

3 Actions to be Implemented by the Council or by Public Authorities

3.1 Developing and Prioritising Management Actions

Management responses to reduce the risks to the Merimbula Lake and Back Lake estuaries have been developed in consultation with key stakeholders. For each identified threat, and where issues were considered to pose an unacceptable risk, a management response has been developed that comprises one or more individual management actions.

Whereas the action plan in the previous *Merimbula and Back Lakes Estuary Management Plan and Management Study* was a “wish list” for works around the lake and catchment that included many actions that have been largely unachievable, Council’s aim is for the CMP to comprise a more focussed, pragmatic and feasible suite of management responses. These responses include updated actions from the former plan as well as new actions developed specifically to address the current needs for management of the estuaries.

A transparent process was followed to identify and evaluate management actions in the CMP, which included the following three stages (each described in further detail below):

1. Review of the status and effectiveness of previous actions identified in the *Merimbula and Back Lakes Estuary Management Plan and Management Study (1997)* and various other relevant management plans
2. Identifying an effective management response to each threat by developing a list of targeted and acceptable management actions through a consultative process
3. Evaluating and prioritising the suite of management actions for feasibility and viability with a multi criteria assessment, to develop the implementation plan that most effectively reduces the risk of threats.

A review of the actions within the previous *Merimbula and Back Lakes Estuary Management Plan and Management Study* was completed and results are included in the supporting document “*Merimbula and Back Lake CMP - Estuary Threats and Pressures*” (BVSC, 2024b). This review identified the status of each management action and whether it remains relevant to the current issues for the estuary. Where actions remain relevant or partially relevant, they have been migrated into this CMP as either standalone actions or merged/updated actions.

A consultative process was subsequently completed to identify new management actions to respond to each threat, which included:

- Site inspections, additional data collection and brainstorming of options with the project team including staff from Council, DCCEEW and the project consultant
- Discussions with relevant staff from various additional Council departments and other public authorities
- Feedback from stakeholders within the Focus Group, in particular with regards to the acceptability of proposed management actions
- Previous experiences with successful and less successful management actions from Merimbula Lake, Back Lake and other estuaries in the region

Through this process an updated suite of actions was developed which were pragmatic, acceptable to stakeholders and effective in reducing risks to the estuaries and surrounding area either directly (by reducing the consequences or likelihood of impacts, or both), or indirectly (providing a more informed position from which to develop future management actions). Generally, the identified management responses to most threats are relatively obvious and well-defined due to a lower level of complexity, resulting in a suite of actions that are low risk to implement. Consistent with the objectives of the CMP, a key focus when developing management actions was to ensure that they addressed specific issues and could be implemented at specific target locations (i.e. not open ended or “broad-brush”).

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.

In most cases a clear and acceptable pathway to effectively respond to specific management issues was identified, and an overall collection of actions developed through this process. Consistent with the requirements of the *Coastal Management Manual*, the suite of management actions was evaluated using a Multi Criteria Assessment (MCA), to inform the prioritisation of actions within the CMP Implementation Plan on the basis of feasibility and viability, and to most effectively achieve the objectives of the CMP.

3.1.1 Multi-Criteria Analysis of Management Responses

Multi Criteria Assessment uses a range of logical scoring criteria to rank individual management actions, where the criteria are based on the evaluation considerations set out in the *Coastal Management Manual*. The MCA process is illustrated in Figure 3.1.

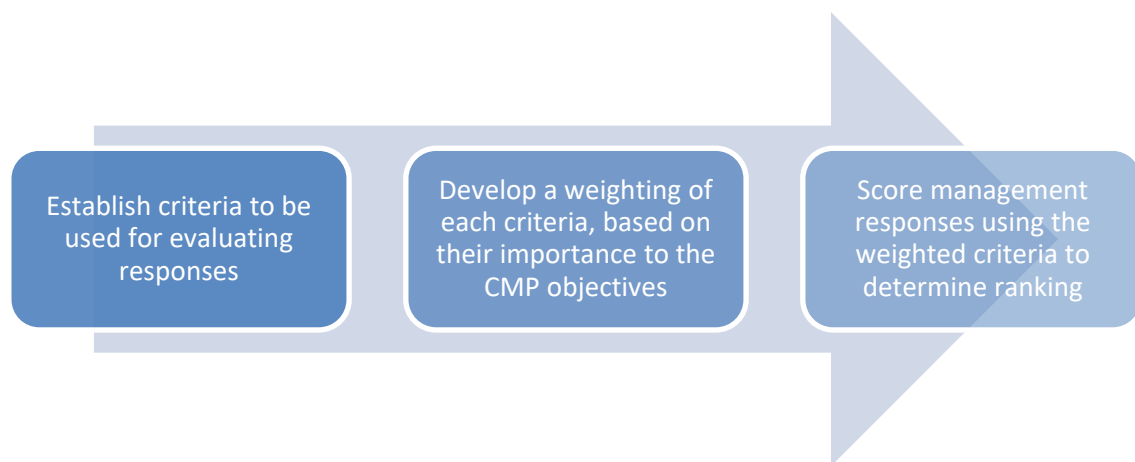


Figure 3.1: Multi-Criteria Assessment Process

The criteria used for the MCA were established in collaboration with key stakeholders and consider both the feasibility and viability of management actions:

- Criteria that reflect the *Feasibility* of management actions consider the effectiveness of management actions to reduce the threats to the estuaries, and their consistency with the objectives of *Coastal Management Act 2016*;
- Criteria that reflect the *Viability* of management actions consider how achievable implementation of a management action is within the constraints of resourcing, access to funds, legislation and complexity, as well as the anticipated implementation costs.

Table 3.1 provides an overview of the MCA scoring criteria used.

Table 3.1: MCA Criteria Used to Evaluate Management Responses			
Pillar	Criteria	Description	
Feasibility Effectiveness at meeting the objectives of the CM Act and at reducing threat risk	A	Which values are addressed	This criteria scores how well a management action addresses a prioritised order of values. Each value has a relative importance linked with the objectives of the CMP and hierarchy of CMAs in the CM Act, such that management actions are scored more highly for addressing threats to higher priority values or a higher number of values.
	B	Threat risk level addressed	This criteria scores how well a management action addresses higher risk issues. It is scored on the basis of the risk level of the primary issue targeted by the management action.
	C	Risk reduction effectiveness	This criteria scores how well a management action reduces the risk posed by the primary issue. It is measured by the level of risk reduction expected to be achieved for the primary issue that is targeted by implementation of the management response. Where a management action is one part of a longer management sequence (initial investigations for example), the scoring is based on the risk reduction that would eventually be achieved by the overall management process.
Viability Anticipated cost, availability of resources, time and commitment and anticipated benefits Affordability	D	Funding difficulty	This criteria scores the level of difficulty in securing funding to implement the management action.
	E	Duration of response	This criteria scores the duration over which the management action will be implemented.
	F	Engagement level required	This criteria scores the level of community and stakeholder engagement that is required to implement the management action.
	G	Investigations and approvals required	This criteria scores the level of further investigations, studies and approvals required to implement the management action.
	H	Implementation difficulty	This criteria scores the difficulty and complexity to implement the management action. It considers aspects such as the resourcing and number of organisations required to be involved and their reliability.
I	Comparative cost	This criteria scores the management action on the basis of the cost category, with lower cost actions scoring more highly and higher cost actions scoring more poorly.	

Recognising that the scoring criteria in Table 3.1 each have a different level of importance for the objectives of this specific CMP, each criteria was “weighted” with regards to its relative

importance using a “prioritising matrix” (see Figure 3.2). The relative importance of each criteria was decided by individually comparing its importance relative to each of the other criteria based on the following points scoring system:

- 3 points: The focus criteria is much more important than the other criteria;
- 2 points: The focus criteria is more important than the other criteria;
- 1 point: The focus criteria is similar but slightly more important than the other criteria.

For example, criteria D “Funding difficulty” is considered more important than criteria F “Engagement level required”, with a result of D2 in the prioritisation matrix. Similarly, criteria F is considered much less important than criteria I, with a result of I3.

