catchment Runo	ff and Urban Pollutants			
R2.1a Improvements to requirements, monitoring and compliance of sediment controls for property developments.	Responsible: BVSC	Medium	Short to medium term	T2.1 Catchment derived sedimentation
R2.1b Rehabilitate powerline easement between Boggy Creek and Merimbula Drive	Responsible: BVSC, Bega LALC Supporting: Essential Energy	Medium	Medium term	T2.1 Catchment derived sedimentation
R2.2a Update risk management strategy for sewage contamination	Responsible: NSW Food Authority, BVSC	V. High	Short term	T2.2 Sewage contamination

Table ES1: Summary of CMP Actions				
ID and Title of Management Action	Responsible Organisation/s	Priority	Implementation Timeframe	Threats/Issues Targeted
R2.2b Reduce sewer overflow incidents through education and compliance campaign	Responsible: BVSC	V. High	Short term	T2.2 Sewage contamination
R2.2c Improve understanding of vessel sewage discharge needs and risks	Responsible: BVSC Supporting: TfNSW	Medium	Medium term	T2.2 Sewage contamination
R2.3: Extend 'End-of-pipe' pollutant trap program	Responsible: BVSC Supporting: Oyster farmers	Low	Medium term	T2.3 Nutrients and gross pollutants in stormwater
Management Response for Threat 3: Structure and Fu	nction of Lake (Back Lake)			
R3.1: Investigation of physical changes to lake bed in Back Lake	Responsible: BVSC	Medium	Medium term	T3.1 Impacts of artificial entrance management and cumulative catchment sedimentation
Management Response for Threat 4: Lack of Knowledge	ge of Estuary Health and Condit	ion		
R4.1: Estuary health data collection program	Responsible: BVSC Supporting: DPIRD Fisheries	Medium	Mapping (Back Lake) and analysis of aquatic vegetation (both lakes): Short term Updated water quality data: Short to medium term Updated information collected on fish assemblage: medium term Estuary health data sets updated every 5 to 10 years as needed (ongoing)	T4.1 Lack of estuary health monitoring data
Management Response for Threat 5: Coastal Hazards				
R5.1: Adaptation planning for low-lying assets	Responsible: BVSC	Low	Medium term	T5.1 Future Tidal inundation impacts on low-lying assets,
R5.2: Develop a CVA and update relevant planning documents	Responsible: BVSC Supporting: DCCEEW	High	Medium term	habitat and areas  T5.2 Coastal inundation impacts on low-lying assets and areas
R5.3: Review CEA, CUA and CWLRA and adjust mapping (if required)	Responsible: BVSC Supporting: DCCEEW	Low	Medium term	T5.3 Coastal erosion impacts on various built assets and dunes along Main Beach.
R5.4: Coastal erosion management and adaptation planning for Merimbula Main Beach	Responsible: BVSC	High	Medium to long term	T5.3 Coastal erosion impacts on various built assets around Merimbula Main Beach foreshore

Table ES1: Summary of CMP Actions				
ID and Title of Management Action	Responsible Organisation/s	Priority	Implementation Timeframe	Threats/Issues Targeted
R5.5: Dune rehabilitation program	Responsible: BVSC	High	Ongoing as needed	T5.3 Coastal erosion impacts on various built assets around Main Beach foreshore
R5.6: Investigation of entrance opening trigger level sustainability (Back Lake)	Responsible: BVSC	Low	Medium term	T5.4 Sustainability of entrance opening trigger level (Back Lake)
R5.7: Analysis and mapping of entrance stability and migration	Responsible: BVSC	Low	Long term	T5.5 The envelope of coastal entrance position requires mapping for both Merimbula and Back Lakes
Management Response for Threat 6: Degradation of F	Foreshore and Beach Integrity			
R6.1a: Replacement of log-key seawall adjacent Spencer Park	Responsible: BVSC	Medium	Medium term	T6.1a Degradation of foreshore (Erosion) Failing log key wall adjacent to Spencer Park, Merimbula Lake.
R6.1b: Foreshore revegetation at two private property locations, western side of Merimbula Lake	Responsible: BVSC, LLS	Medium	Medium term	T6.1b Degradation of foreshore (Erosion) Various private properties with cleared foreshore vegetation and bare earth areas for lake access, along western foreshore of Merimbula Lake.
R6.1c: Southern bridge abutment side slope remediation	Responsible: BVSC	High	Short term	T6.1c Degradation of foreshore (Erosion) Southern bridge abutment of Merimbula Lake; area has a mixture of bare eroding earth, exposed rusting wire restraints and rock armouring.
R6.1d: Improve foreshore protection along Merimbula Creek backing Henwood Street	Responsible: BVSC	Low	Long term	T6.1d Degradation of foreshore (Erosion) Several private properties along Henwood Street, Back Lake currently have ad-hoc, damaged and failing at shoreline protection.
R6.1e: Repairs to the Djiringanj Peoples Walk, below Lake St	Responsible: BVSC	Very High	Short term	T6.1e Degradation of foreshore (Erosion) There is ongoing erosion and land slip along the Djiringanj Peoples Walk track, along with a fallen foot bridge.
R6.2: Beach nourishment and dune stabilisation at Fishpen, Merimbula Lake	Responsible: BVSC	Low	Medium to long term	T6.2 Erosion/recession of beaches in Fishpen to Mitchies Jetty area
Management Response for Threat 7: Reduced Amenit	y, Recreational Value and Comn	nunity Satisfa	action	
R7.1 Develop and implement maintenance/upgrade plans for recreational assets	Responsible: BVSC	Medium	Long term	T7.1 Maintenance Planning for Recreational Assets
R7.2 Access improvements to Merimbula Lake	Responsible: BVSC	Medium	Medium to long term	T7.2 Access to Merimbula Lake

