

SHOALHAVEN CITY COUNCIL

St Georges Basin/Sussex Inlet, Swan Lake and Berrara Creek Coastal Management Program

CMP Stage 3 - Identify and Evaluate Options

Document no. Rev 0: 311015-00158-CS-REP-007_Rev0 Stage 3 Summary Document



21 October 2024

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Synopsis

This report is the Summary Report for Stage 3 of the St Georges Basin/Sussex Inlet, Swan Lake and Berrara Creek Coastal Management Program. It documents the development and assessment of management actions for the CMP and stakeholder engagement undertaken to inform the development of the management actions.

Disclaimer

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Cover Image: Drone imagery of the entrance to St Georges Basin at Sussex Inlet


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PROJECT 311015-00158 - 311015-00158-CS-REP-007_Rev0 Stage 3 Summary Document: St Georges Basin/Sussex Inlet, Swan Lake and Berrara Creek Coastal Management Program - CMP Stage 3 - Identify and Evaluate Options

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Acknowledgement of Country

Worley acknowledges and pays respect to the past, present, and future Traditional Custodians of Country throughout Australia and extends this acknowledgement and respect to First peoples in all countries in which we operate. In Australia, it is Aboriginal and Torres Strait Islander peoples who have cared for and sustained this land, its animals, plants, and waters for more than 60,000 years. We recognize the continuation and importance of cultural, spiritual, and educational practices of Aboriginal and Torres Strait Islander peoples. Artwork by artist, Marlie Albert for Worley.

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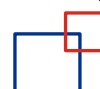


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1. Introduction

1.1 Introduction

Shoalhaven City Council (Council), with the assistance of the NSW Government, is developing a Coastal Management Program (CMP) for Sussex Inlet, St Georges Basin, Swan Lake and Berrara Creek. A CMP is a long-term strategy for managing the coastal regions in the face of future climate risks and will provide the framework and strategy that will be used to manage these estuaries.

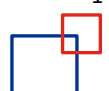
The study area for the CMPs includes the Sussex Inlet and St Georges Basin, Swan Lake and Berrara Creek estuaries and the land bounded by the coastal management areas within part of the coastal zone as defined in the New South Wales (NSW) *State Environment Planning Policy (Resilience and Hazards) 2021* (RH SEPP) and the *NSW Coastal Management Act 2016* (CM Act).

The CMP aims to ensure the integrated and effective management of the coastal zone, considering environmental, social, and economic factors. Specifically, the CMP is a plan of management for Council, Public Authorities and land managers responsible for management of the coastal zone to:

- address coastal hazard risks.
- preserve cultural use and habitats.
- encourage sustainable development in the coastal zone (agricultural, economic and built).
- maintain and improve recreational amenity; and,
- adapt to emerging issues.

As per the process described in the NSW Coastal Management Manual (NSW Office of Environment and Heritage, 2018), the CMP procedure is divided into five stages (Figure 1-1). Stage 1 of the CMP (Advisian, 2020) included a review of relevant background information, a first pass risk assessment, data gap analysis and proposed a forward program for the CMP. Stage 2 (Advisian, 2023) provided a synthesis of the studies undertaken for Stage 2 of the CMP and assessed Aboriginal and non-Aboriginal heritage, foreshore erosion, ecological values, tidal and coastal inundation and boating issues throughout the estuaries. The first pass Risk Assessment carried out as part of the Stage 1 Scoping Study was updated with a detailed Risk Assessment undertaken based on the outcomes of the Stage 2 studies (Advisian, 2023). This identified key risks and opportunities for managing these risks within the estuaries under current conditions and at 20, 50 and 100 year timeframes, considering the potential impacts of climate change and sea level rise. Stage 3 of the process, the subject of this report, involves the identification and evaluation of management actions based on the information gleaned in the previous two stages. This includes:

- identifying and collating information on management options
- evaluating management actions, considering:
 - feasibility (is it an effective and sustainable way to treat the risks?)
 - viability (economic assessment) and
 - acceptability to stakeholders.



- engaging public authorities about implications for their assets and responsibilities
- evaluating mapping options and implication if a planning proposal is being prepared
- identifying pathways and timing of actions, and
- preparing a business plan for implementation.

This report has been prepared to achieve the requirements as outlined in the NSW Coastal Management Framework and satisfy Stage 3 of the CMP process.

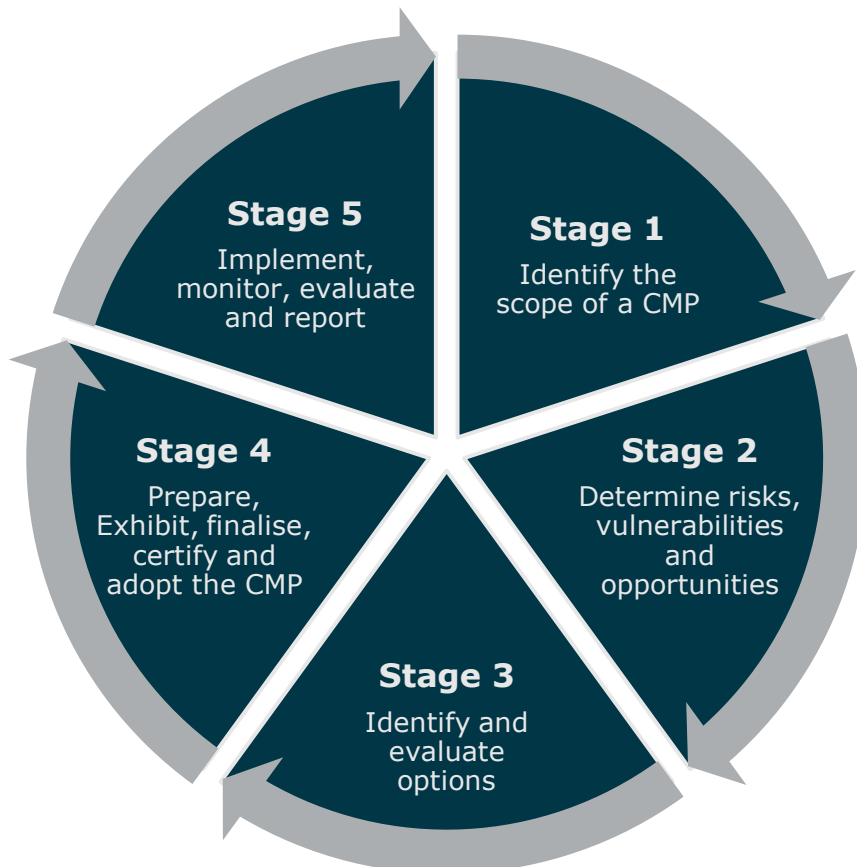
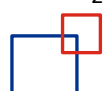


Figure 1-1: Stages in Preparing and Implementing a CMP

1.2 Stage 3 Method and Steps

Stage 3 involves identifying and evaluating management options to select preferred coastal management actions with a focus on achieving the objectives of the CM Act. As per the NSW Coastal Management Manual, there are four main steps in completing Stage 3 of the CMP process (Figure 1-2).



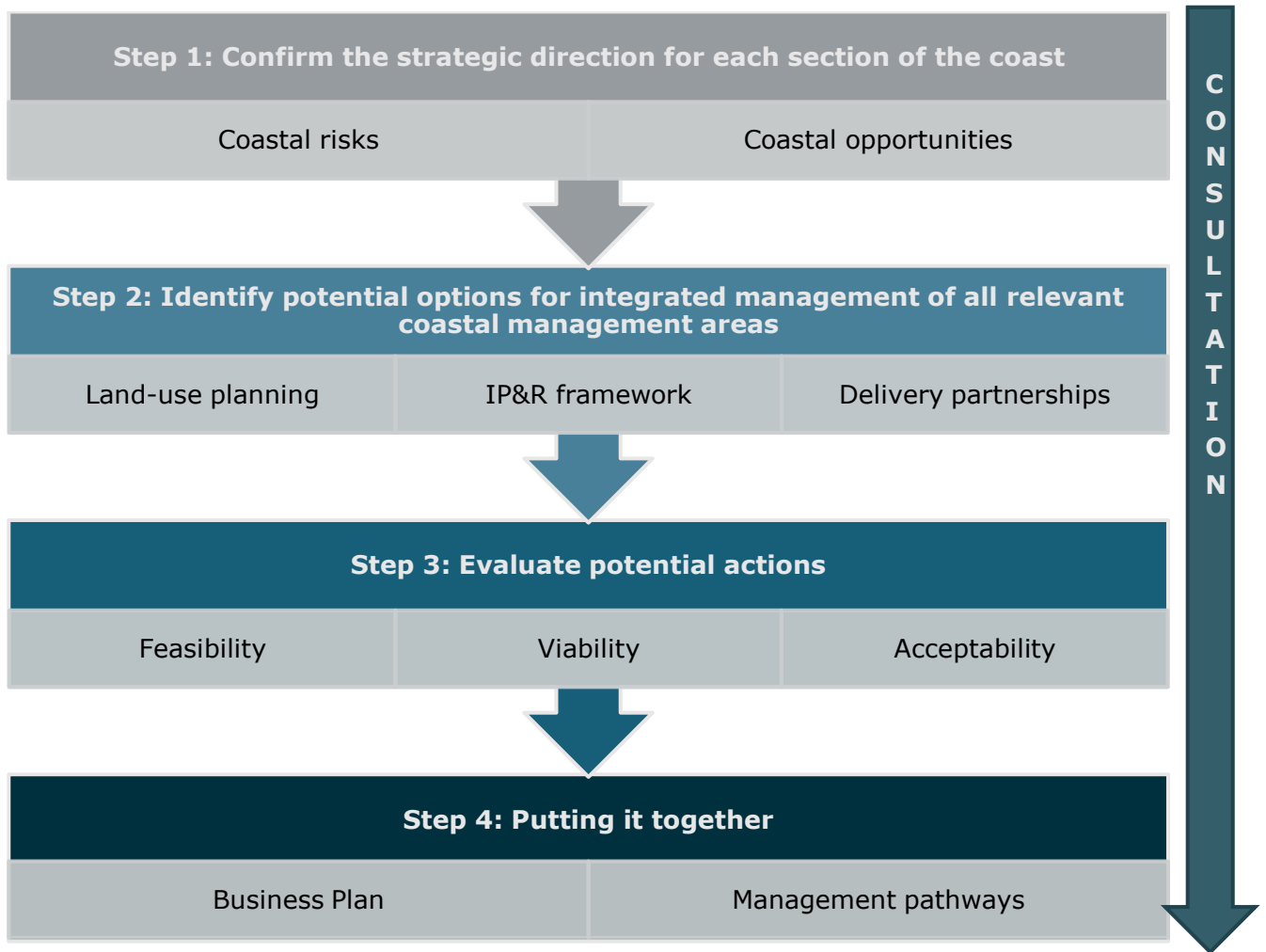


Figure 1-2: Four Main Steps in action identification and evaluation

Council has, and continues, to undertake a range of community engagement and consultation activities as part of developing the CMP, including further engagement undertaken as part of Stage 3.

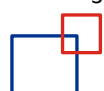
1.3 Report Structure

The report has been structured as per the below.

- Section 2 provides an overview of the outcomes from Stages 1 and 2 in order to provide context for this body of work
- Section 3 – provides detail on the community and stakeholder engagement that has been undertaken prior and during Stage 3
- Sections 4 through to 6 provide a summary of the steps 1 to 4 as shown in Figure 1-2.

1.4 Study Area

The study area for the CMPs includes the Sussex Inlet and St Georges Basin, Swan Lake and Berrara Creek estuaries and the land bounded by the Coastal Management Areas within the coastal zone as defined in the RH SEPP and the CM Act.

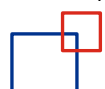


The study area covering the CMPs for St Georges Basin/Sussex Inlet, Swan Lake and Berrara Creek is shown in Figure 1-3.

The CM Act sets out mandatory requirements for the preparation of a CMP. Under S13 (b) of the CM Act, the CMP must “consider and promote the objects of (the) Act” and “give effect to the management objectives for the coastal management areas covered by the program”. The RH SEPP commenced on 1 March 2022. It supports implementation of the management objectives set out in the NSW CM Act. The hierarchy of coastal management areas as referred to in the CM Act and RH SEPP (Resilience and Hazards) are identified below, from highest to lowest priority:

- **coastal wetland and littoral rainforest area (CWLRA)** - areas which display the characteristics of coastal wetlands or littoral rainforests. Development controls for the mapped CWLRA aim to continue existing protection for these important ecological communities. Note that there are no mapped littoral rainforest areas within the CMP study areas. Areas within a 100 m buffer zone bordering coastal wetlands are mapped within the RH SEPP as Coastal Wetland Proximity Areas.
- **coastal vulnerability area (CVA)** - areas subject to coastal hazards such as coastal erosion and tidal inundation. Development controls for the CVA are concerned with managing risk to human life, infrastructure, and public and private property that may be impacted by coastal hazards and ensuring that legacy issues are not created for future generations to deal with. Note that the CVA for the estuaries within the study area is yet to be determined.
- **coastal environment area (CEA)** - areas that are characterised by natural coastal features such as beaches, rock platforms, coastal lakes and lagoons and undeveloped headlands. Marine and estuarine waters are also included. Development controls for the CEA aim to protect and improve natural coastal features, coastal waters and environmental values for places such as beaches, dunes, surf zone and undeveloped headlands.
- **coastal use area (CUA)** - land adjacent to coastal waters, estuaries and coastal lakes and lagoons where impacts of development on the use and enjoyment of the beaches, foreshores, dunes, estuaries, coastal lakes and lagoons, and the ocean, need to be considered. Development controls for CUA are concerned with ensuring appropriate urban development for coastal areas, considering urban design issues such as the bulk, scale and size of proposed development, water sensitive urban design, and preventing adverse impacts on scenic qualities, visual amenity and Aboriginal cultural heritage.

Each of the above areas has outcome-oriented management objectives so that councils can apply appropriate management tools and development controls.



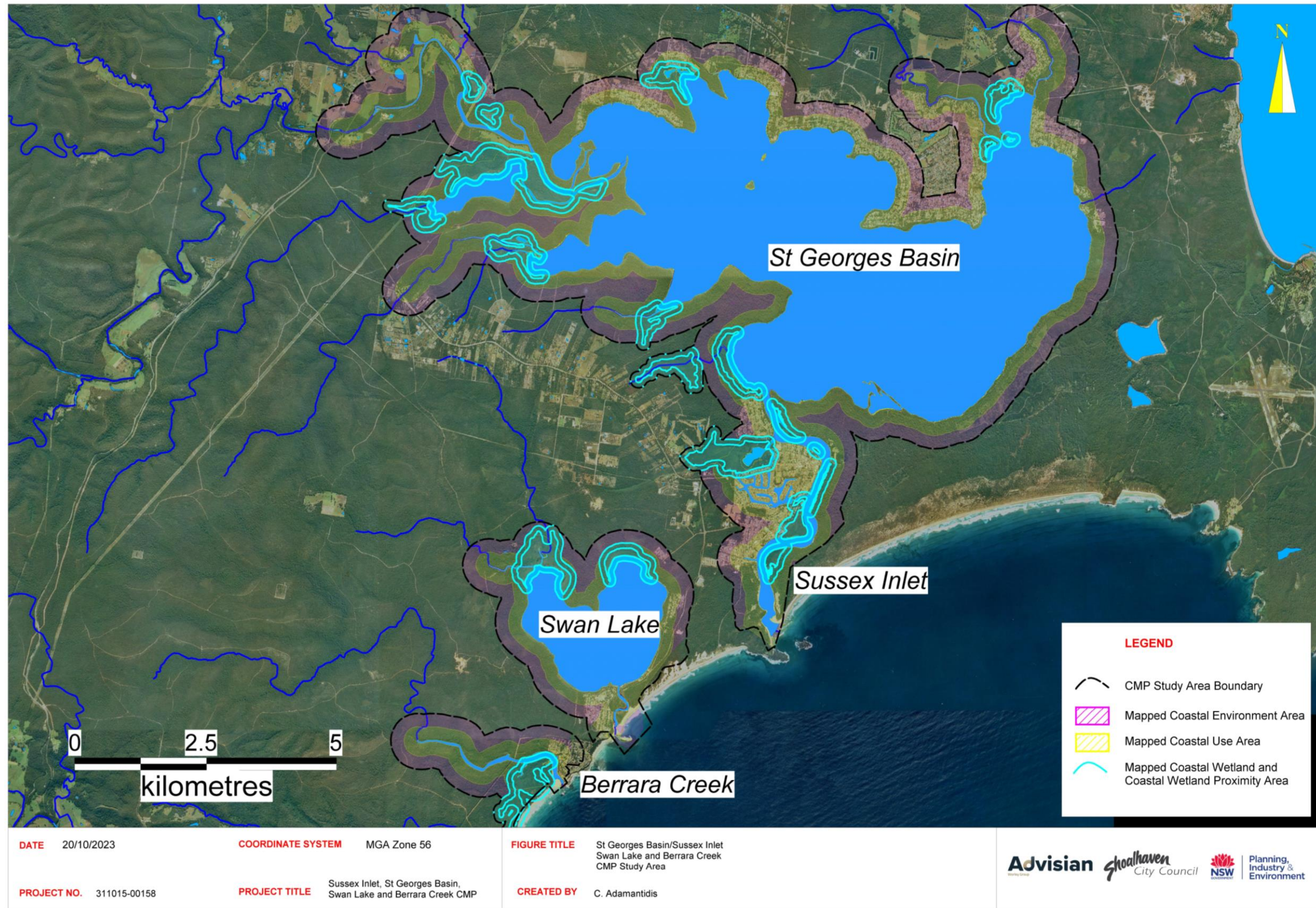
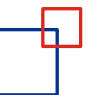


Figure 1-3: Study area for St Georges Basin/Sussex Inlet, Swan Lake and Berrara Creek CMPs



2. Works to Date

2.1 Background

The key issues for the St Georges Basin/Sussex Inlet, Swan Lake and Berrara Creek estuaries have been identified through Stages 1 and 2 of the CMP process. Many of the proposed actions from the St Georges Basin Estuary Management Plan (Shoalhaven City Council, 2013), the Swan Lake and Berrara Creek Natural Resources Management Strategy (Shoalhaven City Council, 2002) and the Swan Lake Entrance Management Policy (Peter Spurway and Associates, 2002) have either been implemented, or are no longer current and require review. Some of these issues remain relevant today, whereas others have been addressed or are in the process of being addressed.

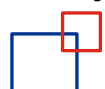
The Scoping Study (Advisian, 2020) documented a First Pass Risk Assessment to assist with identifying key management issues and threats requiring further assessment during Stage 2 of the development of the CMP for the Shoalhaven open coast and estuaries. The Scoping Study documented the risk assessment and provided commentary on the existing levels of risk, identifying the issues of highest risk for the Shoalhaven estuaries and coastal zone. It also documented the environmental and physical context of the St Georges Basin/Sussex Inlet, Swan Lake and Berrara Creek estuaries.

The key risks and challenges identified from the first pass risk assessment carried out for the Shoalhaven CMP Scoping Study related to:

- Poor water quality from industrial, agricultural, or urban runoff affecting the estuary ecology and estuarine vegetation
- Coastal inundation, emergency management and the management of estuary entrances to reduce flood risk
- Tidal inundation of foreshore private and public assets from climate change and sea level rise
- Poor access or insufficient facilities for navigation and recreational boating
- Conflict between users of the waterways e.g., powered, and non-powered craft and swimmers
- Bank erosion and siltation caused by unrestricted access to foreshores by cattle, changes to estuary tidal regimes and boat wash
- Spread of weeds caused by agricultural and urban runoff
- Damage to estuarine vegetation leading to loss of habitat for fish and degradation of estuarine ecology, caused by changes to tidal regimes, clearing or boating activity, or deliberate damage of foreshore vegetation to improve views
- Threat to threatened species including waders and shorebirds from feral animals, loss of habitat due to damage to marine vegetation, sea level rise and unrestricted access

The Stage 2 supporting studies provided an in-depth assessment of the following, for each of the three estuaries in the study area:

- Aboriginal and non-Aboriginal Heritage



- Social and economic characteristics and a summary of social values and issues at each estuary
- Field based assessments of erosion and foreshore issues
- Ecological values of the estuaries
- A review of the existing Swan Lake Estuary Entrance Management Policy
- Water Quality and Environmental Health Study of the estuaries, including identification of opportunities for urban runoff treatment
- Tidal and Coastal Inundation, through hydrodynamic modelling
- Boating and navigation/safety issues.

These studies have been summarised within the Stage 2 Synthesis report (Advisian, 2023), together with the study outcomes. The detailed methodology and outcomes can be found in the separate suite of Stage 2 Study Reports that accompany the CMP.

The outcome of these studies, as well as the community and Agency engagement that has been carried out throughout the project, has enabled the key issues at each estuary to be identified and risks quantified through a separate Detailed Risk Assessment.

The Risk Assessment categorises the main risks for the Sussex Inlet/St Georges Basin, Swan Lake and Berrara Creek estuaries in terms of the Coastal Management Areas as referred to in the CM Act and RH SEPP, detailed in Section 1.4.

The Detailed Risk Assessment builds upon the first-pass risk assessment undertaken for the estuary as part of the Stage 1 Scoping Study (Advisian, 2020), by identifying key issues and risks in greater detail.

From the Risk Assessment (Advisian, 2023a) and the outcome of the individual studies, a suite of potential management actions has been developed and categorised in terms of the issues and particular locations which they relate to.

2.2 Factors considered in developing management actions

A number of factors are relevant for assessment and inclusion of management actions within the CMP. These include:

- The importance of having well defined and articulated actions in the implementation table, as action wording that is not clear can be interpreted in different ways
- Implementation actions need to clearly tie in with the objectives of the CMP, be realistic and achievable within the life of the program
- There are examples of existing CMPs and historic CZMPs having a very high number of management actions, some of which are considered idealistic, unable to be achieved within the timeframe and / or program funding. Implementation of a robust action review and vetting process is considered important. Multiple actions have been merged where these are similar, address the same risk or can be managed within the context of a single grant project.
- The level of risk assigned to the issue that each action is addressing through the CMP Detailed Risk Assessment, and the effectiveness of each action in reducing the risk
- Timeframes for implementation and planning of the actions, as well as the evolving risk profile over the timeframe of implementation of the actions



- In addition to a table of general actions for the whole area covered by the CMP, each location will benefit from a separate table of specific actions where actions are relevant to specific locations within the CMP study area
- Coastal hazard mapping did not exist prior to Stage 2 of the CMP, and there is currently no Coastal Vulnerability Area mapped by the RH SEPP. Stage 2 has delivered an assessment of the coastal hazards affecting the estuaries, particularly coastal and tidal inundation which have been considered in developing the management actions
- Recognising the uncertainty of funding from external sources actions for significant/major work, implementation of the CMP is subject to Council receiving financial assistance from the State Government or other sources
- Cost estimates for actions (especially medium and long term actions) need to incorporate Consumer Price Index (CPI) rates, and would be subject to Council's available budget and resources.

2.3 Community and Stakeholder Engagement

The management actions have also been informed by a series of community consultation activities throughout Stage 1, 2 and 3 of the CMP process.

Stage 1 consultation was documented in the Scoping Study and included a series of community workshops covering the entire Shoalhaven coastline, including a workshop and drop-in session that focused on St Georges Basin/Sussex Inlet.

As a part of its engagement activities for CMP Stage 2, Advisian (now trading as Worley Consulting) held two engagement workshops and drop-in sessions on 15th and 16th March 2022. The purpose of these sessions were to discuss and gain further community insight into:

- Key issues affecting the environmental, social, cultural, and economic values of St. Georges Basin, Sussex Inlet, Berrara Creek, and Swan Lake
- Ideas and opportunities to manage identified issues or to enhance the local area.

An online survey using the "Place Tool" platform hosted on Council's Get Involved page was undertaken during the period covering the workshops, between March and May 2022. Community members were able to pin locations of key management issues and provide suggested actions. Over 120 suggestions and issues were received from the community during Stage 2.

Further stakeholder engagement activities during Stage 2 included a workshop with Council asset managers in June 2022, and an additional workshop held in July 2022 specifically for Government Agency stakeholders. The aim of this workshop was to understand the perspective of Agencies on the risks to the three estuaries, understand if there are any new risks that had not been covered from the previous discussions and engagement sessions, and explore the most appropriate ways that the risks can be mitigated.

Following the Stage 2 engagement activities, online consultation for Stage 3 was undertaken through Council's Get Involved page in June-July 2023 (**Appendix A**) which included:

- Publishing a list of estuary-wide and location-specific potential management actions via a clickable online map with an opportunity for the community to provide comment on each
- An online survey for the community to provide comment

- Developing a “Closing the Loop” consultation document that outlined the issues raised during Stage 2, and how they have been considered in formulating the potential management actions during Stage 3.

The feedback received during the Stage 3 consultation activities has been considered in refining and updating the list of potential management actions presented in this report.

A detailed description of the community and stakeholder engagement undertaken for Stage 3 is presented in Section 3.



3. Stage 3 Community and Stakeholder Engagement

3.1 Overview

Council has undertaken extensive community and stakeholder engagement regarding the open coast and many of the estuaries under Council management as a part of the preparation of numerous strategies and plans. This includes the Open Coast and Jervis Bay Coastal Management Program, Estuary Management Plans, Natural Resources Management Strategies and Entrance Management Policies for the estuaries with the LGA. A detailed summary of this community engagement is provided in the Shoalhaven CMP Scoping Study- Stakeholder and Community Engagement Strategy, May 2020.

Council have undertaken extensive community and stakeholder engagement throughout Stage 1, 2 and 3 of the CMP process which have informed the management actions presented in this report. The engagement activities undertaken for Stage 3 are detailed below.

3.2 Stage 3 Engagement Methods and Outcomes

During Stage 3, the engagement process aimed to inform, engage and obtain input from stakeholders and the wider community on coastal management actions and their viability and acceptability.

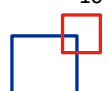
A list of Potential Management Actions was developed and posted on the Council's Get Involved Page in from 15 June to 31 July 2023 to allow the community to provide feedback and suggestions on the potential management actions. The following activities were included in the consultation for Stage 3:

- Publishing a list of estuary-wide and location-specific potential management actions via a clickable online map with an opportunity for the community to provide comment on each
- An online survey for the community to provide comment
- Developing a "Closing the Loop" consultation document that outlined each of the issues raised during the Stage 2 community engagement, and how they have been considered in formulating the potential management actions during Stage 3.

The feedback received during the Stage 3 consultation activities has been used to refine and update the list of potential management actions presented in this report.

Comments were received from the community on the potential management actions, with community members indicating whether or not they supported the proposed action. The level of engagement in the local area was high, with the following summary recorded for the participants in the Stage 3 engagement:

- Total survey participants: 83
- Total page visits: 680
- 94.2% of respondents indicated that they were not responding on behalf of an organisation i.e. they were responding on behalf of themselves as community members
- 72 respondents (87%) were residents near one of the estuaries.



- 33.7% of respondents were in the 60 to 69 age group.
- 88.4% of respondents indicated that they want to stay informed.

Direct feedback on the potential management actions was also received by the project team from a number of stakeholders. In general, there was support for most of the management actions, but various suggestions were received from community members on how to improve these, and there were also some management actions that were not strongly supported.

There was a total of 174 potential management actions that were canvassed in the survey. Results from the survey are summarised in Figure 3-1. Of the potential management actions:

- Direct comments were received on 152 out of 174 potential actions (87%)
- 122 of the 174 potential actions received full support (70%)
- 12 actions received between 51% and 99% support (7%)
- 17 actions received 50% or less support (10%)

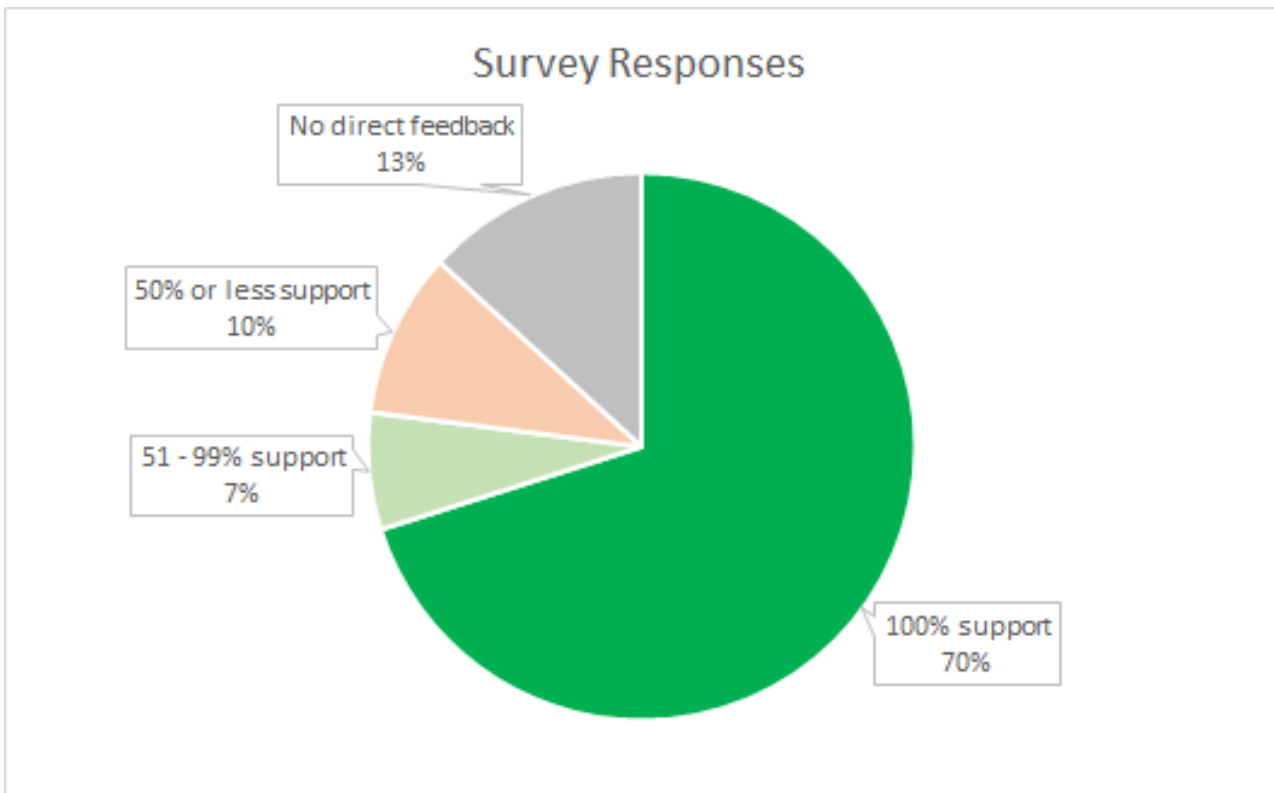


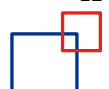
Figure 3-1. Summary of survey responses indicating level of support for potential management actions

In addition, State Government Agencies were provided with the list of draft management actions, and comments were received by the Project Team which allowed the list of actions to be further refined. Following feedback from this consultation, some of the actions were consolidated into single actions, or modified for consistency with the other CMPs currently being developed in the Shoalhaven and to reduce duplication with existing management programs which are administered outside of the NSW Coastal Management Framework (refer Appendix B for the updated list of management actions).