	B	C	D	E	F	G	H	I
A	B 1	C 2	A 2	A 2	A 2	A 2	A 1	A 1
B	B 1	B 2	B 2	B 2	B 1	B 2	B 2	B 1
C		C 2	C 2	C 2	C 2	C 2	C 2	C 1
D			D 1	D 2	D 2	D 2	D 1	I 1
E				E 1	F 1	G 3	H 3	I 3
F					F 1	G 2	H 1	I 3
G						G 2	I 2	
H							H 2	I 2

Figure 3.2: Prioritisation Matrix for Scoring MCA Criteria

On the basis of the relative importance for each of the MCA criteria shown in Figure 3.2, a weighting was determined for the criteria as shown in Table 3.2. It can be seen from these weightings that the criteria of “Risk reduction effectiveness”, “Threat risk level addressed”, “Comparative cost”, and “Which values are addressed” are considered the more important of the criteria. In contrast, “Duration of response” and “Engagement level required” are considered the least important criteria.

Table 3.2: Weighting of MCA Criteria Used to Evaluate Management Responses				
Criteria		Score	Weighting	Rank
A	Which values are addressed	10	1.6	4
B	Threat risk level addressed	12	1.9	2
C	Risk reduction effectiveness	13	2.0	1
D	Funding difficulty	6	0.9	6
E	Duration of response	0	0.0	9
F	Engagement level required	1	0.2	8
G	Investigations and approvals required	7	1.1	5
H	Implementation difficulty	4	0.6	7
I	Comparative cost	11	1.7	3
Total		64	10	

Finally, each of the management actions were evaluated and given a score between 1 and 5 for each of the MCA criteria. Table 3.4 provides the guide that was used to assign the scores for the MCA criteria. The evaluation was undertaken by multiple people within the project management team and the results harmonised into a single evaluation result.

An example scoring for a single management action is provided in Table 3.3, which shows how this action scored for each of the criteria, along with the overall weighted score (38.1). This scoring was completed for all management actions, and used to rank the actions from highest score to lowest score. The overall results of the MCA with scores for all management actions is included in Appendix A of the CMP.

Table 3.3: Example MCA scoring for management action 4.1 “Estuary Health Data Collection Program”				
Criteria		Score	Weighting	Weighted Score
A	Which values are addressed	5 <i>(Ecosystems and water quality)</i>	1.6	7.8
B	Threat risk level addressed	3 <i>(Threat 2: Medium risk)</i>	1.9	5.6
C	Risk reduction effectiveness	4 <i>(mostly removes risk)</i>	2.0	8.1
D	Funding difficulty	4 <i>(existing funds not available, but likely to be able to attract new funding)</i>	0.9	3.8
E	Duration of response	1 <i>(Ongoing)</i>	0.0	0.0
F	Engagement level required	5 <i>(No additional engagement required)</i>	0.2	0.8
G	Investigations and approvals required	5 <i>(No further approvals required)</i>	1.1	5.5
H	Implementation difficulty	5 <i>(Implemented by single organisation with existing resources)</i>	0.6	3.1
I	Comparative cost	2 <i>(\$200,000 - \$499,000)</i>	1.7	3.4
Total weighted score				38.1

Table 3.4: Scoring Guide Used to Evaluate Management Responses for Each Criteria

Points	A	B	C	D	E	F	G	H	I
	Values Importance Score ¹	Threat Risk Level Addressed ²	Risk Reduction Effectiveness ³	Funding Difficulty	Duration of Works	Engagement Level Required	Investigations/ Approvals Required	Implementation Difficulty	Cost Category
1	Less than 3	Very Low	1 risk level reduction	Has a low chance of attracting funds and no clear funding avenue	Ongoing	Requires extensive community and stakeholder engagement	Requires extensive studies and approvals	Requires multiple organisations, extensive subcontracting, or new resources to be established	More than \$500,000
2	3-5	Low	2 risk level reduction	↑	Very long term (3+ years)	Requires short-term community and stakeholder engagement	↑	↑	\$200,000-\$499,000
3	5-10	Medium	3 risk level reduction		Long term (1-3 years)	Requires internal/agency consultation			\$50,000-\$199,000
4	10-15	High	4 risk level reduction		Mid term (months)	Requires notification of community and stakeholders only			\$5,000-\$49,000
5	More than 15	Extreme	Complete removal of threat risk	Can be funded within existing budgets/programs	Short term (weeks)	No additional engagement required	Can be undertaken with no further studies or approvals	Implemented by single organisation with existing resources	Less than \$5,000

Notes:

1. The cumulative total of points for the values improved by the management action as follows: Ecosystems (9), water quality (8), physical processes (7), community engagement (6), recreational amenity (5), cultural heritage (4), built assets (3), economy (2), visual amenity (1).
2. Current threat risk level as evaluated in the Threat Risk Evaluation and summarised in Section 2.
3. Number of levels of reduction in risk achieved by the response. E.g. if the response moves the threat from 'high' to 'low' risk this equates to a reduction of two levels.

All identified management actions were evaluated in the MCA process, and while the MCA process provides a specific ranking and order for all of the individual management responses, this is considered more as a general guide for the overall importance of the responses than a specific order of implementation. Instead the MCA output has been used pragmatically to assign a broader level of priority to the management responses as follows:

- Very high priority: top 5 ranked management responses;
- High priority: management responses ranked 6th to 10th;
- Medium priority: management responses ranked 11th to 20th;
- Low priority: management responses ranked 21st or lower.

In practice this prioritisation is expected to be used by Council as a guide for execution of the CMP, nevertheless it is not intended to restrict or prevent Council from implementing lower priority responses opportunistically or advancing management responses within the program if their level of importance/priority changes. Likewise, stakeholder advice regarding the relative acceptability of responses will influence the final order that they are implemented.

It is very important to note that an action ranked as “Low” priority by the MCA process does not indicate that the issue targeted by the action is of low importance or low risk. It simply means that across the broad spectrum of criteria (including other factors such as the cost, complexity and achievability of the action), it is ranked lower compared with the other identified management actions in the CMP.

3.2 Description of Management Responses

Table 3.5 to Table 3.12 provides an overview of the management responses for the *Merimbula and Back Lake CMP*, and summarises the management actions within each response. Within this summary, management responses are grouped on the basis of the primary threat that they are intended to address, such that Management Response 1 is the collection of actions to resolve Threat 1, and so on for each of the identified threats. The tables within this section include the following details:

ID and Description of Management Actions: For each Management Response, this column includes the ID number and a short summary of each management action that make up the response. The numbering of actions aligns with the numbering of threats, such that R1.X is an action that responds to Threat 1.

Responsible Organisations and Areas of the Estuary: For each management action, this column specifies the lead organisation responsible for implementation, and identifies any other organisations that will support implementation. Also provided within brackets is an indication of the section of the lake/catchment to which the action will be applied.

Priority Rating: For each management action, this column indicates the priority of the management action (Very High, High, Medium, Low) based on the outcome of the Multi Criteria Assessment contained in Appendix A and described in Section 3.1.1.

Management Issues Targeted: This column contains a summary of the management issues that the action is intended to address. The numbering and description of the management issues aligns with the snapshot of estuary threats and pressures presented in Section 2 of the CMP, and the detailed description provided in the *Estuary Threats and Pressures Report* that is a supporting document to the CMP.

Appendix B of the CMP provides additional details for selected management actions (where additional detail is required), including a full description, mapping and figures. This additional

detail has only been included for actions that have additional complexity or require significant financial expenditure, and not for minor actions that are adequately described within the summary tables. Section 3.4 of the CMP provides the Implementation Plan for the management actions, while the costing and funding arrangements are provided within the Business Plan in Section 5 of the CMP.

In preparing the management responses for this CMP, it was noted that the effectiveness of some management responses would be strengthened if aligned work was completed for selected areas of the catchment that are located outside of the mapped Coastal Management Area. One supporting action has been developed that will provide this additional benefit to the health of the estuary, but will be delivered externally to the certifiable scope of the CMP. To maintain the linkage of this additional management action to the scope covered by the certifiable CMP, the additional action has also been documented separately within Table 3.13 for clarity.