Table ES1: Summary of CMP Actions				
ID and Title of Management Action	Responsible Organisation/s	Priority	Implementation Timeframe	Threats/Issues Targeted
Cross-cutting Management Actions				
R8.1: Engagement and support to community interest group/s	Responsible: BVSC Supporting: SCWO, Far South Coast Landcare	Low	Ongoing	T1.2: Terrestrial habitat fragmentation, conservation and rehabilitation; T1.3: Invasive vegetation; T2.3: Nutrients and gross pollutants in stormwater; T7.4 Lack of Awareness, Education and Participation
R8.2: Community engagement and information sessions and activities	Responsible: BVSC	Medium	Ongoing	T1.3: Invasive vegetation; T2.3: Gross pollutants in stormwater; T3.1: Artificial entrance management; T7.4 Lack of awareness, education and participation
R8.3 Improved acknowledgement and promotion of Aboriginal cultural values through consultation, contribution to on ground works and implementation of specific projects	Responsible: BVSC Supporting: LALCs, DCCEEW Heritage	Low	Ongoing	T7.4 Lack of awareness, education and participation
R8.4: Maintain and update interpretive signage	Responsible: BVSC Supporting: LALCs, DCCEEW Heritage	Low	Ongoing as-needed	T7.4 Lack of awareness, education and participation
R8.5: Citizen science initiatives	Responsible: BVSC	Low	Ongoing as-needed	T1.1: Loss of aquatic vegetation; T4.1: Estuary health knowledge gap; T7.4 Lack of awareness, education and participation
R8.6: Integration and promotion of walking tracks	Responsible: BVSC	Low	18 months	T7.3 Functionality and use of walking trails T7.4 Lack of Awareness, Education and Participation



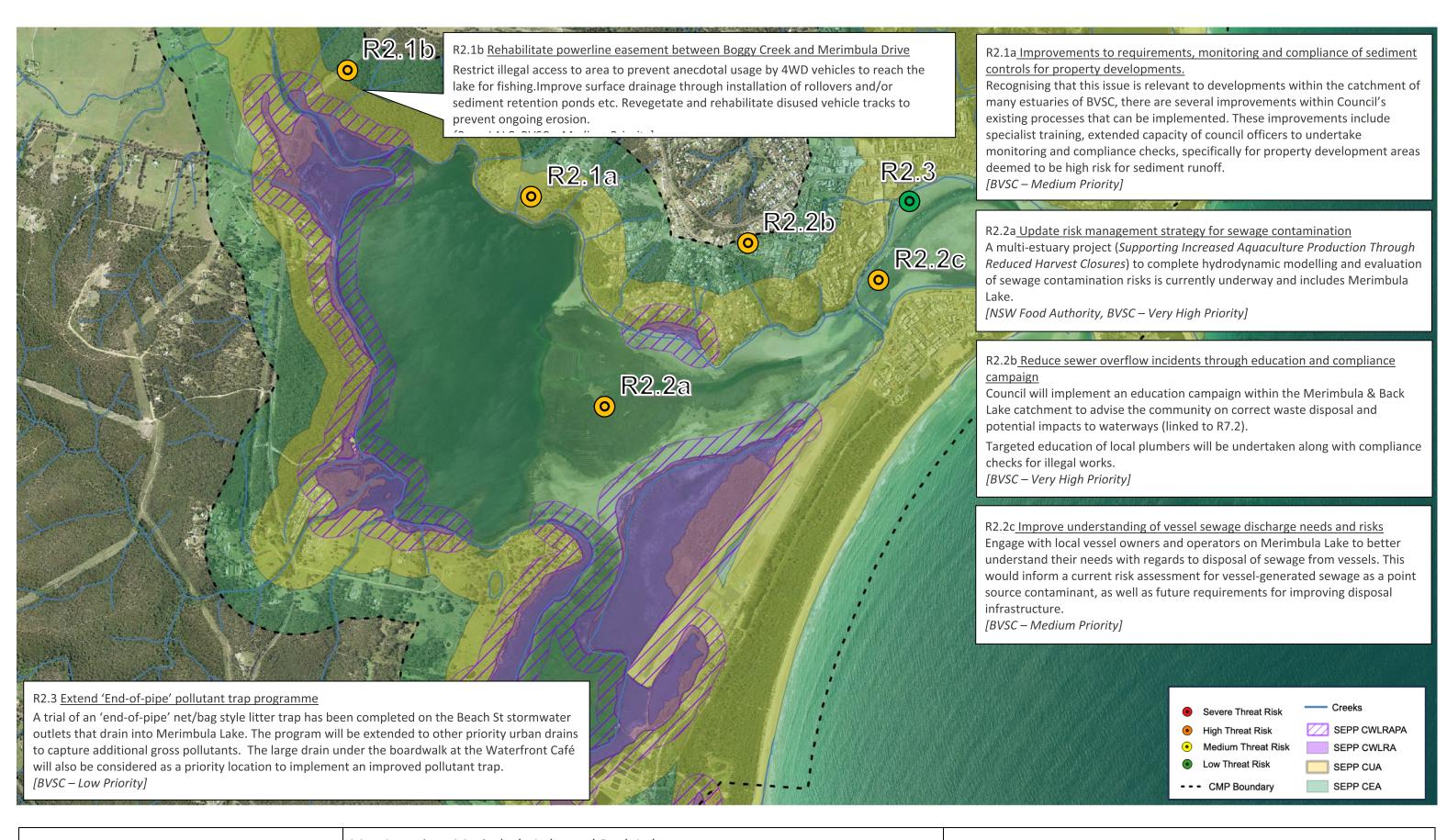
Map Location: Merimbula Lake and Back Lake