The community consultation materials for Stage 3 together with feedback received on individual management actions, and a statement as to whether the action has been carried forward into Stage 4 of the CMP are provided in Appendix A.

Following the survey and feedback received from the Agency stakeholders:

- 69 actions (30 estuary-wide and 39 location-specific) were retained and directly brought forward to Stage 4 of the CMP
- Four actions scored poorly in their detailed assessment (in Section 6 of this report) and have not been carried through to Stage 4 of the CMP
- 79 former actions were consolidated into the 69 actions to be carried through to Stage 4 of the CMP
- One action was did not proceed because it has already been implemented
- 21 actions were did not proceed because of low support, or because their implementation falls outside the scope of the CMP.



4. Stage 3 – Step 1: Confirm Strategic Direction

4.1 Overview

As detailed in the Coastal Management Manual, a local vision statement that is consistent with the State’s vision while reflecting the local context will assist communities to identify with their coast, encourage a sense of community ownership of the actions in the CMP and foster commitment to its preparation and implementation.

During Stage 1 of the CMP (Advisian, 2020), Council developed a purpose, vision and objectives for the program. The vision and purpose are crucial in defining the strategic objectives. The strategic objectives then enable the establishment of specific more detailed objectives that provide a clear path towards fulfilling the strategic objectives.

4.2 Vision

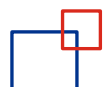
The Vision for the St Georges Basin/Sussex Inlet, Swan Lake and Berrara Creek CMP has been defined by Council during Stage 1 to be:

Vision: *We care for and protect the coast in a responsible manner so that current & future generations continue to be refreshed & inspired by their coastal experience.*

4.3 Purpose

Aligned with the purpose of CMPs as set out by the CM Act, the purpose of the St Georges Basin/Sussex Inlet, Swan Lake and Berrara Creek CMP, as detailed in the Stage 1 Scoping Study, is to :

Purpose: *to develop a plan for the future management of the Shoalhaven’s open coast and its estuaries in a manner consistent with the principles of ecologically sustainable development for the social, cultural and economic well-being of the people of the Shoalhaven.*



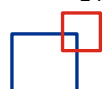
4.4 Objectives

The strategic objectives of the St Georges Basin/Sussex Inlet, Swan Lake and Berrara Creek CMP (together with all the CMPs in the Shoalhaven as defined in the Scoping Study) are to:

- Give effect to all relevant **NSW legislation and policy**, as applied to the coastal zone, in the Shoalhaven context
- Manage all coastal systems in an **integrated manner that recognises the links** between catchment, lake, estuary and open coast processes
- Manage the coastal zone **adaptively**, with a clear process for **modifying management approaches** as new knowledge becomes available
- Invest in effective and efficient strategies to achieve **positive natural, social, cultural and economic outcomes** within Council's responsibilities
- Take **coastal hazards** into account in Council's **land use planning**
- Maintain **natural systems and processes** to improve the **health and diversity** of natural systems
- Support the **social and economic wellbeing** of local **communities** by **maintaining safe access** to beaches and headlands and supporting recreational activities
- **Align** the Coastal Management Program with Local Environment Plan 2014, Development Control Plan 2014 and Integrated Strategic Plan
- **Engage with the community** in the review and preparation of coastal management programs
- Keep the **community informed** about coastal processes and management responses.

The following Specific Objectives of the CMP for the Shoalhaven have been adopted, based on the objects of the CM Act:

- to **protect** and enhance natural **coastal processes** and **coastal environmental values** including natural character, scenic value, biological diversity and ecosystem integrity and resilience,
- to support the **social and cultural values** of the coastal zone and maintain public access, amenity, use and safety,
- to **acknowledge and protect Aboriginal peoples'** spiritual, social, customary and economic use of the coastal zone, and
- to recognise the coastal zone as a vital **economic** zone and support sustainable coastal economies,
- to facilitate **ecologically sustainable development** in the coastal zone and promote sustainable land use planning decision-making,
- to **mitigate current and future risks** from coastal hazards, taking into account the effects of **climate change**,



- to recognise that the **local and regional scale** effects of coastal processes and the inherently ambulatory and dynamic nature of the shoreline may result in the loss of coastal land to the sea (including estuaries and other arms of the sea), and to **manage coastal use and development** accordingly,
- to promote **integrated** and co-ordinated coastal planning, management, reporting and response,
- to encourage and promote plans and strategies to improve the **resilience** of coastal **natural and built assets** to the impacts of an uncertain climate future including impacts of extreme storm events,
- to ensure **co-ordination** of the policies and activities of government and public authorities relating to the coastal zone and to facilitate the proper integration of their management activities,
- to support **public participation** in coastal management and planning and greater public **awareness, education** and **understanding** of coastal processes and management actions,
- to facilitate the **identification of land** in the coastal zone for acquisition by public or local authorities in order to promote the protection, enhancement, maintenance and restoration of the environment of the coastal zone, and
- to support the objects of the *Marine Estate Management Act 2014*.

Under the CM Act, the objectives and management actions developed as part of the CMP are required to be strategically aligned with the objectives and strategies outlined in the Community Strategic Plan.

In addition, the CM Act 14 (3) states that in preparing a coastal management program, a local council must—

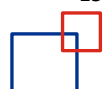
- (a) consider and promote the objects of this Act, and
- (b) give effect to the management objectives for the coastal management areas covered by the program, and
- (c) consider the State and regional policies and plans prescribed by the regulations for the purposes of this section.

Specifically, the Specific Objectives of the CMP listed above were developed to align with the objects of the CM Act, which include:

(a) to protect and enhance natural coastal processes and coastal environmental values including natural character, scenic value, biological diversity and ecosystem integrity and resilience

(b) to support the social and cultural values of the coastal zone and maintain public access, amenity, use and safety

(c) to acknowledge Aboriginal peoples' spiritual, social, customary and economic use of the coastal zone



(d) to recognise the coastal zone as a vital economic zone and to support sustainable coastal economies

(e) to facilitate ecologically sustainable development in the coastal zone and promote sustainable land use planning decision-making

(f) to mitigate current and future risks from coastal hazards, taking into account the effects of climate change

(g) to recognise that the local and regional scale effects of coastal processes, and the inherently ambulatory and dynamic nature of the shoreline, may result in the loss of coastal land to the sea (including estuaries and other arms of the sea), and to manage coastal use and development accordingly

(h) to promote integrated and co-ordinated coastal planning, management and reporting

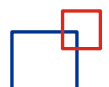
(i) to encourage and promote plans and strategies to improve the resilience of coastal assets to the impacts of an uncertain climate future including impacts of extreme storm events

(j) to ensure coordination of the policies and activities of government and public authorities relating to the coastal zone and to facilitate the proper integration of their management activities

(k) to support public participation in coastal management and planning and greater public awareness, education and understanding of coastal processes and management actions

(l) to facilitate the identification of land in the coastal zone for acquisition by public or local authorities to promote the protection, enhancement, maintenance and restoration of the environment of the coastal zone

(m) to support the objects of the Marine Estate Management Act 2014



5. Stage 3 – Step 2: Management Option Identification

5.1 Overview

As detailed in the CMP process, Stage 2 comprises identifying coastal management issues affecting the areas to which the CMP is to apply, while Stage 3 comprises identifying the coastal management actions required to address those issues in an integrated and strategic manner.

During Stage 2 and subsequently this stage, Council identified the coastal management issues, including undertaking an analysis of risks, vulnerabilities, and opportunities in the local area. This was documented in the Stage 2 Risk Assessment report and Risk Register (Advisian, 2023a).

There are five overarching strategies, as detailed in the NSW Coastal Management Manual, relevant to different levels of risk and attitudes to risk. The management options can be organised into the five broad strategies as depicted in Figure 5-1.



Figure 5-1: Five Strategic Approaches for Coastal Management

Management actions fall under the overarching strategies above and within the following risk categories or themes (Figure 5-2) as assigned during Stage 2.



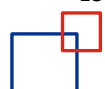
Figure 5-2: Risk Categories/Management Areas Adopted for the St Georges Basin/Sussex Inlet, Swan Lake and Berrara Creek CMP

The identification of management options has been undertaken with consideration of the strategic approaches to risk detailed in Figure 5-1 and Figure 5-2. In addition, the following strategic outcomes aligned with the objectives of the CM Act have been considered in developing the management options:

- Community and Stakeholder Engagement
- Protecting, restoring and enhancing the natural environment of the estuaries
- Protecting, enhancing and restoring the cultural heritage of the estuaries
- Research and collaboration
- Mitigation and adaptation to current and future risks (including asset management)
- Emergency planning and response
- Recognising the coastal zone as a vital economic zone.

5.2 Option Identification

During Stage 2, in-depth studies were undertaken to explore the key issues and risks. These were documented in individual Stage 2 study reports, together with potential management



actions to address these issues, which are summarised in the Stage 2 Synthesis Report (Advisian, 2023).

With the risks, potential mitigation measures and strategies taken into consideration, along with the Stage 3 Community and Stakeholder engagement outcomes, an initial list of potential management actions was compiled for Stage 3 consultation based on the following:

- Incomplete management actions from previous estuary management plans
- Community, agency and Council feedback from Stage 2 consultation
- Recommendations from Stage 2 studies and risk assessments
- Similar actions being developed for other CMPs, including some within the Shoalhaven

This initial list of potential actions was consulted with the community (refer to Appendix A). These were then further refined including combining and modifying the wording of options as detailed in Appendix A. Once refined, this list of actions was scored and assessed as detailed in Section 6.

The management options were developed to address overall estuary-wide issues common to all three estuaries, and then more specific options for individual locations.

6. Stage 3 – Step 3: Options Assessment

6.1 Overview

Following on from the identification of management options, the options needed to be assessed and subsequently prioritised. This assessment was completed to ensure the final Stage 4 program of management options are appropriate, achievable, and meet the objectives of the CM Act. A Multi Criteria Analysis (MCA) was implemented based on evaluating the feasibility, viability and acceptability of each potential action as depicted in Figure 6-1.

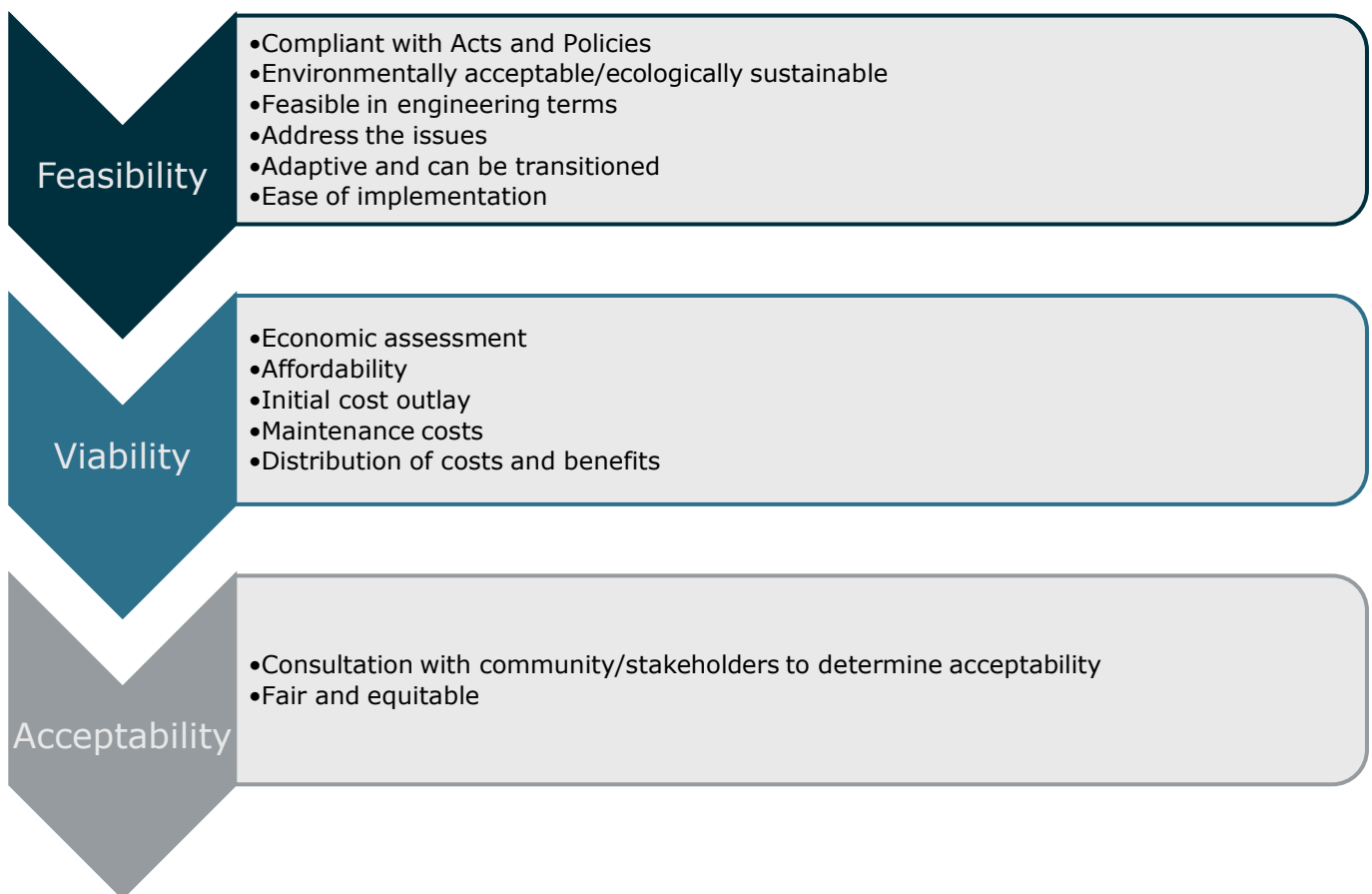


Figure 6-1: Criteria in Evaluating Management Options

6.2 Multi Criteria Analysis (MCA)

A detailed Multi Criteria Analysis (MCA) was undertaken across a broad range of evaluation criteria to assess the feasibility, viability and acceptability of the options as required by the Manual. In evaluating each of the identified options, the criteria based on Figure 6-1 were scored and weighted against the relative importance of each, with a higher overall weighted score representing a more favourable management option. The criteria, definitions and methods for scoring options is shown in Table 6-2. This process was used to rank the options and determine those actions suitable to progress to Stage 4. Table 6-2 provides details of the criteria and definitions for scoring options. A score of 0 automatically ruled out the action from further consideration. The outcomes from the Stage 3 consultation detailed in Appendix A

outlines those actions which have subsequently not been taken forward to Stage 4 of the CMP due to factors including lack of support from Agency and community stakeholders

The evaluation process was developed in conjunction with the Project Team which included expert representatives from Council and DCCEEW, with definitions, scores and weightings assigned, reviewed and agreed by all members of the Team.

6.2.1 Feasibility

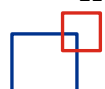
As per the details provided in the NSW Coastal Management Manual, feasible coastal management actions are those which:

- are consistent with the objectives of the CM Act
- comply with statutory and policy requirements
- are environmentally acceptable and consistent with the principles of Ecologically Sustainable Development (ESD)
- are feasible in engineering terms i.e. can realistically be built
- can address identified issues
- are adaptive and can transition to alternative approaches
- are broadly able to be implemented
- are likely to contribute new knowledge about effective management.

The feasibility assessment has considered both social and environmental aspects as shown in Table 6-2 .

Feasibility scores were assigned against the following criteria:

- Impact on Safety – does the action improve safety?
- Approvals, Statutory and Policy Compliance - Is the action legal? Is it a "no-regrets" action or will it be complex to implement? Is it consistent with statutory approvals and current policy settings? Is it consistent with the objects of the CM Act?
- Impact on coastal and estuarine processes – will the action enhance or disrupt the natural coastal and estuarine processes?
- Overall environmental benefit and ecological impact – will the action have an overall environmental benefit? Will the action improve the resilience of the Coastal Wetland Area, Coastal Environment Area? Is it ecologically sustainable? This criterion was given a weighting of 2 to reflect its importance in defining the management action.
- Effectiveness of Option - How effective is the action in reducing the risk or managing the issue? From the Stage 2 Risk assessment, would the action address the risk? e.g. would it reduce coastal risk/vulnerability? How well would the risk be addressed by the action? This criterion was given a weighting of 2 to reflect its importance in defining the management action.
- Scores for each individual option were added and multiplied by their weighting to derive an overall MCA score for each option.



Actions that were deemed to fail any of the above criteria were assigned a score of zero, which precluded them from being carried through to Stage 4.

6.2.2 Viability

The viability assessment was completed to identify the cost (implementation and maintenance) for the options being assessed. The scope and level of detail of the economic assessment was proportionate to the nature and scale of the coastal issues. From the Coastal Management Manual, Figure 6-2 provides guidance on the method used for selecting the appropriate level of economic assessment.

Coastal management actions operating over long timeframes with potentially larger direct and indirect costs/benefits may warrant a CBA to determine whether the benefits outweigh the costs. However, CBA is not considered warranted for the actions proposed in this CMP given no actions are anticipated to have a capital cost greater than \$5million, and as limited information is available at this stage to be able to accurately quantify tangible benefits to inform a detailed assessment.

The primary purpose of the viability assessment was to determine:

- the cost of the option
- the distribution of costs and benefits
- proposed cost sharing arrangement and funding mechanisms
- whether the proposed management options are affordable and thus viable for progressing through to Stage 4.

For the Stage 3 assessment, an estimate of the capital and maintenance cost has been undertaken for each action, with the Viability score obtained from the capital cost plus the maintenance costs over the 10 year CMP planning period. The Viability score was assigned a weighting of 2 and scores were allocated against each of the options according to the following rules:

Table 6-1: Assignment of Viability scores against total capital and maintenance costs for each action

Score	Criteria for total capital outlay plus maintenance costs over 10 year timeframe
0.2	>\$5million and/or detailed CBA required
0.4	\$500k - \$5m
0.6	\$100k - \$500k
0.8	\$10k - \$100k
1	<\$10k



Indicative costings for the proposed actions are provided in Appendix C. These costs will be refined further through Stage 4 of the CMP, and as such there may be some variance between values listed in this report and a business plan prepared for Stage 4 of the CMP. As there are no actions involving investments greater than \$5 million, and the benefits of the actions are largely intangible, a simple assessment has been carried out and is documented in Appendix C. The simple assessment in Appendix C identifies:

- the approximate cost of each action, based on costing information from Council’s cost database and the project team’s experience with similar works. The derived cost was used to assign the assessment score against each option in the option assessment.
- the information used to derive the costs, and
- a qualitative description of the benefits of each action, with these being intangible and qualitative in nature and thus it was not possible to ascribe a dollar value against the benefit of the actions.

Detailed costings for the final list of management actions will be included in the business plan within the final Stage 4 CMP document.

		Complexity	
		Low	High
Risks and impacts	<p>Low</p> <ul style="list-style-type: none"> • Limited spatial scale • Low risk and low impact 	<p>Simple economic assessment</p> <p>These assessments ask similar questions as the more complex analysis, but use qualitative analysis and expert opinion rather than quantitative data.</p>	<p>Intermediate level assessment</p> <p>These assessments ask the same questions as the more complex analysis, but may use detailed costings.</p>
	<p>High</p> <ul style="list-style-type: none"> • Addressing high or extreme risks • An option involves major investments 	<p>Intermediate level assessment</p> <p>Monte Carlo modelling or significant social analysis may not be necessary, but some detailed costing e.g. for maintenance, is required.</p>	<p>Detailed cost-benefit analysis</p> <p>This may involve a systematic comparison of all foreseeable costs and benefits and the probability that they will arise over the planning period.</p>

Figure 6-2: Matrix of risk and complexity for selecting the level of economic assessment



6.2.3 Acceptability

Acceptability was the final step in selecting which of the actions were to be included in the CMP. This step involves consulting with the community and stakeholders to determine the acceptability of the actions as well as assessing whether the action improves social and cultural values of the Coastal Use Area. Acceptability to community stakeholders was assessed directly through feedback received during the Stage 3 online engagement, where survey respondents indicated whether or not they were supportive of the proposed action (as determined from the survey responses in Appendix A). The score for community acceptability was calculated directly based on the percentage of survey responses that indicated support or opposition to the proposed action. Actions for which overwhelming opposition was received were assigned a score of zero, which excludes the action from being carried forward to Stage 4.

Acceptability to Agency stakeholders was assessed based on outcomes from the Agency Workshop, meetings/discussions held with Agency representatives and direct feedback received from Agencies regarding the draft Management actions. Actions not supported by the responsible Agency were assigned a score of zero, which excludes the action from being carried forward to Stage 4. It was noted that in general, Agency stakeholders indicated in-principle support for the draft actions.

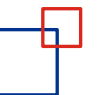
Scores were also assigned for how well the action addresses Cultural and Social Values in the estuary. Cultural values include cultural heritage values and social values e.g., education initiatives, improve scientific and/or traditional knowledge, recreation amenity, visual amenity and natural character. Actions which do not provide any benefit to cultural or social values, and/or may have negative impact were assigned the lowest score against this criterion. Actions which provide substantial benefit to cultural and social values were assigned the highest scores. Actions which have a demonstrable negative cultural and social impact were assigned a score of zero, which excludes the action from being carried forward to Stage 4.



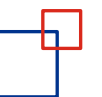
Table 6-2: Criteria and Definitions for Scoring Options

Criteria	Sub Criteria	Assessment	Definition – Score 1 to 5	Weighting (relative to importance of criteria)	Definition	Score ³					
						0	0.2	0.4	0.6	0.8	1
Viability	Economic	Total Estimated Cost (Implementation & Maintenance)	Initial cost outlay plus maintenance cost over 10 years of option (lower cost = 1, higher cost = 0.2)	2	To assign score against actual cost ranges		>\$5million and/or detailed CBA required	\$500k - \$5m	\$100k - \$500k	\$10k - \$100k	<\$10k
Feasibility	Social	Impact on Safety	Does the action improve safety? 1=Yes, 0.2=No	1	Captures concerns re coastal use areas	Action would likely compromise public safety	No improvement in safety	Action would provide only minor improvement in safety	Action would provide minor to moderate improvement in safety	Action would provide moderate to substantial improvements in safety	Action would provide substantial improvement in safety
		Approvals, Statutory and Policy Compliance	How complex are the approvals for the action, will it take a long time to implement? 1=simple to implement and can be done now, 0.1=complex approvals required with multiple agencies involved and difficult to implement	1	Is the action legal? Is it a “no-regrets” action or will it be complex to implement? Is it consistent with statutory approvals and current policy settings? Is it consistent with objects of the Coastal Management Act?	Action is not currently legal and no legal pathway exists for its implementation	Potentially inconsistent/lengthy approvals required with detailed environmental assessment necessary		Largely consistent with existing approvals/policy		Action fully consistent with statutory and policy settings, or with existing approvals in place
		Effectiveness of Option	How effective is the action in reducing the risk or managing the issue? 1=very effective, 0.2=not effective	2	From Risk Assessment, would the action address the risk? E.g., would it reduce coastal risk/vulnerability? How well would the risk be addressed by the action?	Action would increase identified risk	Action would only provide minimal reduction in identified risk	Action would provide minor benefits in reducing the identified risk	Action would provide minor to moderate reduction in identified risk	Action would provide moderate to substantial reduction in risk	Action would provide substantial, measurable reduction in identified risk
	Environment	Impact on coastal and estuarine processes	Will the action cause a significant disruption to coastal and estuarine processes? 1=No, 0.2=Yes	1	Are we enhancing or disrupting the natural coastal processes?	Action is likely to interfere with the natural coastal processes leading to unforeseen or negative	Action is likely to interfere with the natural coastal processes and is likely to cause a negative impact	Action may interfere with the natural coastal processes and may cause negative impact	Action may interfere with the local coastal processes by design but is not	Action is not likely to interfere with the natural coastal	Action is likely to enhance or restore the natural coastal processes

³ Any score of zero will automatically rule out the action as being not feasible



Criteria	Sub Criteria	Assessment	Definition – Score 1 to 5	Weighting (relative to importance of criteria)	Definition	Score ³						
						0	0.2	0.4	0.6	0.8	1	
						outcomes across the area				likely to cause a negative impact	processes of the area	
		Overall environmental benefit and ecological impact	Will the action have an overall environmental benefit? Will the action improve the resilience of the Coastal Wetland Area, Coastal Environment Area? Is it ecologically sustainable? 1=Yes, 0.2=No	2		Action is likely to have a demonstrated or irreversible negative impact on resilience of the Coastal Environment Area	Action is likely to cause a localised or reversible negative impact on Coastal Environment Area	Action may cause a negative impact on the Coastal Environment Area	Action is not expected to cause a positive or negative impact on the Coastal Environment Area	Action is likely to provide a minor to moderate benefit to the Coastal Environment Area	Action is likely to provide substantial benefit to the Coastal Environment Area	
Acceptability	Social	Acceptability to the broader community	Are the community and community stakeholders supportive of the action? 1=Very supportive, 0.2=Not supportive	1	% Public support from survey results and written submissions	Overwhelming opposition to the action from the public	<20% support	20 – 50% support or limited feedback received	50 – 70% support	70 – 90% support	>90% support	
		Acceptability to Agency Stakeholders	Are Agency Stakeholders supportive of the action? 1=Very supportive, 0.2=Not supportive	1	Direct feedback received from Agencies	Responsible Agency not supportive of action	Responsible Agency has requested substantial changes to proposed action		Limited commentary received on action from Agency stakeholders, or minor changes recommended to action		Key Agencies in principle supportive of action, with only a few suggested improvements and/or adopted wording endorsed through written feedback	
		Social and Cultural Values	Does the action enhance the social and cultural values of the coastal area? 1=Yes, 0.2=No	1	Cultural values include traditional cultural values and social values e.g., education initiatives, improve scientific and/or traditional knowledge, recreation amenity, visual amenity and natural character	Action would have a negative cultural and social impact	Action does not provide any benefit to cultural or social values, and may have negative impact or may not be acceptable to Indigenous Stakeholders		Action provides moderate benefit to cultural and social values		Action provides substantial benefit to cultural and social values and has a high degree of support from Indigenous Stakeholders	



6.3 Option Assessment Outcomes

The potential management actions have been assessed against the Feasibility, Viability and Acceptability criteria as described above, which has allowed for the actions to be assigned a total score out of 10, ranked, and therefore prioritised for inclusion in Stage 4.

A summary list of each Action, issue addressed, score out of 10, rank, timeframe for implementation, Lead Agency and Supporting Agency is provided in Table 6-3 for the Estuary-wide actions, and Table 6-4 for the location-specific actions.

A long list of actions is included in Appendix B, which includes the following information:

- Action ID
- Action category/strategy
- Estuary
- Location
- Issue or risk addressed by the action
- Action Name
- Detailed Action Description
- Viability, Feasibility and Acceptability Assessment scoring against each of the assessment criteria for each action
- Overall weighted score and rank
- Timeframe for implementation (short term defined as 1 – 5 years, medium term defined as 5 – 10 years, long term defined as > 10 years)
- Owner/Lead Agency
- Supporting Agency
- Link back to the Stage 2 Risk Assessment (cross-reference against risk ID for risks addressed)
- Potential funding sources.

Actions which scored less than 6 out of 10 were considered to be not suitable to be carried forward to Stage 4. Four location-specific management actions scored less than 6 out of 10, with these actions recommended to not be carried forward to Stage 4. The assessment of whether the action is to be carried through to Stage 4 of the CMP is provided in Table 6-3 and Table 6-4.