Table 3.5: Management Response for Threat 1 – Decline in Ecological Health and Diversity

ID and Description of Management Actions	Responsible Organisation/s (Area of Estuary)	Priority Rating	Management Issues Targeted
<p>R1.1 <u>Review and respond to trends in aquatic habitat change</u></p> <p>Following completion of updated analysis of aquatic vegetation distribution in Merimbula Lake (R4.1), consider implementing a number of actions to reduce the direct impacts on seagrass communities. Potential actions identified include:</p> <ul style="list-style-type: none"> • Installing Environmentally Friendly Moorings (EFMs) to replace traditional block and chain moorings over the longer term. This would incorporate learnings from current TfNSW/CSIRO research program into various aspects of EFMs. • Installing additional signage to encourage boat operators to only cross specific shallow seagrass beds at certain tide levels (entry into Golf Course Lagoon for example). • Other potential actions to reduce identified areas of seagrass loss. 	<p><u>Responsible:</u> BVSC Supporting: TfNSW, DPIRD Fisheries</p> <p>(Merimbula Lake)</p>	<p>Low</p>	<p>T1.1a Potential Loss of Aquatic Vegetation (seagrasses)</p>
<p>R1.2 <u>Protect and enhance wetland and riparian vegetation and vegetated corridors on targeted private properties</u></p> <p>Investigate opportunities to retain and restore wetland and riparian areas as well as vegetation corridors on private properties. This is particularly relevant to properties along the western foreshore and lower catchment of Merimbula Lake, and along Boggy Creek and Millingandi Creek.</p> <p>This action is considered Environmental Protection Works in a Coastal Wetlands and Littoral Rainforest Area (CWLRA).</p>	<p><u>Responsible:</u> BVSC Supporting: LLS, DPIRD Fisheries</p> <p>(Merimbula Lake)</p>	<p>Low</p>	<p>T1.2 Terrestrial Habitat Fragmentation, Conservation and Rehabilitation</p>
<p>R1.3a <u>Rehabilitation of riparian areas and adjacent lower catchment reserves</u></p> <p>An ongoing weed eradication, maintenance and revegetation program is required at targeted areas around Merimbula Lake to sustain and expand recent work completed by Council. Sites include Merimbula Lake along the boardwalk and the Merimbula Lake foreshore area below Lake St. Likewise for the previous Boneseed infestation on the western foreshore area off Green Point Rd.</p> <p>Significant weed infestations also still exist within specific areas of the Merimbula Lake lower catchment, with the main locations including the BVSC stockpile site adjacent the Merimbula STP, Bald Hills Creek and to a lesser degree at Boggy Creek. These locations require an initial intensive and targeted weed removal program, revegetation and an ongoing maintenance program.</p>	<p><u>Responsible:</u> BVSC</p> <p>(Merimbula Lake and Back Lake foreshore and tributaries)</p>	<p>Very High</p>	<p>T1.3 Invasive Vegetation</p>

Table 3.5: Management Response for Threat 1 – Decline in Ecological Health and Diversity

ID and Description of Management Actions	Responsible Organisation/s (Area of Estuary)	Priority Rating	Management Issues Targeted
<p>Around the Back Lake catchment there are three zones mapped as being affected by weed infestations: the saline swampy shoreline zone, the dry forest north and south of the lake, and the riparian zone along Merimbula Creek (R1.3b). Some areas have intense infestations such as the Arum Lilly infestation below Garden Circuit at Berrambool, and will require intensive initial weed removal program, revegetation and ongoing maintenance. The dry forest areas of the catchment can likely be managed by annual, species-targeted sweeps.</p> <p>These on-ground works should be undertaken in combination with community education activities (R7.2) with significant weed issues upslope impacting foreshore areas.</p> <p>This action is considered Environmental Protection Works with sections of the proposed works crossing into the CWLRA.</p>			
<p>R1.3b <u>Merimbula Creek rehabilitation</u></p> <p>Continue with the rehabilitation program for the Berrambool stretch of Merimbula Creek (initial works already underway, but requires expansion and ongoing work). Works to include eradication of weeds, removal of litter, realignment of fallen trees and limbs or removal where not considered beneficial for habitat, revegetation as required. This action provides a good opportunity for partnership with existing community groups and Merimbula sporting clubs based at Berrambool sports complex, to assist with on-ground works and promote ownership of the creek.</p>	<p>Responsible: BVSC Supporting: Crown Lands</p> <p>(Merimbula Creek, Back Lake)</p>	<p>Very High</p>	
<p>R1.4 <u>Oyster reef mapping and recovery in Merimbula Lake</u></p> <p>Identify suitable areas in Merimbula Lake where oyster reef restoration may be used to mitigate bank erosion and/or restore and enhance ecosystem functions such as water filtration and habitat provision. This will contribute to actions and solutions for Threat 6.1 (Degradation of Foreshore and Beach Integrity) and assist with maintaining overall estuarine health. Additional mapping of remnant subtidal Native Flat Oyster reefs will assist this. Engagement with communities through targeted activities such as citizen science and/or education activities that promote understanding of the ecological importance of oyster reefs and conservation efforts underway to protect and restore these reefs. Integrate local Aboriginal cultural knowledge into community engagement activities and development, where feasible. Develop, implement and monitor restoration projects with community and industry stakeholders which deliver shared goals including restore and enhance ecosystem function, boost fish productivity and support cultural values.</p> <p>This action aligns with Initiative 1 of the MEMS, Action 1.3.</p>	<p>Responsible: DPIRD Fisheries, BVSC Supporting: DCCEEW</p> <p>(Merimbula Lake)</p>	<p>Low</p>	<p>T4.1 Estuary Health Knowledge Gap T6.1 Degradation of foreshore and beach integrity</p>

Table 3.5: Management Response for Threat 1 – Decline in Ecological Health and Diversity

ID and Description of Management Actions	Responsible Organisation/s (Area of Estuary)	Priority Rating	Management Issues Targeted
<p>R1.5 <u>Monitor and mitigate the impact of lake openings on beach-nesting birds</u></p> <p>The Back Lake Entrance Management Policy incorporates several mitigation measures to minimise impacts to beach-nesting birds. NPWS is to be consulted for advice and assistance when Back Lake is to be artificially opened during the shorebird breeding season (August to April inclusive) consistent with the Policy. Council will also work with NPWS to review previous entrance openings and identify any possible improvements, further risk reduction measures and best-practice methods that can be incorporated when the Policy is updated at five yearly intervals.</p>	<p>Responsible: BVSC Supporting: NPWS (Back Lake Entrance)</p>	<p>Medium</p>	<p>T1.4 Impacts to threatened beach-nesting birds from excavator access and opening of entrance</p>
<p>R1.6 <u>Ensure the “Threatened Shorebirds in Bega Valley Shire: Action Plan” is implemented</u></p> <p>BVSC developed a Threatened Shorebirds in Bega Valley Shire: Action Plan in 2020 to support threatened shorebirds in the Bega Valley. This document outlines proposed and existing actions for Merimbula and Back Lakes and BVSC beach-nesting bird sites:</p> <ol style="list-style-type: none"> 1. Monitor and reduce impacts of disturbance on threatened shorebirds and beach-nesting birds <ol style="list-style-type: none"> a. Increase local and visitor awareness of the threat of disturbance to shorebird survival and provide information about how to minimise disturbance to shorebirds as part of R7.2 Community engagement and information sessions and activities 2. Improve regulation compliance and management of domestic dogs <ol style="list-style-type: none"> a. BVSC Rangers and NPWS Shorebird Ranger to prioritise sites and timing to get maximum benefit from compliance checks/patrols 3. Reduce occurrence of predation <ol style="list-style-type: none"> a. NPWS to undertake monitoring, predator control and nest protection as part of the Far South Coast Shorebird Recovery Program 	<p>Responsible: NPWS, BVSC (Merimbula & Back Lake foreshore, entrance and adjacent beaches/dunes)</p>	<p>High</p>	<p>T1.5 Decline of threatened migratory shorebirds and beach-nesting birds</p>