Map Title: Management Responses - Threat 1 - Decline in Ecological Health and Diversity

Map: ES.1

Date: 23/07/2024





Map Location: Merimbula Lake and Back Lake

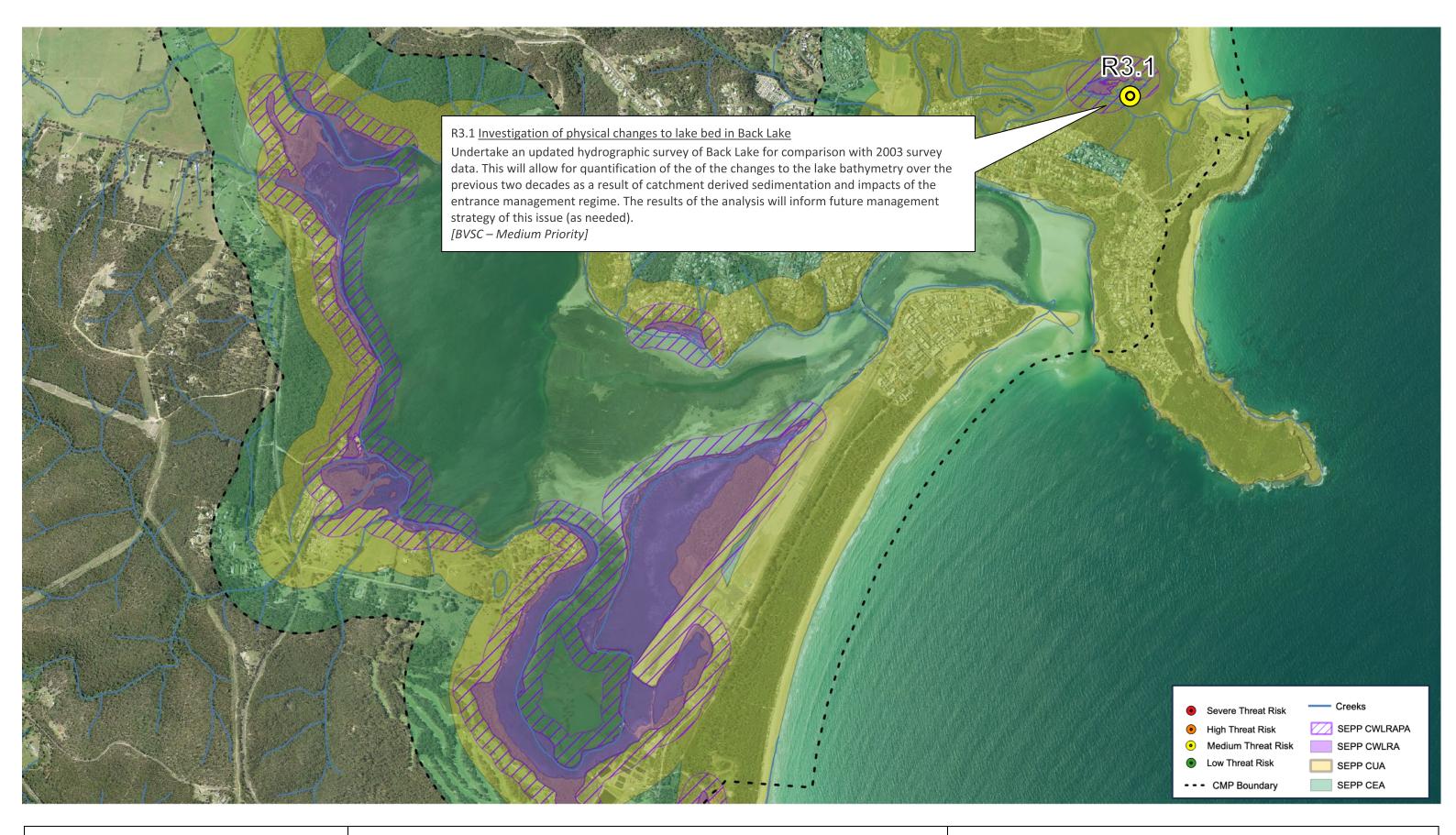
Map Title: Management Responses - Threat 2 - Catchment Runoff and Urban