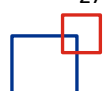


Table 6-3: Estuary-wide Management Actions and ranking

ID	Category	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Support Agency	Proceed to Stage 4?
EW-A01	Foreshore Erosion, Tidal Inundation and Sea Level Rise	Develop and implement a program for regular and ongoing monitoring of Council-managed coastal assets and infrastructure.	<p>This action involves the development and implementation of a monitoring program designed to assess and track the condition of various assets and infrastructure, including:</p> <ul style="list-style-type: none"> • Foreshore protection structures (revetments) • Recreational assets including viewing platforms and foreshore access tracks • Maritime and boating infrastructure (i.e. jetties, boat ramps) and related ancillary infrastructure (i.e. fish cleaning tables) • Gross pollutant traps and stormwater infrastructure • Stormwater outlets. • Sewer and water infrastructure <p>The program should be integrated into Council's broader asset management program</p>	8.4	10	Short	Council		Yes
EW-BN01	Boating & Navigation	Develop and implement a comprehensive boating and navigation facility upgrade and asset management program.	<p>This overarching action aims to provide a structured, coordinated, and community-inclusive approach towards addressing the boating and navigation issues identified within the St Georges Basin, Sussex Inlet, Swan Lake and Berrara Creek Estuaries. This action should align with the priorities and insights gleaned from the Stage 2 Boating and Navigation Study and should involve the following:</p> <ul style="list-style-type: none"> • Alignment with Council's Asset Management Systems and Plans • Development of a framework to regularly conduct thorough condition assessments at boat ramps • The frequency of cleaning and debris monitoring and removal especially following significant flooding events • Maintenance dredging as needed and as informed by site-specific investigations • Upgrading Council-managed facilities and amenities. Additional investigations and obtaining final designs and environmental approvals may be required for some identified sites. • Parking and traffic management • Security and anti-social behaviour • Community engagement and education • Consultation and collaboration with Transport for NSW, and identification of opportunities for alignment with the South Coast Boating Network Plan. <p>Upgrades have been identified for several facilities through the Stage 2 Boating and Navigation Study. These upgrades should implement best practice with reference to relevant Guidelines and Standards and examples from other areas. All works must seek agency agreement and approval and also be implemented with consideration of the Policy and guidelines for fish habitat conservation and management (DPI, 2013).</p> <p>Key identified opportunities relating to upgrade of boating infrastructure include:</p> <ul style="list-style-type: none"> • Action BN04 – Undertake repairs to existing boating infrastructure and upgrade facilities at the Lions Park Boat Ramp • Action BN11 - Provide an on-ramp pontoon on the centre of Basin View boat ramp • Action BN08- Upgrade the boat ramp and associated facilities at "Ski Beach" Swan Lake to reduce user conflict, improve the ramps surface and extend it to allow for use when water levels are low. 	8.2	17	Medium	Council	TfNSW, DPIRD-Fisheries, DPHI-Crown Lands	Yes
EW-BN02	Boating & Navigation	Support and promote LGA-wide boating education measures targeting both local and visiting recreational boaters	<p>This action involves enhancing the existing education and awareness programs for boaters in the area. This would include promotion of existing educational materials and additional signage regarding the importance of checking in with Marine Rescue, environmental and safety concerns related to boat wakes, need to avoid damage to seagrasses when anchoring and motoring, and being mindful of the conditions and the dangers of navigating the entrance bar at Sussex Inlet.</p> <p>Activities would include Council providing links on their website, and other forms of online communication methods, to existing TfNSW educational material on boating, and promotion of/support for existing education activities undertaken by TfNSW Boating Safety Officers and Boating Education Officers, targeting both local and visiting recreational boaters. Other activities may involve the installation of signage at boat ramp locations promoting responsible boating and fishing etiquette.</p> <p>Continue to advocate for an additional web camera at the Sussex Inlet entrance as recommended by Sussex Inlet Marine Rescue.</p>	9.2	3	Medium	Council	TfNSW	Yes



ID	Category	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Support Agency	Proceed to Stage 4?
			TfNSW will continue to enforce boating rules and restrictions, manage navigational aids and signage and undertake community education within the St Georges Basin, Sussex Inlet, Swan Lake and Berrara Creek estuaries to ensure the safety of boat users and reduce impacts to the environment.						
EW-BN03	Boating & Navigation	Development of boat ramp consolidation/ optimisation plan	<p>This action involves the development of a boat ramp and facilities consolidation / rationalisation plan and aligns with a similar broader LGA-wide action (EW_BN01). It will involve the review of existing boat ramp conditions, facilities, usage, and distribution. This will result in establishing a framework to regularly conduct thorough condition assessments at boat ramps, ensuring they meet safety standards and user requirements and structural investigations to identify necessary upgrades and repairs for safe and functional facilities. This will also identify boat ramps that are to be decommissioned, and those to be upgraded. For those that are to be decommissioned, it will identify suitable replacement uses for the location. This should be implemented considering the recommendations made as part of the Stage 2 Boating and Navigation Study.</p> <p>Community engagement will be undertaken as part of the assessment to further understand user needs and gain public support. Other considerations for this action include the provision of suitable passive vessel launch sites, suitable vessel pumpout facilities, fuelling facilities, and slipway facilities.</p>	7	28	Medium	Council	TfNSW	Yes
EW-BN04	Boating & Navigation	Review and update the Canal Estates Management Plan	<p>Review and update the Canal Estates Management Plan (D15/19666) to reflect the outcomes of the CMP and recommendations in the Stage 2 Boating and Navigation Study. This update should include consideration of current and projected future coastal hazard risks as identified through this CMP and other investigations completed in the implementation of the CMP.</p> <p>This update should be undertaken by the relevant asset custodian. Other considerations for this action include the provision of suitable passive vessel launch sites, maintenance dredging as required, facility upgrades.</p> <p>Community engagement will be undertaken as part of the assessment to further understand user needs and gain public support.</p>	6.4	29	Medium	Council		Yes
EW-C01	Cultural and Social	Develop and maintain an ongoing program of community engagement with coastal communities to explain key coastal issues and actions	<p>Engage with and develop educational resources for foreshore reserve property owners, residents, visitors and community youth. This would include the development of effective educational material including videos and fact sheets describing local coastal and estuary issues and explain key issues and actions such as:</p> <ul style="list-style-type: none"> • Impacts from climate change resulting in increased tidal range, changes to entrance dynamics and changes in macrophyte composition and distribution • ICOLLs, their entrance dynamics ecology and water quality in relation to Swan Lake and Berrara Creek • The importance of foreshore vegetation in helping to reduce erosion, providing shade and wind protection, filtering runoff, improving water quality and providing habitat • The value of coastal wetlands, seagrass, seagrass wrack and saltmarsh for ecology and estuary health • Seagrass Wrack, rules and permit requirements • Managing the interface between coastal bushland and private property, including edge impacts, encroachments, garden refuse dumping, mowing, storm water discharges, vegetation retention, fire protection zones, weed management and stock management • The impacts of private vehicle access and illegal structures/items which restrict public use of reserves. • Raise community awareness and continue to enforce Councils Vegetation Vandalism Prevention Policy POL22/24 to reduce vandalism including mowing • Inundation risk and emergency procedures for coastal inundation events • The importance of riparian and dune vegetation, particularly in relation to the large dunes along Sussex Inlet. Signage and information for tourists and tourism providers to encourage people to keep off the dunes and discourage sand sliding <p>Education programs should be enacted every 5 years</p>	9.2	3	Short	Council		Yes
EW-C02	Cultural and Social	Establish a Coastal Management Program (CMP) Governance	Establish a CMP working group, to oversee the implementation of the CMP to provide effective governance, support its implementation, and facilitate future reviews and assessment of the effectiveness of the CMP to ensure that it meets its objectives.	8.35	14	Short	Council		Yes



ID	Category	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Support Agency	Proceed to Stage 4?
		Framework to support the implementation of the CMP and facilitate its future review and assessment	<ul style="list-style-type: none"> Members should include staff from Council, relevant state government agencies, community and Aboriginal representatives. Terms of Reference should be established to clearly define its purpose, objectives, functions and to define the roles and responsibilities of its members Execute the function of the working group. Meet regularly to execute the CMP and track progress. 						
EW-C03	Cultural and Social	Establish one new Full Time Equivalent (FTE) Coast & Estuary Officer role within Council	Establish one new Full Time Equivalent (FTE) Coast & Estuary Officer role within Council - to develop the implementation strategy of Council's St Georges Basin, Sussex Inlet, Swan Lake and Berrara Creek CMPs, (including long-term funding options) and build Council's capacity to respond.	7.75	26	Short	Council		Yes
EW-C04	Cultural and Social	Review Council's Coastal Management Planning policies every 10 years and incorporate any updates to planning instruments and coastal hazard maps	<p>Review Council's coastal management planning policies for the 10-year CMP implementation lifecycle. This should include consideration of the latest environmental data, observed coastal hazard impacts, legislation, planning instruments and state government policies. The review should consider:</p> <ul style="list-style-type: none"> The Shoalhaven City Council Sea Level Rise Framework Coastal hazard mapping for St Georges Basin / Sussex Inlet, Swan Lake and Berrara Creek The Swan Lake Entrance Management Policy Council's various planning instruments. 	9.4	1	Medium	Council	DPHI-Planning DCCEEW-BCS	Yes
EW-C05	Cultural and Social	Engage with relevant Local Aboriginal Land Councils and local Traditional Owner Groups to develop a cultural educational and awareness program for each of the estuaries	<p>This action involves engaging with relevant Local Aboriginal Land Councils and local Traditional Owner groups to develop and roll out a cultural educational and awareness program – related to the Aboriginal Cultural Heritage (ACH) specific to the St Georges Basin/Sussex Inlet, Swan Lake and Berrara Creek estuaries. Design of the program should be led by either relevant Local Aboriginal Land Councils or local Traditional Owner Groups. The program could involve educational methods such as:</p> <ul style="list-style-type: none"> School programs involving planting days, stewardship sites and hands-on activities Signage at local sites (including the use of QR codes that includes elders speaking about the history of the area) Brochures and information provided to tourists at caravan parks and information centres Cultural tours to provide greater awareness of ACH values to both the local community and to the large population of seasonal visitors. 	8.35	15	Short-Medium	Council	Jerrinja LALC Jerrinja Tribal Group DCCEEW-Heritage DPIRD-Fisheries NPWS	Yes
EW-C06	Cultural and Social	Provide opportunities and help build capacity of local Aboriginal Ranger programs, to enhance their role in management of Sea Country including within the St Georges Basin / Sussex Inlet, Swan Lake and Berrara Creek estuaries	<p>This action involves supporting the Local Aboriginal Land Council and local Traditional Owner groups to bolster existing ranger programs and facilitate a greater role for these programs in coastal management across the St Georges Basin / Sussex Inlet, Swan Lake and Berrara Creek estuaries in the Shoalhaven LGA.</p> <p>This will involve working with and supporting the ranger team coalition to help enhance/boost their capacity and awareness of coastal management</p> <p>Where possible, utilise Aboriginal ranger teams to undertake on ground works associated with erosion and environmental restoration, and monitoring programs within these estuaries (EW-E06)</p> <p>Work collaboratively to help develop the next generation of junior rangers to be a part of future coastal management across the Shoalhaven LGA.</p> <p>This action is consistent with Initiative #4 of the NSW Marine Estate Management Strategy (MEMS) – which aims to "Increase Aboriginal participation in Sea Country Management, planning and monitoring through employment and training of Aboriginal people at a regional and local level".</p>	8.55	9	Short-Medium	Council	Jerrinja LALC Jerrinja Tribal Group DCCEEW-Heritage DPIRD-Fisheries NPWS	Yes
EW-C07	Cultural and Social	Undertake estuary-wide surveys to update Aboriginal Cultural Heritage information and develop local protection/management plans for cultural sites at risk from coastal hazards	<p>This action involves engaging with the relevant Local Aboriginal Land Councils, Traditional Owner groups and an archaeologist to undertake an updated cultural heritage survey of the coastal zone within the estuaries and in doing so:</p> <ul style="list-style-type: none"> Fill existing information gaps within the LGA-wide Aboriginal Cultural Heritage Mapping and Update the Aboriginal Heritage Information Management System (AHIMS). <p>It is anticipated that there would be three main tasks for this action:</p> <ul style="list-style-type: none"> Consultation with the relevant Local Aboriginal Land Councils and Traditional Owners and knowledge holders. An Aboriginal led cultural heritage assessment, which should include survey fieldwork, recording of cultural heritage sites (such as middens sites) and detailed documentation of findings. The development and prioritisation of local, site-specific management plans for protection 	8.8	6	Medium	Council	Jerrinja LALC Jerrinja Tribal Group DCCEEW-Heritage DPIRD-Fisheries NPWS	Yes



ID	Category	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Support Agency	Proceed to Stage 4?
			and preservation of these sites. <ul style="list-style-type: none"> On-going monitoring of at risk cultural sites by relevant knowledge holders, particularly following storm events Implementation of protective measures and activation of the Coastal Zone Emergency Action Sub-Plan as required 						
EW-C08	Cultural and Social	Develop and execute a communications plan for Stage 5 of the CMP	Present information on Council's website and in community engagement activities that shows: <ul style="list-style-type: none"> The purpose of the CMP The CMP background and an overview of the NSW Coastal Management Framework Key CMP information and links to relevant materials, including reports available for public consumption The status of CMP Actions, with details of the action and recent updates/progress Information pertaining to upcoming community consultation events, and avenues for engagement Links to relevant materials such as the NSW Coastal Management Framework, and the Marine Estate Management Strategy. How estuarine systems function and how integrated management responses benefit local communities. 	8.2	17	Short	Council	DCCEEW-BCS	Yes
EW-C09	Cultural and Social	Continue to collaborate with government agencies and research institutions	Continue to collaborate with State and Federal government agencies, universities and others on projects and research that focuses on: <ul style="list-style-type: none"> Climate change impacts on coastal and estuarine processes and landforms, including new data on sea level rise, storm behaviour, sediment transport processes, entrance management and stability and coastal and estuarine monitoring Impact of sea level rise on estuarine macrophytes and supratidal forests Coastal lake entrance behaviour (sediment budget, morphology, opening and closing regimes) with sea level rise and other aspects of climate change and climate variability Impact of private moorings on seagrasses, and impacts of unattended vessels on bank stability Ecological services and functions of estuarine species and most effective vegetation structure to enhance foreshore resilience Boating safety and navigation Management of foreshore erosion, particularly on Commonwealth lands The protection of threatened and migratory shorebirds (i.e. through the South Coast Shorebird Recovery Project) 	8.2	16	Short-Medium	Council	DCCEEW-BCS DCCEEW-Heritage DPIRD-Fisheries NPWS DPHI-Crown Lands TfNSW LLS	Yes
EW-C10	Cultural and Social	Enact the CMPs Monitoring, Evaluation and Reporting Program (MER) for the CMP	This will include: <ul style="list-style-type: none"> Ongoing monitoring of CMP actions Annual review of actions to ensure they are appropriate and current, with completed actions documented Ongoing reporting of progress Documentation of the effectiveness of the proposed strategies and actions will be reported as part of Council's Annual Report (part of the IP&R Framework), including progress towards or full achievement of the performance targets included for each action. 	7.8	22	Short	Council		Yes
EW-C11	Cultural and Social	Update Crown Land Plans of Management for areas related to the CMP Study Area to support the objectives of the CMP	Update the relevant Plans of Management (POM) to the CMP study area and coastal zone for consistency with the Coastal Management Act 2016, State Environmental Planning Policy (Resilience and Hazards) 2021 and the objectives of the CMP. This update should consider outcomes of the Stage 2 Technical Studies produced as part of the CMP development and the implementation management actions identified in this CMP to complement future land use and character. Updates should account for: <ul style="list-style-type: none"> allowing for conservation and restoration of saltmarsh (blue carbon) bank stabilisation works, sea level rise, as it may impact on assets. minimise grazing access Existing Council PoMs to be updated include: <ul style="list-style-type: none"> Generic Council Managed Crown Lands x3 (Natural Area, Parks, Community Use) Berrara - Berrara Creek Flats - 2006 - Plan of Management (PoM) Sussex Inlet - Ellmoos Reserve - 2006 - Plan of Management (PoM) 	7.8	22	Medium	Council	DPHI-Crown Lands	Yes
EW-E01	Ecological Environment	Encourage buffers, land management practices and	Encourage buffers, land management practices and conservation measures that allow wetlands to migrate with sea level rise.	7.8	24	Medium-long	Council	DCCEEW-BCS, DPIRD-	Yes



ID	Category	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Support Agency	Proceed to Stage 4?
		conservation measures that allow wetlands to migrate with sea level rise	<p>Work with relevant landholders to protect buffers around estuarine wetland areas that have been identified as having the ability to migrate landwards with sea level rise (SLR) (see maps in CMP Stage 2 Tidal and Coastal Inundation Study report). These landowners would be encouraged to:</p> <ul style="list-style-type: none"> • protect buffers to enable future land use conducive for the establishment of wetlands with SLR. • alter land use management to support estuarine vegetation communities to be achieved through a variety of voluntary incentive schemes, including conservation agreements, land purchase and blue carbon projects. • For public lands, Council to consider rezoning identified wetland migration areas for conservation purposes when updating the LEP. <p>This action would be supported by the continued macrophyte mapping to monitor variability and long-term trends (Refer to action EW-E04)</p>					Fisheries, DPHI-Crown Lands, NPWS, DPFI-Planning, LLS	
EW-E02	Ecological Environment	Undertake a Planning Proposal to adopt a Coastal Vulnerability Area (CVA) for the estuaries and update other Coastal Management Areas.	<p>Mapping for the CVA has not been provided from the RH SEPP, and no such CVA map yet exists for the Shoalhaven LGA or CMP Study Area. Subsequently, it is the intent of Council to propose, by way of a planning proposal, the adoption of a map in indicating a CVA. This involves the preparation of a planning proposal to seek formal inclusion of a Coastal Vulnerability Area (CVA) (tidal and coastal inundation) into the RH SEPP based on Stage 2 Tidal and Coastal Inundation Study report. It should be noted that the Planning Proposal will be submitted in conjunction with a proposal for a CVA for other estuary areas within the Shoalhaven subject to a CMP. Any updates to the LEP or DCP will be sequenced in accordance with Council's new land use planning scheme.</p> <p>The CVA map would identify areas where coastal wetlands and environmentally sensitive areas are vulnerable to impacts from future sea level rise or foreshore erosion. Undertake ecological ground-truthing and further investigation of areas mapped in the CMP Stage 2 Tidal and Coastal Inundation Study as having potential for estuarine vegetation migration with sea level rise to confirm locations of migration pathways. From the mapping of migration pathways as well as ground-truthing and mapping of ecologically sensitive areas, the zoning of these and development controls that apply can be reviewed. Council to investigate if the Coastal Wetland or Littoral Rainforest Area (CWLRA) as defined in the RH SEPP needs adjustment based on information obtained through this action and through the action EW-E05 regarding Council mapping TEC's across its reserves.</p> <p>It should be noted that the CM Act requires the consideration of future climate change. As such, all extents used in defining the CVA should be based on a suitable forward planning horizon, which incorporates the projected effects sea level rise on coastal hazards.</p> <p>Council's existing coastal hazard mapping and controls within the LEP and DCP will be required to be updated to reflect, and be supplementary to, the proposed CVA mapping. Any updates to the LEP or DCP will be sequenced in accordance with Council's new land use planning scheme.</p>	8.4	13	Medium	Council	DPHI-Planning DCCEEW-BCS	Yes
EW-E03	Ecological Environment	Develop and implement a program to monitor key environmental parameters relevant to coastal and estuarine monitoring	<p>Develop and implement a program to monitor key environmental parameters relevant to coastal and estuarine monitoring inclusive of:</p> <ul style="list-style-type: none"> • entrance monitoring of Swan Lake and Berrara Creek (e.g. BeachStat, Inlet Tracker at Swan Lake, CoastSnap at Berrara). Monitoring at Swan Lake should be implemented consistent with the Swan Lake Entrance Management Policy (EMP). • Ecological data and surveys including monitoring of foreshore vegetation, CWLRA vegetation, seagrass and shorebirds to monitor long-term trends • monitoring of storm events and their impacts (including photologs) and ongoing monitoring of at-risk assets. <p>This monitoring program should be integrated into the wider Shoalhaven City Council Environmental Monitoring Program (EMP)</p>	9.4	1	Short-Medium	Council	DCCEEW-BCS	Yes
EW-E04	Ecological Environment	Implement environmental protection works to enhance ecological communities and cultural values in coastal and	<p>This action will involve a range of measures and environment protection works to ensure the protection of existing riparian and estuarine vegetation, as well as rehabilitation of currently impacted areas, and would consider the following aspects:</p> <ul style="list-style-type: none"> • consider acquisition and protection of key locations, notably Coastal Wetlands and Littoral Rainforest areas, and working with landholders to investigate options for modified land management or conservation agreements, voluntary acquisition based on incentives and funding such as Blue Carbon where future funding sources may be available; 	9	5	Short-Medium	Council	DCCEEW-BCS, NPWS, DPIRD-Fisheries, DPFI-Planning	Yes



ID	Category	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Support Agency	Proceed to Stage 4?
		estuarine reserves within the CMP Study Area	<ul style="list-style-type: none"> encourage implementation of buffers and land management practices to allow for spatial migration of vegetation/habitat under sea level rise . This would require consultation with private landholders, installation of informative signage and fencing in key areas to protect vegetation and habitats. For public lands, Council to consider rezoning identified wetland migration areas for conservation purposes when updating the LEP; Council support of volunteer-based rehabilitation initiatives such as Bushcare/Parkcare/Dunecare, community-based revegetation campaigns, and other community "ownership" projects. Natural areas requiring restoration and environment protection works will also be identified through cultural engagement and cultural surveys (Actions EW-C07 and EW-C06). Where culturally sensitive restoration sites are identified, the engagement of Aboriginal rangers and contractors will be prioritised; continuation of existing Council programs for pest control (e.g. foxes, rabbits, Indian Mynas) and weed management and biosecurity; enforcement of existing policies/controls on access restrictions to sensitive areas (e.g. boating and pedestrian access); undertake rehabilitation works in damaged vegetated areas and ongoing implementation of ecological restoration and environmental protection works in Council-managed coastal reserves with reference to the objectives of the associated coastal management areas. These works would be informed by ground-truthing surveys (refer Action EW-E04) and should support the ecological restoration of identified Threatened Ecological Communities (TECs) based on Council's 2023 report Assessment of Endangered Ecological Communities In Coastal Hazard Areas: Shoalhaven LGA Tidal Inundation and Coastal Erosion Study Sites (Ecoplanning, 2023). Prioritisation will be given to areas that comprise areas of Coastal Wetland and Littoral Rainforest and/or house TECs, and targeted weed species control works, Restoration of riparian vegetation areas (consistent with Action EW-FE01) and implement environment protection works to enhance ecological communities in coastal and estuarine reserves. Continued estuarine macrophyte mapping for the lake waterbody and foreshores as part of a Marine Estate Management Strategy project; and Establish a monitoring and evaluation framework to assess the effectiveness of vegetation restoration and control measures, ensuring alignment with environmental goals and continuous improvement. This should be included within the Shoalhaven Integrated Environmental Monitoring Program. 						
EW-E05	Ecological Environment	Continue Council's program of mapping threatened ecological communities (TECs) across coastal reserves	Continue to carry out existing survey program to ground truth and map the distribution and condition of TECs in coastal hazard risk areas using the Biodiversity Conservation Act, Biodiversity Assessment Methodology. This mapping will be used to update Council's LEP Terrestrial Biodiversity Map, inform the Biodiversity Values Map, and provide further education for the public on the Council website.	7.8	24	Medium	Council	DCCEEW-BCS, DPHI-Planning	Yes
EW-FE01	Foreshore Erosion	Implement foreshore erosion actions recommended for high priority public foreshore areas as a result of the Foreshore Erosion Assessment undertaken for Stage 2 of the CMP	<p>This overarching action aims to provide a structured, coordinated, and community-inclusive approach towards addressing the bank erosion challenges within the St Georges Basin, Sussex Inlet, Swan Lake and Berrara Creek Estuaries aligning with the priorities and insights gleaned from the Stage 2 Foreshore Erosion Assessment. Works are to also be undertaken at high risk assets identified to be impacted by erosion within the Stage 2 Risk Assessment. Key elements of this action include:</p> <ul style="list-style-type: none"> Site assessment and detailed investigations - Conduct comprehensive assessments and investigations at identified high and very high priority sites as per the Stage 2 Foreshore Erosion Assessment, to finalise identified concept designs using the most suitable bank stabilisation techniques considering erosion severity, site access, community use, cultural heritage sites and ecological factors. Implementation of stabilisation works - Employ treatment method identified for the specified reach as identified in the Foreshore Erosion Assessment. Options will address bank and channel stability and enhancement of aquatic habitat. Riparian vegetation management - Integrate riparian vegetation management with stabilisation works to reduce erosion, improve bank stability, and enhance biodiversity. Consider site-specific revegetation and maintenance plans, particularly where existing riparian vegetation is in reasonable condition. Community engagement and consultation - Engage with the community, especially in high use areas for boating, water sports or other recreational activities, to inform and involve them in the stabilisation and restoration process. Ensure that any restrictions or changes to community use of areas are communicated well in advance and are undertaken with community understanding and support, as well as consultation with the relevant regulatory authorities (i.e. TfNSW). 	7.8	21	Short-Medium	Council	LLS, DPHI-Crown Lands, NPWS, DCCEEW-BCS, TfNSW	Yes



ID	Category	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Support Agency	Proceed to Stage 4?
			<ul style="list-style-type: none"> Integrate the ongoing monitoring and management of foreshore protection structures into Council's broader asset management program Collaboration and coordination - Foster collaboration with Local Land Services, Traditional Owner groups, and other relevant stakeholders for integrated and effective bank stabilisation and riparian restoration within the St Georges Basin, Sussex Inlet, Swan Lake and Berrara Creek Estuaries. Coordinate with adjacent private landowners and agency landowners to extend the benefits of stabilisation and restoration works beyond Council owned or managed lands where possible and appropriate. <p>Note that this action will need to consider land tenure at the sites, and authorisation requirements for activities below the MHW under the <i>Crown Land Management Act 2016</i>.</p>						
EW-I01	Tidal Inundation and Sea Level Rise	Research the implications of rising groundwater levels on building foundations and develop solutions to mitigate against damage	<p>This action involves:</p> <ul style="list-style-type: none"> Researching the implications of rising groundwater levels on building foundations. Identify potential solutions including engineering measures to mitigate against or prevent groundwater damage to building foundations and services Incorporate solutions into relevant Asset Management Plans for existing public assets (Refer to EW-I05) and Consider the inclusion of these in development controls for new Development Applications (DAs) within Council's DCP/LEP. (Refer to Action EW-E02) 	7.2	27	Medium-long	Council		Yes
EW-I02	Tidal Inundation and Sea Level Rise	Activate and implement Coastal Zone Emergency Action Subplan (CZEAS)	<p>This action involves the implementation of a Coastal Zone Emergency Action Subplan (CZEAS) for Sussex Inlet, St Georges Basin, Swan Lake and Berrara Creek. This would primarily address emergency response to coastal inundation events and would need to be consistent with the Shoalhaven City Local Flood Emergency Sub Plan 2021.</p>	8.6	7	Short	Council	NSW SES DCCEEW-BCS DPHI-Crown Lands	Yes
EW-I03	Tidal Inundation and Sea Level Rise	Maintain planning controls to reduce future coastal hazard impacts	<p>As part of work on Council's new land use planning scheme, implement and maintain planning controls in:</p> <ul style="list-style-type: none"> The Shoalhaven Local Environmental Plan (LEP) 2014: Maintain appropriate zoning in the LEP to protect estuarine foreshore areas and enhance resilience to coastal hazards. Shoalhaven Development Control Plan (DCP) 2014 G6 Coastal Management Areas, which require specific information and assessment for proposed development in coastal hazard areas. Update and maintain notation to section 10.7 (5) certificates for properties affected by coastal hazards consistent with NSW Government legislation. <p>Wherever possible, use zoning and planning controls in the DCP 2014 to maintain open spaces where coastal wetlands and associated habitats can roll landward in response to climate change and sea level rise.</p> <p>Review and update Council's Development Control Plan (DCP) where necessary to ensure adequate soil erosion controls are applied during development with consideration of the "Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning". Continue to apply Neutral or Beneficial Effect (NorBE) on water quality for all greenfield development proposed in the catchments of the St Georges Basin, Swan Lake and Berrara Creek as a minimum standard, by inclusion of this provision in Council's LEP/DCP. Application of the risk-based framework for stormwater management to be considered into the future, particularly where it demonstrates a higher level of water quality mitigation than NorBE, likely to be more relevant for infill development and development of already cleared land.</p> <p>Support the implementation of the Marine Estate Management Strategy (MEMS) Domestic waterfront structure strategies through the promotion of and reference to the strategy through the provision of planning advice and via Council's website</p>	8.6	7	Medium	Council	DPHI-Planning	Yes
EW-I04	Tidal Inundation and Sea Level Rise	Prepare a climate change adaptation strategy for the CMP study area	<p>Adaptation planning will be undertaken for low lying areas around Sussex Inlet and St Georges Basin that have existing exposure to coastal inundation and will increasingly be at risk under sea level rise. Adaptation planning will look to identify suitable approaches to continue the viability of this land. The planning will investigate a combination of rezoning land, landform adaptation through filling and raising of assets and roads, and property development controls. Specific measures will need to consider the measures planned in the St Georges Basin Floodplain Risk Management Plan.</p>	8.2	17	Medium-long	Council	DCCEEW-BCS, DPHI-Planning	Yes



ID	Category	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Support Agency	Proceed to Stage 4?
EW-I05	Tidal Inundation and Sea Level Rise	Review and update all asset management plans (AMPs) relevant to the coastal zone as per the CMP Study area	<p>Review and update all asset management plans (AMPs), relevant to the coastal zone within the CMP study area.</p> <p>Include an asset management approach to provide for replacement, relocation or retrofitting of public assets that are currently in coastal risk areas – including boat ramps, wharves, jetties, water and wastewater infrastructure, stormwater drainage infrastructure, foreshore protection infrastructure, roads and access tracks. The update of AMPs should be prepared considering current and future coastal hazard impacts, including the impacts of coastal and tidal inundation, and should outline plans and mitigation strategies to reduce the risk from such hazards. The Stage 2 Risk Assessment, the Stage 2 Coastal and Tidal Inundation Study, the Stage 2 Foreshore Erosion Assessment and the Stage 2 Synthesis Report should be used to inform the update of AMPs to account for coastal hazard impacts.</p> <p>AMPs by asset type will be updated by relevant asset custodian. Key elements of this action will include:</p> <ul style="list-style-type: none"> • Engagement with Council assets teams to discuss the high-risk Council assets. • Identify assets that should be upgraded, removed, or relocated. • Design and implement asset risk reduction works. <p>AMPs are to be aligned with the emergency action sub-plan (refer action EW-I02).</p>	8.4	10	Medium	Council		Yes
EW-WQ01	Water Quality	Continue and implement refined surface water monitoring and reporting program	<p>This action will involve the implementation of the refined surface water monitoring and reporting program as documented in the Stage 2 CMP Estuary Health and Water Quality Studies. This monitoring program includes the maintenance of the Aquadata online portal for public access to water quality sampling results. Results should be interpreted for the community, with summary information about water quality, estuary health and recreational swimming suitability provided consistent with the NSW Water Quality Objectives and DCCEEW-BCS sampling, data analysis and reporting protocols.</p> <p>Council to apply for grant funding to undertake estuary health monitoring as per recommendations of the Stage 2 CMP Estuary Health and Water Quality Study, and produce regular summary estuary health report cards for community information, including aspects such as swimming suitability, impacts of drought, bushfires and flooding. Sanitary inspections, event sampling to understand pollutant inputs, investigation of events (e.g. fish kills) on an as-needs basis. Continued publication of water quality results on Council website.</p>	8.4	10	Short-Medium	Council	DCCEEW-BCS	Yes
EW-WQ02	Water Quality	Collect maintenance data on existing Gross Pollutant Traps (GPTs) to enable an internal assessment of the effectiveness of existing stormwater runoff treatment/GPTs. Install Gross Pollutant Traps (GPTs) at suggested locations from the Stage 2 CMP Synthesis report and Council's existing audit of the GPTs.	<p>This will assist in informing future practice with Council with respect to confirming locations for installation of additional GPTs and assessing best practice methods for stormwater runoff treatment. Five water quality devices have been identified in the St Georges Basin study area as part of the Shoalhaven Stormwater Treatment Device Audit including two trash racks, two CDS units and one custom GPT (Optimal Stormwater Pty Ltd, 2023). Implement the recommendations of the Audit including maintenance and cleaning for the existing and new GPTs in the CMP study area in accordance with the "Guidelines for the Maintenance of Stormwater Treatment Measures" (Stormwater NSW 2020) and recording GPTs on Council's Asset database.</p>	8	20	Medium	Council		Yes



Table 6-4: Location-specific management actions and ranking

ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?
BN01	Boating and Navigation	Recreation and safety	Sussex Inlet	Edgewater Avenue, Sussex Inlet	Undertake investigations to determine the impact of removal of gabion weir at Edgewater Avenue on sedimentation within canal at Alamein/Lions Park, identify feasible alternatives and implement the outcome of the investigation.	This action should identify appropriate management approaches to respond to shallow water within this canal. As is outlined in the Stage 2 Boating Study, community feedback suggests that siltation in this canal is impacting on existing moorings which may be being caused by the gabion weirs next to the ramp reducing stormwater flow velocity and scour potential. Further investigations are required with consideration of gabion removal. The action is to undertake a hydrodynamic/hydrologic investigation on the impact of removal of the weir that considers flow velocities in the canal with and without the gabion weir, scour potential in the canal with and without the weir, bank erosion upstream and downstream of the weir, impact on water quality, and impact on catchment flooding. The investigation should identify whether the weir should remain as is, and whether there are any feasible options to replace the weir. Also relates to Action BN06	7.8	11	Short	Council		Yes
BN02	Boating and Navigation	Recreation and safety	Sussex Inlet	Sussex Inlet channel	Undertake a detailed investigation into the feasibility of targeted dredging within the Sussex Inlet channel at key shallow points to aid channel navigation	Shallow locations were identified in the Stage 2 CMP Boating and Navigation Study. These include locations near the mouth of St Georges Basin where it connects with the inlet channel, and at several locations between Alamein and The Haven. This does not include the highly dynamic ocean entrance bar, where dredging is not recommended. The investigations involve detailed environmental assessments including seagrass mapping, sediment sampling, and sediment transport modelling, as well as cost benefit analysis. Undertake ongoing monitoring of sand movements via regular survey to assess long term sustainability of dredging. Refer to Stage 2 Boating Study for further detail. The feasibility investigation will need to demonstrate consistency with Principle 5 of the Coastal Crown Land Guidelines 2023.Coastal Crown Land Guidelines 2023 - Principle 5 which indicates non-commercial dredging on coastal Crown Land should be in the broader public and/or environmental interest.	6.4	39	Medium-long	Council	TfNSW, DPIRD-Fisheries, DPFI-Crown Lands	Yes
BN03	Boating and Navigation	Recreation and safety	Sussex Inlet	Sussex Inlet entrance	Investigate the feasibility of providing a boat ramp on the ocean side of the Sussex Inlet entrance to provide an alternative safe access to the ocean and reduce the need for boats to cross the entrance bar	This action would include the following works as suggested within the Stage 2 Boating Study: <ul style="list-style-type: none"> Investigation of feasibility of proposed boat ramp location/s Consultation with the local community and relevant stakeholders Consultation with Crown Lands regarding obtaining access as land is currently managed by Minister for Crown Lands Concept design of the preferred solution/s Undertaking required environmental assessment and obtaining necessary approvals Detailed design of the preferred solution/s 	5.1	43	Medium-long	Council	TfNSW, NPWS, Jerrinja LALC, DPIRD-Fisheries	No
BN04	Boating and Navigation	Recreation and safety	Sussex Inlet	Lions Park Sussex Inlet	Undertake repairs to existing boating infrastructure and upgrade facilities at the Lions Park Boat Ramp	This action involves the following works as recommended within the Stage 2 Boating Study and the Stage 2 Foreshore Erosion Assessment. The works associated with this action should include undertaking necessary design investigations and development of detailed design, as well as preparing required environmental assessments, and obtaining approvals and permits for: <ul style="list-style-type: none"> repairs to the timber seawall and undermined fish-cleaning table (Site Ref S013 in Stage 2 Foreshore Erosion Assessment); provision of wash-down facilities investigate replacement of and widening of concrete ramp and scour protection, provision of on-ramp pontoons additional overflow parking as per concept design provided in the CMP Stage 2 Boating Study repair of local ancillary infrastructure as per existing Council designs. Consider public accessibility and other needs such as the inclusion of 	6.8	33	Medium-long	Council	TfNSW DPIRD-Fisheries DPFI-Crown Lands	Yes



ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?
						recreational fishing platforms in the design It is noted that the Lion Park Boat Ramp is presently licenced to Council (L323697). Future maintenance to the ramp should be in accordance with the existing licence or the licence should be appropriately amended.						
BN05	Boating and Navigation	Asset Management	Sussex Inlet	Nielson Lane Boat Ramp	Undertake upgrade of Nielson Lane Boat Ramp and Carpark by providing on-ramp pontoon, additional lane, investigate extending carpark and providing linemarkings	<p>The Stage 2 Boating Study identified that the existing Nielson Lane boat ramp facility does not meet the standards outlined in the NSW Boat Ramp Guidelines (RMS 2015), as well as several other issues at this ramp, including:</p> <ul style="list-style-type: none"> • inadequate capacity at existing ramp to cater for demand • no pontoon facility • inadequate parking for trailers and no marked parking spaces • no marked manoeuvring area • ramp can often become submerged when water levels in the Inlet are high. <p>This action involves the following works as recommended within the CMP Stage 2 Boating Study:</p> <ul style="list-style-type: none"> • necessary investigations, design, approvals and permits for upgrade of the ramp and parking area • replacement of and widening of concrete ramp and scour protection, • provision of on-ramp pontoons and upgrade of parking as per concept provided in the CMP Stage 2 Boating Study • consider public accessibility and other needs such as the inclusion of recreational fishing platforms in the design <p>The Nielson Lane boat ramp does not currently appear to be authorised under the Crown Land Management Act 2016. DPHI-Crown Lands authorisation requirements will need to be ascertained in conjunction with DPHI-Crown Lands prior to implementing improvements.</p>	6.8	33	Medium-long	Council	TfNSW DPIRD- Fisheries DPHI-Crown Lands	Yes
BN06	Boating and Navigation	Recreation and safety	Berrara Creek	Berrara Creek, Lakeland Avenue Reserve	Provide a formalised storage rack or area for kayaks at Lakeland Avenue Reserve and promote this area as a non-powered craft area	As outlined within the Stage 2 Boating Study and the Stage 2 Foreshore Erosion Assessment (Bank Section BC05) this stretch of foreshore is impacted by erosion which is being exacerbated by the informal storage of watercraft along the bank. This action involves the development and implementation of formalised watercraft storage systems to reduce erosion along this foreshore area. Non-powered water craft storage likely to involve designated concrete slab with steel tube kayak racks. On-going monitoring and policing will be required to prevent reoccurrence of ad-hoc storage.	7.27	26	Medium-long	Council	NPWS	Yes
BN07	Boating and Navigation	Protect and restore the coastal environment	Swan Lake	Swan Lake Natural Launching Area	Management of Watercraft storage on eastern edge of Swan Lake channel	<p>This involved the development and implementation of formalised watercraft storage systems at more suitable location (e.g. Ski Beach) as outlined in the Stage 2 Boating Study. This would be undertaken in conjunction with a removal program for ad hoc/unattended watercraft (e.g. dinghies, canoes, kayaks etc) that are stored in this heavily vegetated foreshore area. The purpose of this is to reduce the impact of informal boat storage on the foreshore of Swan Lake and increase the health and resilience of the foreshore. This action includes assessing available landside locations for storage and choosing the location with the least impact to the foreshore.</p> <p>On-going monitoring and policing will be required to prevent reoccurrence of ad-hoc storage.</p>	6.8	33	Medium-long	Council		Yes
BN08	Boating and Navigation	Recreation and safety	Swan Lake	Swan Lake Ski Beach	Upgrade the boat ramp and associated facilities at "Ski Beach" Swan Lake to reduce user conflict, improve the ramps surface and extend it to allow for use when water levels are low.	<p>As outlined in the Stage 2 Boating Study, this action involves:</p> <ul style="list-style-type: none"> • Undertaking necessary investigations, design and approvals relating to assessment of the integrity of the surface of the Ski Beach boat ramp at Swan Lake (asset ID 13003625). This assessment should include consideration of the extension of the ramp to allow for launching of vessels when water levels are low. • Construction of the design • Provide line markings in the carpark <p>The Ski Beach boat ramp below the MHWL does not currently appear to be authorised under the Crown Land Management Act 2016. DPHI-Crown Lands authorisation requirements will need to be ascertained in conjunction with DPHI-Crown Lands prior to implementing improvements.</p>	6.6	38	Medium-long	Council	TfNSW DPIRD- Fisheries DPHI-Crown Lands	Yes



ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?
BN09	Boating and Navigation	Recreation and safety	St Georges Basin	Wandandian Creek	Advocate for a speed limit reduction along Wandandian Creek	Council to advocate on behalf of the community for a reduction in the speed limit to 4 knots within Wandandian creek channel to reduce impact of boat wash on bank erosion, consistent with previous Estuary Management Plan recommendations.	5.7	40	Medium-long	Council	TfNSW DCCEEW-BCS	No
BN10	Boating and Navigation	Recreation and safety	Sussex Inlet	Seacrest Boat Ramp	Provide line markings and repair of pavement in carpark at Seacrest Boat Ramp and manoeuvring area, provide scour protection for ramp	The following issues were observed at the Seacrest Boat ramp during site inspections as reported in the Stage 2 Boating Study: <ul style="list-style-type: none"> the ramp car park and manoeuvring area pavement is in a very poor condition the shoreline immediately adjacent to the ramp is suffering from erosion the carpark and manoeuvring area has no line markings The ramp does not currently meet the standards outlined in the NSW Boat Ramp Guidelines (RMS 2015). This action involves the following works at the Seacrest boat ramp (Asset ID 13003604) as recommended within the Stage 2 Boating Study: <ul style="list-style-type: none"> necessary investigations, design, approvals and permits line markings and repair of pavement in carpark and manoeuvring area provision of scour protection on the sides and toe of the ramp to improve safety The boat ramp below the MHWL does not currently appear to be authorised under the Crown Land Management Act 2016. DPHI-Crown Lands authorisation requirements will need to be ascertained in conjunction with DPHI-Crown Lands prior to implementing improvements.	7	32	Medium-long	Council	TfNSW DPIRD-Fisheries DPHI-Crown Lands	Yes
BN11	Boating and Navigation	Recreation and safety	St Georges Basin	Basin View Boat Ramp	Provide an on-ramp pontoon on the centre of the ramp at the Basin View Boat Ramp	This action involves the following works as recommended within the Stage 2 Boating Study: <ul style="list-style-type: none"> necessary investigations, design, approvals and permits for provision of on-ramp pontoon to improve safety. The on-ramp pontoon would be similar to the existing pontoon at John Williams Reserve in Sanctuary Point. The boat ramp below the MHWL does not currently appear to be authorised under the Crown Land Management Act 2016. DPHI-Crown Lands authorisation requirements will need to be ascertained in conjunction with DPHI-Crown Lands prior to implementing improvements.	7.2	30	Medium-long	Council	TfNSW DPIRD-Fisheries DPHI-Crown Lands	Yes
C01	Cultural and Social	Community and Stakeholder Engagement	St Georges Basin	St Georges Basin	Investigate and consult with relevant landholders, DPHI-Crown Lands and NSW LALC to improve the Foreshore Walk around St Georges Basin "Basin Walk". This would include connecting missing links and enhancing the walk's resilience against foreshore erosion and inundation	This action includes: <ul style="list-style-type: none"> consultation with relevant landholders exploring opportunities to connect missing links in the foreshore walk around St Georges Basin (asset ID 13009145) consideration of the provision of boardwalks below high water mark investigation of the potential need for easements and / or land acquisition designs to consider current and future erosion and inundation risks to ensure future resilience 	6.8	33	Medium	Council	DPHI-Crown Lands DPHI-Planning DPIRD-Fisheries LALC	Yes
C02	Cultural and Social	Recreation and safety	Swan Lake	Swan Lake, Ski Beach	Investigate design and construct a pontoon or similar structure (e.g. jetty or high water level beach) near "Ski Beach" Swan Lake to allow for recreational use (e.g. swimming) when water levels	This action was identified in the Stage 2 Boating Study as a solution to address the lack of a beach when lake levels are high. This action will investigate a design solution for the installation of pontoons around 30 m offshore for swimming and/or boats to tie up to. This action will include undertaking the necessary investigations, completion of a design, and obtaining approvals and permits for provision of a pontoon/jetty prior to the construction of this structure. Land below the MHWL at Ski Beach is Crown Land and authorisation under the Crown Land Management Act 2016 may be required.	5.6	41	Medium	Council	DCCEEW-BCS DPIRD-Fisheries DPHI-Crown Lands	No



ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?
					are high and beach access is restricted							
E01	Ecological Environment	Protect and restore the coastal environment	Swan Lake	Swan Lake	Implement updated Entrance Management Policy (EMP) for Swan Lake	This action should implement the recommendations and updated EMP developed concurrently with the CMP. Community education and information program to be developed to inform of the new EMP as part of Action EW-C01. Ongoing enforcement by DPIRD-Fisheries and Council officers to reduce the incidences and risks associated with illegal entrance openings by community members. Council to Continue to monitor and record entrance conditions including openings and closures of Swan Lake as part of its broader Environmental Monitoring Program.	8.6	1	Medium	Council	DCCEEW-BCS, DPIRD-Fisheries, DPFI-Crown Lands, NPWS	Yes
E02	Ecological Environment	Community and Stakeholder Engagement	Swan Lake	Swan Lake	Continue ongoing collaboration with state government agencies and research institutions, to implement a research project specifically on the ecology of Swan Lake.	Continue ongoing collaboration with state government agencies and research institutions, to implement a research project to understand: <ul style="list-style-type: none"> any changes to the ecology of Swan Lake and the likely causes. scientific assessment to understand Swan populations, their possible decline and any management recommendations. causes of degradation of habitat for shorebirds and decline in Ruppia seagrass extents impact of droughts and bushfires on Swan Lake ecology distribution and presence of Green and Golden Bell Frogs 	7.8	10	Medium-long	Council	DCCEEW-BCS, DPIRD-Fisheries, NPWS	Yes
E03	Ecological Environment	Protect and restore the coastal environment	Swan Lake	Swan Lake	Monitor risk of breakout of Swan Lake at The Gap, assess the implications should a break-out occur and undertake sand scraping and dune revegetation to build up the dune.	Monitor the of berm level at "The Gap", Swan Lake as well as the current entrance berm, to assess the risk of a lake breach at "The Gap" location. If required use beach scraping, combined with dune revegetation to build up the dune and stabilise it to reduce risk of breakout. Assess the implications of breakout at "The Gap" to estuary dynamics through a hydrodynamic modelling assessment (refer to Action E05). The results of this study should be presented to the community for their information and understanding as a community education exercise. Refer to CMP Stage 2 Foreshore Erosion Assessment (Bank Section SW03) and Swan Lake and Berrara Creek Entrance Management Review, as well as the updated Swan Lake Entrance Management Policy (refer action E01) for details. Collected data should form part of Shoalhaven City Council's Environmental Monitoring Program and link to the on-line environmental monitoring dashboard.	8	6	Medium	Council	DCCEEW-BCS, DPFI-Crown Lands	Yes
E04	Ecological Environment	Asset Management	Swan Lake	Swan Lake	Investigate the impact on hydrodynamics, tidal dynamics and channel morphology of Swan Lake in relation to the design and replacement of the Swan Lake bridge	This investigation is already underway given the Swan Lake is due for upgrade/replacement as it is at the end of its design life. Consider the impact of inundation levels during the detailed design of the new bridge using a hydrodynamic model study.	8	6	Medium-long	Council	DCCEEW-BCS	Yes
E05	Ecological Environment	Protect and restore the coastal environment	Berrara Creek	Berrara Creek	Implement a range of techniques for monitoring of entrance openings and closures at Berrara Creek	Monitor Berrara Creek entrance conditions using a range of techniques and implement the recommendations of the CMP Stage 2 Swan Lake and Berrara Creek Entrance Management review. This includes: <ul style="list-style-type: none"> Monitor the entrance of Berrara Creek, and in particular record when it closes and opens to the ocean using CoastSnap or other similar citizen science initiative. Continue to maintain the water level recorder in the lake to capture a longer term water level data set Council to conduct surveys of entrance berm levels during entrance closures Analyse citizen science results, supplemented with other data such as from remote sensing (e.g. Inlet Tracker) and water level records. Collected data should form part of Shoalhaven City Council's Environmental Monitoring Program (EMP) and link to the on-line environmental monitoring	7.75	17	Medium	Council	NPWS, DCCEEW-BCS, DPIRD-Fisheries	Yes



ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?
						dashboard, and inform community engagement and education on entrance management at Berrara Creek.						
FE01	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Wandandian Creek	Support private land bank stabilisation and restoration.	<p>The objective of this action is to assist with the facilitation of bank management on private lands through collaborative efforts, focusing on revegetation, habitat enhancement, and livestock management, ensuring the implementation of best practices and sustainable solutions.</p> <p>Council's role is to support collaboration with multiple stakeholders, not to implement works directly. This action will involve working collaboratively with farmers/foreshore landowners in conjunction with NSW Local Land Services (LLS) to support change in farming practices to mitigate foreshore erosion (e.g. stock access to lake foreshore) and promote bank stability. This would be done in conjunction with other site-specific measures in identified deteriorated foreshore areas, including:</p> <ul style="list-style-type: none"> Engage with property owners to provide education on the importance of managing livestock access to foreshores and the broader environmental benefits. Offer guidelines, support, and potential incentives for compliance to promote proactive landholder involvement. Foster a close collaboration with Local Land Services (LLS) to support property owner engagement, education, and the implementation of livestock management measures. Discuss the viability of proposed actions with LLS to ensure alignment with broader environmental and community objectives. reinstatement of a riparian vegetation buffer along foreshore areas and installation of fencing to prevent foreshore stock access and promote bank stability. This initiative will require voluntary agreement and cooperation from landholders along with support from LLS. Establish a framework to monitor and evaluate the effectiveness of livestock management, fencing, and revegetation initiatives, ensuring ongoing alignment with environmental objectives and continuous improvement. <p>The following specific locations where works were identified throughout the Stage 2 CMP Foreshore Erosion Assessment should be considered through this action. Recommended treatment options are listed in the Stage 2 report and details should be provided to the relevant landowner.</p> <ul style="list-style-type: none"> Wandandian Creek (reach W001) Ralph Lucas Waterway (reach (S010) 	8	6	Short-Medium	Council	LLS	Yes
FE02	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Wandandian Creek	Undertake necessary investigations, detailed designs and implement foreshore erosion stabilisation works along Wandandian Creek	<p>Undertake necessary investigations, detailed designs and implement foreshore erosion stabilisation works at site W001 along Wandandian Creek. The primary management option is Large Woody Debris (LWD) covering a length of 780m. Concept designs for this management approach are illustrated in Appendix D of the Stage 2 Foreshore Erosion Assessment. Use of large woody debris along the banks will help to divert/alter and/or dissipate flows from the bank, to allow sediment to deposit and riparian vegetation to become established. Alternative and/or complimentary strategies that may need to be considered might include the construction of a rock revetment where infrastructure is at risk. Installation of fencing to exclude stock and riparian revegetation to be considered where this is lacking (Refer to action FE01). Refer to Stage 2 CMP <i>Foreshore Erosion Assessment</i> and the <i>SE Bushfires Affected Coastal Waterways Recovery Plan</i>.</p>	6.8	33	Medium	Council	LLS DPHI-Crown Lands	Yes
FE03	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Basin View / Mathie St	Undertake necessary investigations, detailed designs and implement stabilisation works at site BV03 to protect wastewater assets from erosion at Mathie St, Basin View	<p>Undertake necessary investigations, detailed designs and implement stabilisation works at site BV03 to protect wastewater assets from erosion at Mathie St, Basin View (Site ID and map provided in Stage 2 Study). The Stage 2 Foreshore Erosion Assessment identified this site as being subject to medium erosion severity, but with a high risk to infrastructure and high impact on amenity.</p> <p>The primary management option includes the maintenance, repair and upgrade of existing rock revetment, removal of building rubble and Stormwater runoff management covering a combined bank length of 40m at the end of Mathie Street. For detail and map refer to Stage 2 CMP Foreshore Erosion Assessment (Bank section Ref BV03)</p>	7.8	11	Medium	Council	DPHI-Crown Lands	Yes



ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?
FE04	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Basin View / Watersedge Ave	Undertake necessary investigations and implement stabilisation works to reduce erosion at Watersedge Avenue Basin View.	Undertake necessary investigations and implement stabilisation works to reduce erosion at site BV02 near Watersedge Ave, Basin View (Site ID and map provided in Stage 2 Foreshore Erosion Assessment) The primary management option is the installation of a cobble beach covering a length of 50m, combined with riparian vegetation. Strategies for managing navigational and boating related issues in this area will be undertaken through action EW-BN01 and EW-BN02. For detail and map refer to Stage 2 CMP Foreshore Erosion Assessment for Basin View (Bank section ref: BV02).	7.8	11	Medium	Council	DCCEEW-BCS DPHI-Crown Lands	Yes
FE05	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Old Erowal Bay / Prentice Ave	Undertake necessary investigations and implement stabilisation works to reduce erosion at site OEB01 at Prentice Reserve, Old Erowal Bay	Undertake necessary investigations and implement stabilisation works to reduce erosion at site OEB01 at Prentice Reserve, Old Erowal Bay (Site ID and map provided in Stage 2 Study). This is a public recreation reserve (Lot 7026 DP 1074334) managed by Council. The primary management options include the installation of cobble beach, riparian vegetation, no-mow zones and/or large woody debris to break up wave energy along a bank length of 390m. For detail and map refer to Stage 2 CMP Foreshore Erosion Assessment for Old Erowal Bay (Bank section ref: OEB01) The potential to authorise any proposed or existing activities on the Crown Land on the foreshore (Lot 7026 DP1074334) and below the MHWM under the Crown Land Management Act 2016 will need to be investigated. Site is included in the Regional Crown Reserve R1011528 and is subject to undetermined claims under the Aboriginal Land Rights Act and the Native Title Act. Appropriate authorisation should be sought from DPHI-Crown Lands for any recreational infrastructure located on this land.	7.2	27	Medium	Council	DPHI-Crown Lands, DCCEEW-BCS	Yes
FE06	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	McCleans Point (East)	Undertake necessary investigations and implement stabilisation works to reduce erosion at McCleans Point	Undertake necessary investigations and implement stabilisation works to reduce erosion at site MP01, McCleans Point East (Site ID and map provided in Stage 2 Study). The bank covers a length of around 900 m, with installation of a cobble beach in short sections where root zones of large trees have been undermined. Most of the length of this bank can be managed by riparian vegetation, no-mow zones and large woody debris to break up wave energy. Drainage works to control rainfall/runoff are also needed to prevent damage to Basin track. For detail refer to Stage 2 CMP Foreshore Erosion Assessment for McCleans Point East (Bank section ref: MP01)	7.8	11	Medium	Council	DPHI-Crown Lands, DCCEEW-BCS	Yes
FE07	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Erowal Bay (East)	Undertake necessary investigations, detailed designs and implement stabilisation works to protect critical sewer assets at Erowal Bay (east)	Undertake necessary investigations, detailed designs and implement stabilisation works to protect critical sewer assets at site EB01, Erowal Bay East (Site ID and map provided in Stage 2 Foreshore Erosion Assessment) The primary management option in the short term is the installation of a Cobble beach and rock revetment to protect critical sewer infrastructure along a bank length of 40m at Wharf Road. This rock revetment should incorporate incorporating elements from Environmentally Friendly Seawalls Guide (OEH 2012). The longer-term option is to investigate the feasibility of landward relocation of critical sewer infrastructure along a stretch of foreshore approximately 230 m in length within private properties (as per action EW-I04 and as per the recommendations of GHD (2015)). For detail refer to Stage 2 CMP Foreshore Erosion Assessment for Erowal Bay East (Bank section ref: EB01)	8	6	Medium-long	Council	DPHI-Crown Lands, DCCEEW-BCS	Yes
FE08	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Blackett Park, St Georges Basin	Undertake necessary investigations, implement management controls and stabilisation works to reduce erosion at Blackett Park	Undertake necessary investigations, implement management controls and stabilisation works to reduce erosion at site STB01, Blackett Park (Site ID and map provided in Stage 2 Study) The banks and vegetation at this location are being undermined by erosion. The primary management strategy is the implementation of no mow zones to help encourage vegetation growth along a bank length of 320m. Additional options include the installation of a cobble beach to provide protection to root zone of undermined trees. The relocation of park furniture landward should be considered during the asset management review where it is at risk from erosion. For detail refer to Stage 2 CMP Foreshore Erosion Assessment for Blackett Park, St Georges Basin (Bank section ref: STB01)	7.8	11	Medium	Council		Yes
FE09	Foreshore Erosion	Protect and restore the	St Georges Basin	Erowal Bay (West)	Undertake riparian restoration works	Undertake riparian restoration works to reduce erosion and the undermining of vegetation at sites EB02, Erowal Bay West and WB01, Wrights Beach (Site ID and	7.6	18	Medium	Council	DPHI-Crown Lands,	Yes



ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?
		coastal environment			to reduce erosion and the undermining of vegetation at Erowal Bay (west) and Wrights Beach	map provided in Stage 2 Foreshore Erosion Assessment). The primary management option is riparian vegetation management including planting of saltmarsh/mangroves to reduce undercutting of banks and toppling of casuarinas along a bank length of 50m and 180m respectively. For detail refer to Stage 2 CMP Foreshore Erosion Assessment for St Georges Basin (Bank section refs: EB02 and WB01)					DCCEEW-BCS	
FE10	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Tomerong Creek	Undertake necessary investigations and implement stabilisation works to reduce erosion at Tomerong Creek.	Undertake necessary investigations and implement stabilisation works to reduce erosion at Tomerong Creek. The primary management option is to use large woody debris, as well as already fallen vegetation to protect a bank length of approximately 900m. This would be complimented by other actions to improve stormwater management by controlling catchment outflows through onsite stormwater detention.	5.4	42	Medium-long	Council		No
FE11	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Tullarwalla Inlet	Undertake works to reduce erosion by restricting access by vehicles including 4WDs at sites TW01 and maintenance of existing works at TW02 near the Tullarwalla Lagoon and Inlet	Undertake works to reduce erosion by restricting access by vehicles including 4WDs at sites TW01 and maintain the existing works at TW02 near the Tullarwalla Lagoon and Inlet (Site ID and map provided in Stage 2 Study). The primary management option is to install bollards like those already installed at northern foreshore (or a similar alternative such as rock). For detail refer to Stage 2 CMP Foreshore Erosion Assessment for Tullarwalla Lagoon and Inlet (Bank section ref: TW01 and TW02)	8.2	2	Medium	Council	DPHI-Crown Lands, DCCEEW-BCS, NPWS	Yes
FE12	Foreshore Erosion	Protect and restore the coastal environment	Sussex Inlet	Sussex Inlet - The Haven	Undertake necessary investigations and implement stabilisation works to reduce erosion along the unstable dune at The Haven, Sussex Inlet	<p>Undertake necessary investigations and implement stabilisation works to reduce erosion of the unstable dune at The Haven, Sussex Inlet (Site IDs H01-H03 and map provided in Stage 2 CMP Foreshore Erosion Assessment Study). This site was identified as being subject to high erosion severity, with medium impact on the environment, amenity and safety.</p> <p>Works are proposed to be undertaken along the toe of the dune to mitigate ongoing erosion, increase the width of the foreshore and encourage natural regeneration of the sand dune.</p> <p>The primary management option for the toe of the dune, along a bank length of 775m, involves the maintenance, upgrade and repair of the existing geotextile groynes as required to ensure they are still performing their intended function. This option should also investigate the potential for the upstream extension of existing geotextile groyne field along the foreshore, and/or renourishment with sand won from potential future dredging (if dredging found to be feasible) to expand the beach width (refer to action BN03). The extension of the groyne field can be undertaken either independently or in conjunction with nourishment from potential dredging.</p> <p>This action will be complemented by continuing collaboration with NPWS and Crown Lands to implement educational actions to discourage public access through informal access tracks, promoting the use of the existing NPWS access track, as well as sand sliding on the dune through the use of fencing and signage to restrict access, as well as other education activities and resources for tourists and tourist operators (Refer action EW-C01 and EW-C09).</p> <p>The implementation of this action will involve:</p> <ul style="list-style-type: none"> - Refinement of the bank stabilisation options assessment to identify a preferred solution for this stretch of foreshore - Development of detailed design for the preferred solution - Undertaking necessary environmental assessments and obtaining relevant permits and licences to undertake works. Works will need to be undertaken in consultation and agreement with the land manager, NPWS and Crown Lands and the action will formalise Councils responsibilities in relation to the governance and 	7.4	23	Medium-long	Council	DPHI-Crown Lands, DCCEEW-BCS, NPWS, DPIRD-Fisheries	Yes



ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?
						ongoing management of the existing/ future infrastructure. - Implementation of the preferred solution in accordance with the detailed design. Monitoring and maintenance of the works to ensure their ongoing safety, effectiveness and impacts (positive and negative). For detail refer to Stage 2 CMP Foreshore Erosion Assessment for The Haven (Bank section ref: H01-H03).						
FE13	Foreshore Erosion	Protect and restore the coastal environment	Sussex Inlet	Alamein, Sussex Inlet	Consult and collaborate with the land manager to maintain public access and amenity to the foreshore fronting the Alamein Caravan Park at Sussex Inlet	Consult and collaborate with the land manager to maintain public access and amenity to the foreshore fronting the Alamein Caravan Park at Sussex Inlet. This area currently offers public recreation value to the community through access to walking paths, the foreshore and waterway. Council should continue to work with the land manager through future development to ensure that public access to this land can be maintained to retain recreational and amenity values at this site. Council is to make available to the land manager reports produced as part of this CMP and consult as required to ensure any future works undertaken along the foreshore are consistent with the coastal hazards, risks and opportunities for this site identified through the CMP.	7.4	23	Medium-long	Council	DPHI-Crown Lands	Yes
FE14	Foreshore Erosion	Protect and restore the coastal environment	Sussex Inlet	Sussex Inlet, u/s Nielson Lane	Undertake necessary investigations, detailed designs and implement stabilisation works to reduce erosion and improve public access and environmental values upstream of the Nielson Lane boat ramp, Sussex Inlet	This action responds to a long-term management solution for the foreshore fronting Nielson Lane, Sussex Inlet. This action will be implemented in a staged approach to ensure the foreshore is stabilised and to reduce risks to the environment and public use of this area. Stage 1 involves interim works to make-safe the existing foreshore protection (e.g. timber sleeper) and encourage the regeneration of riparian vegetation along a bank length of 350m. This will involve undertaking the necessary environmental assessments and obtaining appropriate licences and permits to undertake this work. It will also require survey to assess land tenure and identify the location of the MHWL. Stage 2 will be undertaken concurrently and will involve the undertaking of necessary investigations, detailed designs and environmental assessments to determine an appropriate long-term stabilisation method for this foreshore. The primary management option for this location is an environmentally friendly seawall (consistent with the Environmentally Friendly Seawalls Guide (OEH 2012)) that incorporates natural habitat as well as public accessibility features along a bank length of 350m. The design phase will: <ul style="list-style-type: none"> • Consider nature based solutions as well as more traditional engineered rock features • incorporate features to allow for improved public access to the foreshore such as walkways, platforms for fishing and ability to access boating activities. • consider long-term channel evolution/tidal flows. • involve consultation with the community and key stakeholders to ensure the design is consistent with policy frameworks and community expectations. The implementation of the final design would be done progressively once domestic waterfront licensed structures have reached the end of their useful life and are removed, with licenses not likely to be renewed as part of the MEMS DWF Strategy. Refer to the Stage 2 CMP Foreshore Erosion Assessment (Bank section ref: S004) for further description.	8	4	Medium-long	Council	DPHI-Crown Lands, DCCEEW-BCS, DPIRD-Fisheries, TfNSW	Yes
FE15	Foreshore Erosion	Protect and restore the coastal environment	Sussex Inlet	Croppers Cabins, The Haven, Sussex Inlet	Undertake necessary investigations and implement stabilisation works to reduce erosion of the steep sandy	Undertake necessary investigations and implement stabilisation works to reduce erosion of the steep sandy dune at site H05 "The Big S", Sussex Inlet (Site ID and map provided in Stage 2 Study). This site is located on the outside bend of the entrance channel to Sussex Inlet. The site was identified as having high erosion severity, with a medium environmental impact and a medium impact on amenity and safety. A preliminary assessment of existing infrastructure during Stage 2 of the CMP found that areas of the existing timber toe protection had failed. This action should seek to maintain, repair and upgrade this existing structure, across a bank length	7.4	22	Medium-long	Council	DPHI-Crown Lands, DCCEEW-BCS, NPWS, DPIRD-Fisheries	Yes