Table 3.6: Management Response for Threat 2 - Catchment Runoff and Urban Pollutants

ID and Description of Management Actions	Responsible Organisation/s (Area of Estuary)	Priority Rating	Management Issues Targeted
<p>R2.1a <u>Improvements to requirements, monitoring and compliance of sediment controls for property developments.</u></p> <p>Recognising that this issue is relevant to developments within the catchment of many estuaries of BVSC, there are several improvements within Council's existing processes that can be implemented. These improvements include:</p> <ul style="list-style-type: none"> • Specialist training on sediment control methods for builders and site developers. This action would improve implementation of guidance for control measures and enable improved design and implementation of site-appropriate sediment control measures. This would be supported by continued communication of existing BVSC information on sediment controls and further stakeholder awareness activities; • Extended capacity of council officers to undertake monitoring and compliance of developments across the Shire; • Potential for higher frequency and/or event-based compliance checking of erosion and sediment control for property development areas deemed to be high risk for sediment runoff. This would include current and future stages of development in Mirador area where land is steep, erodible and in very close proximity to Back Lake, as well as development in catchment areas of Merimbula Lake where erodible soil is reported to cause adverse water quality for the aquaculture industry due to its specific geo-chemical properties. 	<p>Responsible: BVSC <i>(Merimbula Lake & Back Lake)</i></p>	<p>Medium</p>	<p>T2.1 Catchment derived sedimentation</p>
<p>R2.1b <u>Rehabilitate powerline easement between Boggy Creek and Merimbula Drive</u></p> <p>Restrict illegal access to area to prevent anecdotal usage by 4WD vehicles to reach the lake for fishing. Improve surface drainage through installation of rollovers and/or sediment retention ponds etc. Revegetate and rehabilitate disused vehicle tracks to prevent ongoing erosion.</p>	<p>Responsible: BVSC, Bega LALC Supporting: Essential Energy <i>(North side, Merimbula Lake)</i></p>	<p>Medium</p>	<p>T2.1 Catchment derived sedimentation</p>
<p>R2.2a <u>Update risk management strategy for sewage contamination</u></p> <p>A multi-estuary project (<i>Supporting Increased Aquaculture Production Through Reduced Harvest Closures</i>) to complete hydrodynamic modelling and evaluation of sewage contamination risks is currently underway and includes Merimbula Lake. The learnings from this investigation should be incorporated into the risk management and response plans for oyster growers in the lake. The learnings should also inform priority sites for additional overflow risk reduction works by Council, on the basis of the threat to oyster industry productivity.</p>	<p>Responsible: NSW Food Authority, BVSC Supporting: Oyster Farmers</p>	<p>Very High</p>	<p>T2.2 Sewage contamination</p>

Table 3.6: Management Response for Threat 2 - Catchment Runoff and Urban Pollutants

ID and Description of Management Actions	Responsible Organisation/s (Area of Estuary)	Priority Rating	Management Issues Targeted
<p>R2.2b <u>Reduce sewer overflow incidents through education and compliance campaign</u></p> <p>Many of the sewer pumping stations are low lying and situated in close proximity to waterways and posing a high risk to water quality. Sewer overflows are usually caused by blockages due to inappropriate use (flushing of wet wipes or clothing), disposal of oil down drains or in wet weather due to high water volumes. Illegal connections of residential stormwater to sewer network can also lead to overflows as a result of the increased volume of water entering the system.</p> <p>Council will implement an education campaign within the Merimbula & Back Lake catchment to advise the community on correct waste disposal and potential impacts to waterways (linked to R7.2).</p> <p>Targeted education of local plumbers will be undertaken along with compliance checks for illegal works.</p>	<p><u>Responsible:</u> BVSC</p>	<p>Very High</p>	<p>T2.2 Sewage contamination</p>
<p>R2.2c <u>Improve understanding of vessel sewage discharge needs and risks</u></p> <p>Engage with local vessel owners and operators on Merimbula Lake to better understand their needs with regards to disposal of sewage from vessels. This would inform a current risk assessment for vessel-generated sewage as a point source contaminant, as well as future requirements for improving disposal infrastructure.</p>	<p><u>Responsible:</u> BVSC Supporting: TfNSW <i>(Merimbula Lake)</i></p>	<p>Medium</p>	<p>T2.2 Sewage contamination</p>
<p>R2.3: <u>Extend 'End-of-pipe' pollutant trap program</u></p> <p>A trial of an 'end-of-pipe' net/bag style litter trap has been completed on the Beach St stormwater outlets that drain into Merimbula Lake and proven to be successful. This program will identify further priority urban drains around the lake, design and install gross pollutant traps.</p>	<p><u>Responsible:</u> BVSC Supporting: Oyster farmers <i>(Merimbula Lake)</i></p>	<p>Low</p>	<p>T2.3 Nutrients and gross pollutants in stormwater</p>

Table 3.7: Management Response for Threat 3 - Structure and Function of Lake (Back Lake)

ID and Description of Management Actions	Responsible Organisation/s (Area of Estuary)	Priority Rating	Management Issues Targeted
<p>R3.1: <u>Investigation of physical changes to lake bed in Back Lake</u></p> <p>Undertake an updated hydrographic survey of Back Lake for comparison with 2003 survey data. This will allow for quantification of the of the changes to the lake bathymetry over the previous two decades as a result of catchment derived sedimentation and impacts of the entrance management regime. The results of the analysis will inform future management strategy of this issue (as needed).</p>	<p><u>Responsible:</u> BVSC (Back Lake)</p>	<p>Medium</p>	<p>T3.1 Impacts of artificial entrance management and cumulative catchment sedimentation</p>

Table 3.8: Management Response for Threat 4 – Lack of Knowledge of Estuary Health and Condition

ID and Description of Management Actions	Responsible Organisation/s (Area of Estuary)	Priority Rating	Management Issues Targeted
<p>R4.1: <u>Estuary health data collection program</u></p> <p>An ongoing targeted data collection program is required to inform the understanding of estuary health for both Merimbula and Back Lakes. This issue relates to many estuaries within BVSC, and the program is best developed as a Shire-wide activity in collaboration with the ongoing DCCEEW data collection program. Targeted data collection at Merimbula and Back Lakes would form one component of this wider program across several estuaries, with high priority data sets including:</p> <ul style="list-style-type: none"> • Assessment of aquatic habitat trends through mapping of aquatic vegetation for Back Lake, followed by analysis of the revised mapping of seagrass, mangrove and saltmarsh areas for both lakes (note that contemporary mapping is already available for Merimbula Lake). • Repeated water quality monitoring (nutrients, chlorophyll-a, turbidity as a minimum, preferably also DO, salinity, FC, enterococci and metals). For Back Lake the data should cover periods of both entrance open and closed conditions. This data collection should provide ongoing understanding of event-based changes in water quality (rainfall events, entrance opening events etc.). • Updated bathymetric mapping (Back Lake) as per R3.1. • Collect information on fish assemblages. 	<p><u>Responsible:</u> BVSC Supporting: DPIRD Fisheries</p> <p>(Merimbula Lake and Back Lake)</p>	<p>Medium</p>	<p>T4.1 Lack of estuary health monitoring data</p>