**Pollutants** 

Map: ES.2

Date: 23/07/2024 Rev: 1





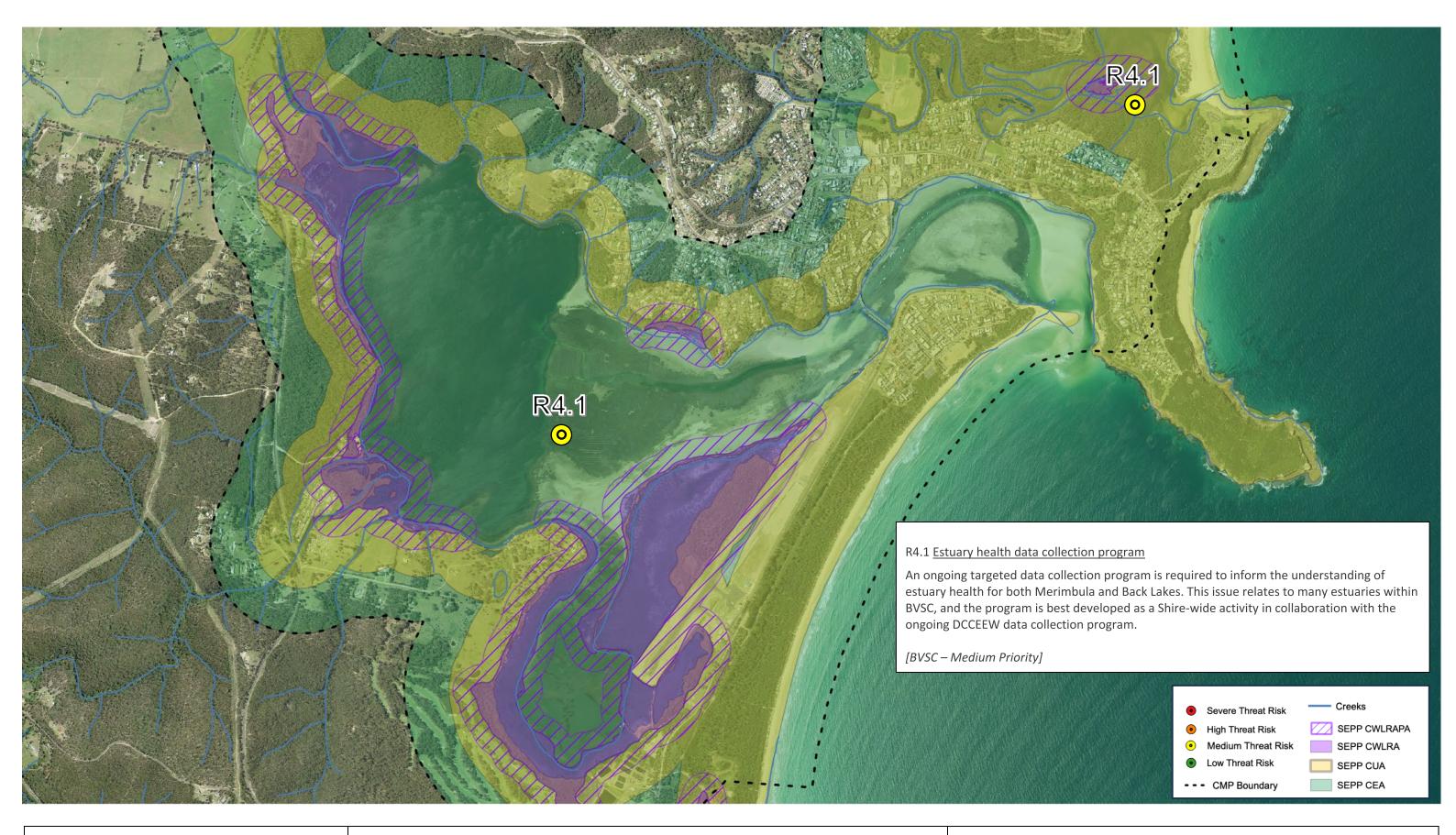
Map Location: Merimbula Lake and Back Lake

Map Title: Management Responses - Threat 3 - Structure and Function of Lake (Back Lake)