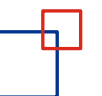
ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?
					dune at "The Big S", Sussex Inlet	<p>of 300m. Works will need to be undertaken in consultation and agreement with the land manager, NPWS and Crown Land.</p> <p>This action will formalise Councils responsibilities in relation to the governance and ongoing management of the existing/future infrastructure.</p> <p>Refer to the Stage 2 CMP Foreshore Erosion Assessment for The Big S and Croppers Cabins (Bank section ref: H05). This includes a concept design for the reconstruction of the timber wall (see Figure 4.4 of the Stage 2 Foreshore Erosion Assessment Report).</p> <p>This action will be complemented by continuing collaboration with NPWS and Crown Lands to implement educational actions to discourage public access through informal access tracks and sand sliding on the dune including brush matting to restrict access, signage as well as other education activities and resources for tourists and tourist operators (Refer action EW-C01 and EW-C09).</p> <p>Monitoring and maintenance of the works to ensure their ongoing safety, effectiveness and impacts (positive and negative).</p>						
FE16	Foreshore Erosion	Protect and restore the coastal environment	Swan Lake	Swan Lake, Errol Bond Reserve	Undertake investigations and collaborate with local Aboriginal representatives to protect the aboriginal midden in Errol Bond Reserve from further erosion	<p>Undertake recommended investigations and collaborate with local Aboriginal representatives to protect the aboriginal midden at site SW02 in Errol Bond Reserve from further erosion (Site ID and map provided in Stage 2 Foreshore Erosion Assessment). This action involves working with appropriate local Aboriginal and Heritage representatives to determine culturally appropriate solutions to protect the midden from further erosion along a bank length of 50m. This would include consideration of moving the location of the informal beach access point for unpowered watercraft westward so that it does not impact the midden and planting suitable riparian vegetation on, or around the midden. These restoration works would also ideally be undertaken by Aboriginal organisations / contractors / rangers. These works would be done under the TI SEPP. Refer to CMP Stage 2 Foreshore Erosion Assessment (Bank Section SW02)</p> <p>Activities below MHWM will require authorisation by DPHI-Crown Lands.</p>	7.6	18	Short	Council	Jerrinja LALC Jerrinja Tribal Group DPHI-Crown Lands DCCEEW-Heritage	Yes
FE17	Foreshore Erosion	Protect and restore the coastal environment	Berrara Creek	Berrara Creek, below Berrara Beach Holiday Chalets	Undertake necessary investigations, detailed designs and recommended stabilisation works to reduce erosion at Berrara Creek	<p>Undertake necessary investigations, detailed designs and implement stabilisation works to reduce erosion at sites BC01, BC02 and BC03 at Berrara Creek below Berrara Beach Holiday Chalets (Site ID and map provided in Stage 2 Foreshore Erosion Assessment). The bank at this location is being undercut due to tidal flows and requires stabilisation. The primary management option is to install foreshore protection works consisting of rock revetment along a bank length of 160m. An alternative option is to batter sections of the bank to a stable angle combined with revegetation. Initial investigations will need to include an assessment of the geotechnical stability of the slope, considering the outcomes of the geotechnical investigations completed as part of the Open Coast and Jervis Bay CMP (2024). The stabilisation method must consider impacts to cultural heritage artefacts and consultation will be undertaken with the Jerrinja People during the design and implementation stage. For detail refer to the CMP Stage 2 Foreshore Erosion Assessment, Bank Section BC01, BC02 and BC03</p>	7.2	30	Medium	Council	LLS NPWS	Yes
FE18	Foreshore Erosion	Protect and restore the coastal environment	Berrara Creek	Berrara Creek - Service Road opposite Fishermans Rock	Assist NPWS to undertake necessary investigations and implement works to repair and prevent further erosion damage to the service road opposite Fishermans Rock, Berrara Creek	<p>This land is within an Endeavour Energy powerline easement, but the erosion is impacting land managed by NPWS. In delivering this management action Council's role will be to collaborate and assist in the undertaking of necessary investigations and implement works to repair and prevent further erosion damage to the service road at site BC07 opposite Fishermans Rock, Berrara Creek (Site ID and map provided in Stage 2 Foreshore Erosion Assessment). This action will be implemented as funding opportunities arise. The primary management options are to redirect drainage from the road to prevent further erosion of the site, either by using additional gravel sills along the road, or the installation of a dish drain to direct drainage away from the creek banks. The eroded gully can be repaired by filling (with gravel and covered with compacted topsoil) and revegetated with riparian vegetation.</p>	7.6	18	Short	Council	NPWS	Yes



ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?
						For detail refer to Stage 2 CMP Foreshore Erosion Assessment (Bank section ref: BC07)						
FE19	Foreshore Erosion	Protect and restore the coastal environment	Berrara Creek	Berrara Creek, Berrara Waters Foreshore	Undertake necessary investigations, designs and implement works to reduce foreshore erosion at Berrara Creek in the public reserve near "Berrara Waters"	Undertake necessary investigations, designs and implement works to reduce foreshore erosion at site BC04, Berrara Creek in the public reserve near "Berrara Waters"(Site ID and map provided in Stage 2 Foreshore Erosion Assessment) The primary management option is to undertake riparian vegetation management and restoration, supplemented by the use of some rock, for example rock fillets beneath undermined bank section. These works would be implemented under the TI SEPP. For detail refer to Stage 2 CMP Foreshore Erosion Assessment (Bank section ref: BC04)	7.2	27	Short	Council	DCCEEW-BCS, NPWS	Yes
FE20	Foreshore Erosion	Protect and restore the coastal environment	Berrara Creek	Berrara Creek, Berrara Lagoon Reserve - Lakeland Ave	Undertake necessary investigations, designs and implement works to improve stormwater infrastructure and reduce erosion at Berrara Lagoon Reserve	Undertake necessary investigations, designs and implement works to improve stormwater infrastructure and reduce erosion at site BC05, Berrara Lagoon Reserve (Site ID and map provided in Stage 2 Foreshore Erosion Assessment). Stormwater infrastructure is currently inadequate and is leading to foreshore erosion at this location. The primary management option is to improve stormwater capture prior to its discharge into Berrara Creek by either capturing stormwater runoff upstream of the site or through the use of a swale adjacent to the boat ramp area. For detail refer to Stage 2 CMP Foreshore Erosion Assessment (Bank section ref: BC05)	7.8	11	Medium	Council	DCCEEW-BCS, NPWS	Yes
FE21	Foreshore Erosion	Protect and restore the coastal environment	Sussex Inlet	Pelican Shores, Sussex Inlet	Undertake necessary investigations, designs and implement works to improve foreshore protection works near Pelican Shores and Marine Rescue, Sussex Inlet	Undertake necessary investigations, designs and works to improve foreshore protection works at site S013 near Pelican Shores and Marine Rescue, Sussex Inlet (Site ID, map and photos in Stage 2 Foreshore Erosion Assessment). The existing timber and concrete foreshore protection between Pelican Shores and Marine Rescue is collapsing. This action should seek to maintain, repair and upgrade this existing structure, reconstructing where required across the bank. Alternatively, the existing failing foreshore structure could be removed, with this area replanted and naturalised. For detail refer to Stage 2 CMP Foreshore Erosion Assessment (Appendix C Site Photos) An identification survey is recommended to identify the boundary of the Crown Reserve R69668. Activities below the MHWL will require additional authorisation under the Crown Land Management Act 2016. It is noted that there are multiple commercial and non-commercial Crown Land tenure holders in this area. Council to undertake identification survey to identify the boundary of the reserve i.e. MHWL and investigate opportunities for the formal appointment as Crown Land Manager for this reserve to enable foreshore stabilisation works to be carried out.	7.2	27	Medium	Council	DPHI-Crown Lands	Yes
I01	Tidal Inundation and SLR	Emergency Planning and Response	Sussex Inlet	Sussex Inlet	Address identified tidal and coastal inundation risk to low-lying caravan parks on Crown Land in St Georges Basin by working with them to update their emergency response plans to prepare for and respond to coastal hazards	Using the outcomes and mapping produced as part of the Stage 2 Coastal and Tidal Inundation Study, undertake a review and update of each Caravan Parks existing Flood Emergency Plan based on Council's existing Development Control Plan Chapter (G10) relevant to Caravan Parks on Flood Prone Lands Supporting Document 2 to reflect the consideration of coastal hazards in the emergency response planning for at risk locations.	8.2	2	Medium	Council	DPHI-Crown Lands	Yes



ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?
I02	Tidal Inundation and SLR	Emergency Planning and Response	Swan Lake	Swan Lake	Address identified tidal and coastal inundation risk to "The Springs Cabins" road access to allow continued access during high Swan Lake levels	This should include Council contacting the owners regarding the changes to the trigger levels for entrance intervention at Swan Lake, working with them to understand their access limitations and requirements during high lake levels and ensure continued access is available. This may include developing a formal agreement with the owners for provision of an alternative access point (e.g. via Yarroma Ave) or considering raising the culvert level on the private access road. Refer to CMP Stage 2 - Swan Lake and Berrara Creek Entrance Management Review and Stage 2 - Tidal and Coastal Inundation Study	7.5	21	Medium-long	Council	DCCEEW-BCS	Yes
I03	Tidal Inundation and SLR	Asset management	Swan Lake	Swan Lake, The Springs Road Cudmirrah	Raise the footpath next to "The Springs Road" Cudmirrah (North of bridge) and provide cross-drainage to allow tidal inundation to occur without impacting local infrastructure and amenity	This footpath is currently inundated in places when Swan Lake Water levels are below lake entrance trigger levels. Raise this footpath to allow continued access along the foreshore during high Swan Lake water levels. The height of this infrastructure should consider future needs for a raised entrance trigger level in accordance with the updated Entrance Management Policy (Action E01), tidal and coastal inundation risks and climate change. Refer to CMP Stage 2 - Swan Lake and Berrara Creek Entrance Management Review and Stage 2 - Tidal and Coastal Inundation Study. Cross-drainage below the raised footpath is to be provided in the form of pipe culverts or similar, subject to detailed design, to allow tidal inundation to continue to occur without impacting environmental values, local infrastructure and amenity.	8	4	Medium-long	Council		Yes
WQ01	Ecological Environment	Protect and restore the coastal environment	Swan Lake	Swan Lake	Install Rain Gauge within the Swan Lake Catchment to provide data to enable future warning systems and inform entrance management.	Install Rain Gauge within the Swan Lake Catchment to provide data to enable future warning systems and inform entrance management. The installation of a rain gauge within the Swan Lake catchment will enable Council to collect data on actual rainfall to be used in the management of the Swan Lake entrance. This data can be used for informing early warning systems for flooding and entrance management and be used for predictive model calibration. Collected data should form part of Shoalhaven City Council's Environmental Monitoring Program and link to the on-line environmental monitoring dashboard.	7.4	23	Short	Council	DCCEEW-BCS	Yes



7. Stage 3 to Stage 4: Putting it Together

7.1 Overview

The next step in the CMP process considers how the proposed coastal management actions will be implemented over time, within an adaptive pathway that includes thresholds and triggers for change.

A draft business plan is to be developed, which demonstrates viable funding mechanisms for implementing proposed CMP actions that are consistent with council's Integrated Planning and Reporting (IP&R) framework.

7.2 Timing for Implementation

The management actions have been designed to be implemented within the 10-year timespan of the CMP, with long-term actions defined that will carry over to subsequent iterations of the CMP at the end of the 10-year cycle.

The timeframes defined against each action within the CMP are:

- Short-term actions – designed to be implemented within 1 – 5 years
- Medium-term actions – designed to be fully implemented within 5 – 10 years i.e. within the 10-year planning period of the CMP
- Long-term actions – designed to be initiated within the 10-year planning period of the CMP, but which would take longer than 10 years to fully implement and would likely carry over to the next iteration of the CMP.

7.3 A Business Plan

A business plan for the implementation of the management actions will be included in Stage 4 of the CMP. This will outline the full cost of the program, cost-sharing arrangements, funding and financing mechanisms and scheduling of implementation.

Approximate costs and potential funding sources including capital works and ongoing maintenance obligations, as well as implementation timeframes for each action are provided in the long list of actions in Appendix B.

7.4 On to Stage 4

Stage 4 will involve the development of the draft and final CMP document.

The purpose of Stage 4 is to prepare, exhibit, adopt and submit the CMP to the Minister for the Environment for certification.

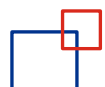
The CMP must be prepared in accordance with the requirements of the CM Act 2016 (Sections 15, 16, 17, 18 and 19) and associated Mandatory Requirements identified in Part A of the Coastal Management Manual 2018.

The Draft CMP will include the following elements:

- A snapshot of the issues as determined through the supporting studies and stakeholder engagement carried out during Stages 2 and 3
- Actions to be implemented, their costs and distribution of costs and benefits
- A business plan outlining the timeframe, responsible and supporting agencies, timing and costs for each action
- A Coastal Zone Emergency Action Subplan (CZEAS)
- A clear statement of proposed management actions and how actions are to be implemented, including maps and high-level conceptual details of the management actions.

The Draft CMP will be placed on public exhibition, with comment invited from stakeholders, including the general public, on the CMP prior to finalisation.

Following public exhibition, a final CMP and CZEAS will be prepared that incorporates any necessary amendments as a result of submissions by the general community or public authorities.



8. References

Advisian. (2020). *Shoalhaven CMP Scoping Study*. Sydney: A report produced for Shoalhaven City Council by Advisian.

Advisian. (2023). *St Georges Basin/Sussex Inlet, Swan Lake and Berrara Creek CMP Stage 2 Synthesis Report*. Sydney: Advisian Pty Ltd.

Advisian. (2023a). *St Georges Basin/Sussex Inlet, Swan Lake and Berrara Creek CMP Stage 2 Risk Assessment*.

NSW Office of Environment and Heritage. (2018). *NSW Coastal Management Manual*.

Peter Spurway and Associates. (2002). *Swan Lake Entrance Management Policy*.

Shoalhaven City Council. (2013). *St Georges Basin Revised Estuary Management Plan 2013*.

Appendix A.
Stage 3 Community Engagement Outcomes

A.1 Stage 3 Community Engagement – Closing the Loop

During Stage 3, the engagement process aimed to inform, engage and obtain input from stakeholders and the wider community on coastal management actions and their viability and acceptability.

A list of Potential Management Actions was developed and posted on the Council's Get Involved Page in from 15 June to 31 July 2023 to allow the community to provide feedback and suggestions on the potential management actions. The following activities were included in the consultation for Stage 3:

- Publishing a list of estuary-wide and location-specific potential management actions via a clickable online map with an opportunity for the community to provide comment on each
- An online survey for the community to provide comment
- Developing a "Closing the Loop" consultation document that outlined each of the issues raised during the Stage 2 community engagement, and how they have been considered in formulating the potential management actions during Stage 3.

The feedback received during the Stage 3 consultation activities has been used to refine and update the list of potential management actions.

An updated "Closing the Loop" document presented here outlines how comments received during the Stage 3 online consultation on the potential management actions have been incorporated into the updated list of management actions taken forward through Stage 4 of the CMP. Comments received from the community on each action are outlined in Table A-, together with level of community support received for each action, whether it has been included in the final CMP and how the community's feedback has been incorporated into the final list of management actions.

The initial list of 174 actions has been consolidated to 29 Estuary-Wide actions, and 39 location-specific actions to be carried forward into Stage 4. Of the initial list,

- 12% have not been included in the final list of actions for various reasons including low community support, actions already implemented, or actions being outside the scope of the CMP.
- 2% were assessed but have not progressed through to Stage 4 due to scoring poorly in the Multi-Criteria Assessment presented in this report.
- 43% have been included but modified or combined with other actions.
- 43% have been included directly into Stage 4.

Table A-1 – "Closing the Loop" – How community consultation feedback has been incorporated into the CMP

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
Sussex Inlet	BN01 - Entrance to Basin - Reposition and add additional navigation aid markers	Boating & Navigation	"The existing markers are adequate, they need to be repositioned from time to time"	50%	Not included	This action has been removed as it is not within the scope of the CMP, as assessment and maintenance of navigation aids is undertaken as part of TfNSW's regular programs.	N/A
Sussex Inlet	BN02 - Croppers - Provide lights on all navigation aids	Boating & Navigation	"May lead to encourage crossing the bar at night. Due to the constantly shifting sands may lead to groundings." "Generally, the existing lights are adequate - lights on every marker will cause confusion to skippers at some distance away (>200m). For example as approaching the channel near Christians Minde the skipper would see a mass of red lights and it would be difficult to tell what light was the closest (the correct one to navigate to)" "lack of lit navigational markers makes for unsafe navigation at night of the Sussex inlet River with very few (maybe 3) lit markers from bar to basin."	50%	Not included	This action has been removed as it is not within the scope of the CMP, as assessment and maintenance of navigation aids is undertaken as part of TfNSW's regular programs.	N/A
Sussex Inlet	BN03 - Entrance to Basin - Undertake a detailed investigation into feasibility of targeted dredging	Boating & Navigation	"Strongly agree. For the purposes of boating there need to be an intermittent and ongoing dredging at the areas of high use along the river."	100%	Included	This action has been consolidated to capture investigating the feasibility of targeted dredging at shallow points within a single action	BN02

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
Sussex Inlet	BN04 - Entrance to Basin - Undertake ongoing monitoring of sand movements	Boating & Navigation	"This natural phenomena that is being drastically accelerated due to boat wash needs to be monitored and appropriate actions applied."	100%	Included, with modifications	Included within the CMP but would be part of the action to investigate the feasibility of targeted dredging at shallow points within a single action	BN02
Sussex Inlet	BN05 - Little Manly - Install Signage warning of shallow areas	Boating & Navigation	"Motorised craft should be guided by the channel navigation markers."	75%	Not included	This action has been removed as it is not within the scope of the CMP, as assessment and maintenance of navigation aids is undertaken as part of TfNSW's regular programs.	N/A
Sussex Inlet	BN06 - Marine Rescue area - Install Signage warning of shallow areas	Boating & Navigation	"Motorised craft should be guided by the channel navigation markers."	50%	Not included	This action has been removed as it is not within the scope of the CMP, as assessment and maintenance of navigation aids is undertaken as part of TfNSW's regular programs.	N/A
Sussex Inlet	BN07/BN10 - Alamein - Undertake a detailed investigation into the feasibility of targeted dredging	Boating & Navigation	"Will encourage boaters to use the small ramp more regularly. Advantageous in busy times"	100%	Included	This action has been consolidated to capture investigating the feasibility of targeted dredging	BN02

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
						at shallow points within a single action	
Sussex Inlet	BN08/BN11 - Alamein - Undertake ongoing monitoring of sand movements via regular survey	Boating & Navigation	"Once the initial monitoring is done and an appropriate design criteria for the channel alignment and specification is identified, having got all regulatory licencing and approvals in place, then a visual inspection from then on should be adequate to determining if it is time to dredge again. The look of the shoaling at present is enough to raise the question, "is it time to dredge now"?" "	100%	Included, with modifications	Included within the CMP but would be part of the action to investigate the feasibility of targeted dredging at shallow points within a single action	BN02
Sussex Inlet	BN09 - Edgewater Canal - Investigate impact of removal of gabions weir on sedimentation.	Boating & Navigation	"This was discussed with Council engineers some 5 to 6 years ago in the context of not necessarily removing the gabions but cleaning out the accumulated silt directly in front of it. The engineers suggestion was to use a long arm excavator to clean that western end of the drain out and to reconstruct the boat ramp. If a dredge is brought in to dredge the river, it would make sense to direct the dredge to also restore the canal in full with attention to the western end of the canal."	100%	Included	Included within the CMP	BN01
Sussex Inlet	BN12 - Sussex Inlet Entrance - Improve distribution of information on bar conditions	Boating & Navigation	"No boat ramp on the ocean side of the entrance" "And provide a link to Marine Rescue Log On App"	100%	Included	Action updated to capture Council working with TfNSW to improve information to community on bar conditions	EW-BN02
Sussex Inlet	BN13 - Sussex Inlet Entrance - Install a second camera monitoring the entrance	Boating & Navigation	"Strongly agree. A fixed camera located as indicated on CMP Map "Strongly support this initiative"	100%	Included, with modifications	Action now captured within EW-BN02 for Council to work with TfNSW to improve	EW-BN02

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
						information to community on bar conditions, including investigation of the need for an additional web camera at the Sussex Inlet entrance as recommended by Sussex Inlet Marine Rescue.	
Sussex Inlet	BN14 - Croppers - Install red port marker on southern foreshore	Boating & Navigation	"The existing Port marker is in a suitable position and the plinth is a tell tail for skippers that indicated the bar is low"	50%	Not included	This action has been removed as it is not within the scope of the CMP, as assessment and maintenance of navigation aids is undertaken as part of TfNSW's regular programs.	N/A
Sussex Inlet	BN15 - Sussex Inlet Entrance - investigate feasibility of ocean access boat ramp	Boating & Navigation	<p>"Far too dangerous and problematic location for a boat ramp"</p> <p>"Ridiculous suggestion. No road access, no where to park and exposed to wind and swell. Would be a complete waste of money."</p> <p>"A great initiative to allow boaters an alternative to crossing the bar. However there are some significant and challenging civil and other issues to negotiate"</p> <p>"Rather than create a boat ramp on the ocean side of the inlet we need to limit the size of the boats using the inlet and provide information about the difficulty of navigating the bar at low tide. "</p>	50%	Dropped following assessment	Action was considered for assessment in Stage 3 of the CMP, however there is limited support for this action. The action would be technically challenging and was found to not be feasible following the	BN03

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
						Stage 3 assessment.	
Sussex Inlet	BN16 - The Haven - Undertake a detailed investigation into the feasibility of targeted dredging	Boating & Navigation	"The previous dredging and placement of the groynes significantly improved navigation and the dredges sands pumped ashore created a wonderful beach for the public to enjoy"	100%	Included	This action has been consolidated to capture investigating the feasibility of targeted dredging at shallow points within a single action	BN02
Sussex Inlet	BN17 - Lions Park - Investigate/repair seawall, undermined fish-cleaning table, ramp upgrade	Boating & Navigation	<p>"The current design proposed by Council for the design of the seawall and associated works is questionable and a submission has already been offered with alternate design concepts, refer Council engineering Dept. The submission offered also pointed out that any works done in this area will continue to be undermined and washed away while the cause of the washaway is not addressed. The wash away is caused by the surface runoff from Lakehaven Drive. It requires improved road drainage both surface and subterranean. "</p> <p>"I understand the seawall and fish table project is out to tender. HOWEVER: it should be seriously considered to move the pontoon jetty at the ramp to the centre to greatly improve efficiency and launching operations. "</p>	100%	Included	This action is partially underway, but investigating the upgrade of the ramp has been included in the CMP.	EW-BN01, EW-BN03, BN04
Sussex Inlet	BN18 - Lions Park - Investigate provision of additional overflow parking	Boating & Navigation	"The current arrangement suffices. The grassed area normally used as overflow is only used during holiday peak times and is more versatile and useful to the community as an informal reserve. The same space serves as a multi purpose space for different events. "	50%	Included, with modifications	Assessment of the upgrade of the carpark would be within the scope of assessing upgrade of the ramp facility, which has been included as an action in the CMP.	EW-BN01, EW-BN03, BN04

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
Sussex Inlet	BN19 - Seacrest - Provide line markings and repair of pavement in carpark and manoeuvring area	Boating & Navigation	"Council recently did great job resurfacing the carpark. Just needs some line marking"	100%	Included	Action included within CMP	EW-BN01, EW-BN03, BN10
Sussex Inlet	BN20 - Edgewater Ave - Signage to designate ramp for non-powered craft	Boating & Navigation	"This ramp should be added to a maintenance list for repair. " Strongly disagree. This is a great ramp to launch small tinnies. Also many kayaks have electric propulsion and the suggested restriction will impact these craft	50%	Not included	Action not included due to poor community support.	N/A
Sussex Inlet	BN21 - Cater Cres - Maintain ramp and designate it for use by non-powered craft	Boating & Navigation	"This ramp has been in use for over forty (40) years. It is considered the safest ramp for elderly people and families to launch their tinnies or small vessels under 5m. I have used this ramp for the past 13 years and it was only damaged when a council truck servicing the SCC Station 9 sewerage plant caused a hole in the ramp that exposed the waterline to the plant. This was filled with and repaired by a community member and then SCC decided to close it. There has never been a problem with the ramp when launching small vessels. It is protected from the strong winds and is safe for people to use. When Sandpiper Dredging company had their worksite on the reserve, they launched their dredging equipment and then built a solid log bridge from the ramp to the island and lowered it into the water and drove their large excavators onto the island to carry out repatriation of the Island foreshore and restore the beaches. On completion of their project of dredging around the Island, and in the keys, they removed all their equipment and dragged the wooden structure along the ground and out of the water. No effort was made to restore the grounds and areas where they have heavy machinery left deep furrows. This area is very popular with families and the elderly people that come and spend time on the island enjoying the facilities available. It is not right that we are being penalised, and are not able to use the ramp, but people with kayaks and other non-powered craft can. Council have not maintained this ramp in the 13 years that I have lived here. My house backs onto this reserve,	67%	Not included	Action not included due to poor community support. However, a new action for Review of the Canal Estates Management Plan will consider provision of launching sites for passive vessels within this area.	EW-BN04

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
			and We bought here because of the ramp and because my partner was not able to board the boat at the other ramps in Sussex as she had a problem with her legs. She was able to get in and out of the boat at this ramp. "Agree. Due to the increase in kayaking & SUPs this is the ideal spot for setting up and launching, rather than the busy boat ramps"				
Sussex Inlet	BN22 - Nielson Lane - Investigate upgrade of ramp and carpark	Boating & Navigation	"Car Park - needs to be extended to allow additional parking. Ramp - Needs to be extended due to large drop off at end at low tides. To this the large build up of rocks due to prop wash is a navigation hazard at low tide and a longer ramp will help resolve this issue. Also worth considering pontoon jetty. Nielson Lane itself is atrocious! " Strong agree in particular pontoon ramp jetty	100%	Included	Action included within CMP	EW-BN01, EW-BN03, BN05
Sussex Inlet	BN23 - Sussex Inlet - Support implementation of MEMS Domestic Foreshore Structure Strategy	Boating & Navigation	No direct comments received	100%	Included, with modifications	Now captured within the estuary-wide action EW-I03	EW-I03
Sussex Inlet	BN24 - Sussex Inlet - Provide signage around the waterways re. checking in with Marine Rescue	Boating & Navigation	"Re Marine Rescue, the tower is called "Logging On"	100%	Included, with modifications	This action has been included as part of a suite of measures incorporating boater education within the entire LGA.	EW-BN02
Berrara Creek	BN25 - Berrara Ck - Designate ramp for non-powered craft only except for emergency use	Boating & Navigation	"why the exclusion of powered craft? whole zone is 6kts, ramp can only support small craft anyway, the waterway is there to share not to exclude a certain group. has there been any incidents involving powered craft? How will this benefit all users? would this include electric vessels or only petrol powered?"	67%	Included, with modifications	Action has been combined with the action to provide formalised storage rack for non-powered	BN06

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
			<p>"no ramp only services small craft see no risk to allowing small powered craft on creek"</p> <p>"During holiday periods I have frequently witnessed boats exceeding the 4 knot speed limit and creating wakes contributing to erosion."</p> <p>"Make Swan Lake and Berrara creek boating destinations for non motorised vessels only."</p>			craft. The ramp will be retained for use by powered craft.	
Berrara Creek	BN26 - Berrara Ck - Provide a formalised storage rack or area for kayaks	Boating & Navigation	No direct comments received	50%	Included	Action included within CMP	BN06
Swan Lake	BN27 Non-powered craft encouraged to use the publicly accessible natural foreshore	Boating & Navigation	"Disagree because the existing arrangement allows for safe separation from swimmers of non powered craft. It is not unusual for sail craft to be beaching at speed and many of the swimmers in this area are children who are not aware of craft approaching the beach. The current arrangement allows sail craft to be rigged and derigged without risk to swimmers using the designated swimming Zone. This recommendation will result in the swimmers and sail craft sharing the swim zone and beach at Errol Bond reserve. There is simply not enough room for the sail craft and swimmers/picnickers at Eroll Bond Reserve to be safe and comfortable. If this recommendation is driven by the concern that there are abandoned craft scattered in the surrounding bush, then say so. It is Councils responsibility to control this and they have the opportunity to clean it up. If community assistance is required to do this, then ask."	0%	Included, with modifications	This action has been modified to address the issue of abandoned craft in the bush, rather than encouraging launching from the existing limited space at Errol Bond reserve.	BN07
Swan Lake	BN28 - Monitoring and enforcement of unauthorised use by motorised craft of Yaroma Avenue, Swanhaven ramp	Boating & Navigation	<p>"only motorised craft that i have seen use this ramp is Transport for NSW vessels.</p> <p>upgrading of this ramp could reduce congestion in peak times"</p> <p>"allowing use by motorized craft and upgrading of this ramp could reduce congestion in peak times"</p>	75%	Not included	This action has not been progressed, as the issue of congestion could be addressed by upgrading the Ski	BN08

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
			"Yes, please address this. Many motorised boats, especially in summer."			Beach ramp as per action BN-08.	
Swan Lake	BN29 - Investigate upgrade of Ski Beach boat ramp	Boating & Navigation	"ramp becomes very difficult to launch at low lake levels with vehicles getting bogged in the sand and causing deep holes that the next vehicle falls in." "upgrade of ramp to dual lane and concrete extension of the ramp"	100%	Included	This action has been progressed to the CMP.	EW-BN01, BN08
St Georges Basin	BN30 Wrights Beach Boat Ramp - Undertake necessary investigations, design and approvals. Investigate the cause of scour at the toe of the ramp and solutions to reduce scour, repair concrete surface	Boating & Navigation	"I support all these actions within existing waterway infrastructure budgets or via BoatingNow grants"	No direct feedback received	Included with modifications	This action is included within a program of potential works within the Stage 2 Boating & Navigation Study.	EW-BN01
St Georges Basin	BN31 Wrights Beach - Undertake necessary investigations, design and approvals relating to provision of skids/slipways for launching of sailboats	Boating & Navigation	"I support all these actions within existing waterway infrastructure budgets or via BoatingNow grants"	No direct feedback received	Included with modifications	This action is included within a program of potential works within the Stage 2 Boating & Navigation Study.	EW-BN01
St Georges Basin	BN32 - Erowal Bay - Investigate designated off-street car and trailer parking for ramp	Boating & Navigation	No direct comments received	100%	Not included	This action has been removed as it is not within the scope of the CMP.	N/A
St Georges Basin	BN33 Island Point Road - Undertake necessary investigations, design and approvals relating to feasibility of	Boating & Navigation	"I support all these actions within existing waterway infrastructure budgets or via BoatingNow grants"	No direct feedback received	Included with modifications	This action is included within a program of potential works within the Stage 2	EW-BN01

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
	steepening gradient of ramp					Boating & Navigation Study.	
St Georges Basin	BN34 - Island Point Jetty - Investigate re-design and replacement of pontoon	Boating & Navigation	<p>"The old jetty was a good solid working structure. Adding a floating pontoon was not needed and was doomed to fail. Extend the jetty and have no floating section creating a larger fishing and boating platform giving the tourists and locals somewhere to fish"</p> <p>"Please fix the Island Point Road Wharf asap. It is so sad that the collapsed flood and storm effected damage has not been fixed. This will be a great opportunity to not only fix it, but to also upgrade it."</p> <p>"create more land based fishing areas around the basin such as jetties and rock walls ."</p>	100%	Included elsewhere	Action has already been implemented under existing Council programs.	EW-BN01
St Georges Basin	BN35 Basin View Boat Ramp - Undertake necessary investigations, design and approvals relating to provision of an on-ramp pontoon on the centre of the ramp	Boating & Navigation	"I support all these actions within existing waterway infrastructure budgets or via BoatingNow grants"	No direct feedback received	Included with modifications	This action has not been explicitly included in the CMP but is included within a program of potential works within the Stage 2 Boating & Navigation Study. No feedback on this action was received from the online survey	EW-BN01
St Georges Basin	BN36 Investigate the repositioning and provision of additional navigation aid markers at the entrance to Wandandian Creek	Boating & Navigation	<p>"I support all these actions within existing waterway infrastructure budgets or via BoatingNow grants"</p> <p>"entry to Wandandian Creek needs to be improved. increase nav markers and entry point need work"</p>	No direct feedback received	Not included	This action has been removed as it is not within the scope of the CMP, as assessment and maintenance of navigation aids	N/A