Table 3.9: Management Response for Threat 5 – Coastal Hazards

ID and Description of Management Actions	Responsible Organisation/s (Area of Estuary)	Priority Rating	Management Issues Targeted
<p>R5.1: <u>Adaptation planning for low-lying assets</u></p> <p>Prioritise low-lying assets to be raised and develop a plan/strategy to achieve this. This is expected to include modifications to existing asset management plans, new actions for a future update of the CMP, modifications and new Plans of Management for private and public areas/infrastructure such as the Berrambool sporting complex. As part of the prioritisation process, Council will undertake a review of critical elevations of relevant components of sewer assets around the estuaries, which will include invert elevations at which manholes and pumping station wells start to become inundated.</p> <p>Future adaptation actions should identify and include opportunities for foreshore land to be taken up as fringing habitat zones wherever possible.</p> <p>This management action will build from other general management responses R5.2 to R5.5 that aim to manage coastal hazards on a broader scale.</p>	<p>Responsible: BVSC</p> <p>(Merimbula Lake and Back Lake foreshore)</p>	<p>Low</p>	<p>T5.1 Future Tidal inundation impacts on low-lying assets, habitat and areas</p> <p>T5.2 Coastal inundation impacts on low-lying assets and areas</p>
<p>R5.2: <u>Develop a CVA and update relevant planning documents</u></p> <p>Introduce a Coastal Vulnerability Area (CVA) to incorporate a risk-based land-use planning approach for future development, and to adequately manage existing and future coastal risks.</p> <p>a) Determine CVA based on best available hazard information and submit a Planning Proposal.</p> <p>b) Review and update LEP, DCP and SLR Policy to ensure consistency with the CMP and CVA.</p>	<p>Responsible: BVSC</p> <p>Supporting: DCCEEW, DPPI</p> <p>(Merimbula Lake and Back Lake)</p>	<p>High</p>	<p>T5.3 Coastal erosion impacts on various built assets and dunes along Main Beach.</p>
<p>R5.3: <u>Review CEA, CUA and CWLRA and adjust mapping (if required)</u></p> <p>Review the mapped CEA, CUA and CWLRA, adjust as required to ensure that the areas meet the intent for these CMAs as defined in the Coastal Management Manual and Resilience and Hazards SEPP, and submit a Planning Proposal.</p>	<p>Responsible: BVSC</p> <p>Supporting: DCCEEW, DPPI</p> <p>(Merimbula Lake & Back Lake)</p>	<p>Low</p>	
<p>R5.4 <u>Coastal erosion management and adaptation planning for Merimbula Main Beach</u></p> <p>Merimbula Main Beach has a well-formed dune ranging in width from 30 m to over 100 m in sections and is backed by a recreational reserve. There is no critical infrastructure at risk from erosion with only one lookout and multiple fenced access tracks within the immediate foreshore. The zone at the northern end of Merimbula</p>	<p>Responsible: BVSC</p> <p>(Merimbula Main Beach)</p>	<p>High</p>	<p>T5.3 Coastal erosion impacts on various built assets around Merimbula Main Beach foreshore</p>

Table 3.9: Management Response for Threat 5 – Coastal Hazards

ID and Description of Management Actions	Responsible Organisation/s (Area of Estuary)	Priority Rating	Management Issues Targeted
<p>Main Beach has suffered erosion in previous storm events with loss of foredune vegetation and beach scarping resulting in minor impact to access tracks and lookouts.</p> <p>a) The primary action against coastal erosion is strengthening of natural dune systems (R5.5). Council will continue to maintain access tracks and beach observation platforms as usual, even when considered at risk from coastal erosion events (so long as it is safe to do so).</p> <p>b) If minor to moderate erosion occurs, restore foreshore access tracks and recreational infrastructure on a priority basis. This prioritisation should include safety inspections and repairs to beach observation platforms, as-needed. Support natural dune accretion with installation of fencing and/or dune building fencing and revegetation as required.</p> <p>c) Develop a future plan for Ford Park and associated amenities considering erosion risk, including threshold for expansion of natural dune and vegetation landward to provide additional erosion buffer.</p>			
<p>R5.5: <u>Dune rehabilitation program</u></p> <p>Continue dune rehabilitation program on Merimbula Main Beach and at Short Point Beach as required. The program will include strengthening of dune vegetation through weed control, revegetation and maintenance of access tracks and fencing.</p>	<p><u>Responsible:</u> BVSC</p> <p>(Merimbula Main Beach and Short Point Beach)</p>	<p>High</p>	<p>T5.3 Coastal erosion impacts on various built assets around Main Beach foreshore</p>
<p>R5.6: <u>Investigation of entrance opening trigger level sustainability (Back Lake)</u></p> <p>Undertake an investigation of the sustainability of the lake opening trigger level to understand the effectiveness of the current management strategy into the future. This will inform timeframes for both raising the trigger level and for adaptation of low-lying assets (covered in R5.1). The analysis should consider rates of SLR and climate change impacts on entrance morphology, to better understand the implications on artificial entrance opening effectiveness, entrance opening/closing regime etc.</p>	<p><u>Responsible:</u> BVSC</p> <p>(Back Lake)</p>	<p>Low</p>	<p>T5.4 Sustainability of entrance opening trigger level (Back Lake)</p>
<p>R5.7 <u>Analysis and mapping of entrance stability and migration</u></p> <p>Complete an assessment and mapping of the potential envelope of lake entrance migration. The mapped areas should subsequently be incorporated into the CVA and Planning Proposal covered in R5.2.</p>	<p><u>Responsible:</u> BVSC</p> <p>(Back and Merimbula Lake entrances)</p>	<p>Low</p>	<p>T5.5 The envelope of coastal entrance position requires mapping for both Merimbula and Back Lakes</p>

Table 3.10: Management Response for Threat 6 – Degradation of Foreshore and Beach Integrity

ID and Description of Management Actions	Responsible Organisation/s (Area of Estuary)	Priority Rating	Management Issues Targeted
<p>R6.1a: <u>Replacement of log-key seawall adjacent Spencer Park</u> Approximately 45 m of low-level log-key seawall requires replacement in the area adjacent (east) of Spencer Park. The wall should be designed in accordance with the Environmentally Friendly Seawall Guidelines. This action is classed as Coastal Protection Works.</p>	<p><u>Responsible:</u> BVSC (Spencer Park, Merimbula Lake)</p>	<p>Medium</p>	<p>T6.1a Degradation of foreshore (Erosion) Failing log key wall adjacent to Spencer Park, Merimbula Lake.</p>
<p>R6.1b: <u>Foreshore revegetation at two private property locations, western side of Merimbula Lake</u> Targeted engagement with private landowners is required for two sites on the western foreshore of Merimbula Lake. Landowners should reduce impacts of their private lake access on foreshore vegetation (incl. saltmarsh), by rehabilitation of unnecessarily cleared foreshore vegetation and reducing bare-earth/road base areas prone to erosion.</p>	<p><u>Responsible:</u> BVSC, LLS (Western foreshore, Merimbula Lake)</p>	<p>Medium</p>	<p>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.</p>
<p>R6.1c: <u>Southern bridge abutment side slope remediation</u> Undertake remediation of the side slopes of the southern bridge abutment, in particular on the Top Lake side, including installation of geotextile-matting and revegetation.</p>	<p><u>Responsible:</u> BVSC (Merimbula Lake bridge)</p>	<p>High</p>	<p>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.</p>
<p>R6.1e: <u>Improve foreshore protection along Merimbula Creek backing Henwood Street</u> Stabilise estuary bank and rehabilitate shoreline including: i. Improving bank protection works through installation of coir logs and revegetation of riverbank backing 9a Henwood Street (public land). ii. Promoting the Environmentally Friendly Seawall Guidelines to private landholders with foreshore areas and consider improvements through the DA process as foreshore structures are due for renewal/upgrade.</p>	<p><u>Responsible:</u> BVSC (Henwood St, Back Lake)</p>	<p>Low</p>	<p>T6.1d Degradation of foreshore (Erosion) Several private properties along Henwood Street, Back Lake currently have ad-hoc, damaged and failing shoreline protection.</p>
<p>R6.1e: <u>Repairs to the Djiringanj Peoples Walk, below Lake St</u> Soil stabilisation, rehabilitation of problematic areas of the track and installation of stairs is required to enable access and usage and prevent sediment input into the lake. Works include installation of erosion controls and repairs to small bridge and stairs to restore access along the track.</p>	<p><u>Responsible:</u> BVSC (Below Lake St, Merimbula Lake)</p>	<p>Very High</p>	<p>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.</p>
<p>R6.2: <u>Beach nourishment and dune stabilisation at Fishpen, Merimbula Lake</u></p>	<p><u>Responsible:</u> BVSC</p>	<p>Low</p>	<p>T6.2 Erosion/recession of beaches in Fishpen to Mitchies Jetty area</p>

Table 3.10: Management Response for Threat 6 – Degradation of Foreshore and Beach Integrity