Map: ES.3

Date: 23/07/2024





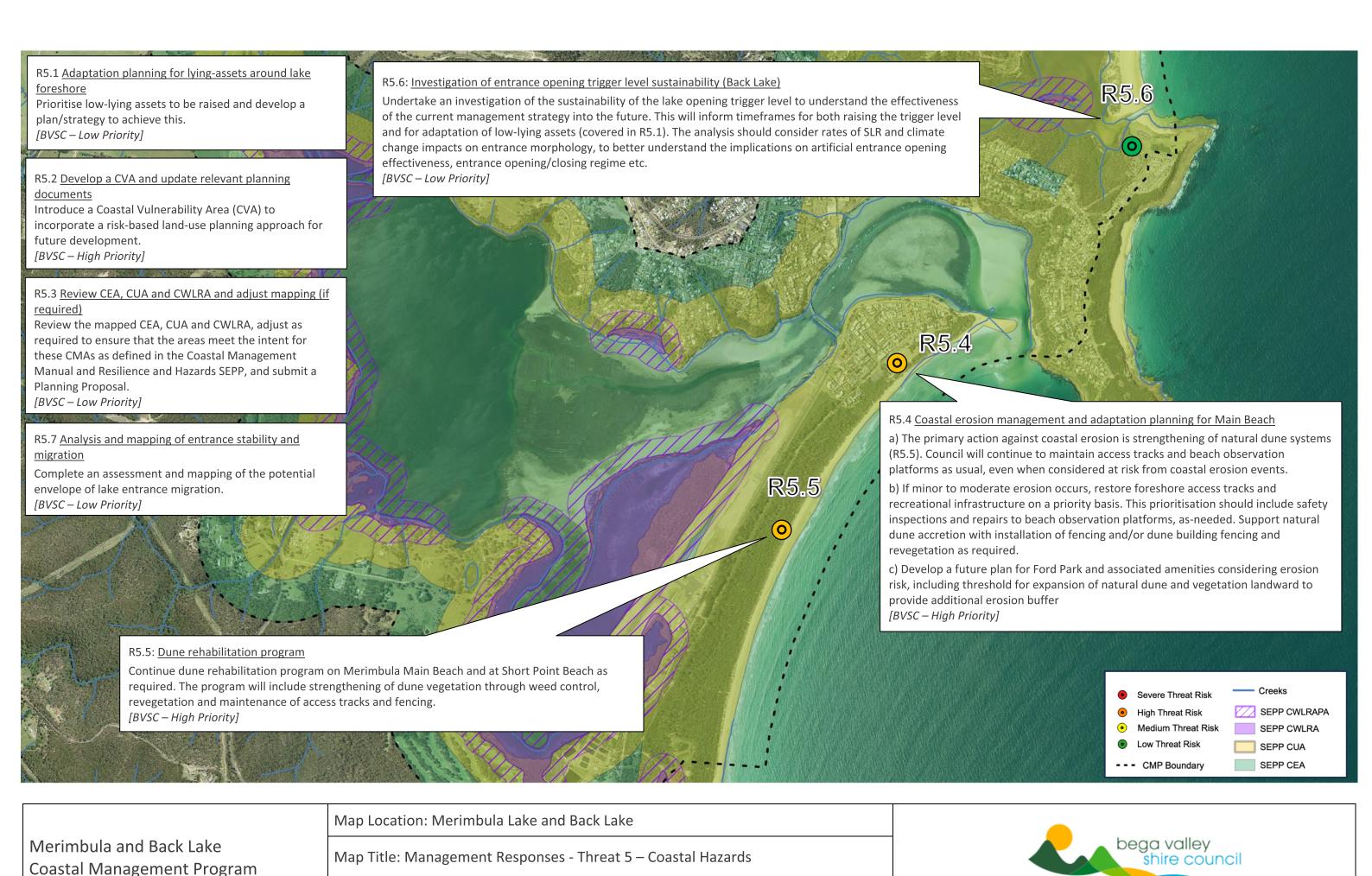
Map Location: Merimbula Lake and Back Lake

Map Title: Management Responses - Threat 4 – Lack of Knowledge of Estuary Health and Condition