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
						is undertaken as part of TfNSW's regular programs.	
St Georges Basin	BN37 Reduce speed limit to 4 knots within Wandandian Creek channel in line with Estuary Management Plan (EMP) recommendation	Boating & Navigation	<p>"I support all these actions within existing waterway infrastructure budgets or via BoatingNow grants"</p> <p>"Secondly, the entrance into Wandandian creek is extremely shallow. I have witnessed many visitors run aground in this area. The speed limit at Bewong should be dropped to 4 knots as jet skis have had a few near misses in this location"</p> <p>"Erosion of banks in the smaller creeks such as Wandandian Creek"</p> <p>"erosion is evident as many boaters do not adhere to the signage relating to the speed within channels. The entrance to the basin (The Sticks) also needs to be dredged, being extremely shallow and the distance between the channel markers is very narrow. When North-easterlies or strong southerlies become evident the entrance from the sticks into the Basin or vice versa becomes extremely dangerous. On occasions I have had to not proceed back through the sticks into the river, seeking an alternative route through the middle of the weed bank toward Jewfish bay. "</p>	No direct feedback received	Not included	This action was assessed through Stage 3 of the CMP, however the scoring of this action has resulted in this not proceeding through the multi-criteria assessment.	BN09
St Georges Basin	BN38 Consider provision of reduced speed limits and no-wash zones adjacent to areas where bank erosion is occurring e.g. Blackett Park and Aloha Caravan Park foreshores	Boating & Navigation	<p>"There is quite a lot of erosion along the shore at Blackett Park from the wake boats"</p>	No direct feedback received	Not included	This action has been removed as it is not supported by the relevant Agency. Speed limits for waterways are regularly reviewed by TfNSW. The area is already designated as a low wash zone on boating maps.	N/A

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
Sussex Inlet	BN39 - Alamein - Consider need for erosion protection works	Boating & Navigation, Foreshore Erosion	No direct comments received	100%	Included, with modifications	This action has been updated to allow Council to continue to work with the land manager through future development to ensure that public access to this land can be maintained to retain recreational and amenity values at this site.	FE13, EW-FE01
Sussex Inlet	BN40 - The Haven - Replace signs damaged by erosion, use deeper footings	Boating & Navigation	"Also at this site adjacent to the said signs is a constant scatter of broken glass on the beach and in the water. The glass is coming from the constantly eroding embankment and stockpile on the ground above. The glass is scattered all over that hill as a result of the demolition of the original camp there which was demolished in the late 50s early 60s. National Parks know about it but need to be reminded of their duties. It is too hard to remove the entire problem but it can be consolidated."	100%	Not included	This action has been removed as it is not within the scope of the CMP, as assessment and maintenance of navigation aids is undertaken as part of TfNSW's regular programs.	N/A
St Georges Basin	BN41 - Tomerong Ck - Provision of reduced speed limits/restricted access for power boats	Boating & Navigation	"This is extra urgent - in past 6 months 4 mature trees have fallen into the creek - we see speeding dinghies operating 24/7 - this must become a no wash zone" "Removal of all jetties/piers on the creek that do not have approval"	100%	Not included	This action has been removed as it is not supported by the relevant Agency. Speed limits for waterways are regularly reviewed by TfNSW.	N/A

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
Sussex Inlet	C01 - Sussex Inlet - Investigate provision of foreshore access between The Haven and Alamein	Cultural & Social	"No further foreshore access should be required, possible upgrade of other accesses only"	67%	Included, with modifications	Action captured within this general action at Alamein	FE13, EW-FE01
Sussex Inlet	C02 - Sussex Inlet - Investigate provision of recreational fishing platforms	Cultural & Social	"There are a multitude of jetties and platforms across this area and we do not have the funds to maintain them all now - please do not add any more" "My problem with fishing is that people throw lines , get snagged in the water or into the trees. We have had three pied oyster catchers with fishing lines wrapped around their feet, one had it around both feet and could hardly walk. It took a long time and lots of pain before the foot fell off. A cormorant was totally wrapped up in fishing line and raven were attacking it. We need education for fisherpeople and fishing lines that degrade to give our shorebirds a chance of surviving."	75%	Included, with modifications	Action now captured within this action to improve the foreshore in the area upstream of the Nielson Lane Boat Ramp, and the action to support and promote LGA-wide boating education measures targeting both local and visiting recreational boaters	FE14, EW-FE01, EW-BN02
Sussex Inlet	C03 - Sussex Inlet - Share Aboriginal stories through signage	Cultural & Social	No direct comments received	100%	Included, with modifications	Now included within estuary-wide action on cultural education & awareness.	EW-C05
Berrara Creek	C04 - Berrara Creek - Updating Aboriginal and non-Aboriginal heritage listings	Cultural & Social	No direct comments received	100%	Included, with modifications	Now included within estuary-wide action on estuary-wide cultural heritage surveys.	EW-C07

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
Berrara Creek	C05 - Berrara Creek - Provide interpretive/educational signage re Aboriginal heritage	Cultural & Social	No direct comments received	100%	Included, with modifications	Now included within estuary-wide action on cultural education & awareness.	EW-C05
Berrara Creek	C06 Berrara Creek - Provide interpretive/educational signage	Cultural & Social	No direct comments received	100%	Included, with modifications	Now included within estuary-wide action on cultural education & awareness.	EW-C05
St Georges Basin	C07 - St Georges Basin - Explore opportunities to connect missing links in foreshore walk	Cultural & Social	"Yes, we need to improve links/access to The Basin Walk all along its route, however funding has so far been an issue"	100%	Included	Included within CMP	C01
St Georges Basin	C08 - St Georges Basin - Review design of Basin walk to make more resilient against erosion	Cultural & Social	"This is currently occurring through Sustainable Tourism Infrastructure Grant works" "Being a local of the area who walks on the foreshore daily. Erosion seems to be less of an issue than flooding which causes havoc on the Basin walk. Sections of the Basin walk which were made of wood and not anchored in any way, simply floated away during our last flood event. Many of these sections that floated away still remain close by to their original locations and have yet to be repaired a year later."	75%	Included	Action consolidated and included within Action C01	C01
St Georges Basin	C09 - St Georges Basin - Explore opportunities to connect missing links in foreshore walk	Cultural & Social	"Yes, we need to improve links/access to The Basin Walk all along its route, however funding has so far been an issue"	100%	Included	Included within CMP	C01
St Georges Basin	C10 - St Georges Basin - Explore opportunities to provide more public foreshore access	Cultural & Social	"There are already plenty of formalised (and unfortunately informal) accesses to the foreshore. We want to upgrade what we already have and protect the foreshore from further erosion, which would be increased with more vegetation loss to make way for this suggested new infrastructure"	50%	Included	Included within CMP	C01

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
St Georges Basin	C11 - St Georges Basin - Enforcement of 4WD restrictions and community education	Cultural & Social	<p>"There has already been some great work done by [redacted] in this space, however we need to broaden the scope and area to protect vulnerable dune systems further"</p> <p>"4wding activities should be encouraged and formalised with improved signage. By providing a formalised route, this would encourage the support of the 4wd community who has proven to increase maintenance of track and reduce littering and dumping. Signage can also provide information on history and improve public education on the area"</p>	50%	Included, with modifications	Modified to address specific issue of access by 4WDs at specific sites near Tullarwalla Inlet	FE11
Swan Lake	C12 - Swan Lake - Improve access to the environment for Aboriginal people	Cultural & Social	<p>"Why just provide better access for Aboriginal people? I do not understand this point. The current accesses are suitable for all cultural backgrounds. We need to look at further improving existing accesses, rather than providing more of them"</p> <p>"Isn't the environment and access to land & sea available to everybody already? "</p>	50%	Included, with modifications	This issue has been addressed by the estuary-wide action to build capacity for local Aboriginal Ranger programs	EW-C06
Swan Lake	C13 - Swan Lake - Investigate feasibility of a pontoon to allow recreational use in high water levels	Cultural & Social	<p>"A pontoon in the lake area would require direct access to the water from the shore and this would likely damage the fragile marsh. I also question its safety for the public, as it would not be patrolled."</p> <p>"I don't think we need a pontoon. High water brings the water closer to the shore. I don't see how that would impact recreational use. Kayaks, sailboats etc can still launch. Swimmers can still access the water. What we do need is community education on the natural cycles of the lake as an ICOLL. The outrage whenever the lake is low/high/open/closed is ridiculous."</p> <p>"The proposal to have a pontoon on Swan Lake is a very bad idea for many reasons. (1) It would be an eyesore on the natural landscape. (2) The pontoon would encourage more people to walk close to the lakes edge when the water level is high, thus trudging through established vegetation. This would lead to vegetation loss of important plants such as Casuarinas and reeds that help to stabilise the shoreline and subsequent</p>	0%	Not included	This action was assessed through Stage 3 of the CMP, however the scoring of this action has resulted in this not proceeding through the multi-criteria assessment.	C02

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
			erosion of the foreshore. (3) The works to construct the pontoon/wharf would be damaging where it connects to the land because it disturbs the soil and vegetation. (4) We all cope now with the variable lake level and it doesn't need any human intervention. (5) This a waste of money. It would be better directed towards filling potholes more frequently, and starting a green waste collection and composting (FOGO) service."				
Berrara Creek	E01 - Berrara Ck - Targeted ecological surveys to be able to monitor long term trends	Ecological Environment	No direct comments received	100%	Included with modifications	This action has been consolidated into Action EW-C09	EW-C09
Sussex Inlet	E02 Review Council Local Environment Plan (LEP) and Development Control Plan (DCP) based on planning proposal and update of coastal vulnerability areas to allow for future migration of estuarine vegetation communities	Ecological Environment	No direct comments received	100%	Included	Captured in estuary-wide action EW-E01 and EW-E02	EW-E01. EW-E02
Sussex Inlet	E03 - Sussex Inlet - Consult with agencies to identify anchorage locations	Ecological Environment	No direct comments received	100%	Included with modifications	Covered by boating education estuary-wide action EW-BN02	EW-BN02
Sussex Inlet	E04 - Sussex Inlet - Restricted vessel access to known/mapped seagrass areas	Ecological Environment	No direct comments received	100%	Included with modifications	Covered by boating education estuary-wide action EW-BN02	EW-BN02
St Georges Basin	E05/06/07 - St Georges Basin - Community education, Tree and	Ecological Environment	"We also have people hewing trees from Bherwerre Wetlands with impunity - reported matter to council - trail bikes in and	100%	Included with modifications	Action now incorporated into general estuary-	EW-C01

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
	Vegetation Vandalism Policy.		around wetlands are also causing considerable damage to riparian zone and wetlands			wide community education action	
Sussex Inlet	E08 - Sussex Inlet - Migration of vegetation with sea level rise to be considered for development area	Ecological Environment	No direct comments received	100%	Included with modifications	Captured in estuary-wide action EW-E01 and EW-E02	EW-E01. EW-E02
Sussex Inlet	E09 - Sussex Inlet - Map migration pathways for Coastal wetlands	Ecological Environment	No direct comments received	100%	Included with modifications	Captured in estuary-wide action EW-E01 and EW-E02.	EW-E01. EW-E02
St Georges Basin	E10 Monitor and review the legality of boating structures and removal of unapproved structures from St Georges Basin/Sussex Inlet.	Ecological Environment	"I support all these actions"	100%	Included with modifications	Captured in estuary-wide action EW-I03	EW-I03
Sussex Inlet	E11 - Sussex Inlet - Education re. Domestic Waterfront Structures Landowners Consent	Ecological Environment	No direct comments received	100%	Included with modifications	Captured in estuary-wide action EW-I03	EW-I03
Sussex Inlet	E12 - Sussex Inlet - Monitor and review legality of boating structures and removal	Ecological Environment	No direct comments received	100%	Included with modifications	Captured in estuary-wide action EW-I03	EW-I03
Sussex Inlet	E13- Sussex Inlet - Education re Domestic Waterfront Structures Landowners Consent Strategy	Ecological Environment	No direct comments received	100%	Included with modifications	Captured in estuary-wide action EW-I03	EW-I03

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
Swan Lake	E14 - Swan Lake - Community planting and weeding programs, maintenance of reserves	Ecological Environment	"Bring back CoastCare programs	100%	Included with modifications	Captured within the estuary-wide action on environmental protection works	EW-E04
Swan Lake	E15 - Swan Lake - Review Entrance Management Policy, targeted community education	Ecological Environment	"Please do address this, it's vital. Unfortunately, many in the community think they are an 'expert'. Community education could help residents understand how an ICOLL works, and why it needs to be left alone to work its natural cycles. If there was signage - a document link - talks - education - this could be referenced to help everyone be on the same page. " "Please consult me when the Entrance Management policy is to be reviewed. Foreshore erosion around the eastern side of the Lake is not due to boat wash as suggested by some. Boat wash can't reach the trees to undermine them if a beach is maintained. The erosion and undermining of trees is a result of persistent surface wind chop when lake levels are high for long periods.	100%	Included	Included within CMP, education initiatives re ICOLLS included in EW-C01	EW-C01, E01
Swan Lake	E16 - Swan Lake - Research project on lake ecology and likely causes of swan decline	Ecological Environment	"Definitely support this. "	100%	Included	Included within CMP	E02
Swan Lake	E17 - Swan Lake - Community education/signage, enforcement in areas where access not permitted	Ecological Environment	"Vehicles using the beach for recreation is an issue... however these drivers are unlikely to pay attention to signage. Judging by community comments on local forums, these drivers have a high level of self-entitlement. Action on this issue will need to be reinforced by fines or other methods to dissuade vehicles. "	100%	Included with modifications	Included within general education action EW-C01	EW-C01
Swan Lake	E18 - Swan Lake - Monitoring risk and beach scraping to reduce risk of breakout at The Gap	Ecological Environment	No direct comments received	100%	Included	Included within CMP	E03

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
Swan Lake	E19 - Swan Lake - Feral animal control, fencing	Ecological Environment	<p>"No fencing. Native animals need access to the rivers and lake. A marine park is needed within the 4 knot zones to keep the professional fishermen out so the ecosystem can return to some normality ..I should know I have lived on swan lake for 25 years..."</p> <p>"This would need to be a coordinated effort with private landholders, Crown, NPWS, LALCs and Council, otherwise relatively ineffective"</p> <p>"Yes ..the community had a meeting you haven't used any of our recommendations. Why is that.... ?"</p> <p>"A sanctuary within the 4 knot zones at swan lakefencing will not stop feral animals it stops native animals from their natural movements. Cats would be the biggest problem but are hard to manage."</p>	40%	Not included	Action not included as management of feral animals within the National Park is part of the day-to-day management undertaken by NPWS	N/A
Swan Lake	E20 - Swan Lake - Investigate impact on lake morphology when bridge is due for upgrade	Ecological Environment	"This should be undertaken as part of the bridge project via the REF/EIS"	100%	Included	Included within CMP	E04
Berrara Creek	E21 - Monitoring of entrance openings and closures either via citizen science opportunities or remote sensing. Community information and engagement regarding Berrara Creek natural opening and closure regimes and potential impacts of illegal openings.	Ecological Environment	<p>"Placement of sign to stop people from opening Berrara creek when it is not ready has to be open when there is a significant rain event with days of run off. And actually fine people. "</p> <p>"All dogs should be on leashes where required and enforced."</p>	75%	Included with modifications	This is included in an action to undertake estuary wide monitoring	EW-E03

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
Berrara Creek	E22 - Berrara Ck - Updated water quality monitoring program. Publication of swimming suitability	Ecological Environment	No direct comments received	100%	Included	Now captured within estuary-wide action on water quality monitoring	EW-WQ01
Berrara Creek	E23 - Berrara Ck - Development controls, public education, invasive weed management	Ecological Environment	No direct comments received	100%	Included with modifications	Captured within the estuary-wide action on environmental protection works	EW-E04
Berrara Creek	E24 - Berrara Ck - Exclusion of public access from nesting sites on southern side of lake	Ecological Environment	"Please continue this important work. In addition to dogs and people posing a threat, motorbikes have become a concern. It's become common to find vehicle tracks on the beach, especially at the southern end of Berrara beach near mermaid pool. I know the official nesting site is at the northern end, but I regularly see hooded plovers at the southern end of the beach. "	100%	Included with modifications	Captured within the estuary-wide action on collaborating with research institutions	EW-C09
Berrara Creek	E25 - Berrara Ck - Review of emergency procedures for water pump station	Ecological Environment	"I support all these actions"	100%	Not included	Action already undertaken	N/A
Sussex Inlet	E26 - Badgee Lagoon - Protection of vegetation, education, revegetation and monitoring	Ecological Environment	No direct comments received	100%	Included with modifications	Captured within the estuary-wide action on environmental protection works	EW-E04
Sussex Inlet	E27 - Sussex Inlet - Protection of vegetation, education, revegetation and monitoring	Ecological Environment	No direct comments received	100%	Included with modifications	Captured within the estuary-wide action on environmental protection works	EW-E04

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
Sussex Inlet	E28 - Sussex Inlet - Updated ecological surveys and monitoring to investigate seagrass health	Ecological Environment	No direct comments received	100%	Included with modifications	Captured within the estuary-wide action on collaborating with research institutions	EW-C09
St Georges Basin	E29 Interpretative signage detailing the Aboriginal connection and information on the oystercatcher breeding season. Restrict landings on the islands during the breeding season and excluding dogs to protect the birds	Ecological Environment	"I support all these actions"	100%	Included with modifications	Captured in estuary-wide action EW-C01 and EW-C05 relating to education	EW-C01, EW-C05
St Georges Basin	E30 Review Council Local Environment Plan (LEP) and Development Control Plan (DCP) to ensure that wildlife corridors and connectivity between conservation areas is maintained	Ecological Environment	"I support all these actions"	100%	Included with modifications	Captured in estuary-wide action EW-E01 and EW-E02.	EW-E01, EW-E02
St Georges Basin	E31 Review and document ecological values of area, review Council Development Control Plan (DCP) and Local Environment Plan (LEP) in light of potential future development pressures and cumulative impacts,	Ecological Environment	"I support all these actions"	100%	Included with modifications	Captured in estuary-wide action EW-E01 and EW-E02.	EW-E01, EW-E02

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
	where necessary update DCP and/or LEP controls						
St Georges Basin	E32 Implement weed control and other restoration measures in line with the SE Bushfire affected coastal waterways recovery plan	Ecological Environment	"I support all these actions"	100%	Included with modifications	Captured within the estuary-wide action on environmental protection works	EW-E04
Berrara Creek	E33 - Berrara Ck - Education, enforcement of Tree and Vegetation Vandalism Policy	Ecological Environment	No direct comments received	100%	Included with modifications	Captured within the estuary-wide action on community education EW-C01	EW-C01
Estuary-wide	EW-BN01 - Investigate infrastructure upgrades at recommended sites	Boating & Navigation	"Please fix the Island Point Road Wharf asap. It is so sad that the collapsed flood and storm effected damage has not been fixed. This will be a great opportunity to not only fix It, but to also upgrade it." Comments received on site-specific boating and navigation actions	Varies depending on proposed actions at individual sites	Included	This action has been progressed to the CMP. Site-specific actions have been developed to address specific concerns relating to boating and navigation throughout the estuaries.	EW-BN01
Estuary-wide	EW-BN02 Undertake a detailed investigation into the feasibility of targeted dredging within the Sussex Inlet channel at key shallow points	Boating & Navigation	"The previous dredging and placement of the groynes significantly improved navigation and the dredges sands pumped ashore created a wonderful beach for the public to enjoy"	100%	Included	This action has been consolidated to capture investigating the feasibility of targeted dredging at shallow points within a single	BN02

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
						action for Sussex Inlet	
Estuary-wide	EW-BN03 Implement an LGA-wide boating education program targeting both local and visiting recreational boaters	Boating & Navigation	"Main problem is lack of recreational boater education. Dredging is a destructive waste of money" Improve education on why these water ways need protecting, policing of illegal activities and boating structures like illegal jetties.	100%	Included	Action included in the CMP.	EW-BN02
Estuary-wide	EW-C01 Comprehensive community information program to accompany CMP implementation to explain key issues and actions	Cultural & Social	"Need to connect with tourists/visitors to the area so they know the issues and avoid adding to the problems. Communicate with local businesses/industry, the construction industry and developers about the issues to avoid runoff and contamination" "Shoalhaven Estuary and Coastal Management is complex in respect to community information gathering, analysis and presentation as this a local story telling program and requires effective community engagement. This local information should be guided by published science based academic research and local and aboriginal cultural knowledge, as this information requires a physical research space or hub, a laboratory as a local catchment management studies Centre and a depot in which to store field-based equipment could incorporate a design studio to publish information presented in multimedia for local and visitor education and community engagement. The collating and archiving of this local data as local community based knowledge should be CRC in nature or collaborative and be supported by a network of CRC managed from a central regional hub in a regional CBD location similar to how Emergency Services or Rural Fire manages community and regional emergency and natural disaster management. There is a priority and knowledge gap that relies on a disconnect between the Environment of NSW as a nature base and the urban precincts as both rely on centralized data management and decision making to develop local and visitor interest in the information presented as the Environment of NSW to inform due diligence, due process and decision making. This community based knowledge and understanding through	100%	Included	Action included in the CMP.	EW-C01

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
			<p>effective engagement of the public interested in the unique landscape and environments that sustains our waterways surrounding our homes within urban precincts requires local funding but also collaboration and centralized regional hubs or activation precincts to liaise with State, Commonwealth and philanthropic NGO funding bodies.</p> <p>This network and central local catchment management studies centre in action as a hub to develop and capture local catchment management resources as a collective of current knowledge based data and resources, providing up to date science and networking opportunities to deliver workshops, attract funding for programs and projects that is based on action and delivered and coordinated to meet the principles of Ecologically Sustainable Development.</p> <p>This collaborative local approach may then determine the presentation of the information on site in the field, through interpretive signage that compliments ecotourism and multimedia education and material, and because of the depth of academic research and studies that are required to become qualified in Engineering and Science this local knowledge relates directly to improvements to terrestrial land based natural resource management and water quality outcomes that is key to sustaining living fresh and maritime saltwater environments as estuaries to be managed for future generations."</p>				
Estuary-wide	EW-C02 Establish a CMP Governance Framework	Cultural & Social	<p>"The CMP working group should be more diverse. Especially include private sector such as businesses and chambers of commerce also include defence and Booderee.</p> <p>"I support this action, however have reservations in current form as I see potential for land use conflict with residents unless any survey work and associated subsequent actions are undertaken with direct localised community engagement, transparency and communication, and that these principles are incorporated from the development stage onwards. For long term residents for whom access to immediate foreshore for example, and where families have grown up over 3 generations/60 years, there should be recognition that access to place and country is also fundamental to identity and health and well-being, and any actions that might exclude access to the</p>	75%	Included	Action included in the CMP.	EW-C02

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
			Basin foreshore where there is a demonstrated connection to land for long term residents be avoided."				
Estuary-wide	EW-C03 Maintain a full-time CMP Coordinator	Cultural & Social	"This is a must if the CMP is to be implemented successfully." "I support this action, however have reservations in current form as I see potential for land use conflict with residents unless any survey work and associated subsequent actions are undertaken with direct localised community engagement, transparency and communication, and that these principles are incorporated from the development stage onwards. For long term residents for whom access to immediate foreshore for example, and where families have grown up over 3 generations/60 years, there should be recognition that access to place and country is also fundamental to identity and health and well-being, and any actions that might exclude access to the Basin foreshore where there is a demonstrated connection to land for long term residents be avoided."	75%	Included	Action included in the CMP.	EW-C03
Estuary-wide	EW-C04 Review Council's Coastal Management Planning policies every 10 years	Cultural & Social	"There should be a mid-term review after 5 years. This will allow for adaptive management. The mid-term review would focus more on reviewing the success of actions rather than reviewing objectives, structure etc."	100%	Included	Action included in the CMP.	EW-C04
Estuary-wide	EW-C05 Engage with relevant Local Aboriginal Land Councils and local Traditional Owner Groups to develop a cultural educational and awareness program	Cultural & Social	"This should be a bottom up approach, i.e. designed and led by the indigenous community. It should reflect the living culture rather than taking an archaeological approach. It should prioritize face to face interactions (subject to the indigenous community wishes) and provide payment to elders who undertake the tours."	75%	Included	Action included in the CMP.	EW-C05
Estuary-wide	EW-C06 Provide opportunities and help build capacity of local Aboriginal Ranger programs, to enhance their role in	Cultural & Social	"Work with Marine Parks"	75%	Included	Action included in the CMP.	EW-C06

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
	management of Sea Country (including the estuaries)						
Estuary-wide	EW-C07 Undertake an estuary-wide Aboriginal Cultural Heritage Survey, and development of local protection/management plans	Cultural & Social	<p>"Employ (paid) local indigenous community to work on the survey."</p> <p>"Ground Truth is evident in discovery by NSW Aboriginal Owners, as this action is also made done in Cooperation with the Owners of Indigenous Knowledge, Subject to Commonwealth EPBC Act 1999, as this Equity does remain inherent in law both NSW and this Commonwealth of Australia."</p> <p>"It is really important to acknowledge our history and recognise places of significance. It enriches us and grounds us in our environment. "</p>	100%	Included	Action included in the CMP	EW-C07
Estuary-wide	EW-E01 Encourage buffers and land management practices that allow wetlands to migrate with sea level rise	Ecological Environment	"I support all these actions"	100%	Included	Action included in CMP	EW-E01
Estuary-wide	EW-E02 Protect estuarine vegetation from vandalism	Ecological Environment	"I support all these actions"	100%	Included with modifications	Action now incorporated into general estuary-wide community education action	EW-C01
Estuary-wide	EW-E02 Review of Council's Local Environment Plan alongside the development of a Planning proposal to map a Coastal Vulnerability Area	Ecological Environment	"I support all these actions"	100%	Included	Included and made more specific to reference Council DCP and LEP	EW-E02

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
Estuary-wide	EW-E04 Continue to work collaboratively with National Parks and Wildlife Service staff and Volunteers to implement the NSW South Coast Shorebird Recovery Program	Ecological Environment	"I support all these actions"	100%	Included	Action included in CMP	EW-C09
Estuary-wide	EW-E05 Develop a program to monitor key environmental parameters	Ecological Environment	"I support all these actions"	100%	Included	Action included in CMP	EW-E03
Estuary-wide	EW-E06 Implement environment protection works to enhance ecological communities in coastal reserves within the CMP Study Area.	Ecological Environment	"I support all these actions"	100%	Included	Action included in CMP and wording expanded to make more specific	EW-E04
Estuary-wide	EW-FE01 Investigate feasibility of moving public infrastructure landward. Review and update all Council asset management plans where assets are impacted by foreshore erosion.	Foreshore Erosion	No direct comments received	No direct feedback received	Included with modifications	Action included within the action to review Asset Management Plans within the coastal zone and the preparation of a climate change adaptation strategy	EW-I04, EW-I05
Estuary-wide	EW-FE02 Implement foreshore erosion actions recommended for specific sites as a result of the Foreshore	Foreshore Erosion	No direct comments received	No direct feedback received	Included	Action included in CMP for high priority sites	EW-FE01

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
	Erosion Assessment undertaken for Stage 2 of the CMP						
Estuary-wide	EW-I01 Investigate feasibility of moving public infrastructure landward. Review and update all Council asset management plans where assets are impacted by sea level rise and coastal inundation	Tidal Inundation & Sea Level Rise	"Include public engagement in this process so that public learn about the risks and what Council response may be, and can have input into that."	100%	Included, with modifications	Action included within the action to review Asset Management Plans within the coastal zone and the preparation of a climate change adaptation strategy	EW-I04, EW-I05
Estuary-wide	EW-I02 - Inundation & Sea Level Rise - Develop long-term strategies beyond the CMP timeframe for adaption to sea level rise, integrating actions from Flood Risk Management Plan with CMP	Tidal Inundation & Sea Level Rise	"Involve Council strategic planning, feed into new DCP and LEP."	100%	Included, with modifications	This is now captured in the estuary-wide action on planning controls to reduce future coastal hazard impacts.	EW-I03
Estuary-wide	EW-I03 Review Council's sea level rise projections for future planning purposes based on latest advice from the Intergovernmental Panel on Climate Change	Tidal Inundation & Sea Level Rise	No direct comments received	No direct feedback received	Included	This is now captured in the estuary-wide action on reviewing Council's Coastal Management Planning policies every 10 years.	EW-C04
Estuary-wide	EW-I04 - Inundation & Sea Level Rise - Engineering to mitigate	Tidal Inundation	"No action is required "	50%	Included	Sea level rise will affect groundwater and therefore this is	EW-I01

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
	against groundwater damage	& Sea Level Rise				included as an action in the CMP	
Estuary-wide	EW-I05 Prepare and implement Coastal Zone Emergency Action Subplan (CZEAS)	Tidal Inundation & Sea Level Rise	No direct comments received	No direct feedback received	Included	Action is required as part of the CMP scope	EW-I02
Estuary-wide	EW-WQ01 - Water Quality - Revised Council water quality monitoring program	Water Quality	"WQ monitoring needs to be for all key nutrients, and develop WQ model to understand if/when tipping points may be reached. Monitor key indicators such as seagrass to understand impacts of WQ."	100%	Included	Included in CMP	EW-WQ01
Estuary-wide	EW-WQ02 - Water Quality - Review Council Pollution Incident Response Plans and strategies	Water Quality	"Also plan to re-engineer to reduce likelihood of pollution incidents" "i think the addition of watersocks to all estuary water outlets would be a great way of decreasing /stopping a lot of rubbish going into the basin and stopping pollution and death to fish and birds etc that are in the basin"	100%	Not included	Action already undertaken	N/A
Estuary-wide	EW-WQ03 Collect maintenance data on existing Gross Pollutant Traps (GPTs) to enable an internal assessment of the effectiveness of existing stormwater runoff treatment/GPTs	Water Quality	No direct comments received	No direct feedback received	Included	Included in CMP	EW-WQ02
Estuary-wide	EW-WQ04 - Water Quality - Develop and implement water quality controls for future development	Water Quality	"Storm water management from within new Green field Developments must plan urban precincts with wide drainage easements and action revegetation along drainage lines before stormwater enters into Crown Land and Road Reserves. This Water Sensitive Urban Design DCP must be developed with Vegetated Storm Water Easements that encourage multiple use with storm water easements that allow for Public Access as transport corridors for walking, riding and small EV. "	100%	Included with modifications	Captured in estuary-wide action EW-I03	EW-I03