ID and Description of Management Actions	Responsible Organisation/s (Area of Estuary)	Priority Rating	Management Issues Targeted
<p>Design and implementation of beach restoration works is required for un-protected estuary beaches at Fishpen, including treatment of between 100 m and 150 m of foreshore which may include:</p> <ul style="list-style-type: none"> • Nourishment of the beach and dune profile; • Revegetation and stabilisation of dune; • Removal of relic blockwork wall and other infrastructure as deemed appropriate; • Potential trialling of low-impact protection works, likely sand-filled geotextile bags, rock armour or oyster reefs as a series of short, detached reef/breakwaters/headlands. Implemented to stabilise other soft shoreline rehabilitation works. 	<p>(Fishpen – Mitchies Jetty, Merimbula Lake)</p>		

Table 3.11: Management Response for Threat 7 – Reduced Amenity, Recreational Value and Community Satisfaction

ID and Description of Management Actions	Responsible Organisation/s (Area of Estuary)	Priority Rating	Management Issues Targeted
<p>R7.1 <u>Develop and implement maintenance/upgrade plans for recreational assets</u></p> <p>Council will review recreational assets, ensure key assets are identified in asset management plans, risks detailed and future funding pathways for maintenance and improvements are identified. This will include recreational infrastructure such as walking trails, observation platforms, accessibility and picnicking facilities. The plans will acknowledge and balance the community aspirations for the area, the environmental values of the estuaries, the coastal hazard risk profile and the existing plans of management that are in place. This action is linked to R5.1 to consider impacts of coastal hazards on recreational infrastructure.</p> <p>Note: Some progress on this has been made during the development of the CMP, in particular with regards to upgrade of the Merimbula boardwalk.</p>	<p><u>Responsible:</u> BVSC (Merimbula Lake and Back Lake)</p>	<p>Medium</p>	<p>T7.1 Maintenance Planning for Recreational Assets</p>
<p>R7.2 <u>Access improvements to Merimbula Lake</u></p> <p>Council will explore opportunities to improve accessibility to Merimbula Lake, in particular where informal access is currently resulting in environmental issues. Example locations identified include improved access for</p>	<p><u>Responsible:</u> BVSC</p>	<p>Medium</p>	<p>T7.2 Access to Merimbula Lake</p>

Table 3.11: Management Response for Threat 7 – Reduced Amenity, Recreational Value and Community Satisfaction

ID and Description of Management Actions	Responsible Organisation/s (Area of Estuary)	Priority Rating	Management Issues Targeted
launching personal water-craft from the boat ramp car parking area, controlled pedestrian access to estuary beaches at Fishpen (in combination with R6.2) and improved/direct access to Golf Course Lagoon for fishing boats (current access across seagrass beds is resulting in damage).	<i>(Several specific locations of Merimbula Lake foreshore)</i>		

Table 3.12: Cross-Cutting Management Response – Community Engagement, Education and Participation

Description of Management Actions	Responsible Organisation	Priority Rating	Management Issues Targeted
<p>R8.1: <u>Engagement and support to community interest group/s</u> 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.</p>	<p>Responsible: BVSC Supporting: SCWO, Far South Coast Landcare <i>(Back Lake & Merimbula Lake)</i></p>	Low	<p>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</p>
<p>R8.2: <u>Community engagement and information sessions and activities</u> 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. Activities could include for example, educational walks around the foreshores of the lakes, informational paddle tours, presentations, weed swaps, information sessions, aquaculture and tourism initiatives. The focus of the engagement will be on areas such as:</p> <ul style="list-style-type: none"> Natural processes of the lakes and their surrounding catchments; 	<p><u>Responsible: BVSC</u> <i>(Merimbula Lake and Back Lake)</i></p>	Medium	<p>T1.3: Invasive vegetation; T2.3: Gross pollutants in stormwater; T3.1: Artificial entrance management; T7.4 Lack of awareness, education and participation</p>

Table 3.12: Cross-Cutting Management Response – Community Engagement, Education and Participation

Description of Management Actions	Responsible Organisation	Priority Rating	Management Issues Targeted
<ul style="list-style-type: none"> • Entrance management (Back Lake); • Awareness and conservation of migratory and beach nesting shorebirds; • Aquaculture processes in a ‘Lake-to-plate’ scheme; • Do’s and don’ts of living near the lakes; • Litter and pollution; • Sewage contamination – what shouldn’t go down the drains. • Cultural heritage; • Invasive species (terrestrial and aquatic). 			
<p><u>R8.3 Improved acknowledgement and promotion of Aboriginal cultural values through consultation, contribution to on ground works and implementation of specific projects</u></p> <p>Ongoing consultation with local indigenous community members and leaders to acknowledge, highlight and implement Aboriginal cultural values within estuary and coastal management activities. Concepts identified in initial discussions with LALCs during preparation of the CMP include:</p> <ul style="list-style-type: none"> • Support for tourism operations around the lakes, walking tours around lakes, headlands and catchments, links to wharf to wharf walk and destination NSW Eco and cultural tourism opportunities, training and co-promotion. • Opportunities through land and sea management actions (example: weed control and revegetation actions R1.3a, R1.3b, oyster reef mapping and rehabilitation action R1.4) to continue upskilling and knowledge sharing with local Aboriginal land management crews in activities such as weed control, bush regeneration, cultural burning and marine conservation/protection. This could include an extension of the learnings from the Coastal Weeds Project into estuary and catchment areas. • Undertake a detailed cultural heritage mapping project around the lake to identify key sites of value. Could be incorporated into signage or educational materials. • Investigate opportunities for cultural burning in reserves. • Installation of market garden/bush tucker/ medicinal gardens along key tourism spots including the foreshore/boardwalk and other popular walking trails. 	<p><u>Responsible:</u> BVSC</p> <p>Supporting: LALCs, DCCEEW Heritage</p> <p><i>(Merimbula & Back Lake)</i></p>	<p>Low</p>	<p>T7.4 Lack of awareness, education and participation</p>

Table 3.12: Cross-Cutting Management Response – Community Engagement, Education and Participation

Description of Management Actions	Responsible Organisation	Priority Rating	Management Issues Targeted
<p>R8.4: <u>Maintain and update interpretive signage</u></p> <p>Maintain existing network of interpretive signage around both lakes, and where relevant, install new signage covering additional aspects such as:</p> <ul style="list-style-type: none"> • Aboriginal heritage; • Natural processes and ecology; • Maps identifying recreational features (walking tracks, equipment and access for example). <p>Council will work with Bega and Eden LALCs and DCCEEW Heritage to develop and implement an interpretive signage plan that highlights local Aboriginal cultural heritage values and knowledge for both Merimbula and Back Lakes, as well as the surrounding catchment areas. Following recommendations in the Bega Valley Shire Aboriginal Cultural Heritage Study (Donaldson, 2010) and discussions held with LALCs during the preparation of the CMP, the signage plan will consider aspects such as the places of first contact, formal recognition of Aboriginal place names, traditional uses for native plants in bush tucker and medicinal purposes, seasons and cycles of climate and weather, local ecology, traditional land management.</p>	<p><u>Responsible:</u> BVSC</p> <p>Supporting: LALCs, DCCEEW Heritage</p> <p><i>(Merimbula & Back Lake)</i></p>	<p>Low</p>	<p>T7.4 Lack of awareness, education and participation</p>
<p>R8.5: <u>Citizen science initiatives</u></p> <p>Trial citizen science initiatives at both lakes as opportunities arise. Possible examples include:</p> <ul style="list-style-type: none"> • Expansion of the CoastSnap community photo monitoring program (currently at Short Point and Pambula Beach), with potential locations such as Bar Beach and Merimbula Main Beach; • Bioblitz and potential underwater Bioblitz (Merimbula Lake); • Trial of a citizen seagrass mapping day to collect information on location and species of seagrasses (to assist with data verification of formal mapping undertaken within R2.1). • Mangrove monitoring as part of MangroveWatch. 	<p><u>Responsible:</u> BVSC</p> <p><i>(Merimbula & Back Lake)</i></p>	<p>Low</p>	<p>T1.1: Loss of aquatic vegetation;</p> <p>T4.1: Estuary health knowledge gap;</p> <p>T7.4 Lack of awareness, education and participation</p>
<p>R8.6: <u>Integration and promotion of walking tracks</u></p> <p>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.</p> <p>Merimbula Lake has formalised walking tracks around the top lake (boardwalk), bottom lake (Fishpen and CBD to Spencer Park) and lake entrance (Rotary Park to Bar Beach). Back Lake has informal bush tracks in a large network around both foreshore and tributaries, including Berrambool, Mirador, Tura and Short Point.</p>	<p><u>Responsible:</u> BVSC</p> <p><i>(Merimbula & Back Lake)</i></p>	<p>Low</p>	<p>T7.3 Functionality and use of walking trails</p> <p>T7.4 Lack of Awareness, Education and Participation</p>