Map: ES.4

Date: 23/07/2024 Rev: 1

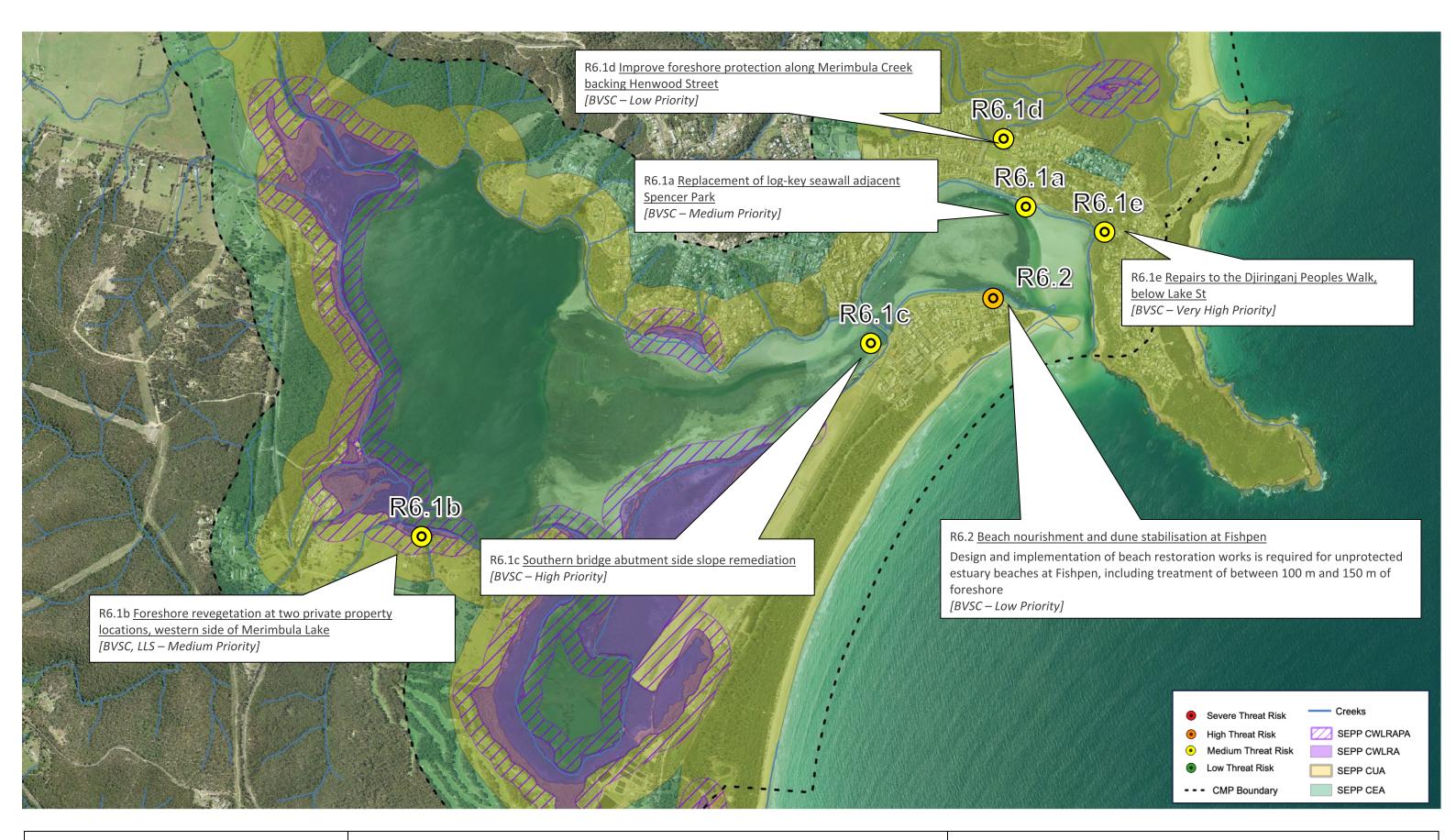




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Map: ES.5



Map Location: Merimbula Lake and Back Lake

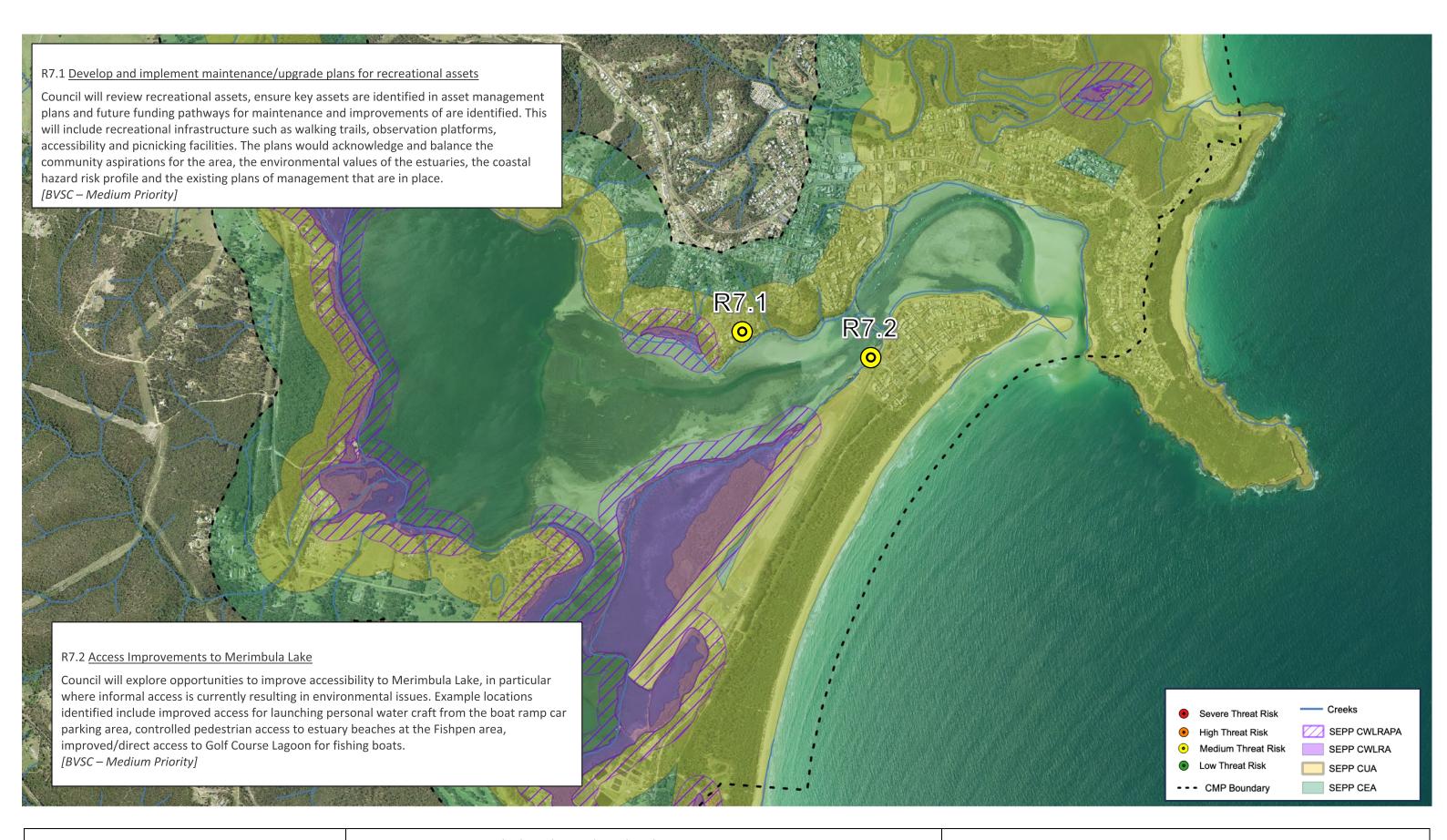
Map Title: Management Responses - Threat 6 – Degradation of Foreshore and