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
			<p>"Water Sensitive Urban Design features to incorporate natural reed beds, sedge fields and forest land into urban precincts designed to capture gross pollutants, filter stormwater, reduce nutrients levels and recharge aquifers with quality fresh should be master planned into all urban precincts as development at a ratio of 60% hard surface and roof space to 40% soft landscaping as native grassland, forest and riparian lands. This urban master planning as ecological precincts that manages stormwater on site before this urban storm water runoff enters natural and aboriginal cultural areas that sustain wild food and fiber resource harvesting as native vegetation and a 50 metre Riparian Buffer is standard between all urban precincts and the adjacent water courses that include creeks, drainage lines, wetlands, sedge lands, Wallum heaths and wet heaths as habitat. This standard in coastal watercourse feeding into fishing grounds in the NSW Maritime Estate should be considered best management practice for developing urban precincts in sensitive coastal locations including the coastal zone of NSW. No cut and fill or raising of topographic features in surrounding areas above the flood zone to allow concrete slabs and footing within flood prone areas, the development in these areas should be built above the flood zone on stilts. These Operational Lands drain urban pollutants into Community Lands and on into Crown Lands, with Water Sensitive Urban Design in action, Riparian Buffers and settlement ponds capture nutrient and sediment in reed beds and ponds. These areas must be resourced with operational staff who are qualified to manage natural areas for biodiversity and cultural values, vegetated Creek lines with Bridged Road and Cycleways should be the priority over deep excavated and buried pipelines to achieve Neutral or Beneficial Effects on Water Quality. "</p> <p>"Big developments on or near a waterway must prevent water runoff from going into the basin or creeks. Some methods are not effective or not monitored. People living near waterways may need to be better informed about the use of fertilisers and other chemicals that may enter creek or the basin. "</p>				

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
St Georges Basin	FE01 - Wandandian Creek - In conjunction with the use of large woody debris along the outside of the bend, maintenance of fencing to exclude stock from the riverbank and establishment of a riparian vegetation zone along the bank where this is absent.	Foreshore Erosion	"I support all of these"	100%	Included	Action included but broadened to include facilitation of bank management on private lands through collaborative efforts.	EW-FE01, FE01
St Georges Basin	FE02 - Wandandian Creek - Use of large woody debris along the banks to divert/alter and/or dissipate flows from the bank, to allow sediment to deposit and riparian vegetation to become established	Foreshore Erosion	"I support all of these"	100%	Included	Action included but broadened to include various options for bank protection in this area.	EW-FE01, FE02
St Georges Basin	FE03 - Wandandian Creek - Allow collapsed foreshore vegetation which is acting as natural "large woody debris" to remain as this would likely have a role in protecting the banks from further damage.	Foreshore Erosion	"I support all of these"	100%	Included	Action included but broadened to include various options for bank protection in this area.	EW-FE01, FE02
St Georges Basin	FE04 - Basin View - Maintenance of existing rock revetment, Removal of building	Foreshore Erosion	"I support all of these"	100%	Included	Action included but broadened to include various options for bank	EW-FE01, FE03

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
	rubble, Stormwater runoff management					protection in this area.	
St Georges Basin	FE05 - Basin View - Installation of cobble beach, riparian vegetation	Foreshore Erosion	"I support all of these"	100%	Included	Action included but broadened to include various options for bank protection in this area.	EW-FE01, FE04
St Georges Basin	FE06 - Old Erowal Bay - Installation of cobble beach, riparian vegetation, no-mow zones, large woody debris to break up wave energy	Foreshore Erosion	"I support all of these"	100%	Included	Action included but broadened to include various options for bank protection in this area.	EW-FE01, FE05
St Georges Basin	FE07 - Mcleans Point - Installation of cobble beach, riparian vegetation, no-mow zones, large woody debris to break up wave energy, control rainfall/runoff to prevent damage to Basin track	Foreshore Erosion	"I support all of these"	100%	Included	Action included but broadened to include various options for bank protection in this area.	EW-FE01, FE06
St Georges Basin	FE08 - Wandandian Creek - Allow collapsed foreshore vegetation which is acting as natural "large woody debris" to remain as this would likely have a role in protecting the	Foreshore Erosion	"I support all of these"	100%	Included	Action included but broadened to include various options for bank protection in this area.	EW-FE01, FE02

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
	banks from further damage.						
St Georges Basin	FE09 - Erowal Bay - Cobble beach and rock revetment to protect critical sewer infrastructure incorporating elements from Environmentally Friendly Seawalls Guide (OEH 2012). Investigate feasibility of landward relocation of critical sewer infrastructure	Foreshore Erosion	"I support all of these"	100%	Included	Action included but broadened to include various options for bank protection in this area.	EW-FE01, FE07
St Georges Basin	FE10 - Blackett Park - Management controls including no-mow zones where foreshore vegetation is being undermined, Cobble beach to provide protection to root zone of undermined trees	Foreshore Erosion	"I support all of these"	100%	Included	Action included but broadened to include various options for bank protection in this area.	EW-FE01, FE08
St Georges Basin	FE11 - Island Point - Management controls including no-mow zones where foreshore vegetation is being undermined. Manage Council reserves in accordance with Council's Vegetation Vandalism Policy. Monitor the effectiveness of rehabilitation response	Foreshore Erosion, Cultural & Social	"I support all of these"	100%	Included with modifications	Action captured within the general estuary-wide community education action	EW-C01

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
	efforts, as well as community education over time to reduce the frequency and spread of vegetation vandalism. This will include, but not be limited to, the installation of signage and the stratification of future surveillance activities.						
St Georges Basin	FE12 - Mcleans Point - Installation of cobble beach, riparian vegetation, no-mow zones, large woody debris to break up wave energy	Foreshore Erosion	"I support all of these"	100%	Included	Action included but broadened to include various options for bank protection in this area.	EW-FE01, FE06
St Georges Basin	FE13 - Erowal Bay - Riparian vegetation management - planting of saltmarsh/mangroves to reduce undercutting of banks and toppling of casuarinas	Foreshore Erosion	"I support all of these"	100%	Included	Action included but broadened to include various options for bank protection in this area.	EW-FE01, FE09
St Georges Basin	FE14 - Bream Beach - Riparian vegetation management - planting of saltmarsh/mangroves to reduce undercutting of banks and toppling of casuarinas	Foreshore Erosion	"I support all of these"	100%	Included	Action included but broadened to include various options for bank protection in this area.	EW-FE01, FE09

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
St Georges Basin	FE15 - Tomerong Creek - Control catchment outflows/onsite stormwater detention, large woody debris/fallen trees to protect banks	Foreshore Erosion	"I support all of these"	100%	Dropped following assessment	This action will not be carried through to Stage 4 following detailed assessment.	FE10
St Georges Basin	FE16 - St Georges Basin - Enforce erosion and sediment controls, stormwater detention	Foreshore Erosion	"I support all of these"	100%	Included with modifications	Action modified to reference stormwater treatment recommendations, as enforcement of erosion sediment controls and stormwater detention is already undertaken routinely by Council.	EW-WQ02, EW-A01
St Georges Basin	FE17 - Tullarwalla Inlet - Bollards similar to already installed at northern foreshore to control direct access to the lagoon foreshore by vehicles	Foreshore Erosion	"I support all of these"	100%	Included	Action included but broadened to include various options for bank protection in this area.	EW-FE01, FE11
Sussex Inlet	FE18 - Sussex Inlet (Little Manly) - Large woody debris/brush matting, boating controls	Foreshore Erosion	"The action suggests the use of large woody debris/brush matting sourced from collapsing vegetation at the site to provide protection to the toe of the slope. Question: where is sufficient appropriate sized wood in sufficient supply capable of withstanding the actions and forces from boat wash and flood flows? If this action also applies to Little Manly, the same question	100%	Not included	The area of foreshore at Little Manly is managed by the Commonwealth Government as part of Booderee National Park and	N/A

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
			applies and why would this slope not be treated in some protective way as with the other dunes. "			thus is outside of the CMP study area, recommendations of Foreshore Erosion report to be provided to managing authority for consideration.	
Sussex Inlet	FE19/FE27 - Sussex Inlet (The Haven) - Large woody debris/brush matting, sand nourishment	Foreshore Erosion	<p>"The action suggests the use of large woody debris/brush matting sourced from collapsing vegetation at the site to provide protection to the toe of the slope. Question: where is sufficient appropriate sized wood capable of withstanding the actions of oceanic & flood flow forces to apply to this action. The action also refers to the use of brush matting, is this a collection of scrubby material collected from the site and if so how will this withstand the forces of tidal action and how long before it breaks down. Does brush matting refer to a woven jute matting product that can be laid down onto the slope and vegetation planted amongst it as a way of preserving the dune system from the impact of the hydraulic forces and impact from human interference. "</p> <p>"efforts to provide a safe walkway from the haven to the waters edge have been dismal failures. The paths created are unstable and ineffective against water drainage. The pedestrian traffic from the Haven to the inlet entrance is impossible unless it is low tide. People are clambering up the sand dune to get past fallen trees or just because it is high tide. This has created an incredible amount of erosion of the dune over the past year even. We desperately need a small pathway through the bush that takes us from The Haven to Croppers cabins or beyond. Recreational fishermen and tourists use the dunes to access the inlet entrance constantly. "</p>	100%	Included	Included to capture the range of issues and solutions relating to foreshore erosion at this location.	EW-FE01, FE12
Sussex Inlet	FE20 - Sussex Inlet (Christians Minde) - Establish veg. and slow	Foreshore Erosion	"The suggested solution of placement of large woody debris along the banks sounds like the technology which was applied	100%	Not included	The area of foreshore at Christians Minde	N/A

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
	channel migration with woody debris		100 years ago and subsequently taken away from many areas of foreshore along the river in recent years. "			is managed by the Commonwealth Government as part of Booderee National Park and thus is outside of the CMP study area, recommendations of Foreshore Erosion report to be provided to managing authority for consideration.	
Sussex Inlet	FE21 - Sussex Inlet (Alamein) - geotextile groynes/protection works, sand nourishment	Foreshore Erosion	<p>"The entrance to the canal, both corners rock groynes. A massive pressure is placed on the southern corner during an ebb tide. Major thought should be given to embellishing the groyne design in this location to try and deflect some of the forces on this area and a hydrological study might indicate that the adjacent shoaling can be manipulated favourably to aid navigation. "</p> <p>"We used to have lots of seagrass and fish in the area around Alamein and up towards The Haven - seagrass has mostly disappeared and we rarely see the larger fish in this area now. "</p> <p>"Your focus is on safety of boat people. This is a popular swimming area. Boats need to slow down not just because of erosion but for the safety of swimmers, paddlers snorkelers and kayakers. Lots of people use these waterways and your preferential treatment and care for boat people puts the environment and the rest of us in danger."</p> <p>"In the twenty years I have lived here on the inlet I have noticed that we no longer have the whistling kites and we used to have them here every day. The white morph of the grey</p>	100%	Included with modifications	Erosion treatment for this section of foreshore is reflected in new actions FE15 to capture the range of issues and solutions relating to foreshore erosion at this location.	EW-FE01, FE13

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
			goshawk and the brown goshawk used to be really regularly seen but we rarely see them now. Why?				
Sussex Inlet	FE22 - Sussex Inlet (Lions Park) - Repairs to the seawall, undermined fish-cleaning table	Foreshore Erosion	"The current design proposed by Council for this works is questionable and a submission has already been offered with alternate design concepts, refer Council engineering dept. The submission offered also pointed out that any works done in this area will continue to be undermined and washed away while the cause of the washaway is not addressed. The wash away is caused by the surface runoff from Lakehaven Drive. It requires improved road drainage both surface and subterranean."	100%	Included	Action included in CMP	EW-BN01, BN04
Sussex Inlet	FE23 - Sussex Inlet (u/s Nielson L) Long term management strategy for channel evolution.	Foreshore Erosion	"Yes create a plan"	100%	Included	Action included in CMP	EW-FE01, FE14
Sussex Inlet	FE24 - Sussex Inlet (Ralph Lucas) - Large woody debris/brush matting to provide erosion protection	Foreshore Erosion	"The action suggests the use of large woody debris/brush matting sourced from collapsing vegetation at the site to provide protection to the toe of the slope. Question: where is sufficient appropriate sized wood in sufficient supply capable of withstanding the actions and forces from boat wash and flood flows?"	100%	Included with modifications	Action incorporated into new action to work with private landowners to support bank stabilisation and rehabilitation	EW-FE01, FE01
Sussex Inlet	FE25 - Sussex Inlet (Croppers) - Reconstruct/maintain failed sections of timber toe protection wall	Foreshore Erosion	"The action suggests the use of large woody debris/brush matting sourced from collapsing vegetation at the site to provide protection to the toe of the slope. Question: where is the appropriate sized wood capable of withstanding the actions of oceanic & flood flow forces to apply to this action. The action also refers to the use of brush matting, is this a collection of scrubby material collected from the site and if so how will this withstand the forces of tidal action and how long before it breaks down. Does brush matting refer to a woven jute matting product that can be laid down onto the slope and vegetation planted amongst	100%	Included with modifications	Erosion treatment for this section of foreshore is reflected in new action FE15 to capture the range of issues and solutions relating to foreshore erosion at this location.	EW-FE01, FE15

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
			it as a way of preserving the dune system from the impact of the hydraulic forces and impact from human interference."				
Sussex Inlet	FE26 - Sussex Inlet (d/s Nielson L) - Maintenance of existing protection, maintain vegetation	Foreshore Erosion	No direct comments received	100%	Included with modifications	This action has been modified to refer to the area upstream of Nielson Lane which is more severely impacted by erosion.	EW-FE01, FE14
Sussex Inlet	FE28 - Sussex Inlet (Croppers) - Large woody debris/brush matting/dune fencing to stabilise slope	Foreshore Erosion	"The action suggests the use of large woody debris/brush matting sourced from collapsing vegetation at the site to provide protection to the toe of the slope. Question: where is the appropriate sized wood capable of withstanding the actions of oceanic & flood flow forces to apply to this action. The action also refers to the use of brush matting, is this a collection of scrubby material collected from the site and if so how will this withstand the forces of tidal action and how long before it breaks down. Does brush matting refer to a woven jute matting product that can be laid down onto the slope and vegetation planted amongst it as a way of preserving the dune system from the impact of the hydraulic forces and impact from human interference."	100%	Included with modifications	Erosion treatment for this section of foreshore is reflected in new action FE15 to capture the range of issues and solutions relating to foreshore erosion at this location.	EW-FE01, FE15
Swan Lake	FE29 - Swan Lake - Move the location of the beach access point westward to protect midden	Foreshore Erosion	No direct comments received	100%	Included	Action included in CMP	FE16
Swan Lake	FE30 - Swan Lake - Ongoing monitoring of erosion, beach scraping if breakout is possible here	Foreshore Erosion, Ecological Environment	No direct comments received	100%	Included	Action included in CMP	E03

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
Swan Lake	FE31 - Swan Lake - Ongoing monitoring of erosion, review Entrance Management Policy	Foreshore Erosion, Ecological Environment	"Perhaps Shoalhaven Council could advise trusted stakeholders what specifically to look for to better prevent further erosion." "The intensity and duration of the rapid draw down and therefore damage can be reduced by reverting back to the lake opening trigger point listed in the previous Lake Entrance Management Policy. "	100%	Included with modifications	This action has been modified to specifically reference the implementation of the revised Entrance Management Policy which includes actions relating to unauthorised entrance openings	E01
Berrara Creek	FE32 - Investigate construction of a rock revetment to prevent further undercutting could be considered where infrastructure is at risk, stabilisation of the slope by cutting it back to a stable angle could be considered and the top of the bank slope planted with stabilising vegetation.	Foreshore Erosion	No direct comments received	100%	Included with modifications	This action has been consolidated to include investigating the bank erosion along the entire stretch of bank identified in the Stage 2 Foreshore Erosion Assessment Report.	EW-FE01, FE17
Berrara Creek	FE33 - Berrara Creek - Assess geotechnical stability of slope and develop stabilisation strategy	Foreshore Erosion	No direct comments received	100%	Included with modifications	This action has been consolidated to include investigating the bank erosion along the entire stretch of bank identified in the Stage 2 Foreshore Erosion	EW-FE01, FE17

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
						Assessment Report.	
Berrara Creek	FE34 Collapsed foreshore vegetation could be used as "large woody debris" to protect the toe of the slope from undercutting due to tidal flows.	Foreshore Erosion	No direct comments received	No direct feedback received	Included with modifications	This action has been consolidated to include investigating the bank erosion along the entire stretch of bank identified in the Stage 2 Foreshore Erosion Assessment Report.	EW-FE01, FE17
Berrara Creek	FE35 - Berrara Creek - Redirect road drainage to prevent further erosion opposite Fishermans Rock	Foreshore Erosion	No direct comments received	100%	Included	This action has been included and reference made to working with NPWS to address the issue	EW-FE01, FE18
Berrara Creek	FE36 - Berrara Creek - Beach nourishment/beach scraping to repair erosion at main access track	Foreshore Erosion	No direct comments received	100%	Not included	This action has already been completed	N/A
Berrara Creek	FE37 - Berrara Creek - riparian vegetation management, rock fillets beneath undermined bank sections	Foreshore Erosion	No direct comments received	100%	Included	This action has been included in the CMP to investigate appropriate erosion protection for this stretch of	EW-FE01, FE19

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
						bank at Berrara Creek.	
Berrara Creek	FE38 - Berrara Creek - Provide kayak storage/skid, formalised access points to foreshore	Foreshore Erosion	No direct comments received	100%	Included	Included and broadened to include assessment of impact of stormwater runoff on foreshore erosion in this precinct	EW-FE01, BN07
Sussex Inlet	FE39 - Sussex Inlet (Seacrest) - Investigate repair of foreshore protection (timber retaining wall)	Foreshore Erosion	"Does this refer to both sides of the river and also the rock revetment wall in front of Seacrest Caravan Park. What about the need for urgent major foreshore preservation from Seacrest Caravan Park to Lakehaven Drive boat ramp. "	100%	Included with modifications	This action has been included and clarified to avoid confusion about the foreshore section requiring remedial action	EW-FE01, FE21
St Georges Basin	I01 Investigate risk of inundation of bridge and undertake rectification works if required - Implementation of findings of the St Georges Basin Floodplain Risk Management Study and Plan (including emergency management aspects)	Tidal Inundation & Sea Level Rise	No direct comments received	No direct feedback received	Not included	This action is already captured in the Floodplain Risk Management process and is outside the scope of the CMP.	N/A
St Georges Basin	I02 Investigate risk of inundation of bridge and undertake rectification works if required - Implementation of	Tidal Inundation & Sea Level Rise	No direct comments received	No direct feedback received	Not included	This action is already captured in the Floodplain Risk Management process and is	N/A

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
	findings of the St Georges Basin Floodplain Risk Management Study and Plan (including emergency management aspects)					outside the scope of the CMP.	
St Georges Basin	I03 Upgrade of materials for park furniture/playgrounds to improve resilience against inundation, emergency asset assessments and prioritisation for upgrades	Tidal Inundation & Sea Level Rise	No direct comments received	No direct feedback received	Included, with modifications	This is now captured in three estuary-wide actions that address asset management plans and monitoring for coastal infrastructure	EW-I04, EW-I05, EW-A01
Sussex Inlet	I04 - Sussex Inlet - Investigate impact of raised groundwater levels on building foundations	Tidal Inundation & Sea Level Rise	No direct comments received	50%	Included	Action included in CMP	EW-I01
Sussex Inlet	I05 - Sussex Inlet - Investigate potential to raise local roads and provide drainage channels	Tidal Inundation & Sea Level Rise	No direct comments received	100%	Included, with modifications	This is now captured in three estuary-wide actions that address asset management plans and monitoring for coastal infrastructure	EW-I04, EW-I05, EW-A01
Sussex Inlet	I06 - Sussex Inlet - Investigate tidal and coastal inundation risk	Tidal Inundation	No direct comments received	100%	Included	Action included in CMP. Locations are Seacrest	I01

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
	to two low-lying caravan parks	& Sea Level Rise				Caravan Park and Riverside Caravan Park at Sussex Inlet	
Sussex Inlet	I07/08//11 - Sussex Inlet - Community education on risk of not following evacuation orders	Tidal Inundation & Sea Level Rise	No direct comments received	100%	Included, with modifications	Now captured as part of the CZEAS	EW-I02
Swan Lake	I09 - Swan Lake - Community education on risk of not following evacuation orders	Tidal Inundation & Sea Level Rise	No direct comments received	100%	Included, with modifications	Now captured as part of the CZEAS	EW-I02
Swan Lake	I10 Swan Lake - Adaptation planning, raising/moving of at-risk infrastructure or access points	Tidal Inundation & Sea Level Rise	"Yes, this needs to be considered for all at-risk infrastructure assets within the region"	100%	Included, with modifications	This is now captured in three estuary-wide actions that address coastal adaptation planning, asset management plans and monitoring for coastal infrastructure	EW-I03, EW-I04, EW-I05
Swan Lake	I12 Undertake regular maintenance of stormwater system in this area to ensure adequate drainage and reduce risk of inundation	Tidal Inundation & Sea Level Rise	No direct comments received	No direct feedback received	Included, with modifications	This is now captured in three estuary-wide actions that address coastal adaptation planning, asset management plans and monitoring for	EW-I03, EW-I04, EW-I05

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
						coastal infrastructure	
Swan Lake	I13 - Swan Lake - Raise access track to The Springs Cabins to allow access in high lake levels	Tidal Inundation & Sea Level Rise	"The Springs Cabins do not need improved access as the cabins are unavailable for rental. The giant access gates are currently under revegetation, blocking them. The owners have private access off Yarroma Avenue Swanhaven. However, if you meant to say access to the shared walking track, across the small bridge near the cabins, that little bridge is very, very, rarely if ever, under water! Further along the walking track, a wooden raised walkway has already been built in case of swollen water levels through the wetland area there. Council was well aware of the wetland area when they installed the nuisance shared user pathway! A BIG problem is the motorbikes and trail bikes coming through noisily during daytime, over the little bridge, through the picnic area, and up through Yarroma Avenue or Lake Drive, Swanhaven. Or quietly during the night, no tail-lights or headlights!! One may speculate as to what they are up to!! The Trail Bike/other bike problem could be alleviated a little if Bans were issues to Caravan Parks preventing them from allowing said bikes on their premises. After all, dogs/pets are often banned from caravan Parks/BNB/other accommodation, why not Trail Bikes/other bikes. Private Bike ownership is another big problem. Police cannot catch these destructive, noisy, fast nuisance bikes!"	50%	Included, with modifications	This action has been modified to include working with the owner to better understand inundation impacts on access.	I02
Swan Lake	I14 - Swan Lake - Raise footpath and provide cross-drainage to allow tidal inundation	Tidal Inundation & Sea Level Rise	No direct comments received	100%	Included	This action has been included in the CMP	I03
Swan Lake	I15 - Swan Lake - Consider impact of future inundation levels on bridge/bridge upgrade	Tidal Inundation & Sea Level Rise	No direct comments received	100%	Included, with modifications	Planning for upgrade of the bridge has commenced. This is now captured in three estuary-wide actions that address coastal	EW-I04, EW-I05, EW-A01

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
						adaptation planning, asset management plans and monitoring for coastal infrastructure	
Berrara Creek	I16 - Berrara Creek - Upgrade of materials for park furniture/playgrounds to improve resilience	Tidal Inundation & Sea Level Rise	"As part of AM strategy we should choose more robust/resilient location, design & materials"	100%	Included, with modifications	This is now captured in three estuary-wide actions that address coastal adaptation planning, asset management plans and monitoring for coastal infrastructure	EW-I04, EW-I05, EW-A01
Swan Lake	I17 - Swan Lake - Upgrade of materials for park furniture/playgrounds to improve resilience	Tidal Inundation & Sea Level Rise	"As part of AM strategy we should choose more robust/resilient location, design & materials"	100%	Included, with modifications	This is now captured in three estuary-wide actions that address coastal adaptation planning, asset management plans and monitoring for coastal infrastructure	EW-I04, EW-I05, EW-A01
Sussex Inlet	I18 - Sussex Inlet - Upgrade of materials for park furniture/playgrounds to improve resilience	Tidal Inundation & Sea Level Rise	No direct comments received	No direct feedback received	Included, with modifications	This is now captured in three estuary-wide actions that address coastal	EW-I04, EW-I05,

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
						adaptation planning, asset management plans and monitoring for coastal infrastructure	EW-A01
Sussex Inlet	I19 - Sussex Inlet - Implement learnings from previous storm events to make roads more resilient	Tidal Inundation & Sea Level Rise	No direct comments received	100%	Included, with modifications	This is now captured in three estuary-wide actions that address coastal adaptation planning, asset management plans and monitoring for coastal infrastructure	EW-I04, EW-I05, EW-A01
Berrara Creek	WQ01 - Berrara Ck - Revised Water Quality Monitoring Program (including event monitoring)	Water Quality	"I support all these actions"	100%	Included	Captured in estuary-wide action	EW-WQ01
Swan Lake	WQ02 - Swan Lake - Revised Water Quality Monitoring Program (including event monitoring)	Water Quality	"Banning of commercial fishing in Swan Lake needs to be addressed. This lake is only open to the ocean 3.9 years over the last 40 years. roughly 1 year in 10 years." "The effect of commercial fishing and prawning on the enclosed lake see above."	100%	Included	Captured in estuary-wide action. Commercial fishing is outside the scope of this action and is regulated by NSW DPI Fisheries.	EW-WQ01

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
Sussex Inlet	WQ03 - Sussex Inlet - Continuation of NSW DPE Estuary Health Monitoring Program	Water Quality	No direct comments received	100%	Included	Captured in estuary-wide action	EW-WQ01
St Georges Basin	WQ04 - St Georges Basin - Revised Water Quality Monitoring Program (including event monitoring)	Water Quality	No direct comments received	100%	Included	Captured in estuary-wide action	EW-WQ01
St Georges Basin	WQ05 Review and where necessary upgrade or retrofit erosion and sediment controls. Identification of key development sites as root cause of observed poor water quality; and more stringent regulation.	Water Quality	No direct comments received	No direct feedback received	Included with modifications	Captured in estuary-wide action EW-I03	EW-I03
St Georges Basin	WQ06 Revised Council water quality monitoring program to include assessment of future impacts of drought, bushfires, flooding. Report on the results of Councils water quality monitoring and any impacts on estuary health undertaken following the 2019-20 Bushfires.	Water Quality	No direct comments received	No direct feedback received	Included	Captured in estuary-wide action	EW-WQ01

Location	Draft Management Action (wording and ID that went to S3 consultation)	Category	Comments/Feedback Received	% support from survey	CMP Progression Status	Preliminary Response	Related Actions
St Georges Basin	WQ07 Continued monitoring of estuary health by NSW Department of Planning & Environment (DPE-EHG)	Water Quality	No direct comments received	No direct feedback received	Included	Captured in estuary-wide action	EW-WQ01
St Georges Basin	WQ08 Review suggested locations for Gross Pollutant Traps (GPTs), implement sediment controls on catchment development, bank erosion protection measures, review and update Council Development Control Plan (DCP) where necessary to ensure adequate soil erosion controls are applied during development	Water Quality	No direct comments received	No direct feedback received	Included with modifications	Captured in estuary-wide action	EW-WQ02
St Georges Basin	WQ09 - Wandandian Ck - Implement riparian zones and fencing to exclude stock	Water Quality	No direct comments received	100%	Included with modifications	Captured in foreshore erosion action FE01	FE01

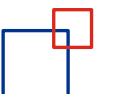
Appendix B.