Table 3.12: Cross-Cutting Management Response – Community Engagement, Education and Participation

Description of Management Actions	Responsible Organisation	Priority Rating	Management Issues Targeted
<p>Council will identify, evaluate and implement opportunities to further promote walking track usage and improve user experiences, with possible examples including:</p> <ul style="list-style-type: none"> • Improved connectivity and sign positing of Back Lake walking trails, including formalising of some stretches of trails (where appropriate); • Improved promotion and awareness of the various walking trails around both lakes as an integrated recreational activity, including identification of key experiences to be gained from the different walks; • Guided information walks along targeted tracks (linked with R7.2); <p><i>Note: Some work has been completed to improve walking trails during the CMP preparation period including signage of the “Wharf-to-wharf” track network and the installation of the Lake Street walking path.</i></p>			

Table 3.13: Management Actions Outside of Defined Coastal Management Areas (to be delivered externally to the certified CMP Scope)

ID and Description of Management Actions	Responsible Organisation/s (Area of Estuary)	Priority Rating	Management Issues Targeted
<p>R9.1 <u>Maintenance and/or sealing of Millingandi Shortcut Road</u> Add Millingandi Shortcut Road to priority list of Council roads for surface sealing. In the interim, ensure road surface and drainage/sediment control is well maintained.</p>	<p>Responsible: BVSC (Millingandi, Merimbula Lake)</p>	<p>Medium (TBC)</p>	<p>T2.1 Catchment derived sedimentation</p>

3.3 Environment Protection Works within Coastal Wetlands and Littoral Rainforest Areas

Consistent with the mandatory requirements set out in the *Coastal Management Manual* (MR8vi), appropriate planning pathways will be used for any Environment Protection Works (EPW) that are proposed to be completed within areas that are mapped as CWLRA in the Resilience and Hazards SEPP. Management actions that contain EPW in CWLRA within the Merimbula and Back Lake CMP are identified in Table 3.14.

Table 3.14: Environmental Management Actions proposed within CWLR areas	
ID	Summary Description
R1.2	Protect and enhance wetland and riparian vegetation and vegetated corridors on targeted private properties
R1.3a	Rehabilitation of riparian areas and adjacent lower catchment reserves
R2.1b	Rehabilitate powerline easement between Boggy Creek and Merimbula Drive

3.4 Management Response Implementation Plan

This section of the CMP sets out the implementation details for each of the coastal management responses. The implementation plan shown in Table 3.15 for the *Merimbula and Back Lake CMP* has been developed to integrate with Council’s other overarching plans and strategies, and aligns with the resource planning of Council’s IP&R. Also provided in Table 3.15 is an indicative schedule for implementation of management actions across the 10-year CMP implementation period.

The implementation schedule includes an initial six-month CMP inception period to secure resources and staffing, prior to beginning implementation of management actions ‘on the ground’. Beyond this inception period, the CMP activities are generally front-loaded to align implementation of actions with the priority for resolving critical management issues as identified from the MCA.

Table 3.15 includes the following information:

ID and Title of Management Actions: For each management action, this column includes the ID number and title of the management action. The numbering of actions aligns with the more comprehensive description of management responses provided in Table 3.5 to Table 3.12.

Responsible Organisations and Areas of the Estuary: For each management action, this column specifies the lead organisation responsible for implementation, and also identifies any other organisations that will support implementation. Also provided in this column is an indication of the section of lake/catchment that the action will be applied.

Priority Rating: For each management action, this column indicates the priority of the management action (Very High, High, Medium, Low) based on the outcome of the Multi Criteria Assessment contained in Appendix A.

Duration: This column provides an estimation of the duration that will be required for implementation of the management action.

Implementation Timeframe: This column provides an indication of the time window that each action will be implemented within the overall CMP implementation period. Implementation

timeframes are estimated as Short-Term (1 to 2 years), Medium-Term (3 to 5 years), or Long-Term (6-10 years). The timeframes are generally based on the need to implement higher priority management actions earlier within the CMP, though this is not always possible.

Implementation Progress Indicators: This column provides a series of indicators that can be used to track the progress and effectiveness of the implementation of management actions. These indicators will be used within the Monitoring, Evaluation and Reporting of the CMP implementation set out in Section 7.1 of the CMP.

Table 3.15: CMP Implementation Plan and Progress Indicators

ID and Title of Management Action	Responsible Organisation/s	Priority	Duration	Implementation Timeframe	Implementation Progress Indicator/s
R1.1 Review and respond to trends in aquatic habitat change	Responsible: BVSC Supporting: TfNSW, DPIRDFisheries	Low	Awareness activities: 12 months (part time) Eco friendly mooring scheme: 2 years (part time)	Medium term	Subject to final selected actions: 1. Number of moorings replaced with environmentally friendly moorings 2. Number of awareness initiatives completed (signage, flyer, meetings)
R1.2 Protect and enhance wetland and riparian vegetation and vegetated corridors on targeted private properties	Responsible: BVSC Supporting: LLS, DPIRD Fisheries	Low	Initial scoping of opportunities: 6 months Implementation of works: Ongoing	Medium to long term	1. Initial review of opportunities, sites and locations, including landowner consultations; 2. Number of property owners engaged 3. Number of trees planted/length of bank rehabilitated
R1.3a Rehabilitation of riparian areas and adjacent lower catchment reserves	Responsible: BVSC	V. High	Initial intense program: 18 months (part time) Maintenance: Ongoing	Initial intense program: Short term Maintenance: Ongoing through Medium and Long Terms	1. Number of hotspot weed areas addressed; 2. Number of plants added; 3. Number of educational activities held.
R1.3b Merimbula Creek rehabilitation	Responsible: BVSC Supporting: Crown Lands	V. High	Initial works: 18 months	Short term	1. Number of days of weed sweeps; 2. Number of plants added
R1.4 Oyster reef mapping and recovery in Merimbula Lake	Responsible: DPIRD Fisheries, BVSC Supporting: DCCEEW	Low	Mapping: 6 months (part time) Planning, design and permits: 12 months Implementation of project: 3 months	Initial mapping: Medium term Implementation of restoration site: Medium to long term	1. Mapping of potential restoration sites completed 2. Mapping of remnant subtidal Native Flat Oyster reefs completed 3. Number of restoration projects implemented (if suitable)
R1.5 Monitor and mitigate the impact of lake openings on beach-nesting birds	Responsible: BVSC Supporting: NPWS	Medium	Initial review: 2 weeks Overall action: Ongoing	Initial review: Short term Ongoing	1. Review of any impacts or near misses during previous entrance openings;