Beach Integrity

Map: ES.6

Date: 23/07/2024





Map Location: Merimbula Lake and Back Lakes

Map Title: Management Responses - Threat 7 – Reduced Amenity, Recreational

Value and Community Satisfaction

Map: ES.7

Date: 23/07/2024



# R8.1 Engagement and support to community interest group/s

Engage and support activities in partnership with community interest group/s for the rehabilitation and preservation of reserves surrounding both Merimbula and Back Lake and tributaries.

Engage, support and partner with oyster growers on Merimbula Lake with regards to community engagement and environmental management initiatives, such as work under R2.2b and the 'Love our Lakes' program for example.

[BVSC – Low Priority]

### R8.2 Access Improvements to Merimbula Lake

An ongoing and pro-active program of community engagement initiatives is required, aimed at improving awareness of the lakes and their natural processes, as well as their role as environmental, recreational and commercial assets to our local community. Activities and initiatives could be undertaken as an extension to the successful existing programme "Love our Lakes", or under a refreshed initiative.

[BVSC – Medium Priority]

R8.3 <u>Improved acknowledgement and promotion of Aboriginal cultural values through</u> consultation, contribution to on ground works and implementation of specific projects

Ongoing consultation with local indigenous community members and leaders to acknowledge, highlight and implement Aboriginal cultural values within estuary and coastal management activities.

[BVSC - Low Priority]

# R8.4 Maintain and update interpretive signage

Maintain existing network of interpretive signage around both lakes, and where relevant, install new signage covering additional aspects such as Aboriginal heritage; natural processes and ecology.

[BVSC – Low Priority]

## R8.5 Citizen science initiatives

Trial citizen science initiatives at both lakes as opportunities arise.

[BVSC - Low Priority]

## R8.6 Integration and promotion of walking tracks

Both lakes have extensive and highly valued walking tracks around the foreshore and within the catchments. The experiences gained from the walking tracks varies greatly from scenic lake views on Merimbula Lake to wildlife and bush around Back Lake.

[BVSC - Low Priority]



Merimbula and Back Lake Coastal Management Program Map Location: Merimbula Lake and Back Lake

Map Title: Cross-Cutting Management Response – Community Engagement,

Education and Participation

Map: ES.8

Date: 23/07/2024



# ES.2 How was the CMP Developed?

The Merimbula and Back Lake Coastal Management Program builds on the objectives of the previous Estuary Management Plan while also addressing current issues for the estuaries. 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 ES.2.

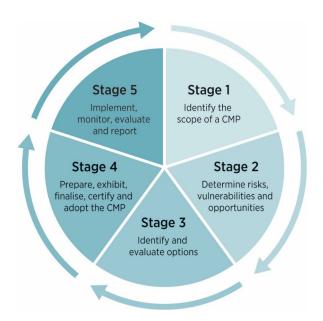


Figure ES.2: Five Stages of Developing a Coastal Management Program

Developing the CMP was a phased process spanning a number of years and has included a range of activities such as:

### • 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.

The Coastal Management Manual (2018) requires Councils to follow a risk management process when evaluating threats and developing coastal management programs. In the estuarine management context this risk management approach involved identifying, evaluating, treating, communicating and monitoring risks to people, the environment, assets and infrastructure and to the general social, environmental, cultural and economic values of the estuaries. For the Merimbula and Back Lake CMP this risk management approach identified the likelihood and consequences of each specific management issue, to determine the relative risk level that it posed.