Table 3.15: CMP Implementation Plan and Progress Indicators

ID and Title of Management Action	Responsible Organisation/s	Priority	Duration	Implementation Timeframe	Implementation Progress Indicator/s
					2. Mitigation actions in Entrance Management Policy are enacted.
R1.6 Ensure the “ <i>Threatened Shorebirds in Bega Valley Shire: Action Plan</i> ” is implemented	Responsible: NPWS, BVSC	High	Ongoing	Ongoing	1. Number of social media posts/media releases; 2. Number of community activities/engagement events held
R2.1a Improvements to requirements, monitoring and compliance of sediment controls for property developments.	Responsible: BVSC	Medium	18 months	Short to medium term	1. Capacity improvements for monitoring and compliance within BVSC are completed; 2. Specialist training program for site managers and developers active. 3. Number of industry educational workshops undertaken
R2.1b Rehabilitate powerline easement between Boggy Creek and Merimbula Drive	Responsible: BVSC, Bega LALC Supporting: Essential Energy	Medium	Initial stakeholder meetings and site planning: 3 months Works to rehabilitate easement: 12 months (part time)	Medium term	1. Work plans developed with stakeholders; 2. Percentage of easement area rehabilitated.
R2.2a Update risk management strategy for sewage contamination	Responsible: NSW Food Authority, BVSC	V. High	6 months	Short term	1. Learnings from sewage risk study incorporated into oyster industry risk management and response plans 2. Learnings from sewage risk study incorporated into Council’s prioritisation for overflow risk reduction works

Table 3.15: CMP Implementation Plan and Progress Indicators

ID and Title of Management Action	Responsible Organisation/s	Priority	Duration	Implementation Timeframe	Implementation Progress Indicator/s
R2.2b Reduce sewer overflow incidents through education and compliance campaign	Responsible: BVSC	V. High	12 months	Short term	<ol style="list-style-type: none"> 1. Number of education and awareness activities completed 2. Reduction in number of overflow incidents
R2.2c Improve understanding of vessel sewage discharge needs and risks	Responsible: BVSC Supporting: TfNSW	Medium	6 months	Medium term	<ol style="list-style-type: none"> 1. Local vessel operators on Merimbula Lake engaged 2. Risk assessment completed
R2.3: Extend 'End-of-pipe' pollutant trap program	Responsible: BVSC Supporting: Oyster farmers	Low	12 months	Short to medium term	<ol style="list-style-type: none"> 1. Additional locations identified 2. Number of stormwater drains with litter traps installed
R3.1: Investigation of physical changes to lake bed in Back Lake	Responsible: BVSC	Medium	1 month	Short term	<ol style="list-style-type: none"> 1. Survey data capture completed; 2. Analysis of bathymetric changes completed.
R4.1: Estuary health data collection program	Responsible: BVSC Supporting: DPIRDFisheries	Medium	Initial estuary health data program: 2 Years (part time)	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)	<ol style="list-style-type: none"> 1. Number of water quality collection rounds; 2. Analysis of aquatic and fringing vegetation communities undertaken; 3. Understanding of estuary health rating updated and based on broad range of indicators.
R5.1: Adaptation planning for low-lying assets	Responsible: BVSC	Low	Prioritisation of assets: 3 months	Medium term	<ol style="list-style-type: none"> 1. Prioritisation of assets completed;

Table 3.15: CMP Implementation Plan and Progress Indicators

ID and Title of Management Action	Responsible Organisation/s	Priority	Duration	Implementation Timeframe	Implementation Progress Indicator/s
			Adaptation planning: 6 months		2. Adaptation planning for BVSC managed assets completed.
R5.2: Develop a CVA and update relevant planning documents	Responsible: BVSC Supporting: DCCEEW	High	18 months	Medium term	1. Proposed Coastal Vulnerability Area mapping updated; 2. Community engagement completed; 3. Planning Proposal lodged; 4. Planning Proposal approved.
R5.3: Review CEA, CUA and CWLRA and adjust mapping (if required)	Responsible: BVSC Supporting: DCCEEW	Low	18 months	Medium term	1. Coastal wetland area mapping updated; 2. Community engagement completed; 3. Planning Proposal lodged; 4. Planning Proposal approved.
R5.4: Coastal erosion management and adaptation planning for Merimbula Main Beach	Responsible: BVSC	High	As needed (rehabilitation after erosion events) 12 months (Ford Park adaptation plan)	Medium to long term	1. Safe access restored after erosion events 2. Recreational assets prioritised and repaired after erosion events 3. Long term plan for Ford Park adaptation completed
R5.5: Dune rehabilitation program	Responsible: BVSC	High	As needed	Ongoing as needed	1. Number of days of weed sweeps; 2. Number of plants; 3. Number of community working bees.
R5.6: Investigation of entrance opening trigger level sustainability (Back Lake)	Responsible: BVSC	Low	6 months	Medium term	1. Procurement of consultant completed; 2. Assessment is complete, and Council will have a clear understanding of the viability

Table 3.15: CMP Implementation Plan and Progress Indicators

ID and Title of Management Action	Responsible Organisation/s	Priority	Duration	Implementation Timeframe	Implementation Progress Indicator/s
					of entrance opening trigger levels into the future.
R5.7: Analysis and mapping of entrance stability and migration	Responsible: BVSC	Low	6 months (if completed with other estuaries)	Long term	1. Lake entrance migration hazard areas mapped.
R6.1a: Replacement of log-key seawall adjacent Spencer Park	Responsible: BVSC	Medium	3 months (planning and design) 2 weeks (installation)	Medium term	1. Seawall upgrade plans confirmed 2. Seawall upgrade complete
R6.1b: Foreshore revegetation at two private property locations, western side of Merimbula Lake	Responsible: BVSC, LLS	Medium	1 month (initial works) 6 months (maintenance)	Medium term	1. Landowners consulted and plans agreed 2. Initial revegetation works installed 3. Rehabilitation of areas maintained
R6.1c: Southern bridge abutment side slope remediation	Responsible: BVSC	High	1 week	Short term	1. Revegetation and signage installed
R6.1d: Improve foreshore protection along Merimbula Creek backing Henwood Street	Responsible: Private land owners	Low	Ongoing	Long term	1. Landowners consulted 2. Advice provided to landowners to repair seawalls 3. Number of seawalls improved
R6.1e: Repairs to the Djiringanj Peoples Walk, below Lake St	Responsible: BVSC	Very High	2 weeks	Short term	1. Plans are developed and works scheduled 2. Track surface repaired
R6.2: Beach nourishment and dune stabilisation at Fishpen, Merimbula Lake	Responsible: BVSC	Low	6 months (design and consultation) 3 months (implementation)	Medium to long term	1. Plans are developed and works scheduled 2. Length of beach/dune rehabilitated
R7.1 Develop and implement maintenance/upgrade plans for recreational assets	Responsible: BVSC	Medium	18 months	Long term	1. Number of key recreational assets with future maintenance planning completed;

Table 3.15: CMP Implementation Plan and Progress Indicators

ID and Title of Management Action	Responsible Organisation/s	Priority	Duration	Implementation Timeframe	Implementation Progress Indicator/s
					2. Funding streams for maintenance activities are identified;
R7.2 Access improvements to Merimbula Lake	Responsible: BVSC	Medium	2 years	Medium to long term	1. Access improvement opportunities are identified 2. Number of access points upgraded
R8.1: Engagement and support to community interest group/s	Responsible: BVSC Supporting: SCWO, Far South Coast Landcare	Low	Ongoing	Medium term	1. Funding distributed for Community Environment Grants; 2. Additional support provided to groups incl. contractor time and materials; 3. Number of community engagement activities/events.
R8.2: Community engagement and information sessions and activities	Responsible: BVSC	Medium	Ongoing	Ongoing	1. Number of community events/engagement activities completed; 2. Number of participants in activities.
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	Ongoing	1. Number of Initiatives designed and agreed; 2. Number of initiatives/activities completed.
R8.4: Maintain and update interpretive signage	Responsible: BVSC Supporting: LALCs, DCCEEW Heritage	Low	Ongoing as-needed	Medium term	1. Review of existing signage completed; 2. Collation of information and design of signage complete; 3. Number of new/updated signage installed
R8.5: Citizen science initiatives	Responsible: BVSC	Low	Ongoing as-needed	Medium to long term	1. Number of Initiatives identified;

Table 3.15: CMP Implementation Plan and Progress Indicators

ID and Title of Management Action	Responsible Organisation/s	Priority	Duration	Implementation Timeframe	Implementation Progress Indicator/s
					2. Number of initiatives/activities completed.
R8.6: Integration and promotion of walking tracks	Responsible: BVSC	Low	18 months	Long term	1. Opportunities identified and evaluated. 2. Number of promotion and awareness initiatives/activities completed.