Consistent with the Mandatory Requirements for CMPs, consideration has also been given as to how each threat is likely to evolve with time across short (approximately 20 years), medium (approximately 50 years) and long (approximately 100 years) timeframes, if no intervention or risk management action is taken.

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. Engagement activities completed during the development of the CMP included:

- Establishing a CMP focus group to oversee the CMP development process, consult on key aspects, and form a conduit to provide information to 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 and Eden LALCs, NSW Forestry, Transport for NSW 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; and
- Exhibition of the draft CMP.

# ES.3 How will the CMP be Implemented?

Bega Valley Shire Council is primarily responsible for coordinating and leading the implementation of the overall CMP, as well as implementation of specific actions within the CMP. This includes responsibility for coordinating budgetary processes within the IP&R framework using existing mechanisms such as Council's *Community Strategic Plan, Resourcing Strategy*, as well as Council's *Delivery Program* and *Operational Plan*. Responsibility for monitoring, evaluation and reporting on implementation of the CMP will also primarily sit with BVSC staff, supported by the Coast and Flood Management Committee.

Throughout implementation of the CMP, BVSC will consider how best to implement the identified management actions, in alignment with the community's priorities as identified through the Themes and Strategies of the Community Strategic Plan. Implementation of the CMP will be funded across a range of sources including a blend of Council budget allocations, existing Council staff resources and grant finance. Council's responsibility for implementation of the CMP includes allocation, seeking and management of appropriate financial resources, through both internal Council budgetary processes as well as State Government grant programs and other sources.

The CMP report includes guidance on how the CMP will be implemented across the 10-year Implementation period, detailed within an *Implementation Plan* and a *Business Plan*. A framework is also proposed for Monitoring, Evaluation and Reporting (MER) of implementation of the CMP, with a series pragmatic implementation progress indicators identified for each management action.

# CMP Implementation Plan

- Provides an overarching timetable that sets out the flow of management actions throughout the 10-year Implementation Period
- •Identifies implementation progress indicators

# CMP Business Plan

- Provides an indicative budget for CMP implementation, including cost estimates of individual management actions
- •Identifies potential funding sources and arrangements

## Monitoring, Evaluation and Reporting Framework

- Identifies a Monitoring, Evaluation and Reporting framework based on Annual Progress Reporting, Mid-Term Review, and Terminal Evaluation Report
- Identifies an Estuary Health Monitoring Program, to help track CMP effectiveness and capture community concerns.

Figure ES.3: Components of the CMP Implementation Guidance

The Monitoring, Evaluation and Reporting (MER) program for the Merimbula and Back Lake CMP provides a pragmatic mechanism to gauge implementation progress, and outlines the process for transparent reporting against the CMP targets. Importantly, the MER program goes further than this by also setting out a process to monitor the effectiveness of the CMP toward progressive achievement of the aspirations defined by the community and stakeholders, and defines opportunities for strategic review and re-alignment of the CMP priorities, if needed to achieve the overarching CMP objectives.

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<b>7</b>	7.1 7.1.2 7.1.3	initorir Mon 1 2 3 Estua	ng Evaluation and Reporting Program itoring, Evaluation and Reporting of CMP Implementation Annual Progress Reporting (APR) Mid-Term Review (MTR) Terminal Evaluation Report (TER)	97999999100101101
<b>7</b>	7.1 7.1.1 7.1.2 7.1.3 7.2 7.2.1	Mon  Mon  Section 1  Estua  1	ng Evaluation and Reporting Program itoring, Evaluation and Reporting of CMP Implementation Annual Progress Reporting (APR) Mid-Term Review (MTR) Terminal Evaluation Report (TER) ary Health Monitoring Program Visual Monitoring Program	97999999100101101102
<b>7</b>	7.1.7.1.2.7.1.3.7.2.2.7.2.3	Mon  Section 1  Section 1  Section 2  Section 2  Section 3  Sectio	ng Evaluation and Reporting Program itoring, Evaluation and Reporting of CMP Implementation Annual Progress Reporting (APR) Mid-Term Review (MTR) Terminal Evaluation Report (TER) ary Health Monitoring Program Visual Monitoring Program Scientific Data Collection and Analysis	979999100101102103
<b>7</b> 7	7.1 7.1.2 7.1.3 7.2 7.2.1 7.2.2 Map	Mon  Street Street  S	itoring, Evaluation and Reporting Program  Annual Progress Reporting (APR)  Mid-Term Review (MTR)  Terminal Evaluation Report (TER)  ary Health Monitoring Program  Visual Monitoring Program  Scientific Data Collection and Analysis.  Community Feedback	97999999100101101102103104105
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