Long List of Management Actions and Options Assessment

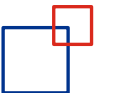
Table B-1 – MCA Assessment Estuary-wide actions

No of Actions	29	Weighting	Viability	Feasibility				Acceptability			Short = 1 – 5yr; Medium = 5yr – 10yr; Long = >10yr	
			Economic	Social		Environmental			Social			
			1	1	1	1	1	2	1	1		1

ID	Category	Action Name	Action Description	Related Actions	Total estimated cost (implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal and estuarine processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Acceptability to the broader community	Acceptability to Agency Stakeholders	Social and Cultural Values	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Support Agency	Proceed to Stage 4?	Risk ID (from Risk Register Rev F)	Risk Score (Present day - 100 yrs.)	Potential Funding Source
EW-A01	Foreshore Erosion, Tidal Inundation and Sea Level Rise	Develop and implement a program for regular and ongoing monitoring of Council-managed coastal assets and infrastructure.	This action involves the development and implementation of a monitoring program designed to assess and track the condition of various assets and infrastructure, including: <ul style="list-style-type: none"> Foreshore protection structures (revetments) Recreational assets including viewing platforms and foreshore access tracks Maritime and boating infrastructure (i.e. jetties, boat ramps) and related ancillary infrastructure (i.e. fish cleaning tables) Gross pollutant traps and stormwater infrastructure Stormwater outlets. Sewer and water infrastructure The program should be integrated into Council's broader asset management program	EW-BN01, EW-I05, EW-WQ03, EW-A01	0.6	0.8	1	0.8	0.8	1	0.8	1	0.6	8.4	10	Short	Council		Yes	12, 13, 14, 15, 16, 39, 40, 55, 73	25 (Extreme)	Council
EW-BN01	Boating & Navigation	Develop and implement a comprehensive boating and navigation facility upgrade and asset management program.	This overarching action aims to provide a structured, coordinated, and community-inclusive approach towards addressing the boating and navigation issues identified within the St Georges Basin, Sussex Inlet, Swan Lake and Berrara Creek Estuaries. This action should align with the priorities and insights gleaned from the Stage 2 Boating and Navigation Study and should involve the following: <ul style="list-style-type: none"> Alignment with Council's Asset Management Systems and Plans Development of a framework to regularly conduct thorough condition assessments at boat ramps The frequency of cleaning and debris monitoring and removal especially following significant flooding events Maintenance dredging as needed and as informed by site-specific investigations Upgrading Council-managed facilities and amenities. Additional investigations and obtaining final designs and environmental approvals may be required for some identified sites. Parking and traffic management Security and anti-social behaviour Community engagement and education Consultation and collaboration with Transport for NSW, and identification of opportunities for alignment with the South Coast Boating Network Plan. Upgrades have been identified for several facilities through the Stage 2 Boating and Navigation Study. These upgrades should implement best practice with reference to relevant Guidelines	BN04, BN11, BN08, EW-I05, EW-A01	0.8	1	1	0.6	0.6	1	0.8	0.8	0.6	8.2	17	Medium	Council	TfNSW, DPIRD-Fisheries, DPPI-Crown Lands	Yes	19, 41, 43, 46, 50, 58, 59, 63, 80	15 (High)	Boating Now Recreational Fishing Trust Grants



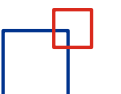
ID	Category	Action Name	Action Description	Related Actions	Total estimated cost (Implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal and estuarine processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Acceptability to the broader community	Acceptability to Agency Stakeholders	Social and Cultural Values	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Support Agency	Proceed to Stage 4?	Risk ID (from Risk Register Rev F)	Risk Score (Present day - 100 yrs.)	Potential Funding Source	
			<p>and Standards and examples from other areas. All works must seek agency agreement and approval and also be implemented with consideration of the Policy and guidelines for fish habitat conservation and management (DPI, 2013).</p> <p>Key identified opportunities relating to upgrade of boating infrastructure include:</p> <ul style="list-style-type: none"> Action BN04 – Undertake repairs to existing boating infrastructure and upgrade facilities at the Lions Park Boat Ramp Action BN11 - Provide an on-ramp pontoon on the centre of Basin View boat ramp Action BN08- Upgrade the boat ramp and associated facilities at "Ski Beach" Swan Lake to reduce user conflict, improve the ramps surface and extend it to allow for use when water levels are low. 																				
EW-BN02	Boating & Navigation	Support and promote LGA-wide boating education measures targeting both local and visiting recreational boaters	<p>This action involves enhancing the existing education and awareness programs for boaters in the area. This would include promotion of existing educational materials and additional signage regarding the importance of checking in with Marine Rescue, environmental and safety concerns related to boat wakes, need to avoid damage to seagrasses when anchoring and motoring, and being mindful of the conditions and the dangers of navigating the entrance bar at Sussex Inlet.</p> <p>Activities would include Council providing links on their website, and other forms of online communication methods, to existing TfNSW educational material on boating, and promotion of/support for existing education activities undertaken by TfNSW Boating Safety Officers and Boating Education Officers, targeting both local and visiting recreational boaters. Other activities may involve the installation of signage at boat ramp locations promoting responsible boating and fishing etiquette.</p> <p>Continue to advocate for an additional web camera at the Sussex Inlet entrance as recommended by Sussex Inlet Marine Rescue.</p> <p>TfNSW will continue to enforce boating rules and restrictions, manage navigational aids and signage and undertake community education within the St Georges Basin, Sussex Inlet, Swan Lake and Berrara Creek estuaries to ensure the safety of boat users and reduce impacts to the environment.</p>	BN02	0.8	1	1	0.8	0.8	1	0.8	1	1	9.2	3	Medium	Council	TfNSW	Yes	41, 57	12 (High)	Council Staff Time TfNSW staff time	
EW-BN03	Boating & Navigation	Development of boat ramp consolidation/ optimisation plan	<p>This action involves the development of a boat ramp and facilities consolidation / rationalisation plan and aligns with a similar broader LGA-wide action (EW_BN01). It will involve the review of existing boat ramp conditions, facilities, usage, and distribution. This will result in establishing a framework to regularly conduct thorough condition assessments at boat ramps, ensuring they meet safety standards and user requirements and structural investigations to identify necessary upgrades and repairs for safe and functional facilities. This will also identify boat ramps that are to be decommissioned, and those to be upgraded. For those that are to be decommissioned, it will identify suitable replacement uses for the location. This should be implemented considering the recommendations made as part of the Stage 2 Boating and Navigation Study.</p> <p>Community engagement will be undertaken as part of the assessment to further understand user needs and gain public support.</p> <p>Other considerations for this action include the provision of</p>		0.8	0.8	0.8	0.8	0.6	0.8	0.4	0.6	0.6	7	28	Medium	Council	TfNSW	Yes	19, 41, 43, 46, 50, 58, 59, 63, 80	15 (High)		



ID	Category	Action Name	Action Description	Related Actions	Total estimated cost (Implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal and estuarine processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Acceptability to the broader community	Acceptability to Agency Stakeholders	Social and Cultural Values	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Support Agency	Proceed to Stage 4?	Risk ID (from Risk Register Rev F)	Risk Score (Present day - 100 yrs.)	Potential Funding Source
			suitable passive vessel launch sites, suitable vessel pumpout facilities, fuelling facilities, and slipway facilities.																			
EW-BN04	Boating & Navigation	Review and update the Canal Estates Management Plan	<p>Review and update the Canal Estates Management Plan (D15/19666) to reflect the outcomes of the CMP and recommendations in the Stage 2 Boating and Navigation Study. This update should include consideration of current and projected future coastal hazard risks as identified through this CMP and other investigations completed in the implementation of the CMP.</p> <p>This update should be undertaken by the relevant asset custodian. Other considerations for this action include the provision of suitable passive vessel launch sites, maintenance dredging as required, facility upgrades.</p> <p>Community engagement will be undertaken as part of the assessment to further understand user needs and gain public support.</p>		0.8	0.8	0.6	0.8	0.6	0.6	0.4	0.6	0.6	6.4	29	Medium	Council		Yes	63	15 (High)	
EW-C01	Cultural and Social	Develop and maintain an ongoing program of community engagement with coastal communities to explain key coastal issues and actions	<p>Engage with and develop educational resources for foreshore reserve property owners, residents, visitors and community youth. This would include the development of effective educational material including videos and fact sheets describing local coastal and estuary issues and explain key issues and actions such as:</p> <ul style="list-style-type: none"> Impacts from climate change resulting in increased tidal range, changes to entrance dynamics and changes in macrophyte composition and distribution ICOLLs, their entrance dynamics ecology and water quality in relation to Swan Lake and Berrara Creek The importance of foreshore vegetation in helping to reduce erosion, providing shade and wind protection, filtering runoff, improving water quality and providing habitat The value of coastal wetlands, seagrass, seagrass wrack and saltmarsh for ecology and estuary health Seagrass Wrack, rules and permit requirements Managing the interface between coastal bushland and private property, including edge impacts, encroachments, garden refuse dumping, mowing, storm water discharges, vegetation retention, fire protection zones, weed management and stock management The impacts of private vehicle access and illegal structures/items which restrict public use of reserves. Raise community awareness and continue to enforce Councils Vegetation Vandalism Prevention Policy POL22/24 to reduce vandalism including mowing Inundation risk and emergency procedures for coastal inundation events The importance of riparian and dune vegetation, particularly in relation to the large dunes along Sussex Inlet. Signage and information for tourists and tourism providers to encourage people to keep off the dunes and discourage sand sliding <p>Education programs should be enacted every 5 years</p>	EW-E02	0.8	0.8	1	1	1	0.8	1	1	1	9.2	3	Short	Council		Yes	3, 17, 45, 49, 77, 35, 38, 72	15 (High)	Coast and Estuary Grant Environmental Education- Environmental Trust Grant Council
EW-C02	Cultural and Social	Establish a Coastal Management Program (CMP) Governance Framework to support the implementation of the CMP and facilitate its	<p>Establish a CMP working group, to oversee the implementation of the CMP to provide effective governance, support its implementation, and facilitate future reviews and assessment of the effectiveness of the CMP to ensure that it meets its objectives.</p> <ul style="list-style-type: none"> Members should include staff from Council, relevant state government agencies, community and Aboriginal representatives. Terms of Reference should be established to clearly define its purpose, objectives, functions and to define the roles and 		1	0.2	1	1	1	0.8	0.75	1	0.8	8.35	14	Short	Council		Yes	20, 45	15 (High)	Council staff time (consider paying fees for non-agency reps e.g.



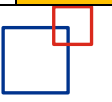
ID	Category	Action Name	Action Description	Related Actions	Total estimated cost (Implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal and estuarine processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Acceptability to the broader community	Acceptability to Agency Stakeholders	Social and Cultural Values	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Support Agency	Proceed to Stage 4?	Risk ID (from Risk Register Rev F)	Risk Score (Present day - 100 yrs.)	Potential Funding Source
		future review and assessment	responsibilities of its members • Execute the function of the working group. • Meet regularly to execute the CMP and track progress.																			Aboriginal)
EW-C03	Cultural and Social	Establish one new Full Time Equivalent (FTE) Coast & Estuary Officer role within Council	Establish one new Full Time Equivalent (FTE) Coast & Estuary Officer role within Council - in order to develop the implementation strategy of Council's St Georges Basin, Sussex Inlet, Swan Lake and Berrara Creek CMPs, (including long-term funding options) and build Council's capacity to respond.		0.4	0.6	1	0.8	0.8	0.8	0.75	1	0.8	7.75	26	Short	Council		Yes	17, 20	15 (High)	Council
EW-C04	Cultural and Social	Review Council's Coastal Management Planning policies every 10 years and incorporate any updates to planning instruments and coastal hazard maps	Review Council's coastal management planning policies for the 10-year CMP implementation lifecycle. This should include consideration of the latest environmental data, observed coastal hazard impacts, legislation, planning instruments and state government policies. The review should consider: • The Shoalhaven City Council Sea Level Rise Framework • Coastal hazard mapping for St Georges Basin / Sussex Inlet, Swan Lake and Berrara Creek • The Swan Lake Entrance Management Policy • Council's various planning instruments.	EW-E02, EW-I03	1	0.6	1	1	1	1	1	1	0.8	9.4	1	Medium	Council	DPHI-Planning DCCEEW-BCS	Yes	17, 20	15 (High)	Council staff time
EW-C05	Cultural and Social	Engage with relevant Local Aboriginal Land Councils and local Traditional Owner Groups to develop a cultural educational and awareness program for each of the estuaries	This action involves engaging with relevant Local Aboriginal Land Councils and local Traditional Owner groups to develop and roll out a cultural educational and awareness program – related to the Aboriginal Cultural Heritage (ACH) specific to the St Georges Basin/Sussex Inlet, Swan Lake and Berrara Creek estuaries. Design of the program should be led by either relevant Local Aboriginal Land Councils or local Traditional Owner Groups. The program could involve educational methods such as: • School programs involving planting days, stewardship sites and hands-on activities • Signage at local sites (including the use of QR codes that includes elders speaking about the history of the area) • Brochures and information provided to tourists at caravan parks and information centres • Cultural tours to provide greater awareness of ACH values to both the local community and to the large population of seasonal visitors.		0.8	0.6	1	0.8	0.8	0.8	0.75	1	1	8.35	15	Short-Medium	Council	Jerrinja LALC Jerrinja Tribal Group DCCEEW-Heritage DPIRD-Fisheries NPWS	Yes	27, 28, 29, 30, 31, 32, 33	9 (High)	Coast and Estuary Grant Protecting our Places Grant Council NEAP and MEMS (DPIRD-Fisheries)
EW-C06	Cultural and Social	Provide opportunities and help build capacity of local Aboriginal Ranger programs, to enhance their role in management of Sea Country including within the St Georges Basin / Sussex Inlet, Swan Lake and Berrara Creek estuaries	This action involves supporting the Local Aboriginal Land Council and local Traditional Owner groups to bolster existing ranger programs and facilitate a greater role for these programs in coastal management across the St Georges Basin / Sussex Inlet, Swan Lake and Berrara Creek estuaries in the Shoalhaven LGA. This will involve working with and supporting the ranger team coalition to help enhance/boost their capacity and awareness of coastal management Where possible, utilise Aboriginal ranger teams to undertake on ground works associated with erosion and environmental restoration, and monitoring programs within these estuaries (EW-E06) Work collaboratively to help develop the next generation of junior rangers to be a part of future coastal management across the Shoalhaven LGA. This action is consistent with Initiative #4 of the NSW Marine Estate Management Strategy (MEMS) – which aims to "Increase Aboriginal participation in Sea Country Management, planning and monitoring through employment and training of Aboriginal people at a regional and local level".		1	0.6	1	0.8	0.8	0.8	0.75	1	1	8.55	9	Short-Medium	Council	Jerrinja LALC Jerrinja Tribal Group DCCEEW-Heritage DPIRD-Fisheries NPWS	Yes	24, 25, 26, 27	12 (High)	National Indigenous Australian Agency Protecting Our Places Grant Coast and Estuary Grant Restoration and Rehabilitation - Environmental Trust Grant Council



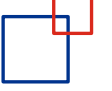
ID	Category	Action Name	Action Description	Related Actions	Total estimated cost (Implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal and estuarine processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Acceptability to the broader community	Acceptability to Agency Stakeholders	Social and Cultural Values	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Support Agency	Proceed to Stage 4?	Risk ID (from Risk Register Rev F)	Risk Score (Present day - 100 yrs.)	Potential Funding Source
																						NEAP and MEMS (DPIRD-Fisheries)
EW-C07	Cultural and Social	Undertake estuary-wide surveys to update Aboriginal Cultural Heritage information and develop local protection/management plans for cultural sites at risk from coastal hazards	<p>This action involves engaging with the relevant Local Aboriginal Land Councils, Traditional Owner groups and an archaeologist to undertake an updated cultural heritage survey of the coastal zone within the estuaries and in doing so:</p> <ul style="list-style-type: none"> • Fill existing information gaps within the LGA-wide Aboriginal Cultural Heritage Mapping and • Update the Aboriginal Heritage Information Management System (AHIMS). <p>It is anticipated that there would be three main tasks for this action:</p> <ul style="list-style-type: none"> • Consultation with the relevant Local Aboriginal Land Councils and Traditional Owners and knowledge holders. • An Aboriginal led cultural heritage assessment, which should include survey fieldwork, recording of cultural heritage sites (such as middens sites) and detailed documentation of findings. • The development and prioritisation of local, site-specific management plans for protection and preservation of these sites. • On-going monitoring of at risk cultural sites by relevant knowledge holders, particularly following storm events • Implementation of protective measures and activation of the Coastal Zone Emergency Action Sub-Plan as required 	-	0.6	0.6	1	0.6	1	1	1	1	1	8.8	6	Medium	Council	Jerrinja LALC Jerrinja Tribal Group DCCEEW-Heritage DPIRD-Fisheries NPWS	Yes	27, 28, 29, 30, 31, 32, 33	9 (High)	Protecting Our Places Grant Coast and Estuary Grant Council
EW-C08	Cultural and Social	Develop and execute a communications plan for Stage 5 of the CMP	<p>Present information on Council's website and in community engagement activities that shows:</p> <ul style="list-style-type: none"> • The purpose of the CMP • The CMP background and an overview of the NSW Coastal Management Framework • Key CMP information and links to relevant materials, including reports available for public consumption • The status of CMP Actions, with details of the action and recent updates/progress • Information pertaining to upcoming community consultation events, and avenues for engagement • Links to relevant materials such as the NSW Coastal Management Framework, and the Marine Estate Management Strategy. • How estuarine systems function and how integrated management responses benefit local communities. 		0.8	0.6	1	0.8	0.8	0.8	0.8	1	0.8	8.2	17	Short	Council	DCCEEW-BCS	Yes	17, 20, 26	15 (High)	Council
EW-C09	Cultural and Social	Continue to collaborate with government agencies and research institutions	<p>Continue to collaborate with State and Federal government agencies, universities and others on projects and research that focuses on:</p> <ul style="list-style-type: none"> • Climate change impacts on coastal and estuarine processes and landforms, including new data on sea level rise, storm behaviour, sediment transport processes, entrance management and stability and coastal and estuarine monitoring • Impact of sea level rise on estuarine macrophytes and supratidal forests • Coastal lake entrance behaviour (sediment budget, morphology, opening and closing regimes) with sea level rise and other aspects of climate change and climate variability • Impact of private moorings on seagrasses, and impacts of unattended vessels on bank stability • Ecological services and functions of estuarine species and most effective vegetation structure to enhance foreshore resilience 	EW-E03	0.8	0.8	1	0.8	0.8	0.8	0.8	1	0.6	8.2	16	Short-Medium	Council	DCCEEW-BCS DCCEEW-Heritage DPIRD-Fisheries NPWS DPHI-Crown Lands TfNSW LLS	Yes	7, 10, 66, 69	15 (High)	Council



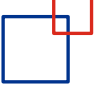
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			<ul style="list-style-type: none"> Boating safety and navigation Management of foreshore erosion, particularly on Commonwealth lands The protection of threatened and migratory shorebirds (i.e. through the South Coast Shorebird Recovery Project) 																			
EW-C10	Cultural and Social	Enact the CMPs Monitoring, Evaluation and Reporting Program (MER) for the CMP	<p>This will include:</p> <ul style="list-style-type: none"> Ongoing monitoring of CMP actions Annual review of actions to ensure they are appropriate and current, with completed actions documented Ongoing reporting of progress Documentation of the effectiveness of the proposed strategies and actions will be reported as part of Council's Annual Report (part of the IP&R Framework), including progress towards or full achievement of the performance targets included for each action. 		1	0.4	1	0.8	0.6	0.8	0.8	1	0.6	7.8	22	Short	Council		Yes	17, 20	15 (High)	Council Staff Time
EW-C11	Cultural and Social	Update Crown Land Plans of Management for areas related to the CMP Study Area to support the objectives of the CMP	<p>Update the relevant Plans of Management (POM) to the CMP study area and coastal zone for consistency with the Coastal Management Act 2016, State Environmental Planning Policy (Resilience and Hazards) 2021 and the objectives of the CMP. This update should consider outcomes of the Stage 2 Technical Studies produced as part of the CMP development and the implementation management actions identified in this CMP to complement future land use and character. Updates should account for:</p> <ul style="list-style-type: none"> allowing for conservation and restoration of saltmarsh (blue carbon) bank stabilisation works, sea level rise, as it may impact on assets. minimise grazing access <p>Existing Council PoMs to be updated include:</p> <ul style="list-style-type: none"> Generic Council Managed Crown Lands x3 (Natural Area, Parks, Community Use) Berrara - Berrara Creek Flats - 2006 - Plan of Management (PoM) Sussex Inlet - Ellmoos Reserve - 2006 - Plan of Management (PoM) 		0.8	0.8	0.8	0.8	1	0.8	0.6	0.6	0.8	7.8	22	Medium	Council	DPHI-Crown Lands	Yes	20, 45	15 (High)	
EW-E01	Ecological Environment	Encourage buffers, land management practices and conservation measures that allow wetlands to migrate with sea level rise	<p>Encourage buffers, land management practices and conservation measures that allow wetlands to migrate with sea level rise.</p> <p>Work with relevant landholders to protect buffers around estuarine wetland areas that have been identified as having the ability to migrate landwards with sea level rise (SLR) (see maps in CMP Stage 2 Tidal and Coastal Inundation Study report). These landowners would be encouraged to:</p> <ul style="list-style-type: none"> protect buffers to enable future land use conducive for the establishment of wetlands with SLR. alter land use management to support estuarine vegetation communities to be achieved through a variety of voluntary incentive schemes, including conservation agreements, land purchase and blue carbon projects. For public lands, Council to consider rezoning identified wetland migration areas for conservation purposes when updating the LEP. <p>This action would be supported by the continued macrophyte mapping to monitor variability and long-term trends (Refer to action EW-E04)</p>	EW-E04, EW-E05	0.8	0.2	0.6	1	1	1	0.6	0.8	0.8	7.8	24	Medium-long	Council	DCCEEW-BCS, DPIRD-Fisheries, DPHI-Crown Lands, NPWS, DPHI-Planning, LLS	Yes	10	25 (Extreme)	Environmental Education - Environmental Trust Conservation Partners Grants Restoration and Rehabilitation- Environmental Trust
EW-E02	Ecological Environment	Undertake a Planning Proposal to adopt a Coastal Vulnerability Area	<p>Mapping for the CVA has not been provided from the RH SEPP, and no such CVA map yet exists for the Shoalhaven LGA or CMP Study Area. Subsequently, it is the intent of Council to propose, by way of a planning proposal, the adoption of a map in indicating a CVA. This involves the preparation of a planning</p>	EW-I04 EW-E01 EW-C04	0.8	1	1	0.6	0.6	0.8	0.8	1	1	8.4	13	Medium	Council	DPHI-Planning DCCEEW-BCS	Yes	23, 64	15 (High)	Council Coast and Estuary Grant



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		(CVA) for the estuaries and update other Coastal Management Areas.	<p>proposal to seek formal inclusion of a Coastal Vulnerability Area (CVA) (tidal and coastal inundation) into the RH SEPP based on Stage 2 Tidal and Coastal Inundation Study report. It should be noted that the Planning Proposal will be submitted in conjunction with a proposal for a CVA for other estuary areas within the Shoalhaven subject to a CMP. Any updates to the LEP or DCP will be sequenced in accordance with Council's new land use planning scheme.</p> <p>The CVA map would identify areas where coastal wetlands and environmentally sensitive areas are vulnerable to impacts from future sea level rise or foreshore erosion. Undertake ecological ground-truthing and further investigation of areas mapped in the CMP Stage 2 Tidal and Coastal Inundation Study as having potential for estuarine vegetation migration with sea level rise to confirm locations of migration pathways. From the mapping of migration pathways as well as ground-truthing and mapping of ecologically sensitive areas, the zoning of these and development controls that apply can be reviewed. Council to investigate if the Coastal Wetland or Littoral Rainforest Area (CWLRA) as defined in the RH SEPP needs adjustment based on information obtained through this action and through the action EW-E05 regarding Council mapping TEC's across its reserves.</p> <p>It should be noted that the CM Act requires the consideration of future climate change. As such, all extents used in defining the CVA should be based on a suitable forward planning horizon, which incorporates the projected effects sea level rise on coastal hazards.</p> <p>Council's existing coastal hazard mapping and controls within the LEP and DCP will be required to be updated to reflect, and be supplementary to, the proposed CVA mapping. Any updates to the LEP or DCP will be sequenced in accordance with Council's new land use planning scheme.</p>																			
EW-E03	Ecological Environment	Develop and implement a program to monitor key environmental parameters relevant to coastal and estuarine monitoring	<p>Develop and implement a program to monitor key environmental parameters relevant to coastal and estuarine monitoring inclusive of:</p> <ul style="list-style-type: none"> entrance monitoring of Swan Lake and Berrara Creek (e.g. BeachStat, Inlet Tracker at Swan Lake, CoastSnap at Berrara). Monitoring at Swan Lake should be implemented consistent with the Swan Lake Entrance Management Policy (EMP). Ecological data and surveys including monitoring of foreshore vegetation, CWLRA vegetation, seagrass and shorebirds to monitor long-term trends monitoring of storm events and their impacts (including photologs) and ongoing monitoring of at-risk assets. <p>This monitoring program should be integrated into the wider Shoalhaven City Council Environmental Monitoring Program (EMP)</p>	EW-WQ01, EW-E01, EW-E05	0.6	1	1	1	1	1	1	1	0.8	9.4	1	Short-Medium	Council	DCCEEW-BCS	Yes	3, 38, 66, 68, 72	15 (High)	Council
EW-E04	Ecological Environment	Implement environmental protection works to enhance ecological communities and cultural values in coastal and estuarine reserves within the CMP Study Area	<p>This action will involve a range of measures and environment protection works to ensure the protection of existing riparian and estuarine vegetation, as well as rehabilitation of currently impacted areas, and would consider the following aspects:</p> <ul style="list-style-type: none"> consider acquisition and protection of key locations, notably Coastal Wetlands and Littoral Rainforest areas, and working with landholders to investigate options for modified land management or conservation agreements, voluntary acquisition based on incentives and funding such as Blue Carbon where future funding sources may be available; encourage implementation of buffers and land management practices to allow for spatial migration of vegetation/habitat 		0.6	0.6	0.8	1	1	1	1	1	1	9	5	Short-Medium	Council	DCCEEW-BCS, NPWS, DPIRD-Fisheries, DPPI-Planning	Yes	5, 36, 38, 67, 74	12 (High)	Coast and Estuary Grant Restoration and Rehabilitation-Environmental Trust Council



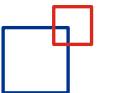
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			<p>under sea level rise . This would require consultation with private landholders' installation of informative signage and fencing in key areas to protect vegetation and habitats. For public lands, Council to consider rezoning identified wetland migration areas for conservation purposes when updating the LEP;</p> <ul style="list-style-type: none"> Council support of volunteer-based rehabilitation initiatives such as Bushcare/Parkcare/Dunecare, community-based revegetation campaigns, and other community "ownership" projects. Natural areas requiring restoration and environment protection works will also be identified through cultural engagement and cultural surveys (Actions EW-C07 and EW-C06). Where culturally sensitive restoration sites are identified, the engagement of Aboriginal rangers and contractors will be prioritised; continuation of existing Council programs for pest control (e.g. foxes, rabbits, Indian Mynas) and weed management and biosecurity; enforcement of existing policies/controls on access restrictions to sensitive areas (e.g. boating and pedestrian access); undertake rehabilitation works in damaged vegetated areas and ongoing implementation of ecological restoration and environmental protection works in Council-managed coastal reserves with reference to the objectives of the associated coastal management areas. These works would be informed by ground-truthing surveys (refer Action EW-E04) and should support the ecological restoration of identified Threatened Ecological Communities (TECs) based on Council's 2023 report Assessment of Endangered Ecological Communities In Coastal Hazard Areas: Shoalhaven LGA Tidal Inundation and Coastal Erosion Study Sites (Ecoplanning, 2023). Prioritisation will be given to areas that comprise areas of Coastal Wetland and Littoral Rainforest and/or house TECs, and targeted weed species control works, Restoration of riparian vegetation areas (consistent with Action EW-FE01) and implement environment protection works to enhance ecological communities in coastal and estuarine reserves. Continued estuarine macrophyte mapping for the lake waterbody and foreshores as part of a Marine Estate Management Strategy project; and, Establish a monitoring and evaluation framework to assess the effectiveness of vegetation restoration and control measures, ensuring alignment with environmental goals and continuous improvement. This should be included within the Shoalhaven Integrated Environmental Monitoring Program. 																			
EW-E05	Ecological Environment	Continue Council's program of mapping threatened ecological communities (TECs) across coastal reserves	Continue to carry out existing survey program to ground truth and map the distribution and condition of TECs in coastal hazard risk areas using the Biodiversity Conservation Act, Biodiversity Assessment Methodology. This mapping will be used to update Council's LEP Terrestrial Biodiversity Map, inform the Biodiversity Values Map, and provide further education for the public on the Council website.		0.8	0.6	0.8	0.8	1	0.8	0.6	0.8	0.8	7.8	24	Medium	Council	DCCEEW-BCS, DPFI-Planning	Yes	10	25 (Extreme)	
EW-FE01	Foreshore Erosion	Implement foreshore erosion actions recommended for high priority public foreshore areas as a result of the Foreshore	This overarching action aims to provide a structured, coordinated, and community-inclusive approach towards addressing the bank erosion challenges within the St Georges Basin, Sussex Inlet, Swan Lake and Berrara Creek Estuaries aligning with the priorities and insights gleaned from the Stage 2 Foreshore Erosion Assessment. Works are to also be undertaken at high risk assets identified to be impacted by erosion within the Stage 2 Risk Assessment.	FE01, FE02, FE03, FE04, FE05, FE06, FE07, FE08,	0.4	1	0.8	0.6	0.8	0.8	1	0.8	0.8	7.8	21	Short-Medium	Council	LLS, DPFI-Crown Lands, NPWS, DCCEEW-BCS, TfNSW	Yes	4, 11, 40, 51, 60, 79	16 (High)	Coast and Estuary Grant Council



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		Erosion Assessment undertaken for Stage 2 of the CMP	<p>Key elements of this action include:</p> <ul style="list-style-type: none"> Site assessment and detailed investigations - Conduct comprehensive assessments and investigations at identified high and very high priority sites as per the Stage 2 Foreshore Erosion Assessment, to finalise identified concept designs using the most suitable bank stabilisation techniques considering erosion severity, site access, community use, cultural heritage sites and ecological factors. Implementation of stabilisation works - Employ treatment method identified for the specified reach as identified in the Foreshore Erosion Assessment. Options will address bank and channel stability and enhancement of aquatic habitat. Riparian vegetation management - Integrate riparian vegetation management with stabilisation works to reduce erosion, improve bank stability, and enhance biodiversity. Consider site-specific revegetation and maintenance plans, particularly where existing riparian vegetation is in reasonable condition. Community engagement and consultation - Engage with the community, especially in high use areas for boating, water sports or other recreational activities, to inform and involve them in the stabilisation and restoration process. Ensure that any restrictions or changes to community use of areas are communicated well in advance and are undertaken with community understanding and support, as well as consultation with the relevant regulatory authorities (i.e. TfNSW). Integrate the ongoing monitoring and management of foreshore protection structures into Council's broader asset management program Collaboration and coordination - Foster collaboration with Local Land Services, Traditional Owner groups, and other relevant stakeholders for integrated and effective bank stabilisation and riparian restoration within the St Georges Basin, Sussex Inlet, Swan Lake and Berrara Creek Estuaries. Coordinate with adjacent private landowners and agency landowners to extend the benefits of stabilisation and restoration works beyond Council owned or managed lands where possible and appropriate. <p>Note that this action will need to consider land tenure at the sites, and authorisation requirements for activities below the MHW under the <i>Crown Land Management Act 2016</i>.</p>	FE09, FE10, FE11, FE12, FE13, FE14, FE15, FE16, FE17, FE18, FE19, FE20, EW-A01																		
EW-I01	Tidal Inundation and Sea Level Rise	Research the implications of rising groundwater levels on building foundations and develop solutions to mitigate against damage	<p>This action involves:</p> <ul style="list-style-type: none"> Researching the implications of rising groundwater levels on building foundations. Identify potential solutions including engineering measures to mitigate against or prevent groundwater damage to building foundations and services Incorporate solutions into relevant Asset Management Plans for existing public assets (Refer to EW-I05) and Consider the inclusion of these in development controls for new Development Applications (DAs) within Council's DCP/LEP. (Refer to Action EW-E02) 	EW-E02	0.8	1	1	0.6	0.6	0.6	0.6	0.8	0.6	7.2	27	Medium-long	Council		Yes	15	16 (High)	Coast and Estuary Grant Council
EW-I02	Tidal Inundation and Sea Level Rise	Activate and implement Coastal Zone Emergency Action Subplan (CZEAS)	<p>This action involves the implementation of a Coastal Zone Emergency Action Subplan (CZEAS) for Sussex Inlet, St Georges Basin, Swan Lake and Berrara Creek. This would primarily address emergency response to coastal inundation events and would need to be consistent with the Shoalhaven City Local Flood Emergency Sub Plan 2021.</p>	-	0.4	1	1	0.6	0.6	1	1	1	1	8.6	7	Short	Council	NSW SES DCCEEW-BCS DPHI-Crown Lands	Yes	16, 47, 53, 78	20 (Extreme)	Council
EW-I03	Tidal Inundation and Sea Level Rise	Maintain planning controls to reduce future	<p>As part of work on Council's new land use planning scheme, implement and maintain planning controls in:</p> <ul style="list-style-type: none"> The Shoalhaven Local Environmental Plan (LEP) 2014: Maintain appropriate zoning in the LEP to protect estuarine foreshore areas and enhance resilience to coastal hazards. 	EW-E02, EW-C04	1	1	1	0.8	0.8	0.8	0.6	1	0.8	8.6	7	Medium	Council	DPHI-Planning	Yes	16, 39, 48,	25 (Extreme)	Council Staff Time



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		coastal hazard impacts	<ul style="list-style-type: none"> Shoalhaven Development Control Plan (DCP) 2014 G6 Coastal Management Areas, which require specific information and assessment for proposed development in coastal hazard areas. Update and maintain notation to section 10.7 (5) certificates for properties affected by coastal hazards consistent with NSW Government legislation. <p>Wherever possible, use zoning and planning controls in the DCP 2014 to maintain open spaces where coastal wetlands and associated habitats can roll landward in response to climate change and sea level rise.</p> <p>Review and update Councils Development Control Plan (DCP) where necessary to ensure adequate soil erosion controls are applied during development with consideration of the "Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning". Continue to apply Neutral or Beneficial Effect (NorBE) on water quality for all greenfield development proposed in the catchments of the St Georges Basin, Swan Lake and Berrara Creek as a minimum standard, by inclusion of this provision in Council's LEP/DCP. Application of the risk-based framework for stormwater management to be considered into the future, particularly where it demonstrates a higher level of water quality mitigation than NorBE, likely to be more relevant for infill development and development of already cleared land.</p> <p>Support the implementation of the Marine Estate Management Strategy (MEMS) Domestic waterfront structure strategies through the promotion of and reference to the strategy through the provision of planning advice and via Council's website</p>																		55, 73		
EW-I04	Tidal Inundation and Sea Level Rise	Prepare a climate change adaptation strategy for the CMP study area	Adaptation planning will be undertaken for low lying areas around Sussex Inlet and St Georges Basin that have existing exposure to coastal inundation and will increasingly be at risk under sea level rise. Adaptation planning will look to identify suitable approaches to continue the viability of this land. The planning will investigate a combination of rezoning land, landform adaptation through filling and raising of assets and roads, and property development controls. Specific measures will need to consider the measures planned in the St Georges Basin Floodplain Risk Management Plan.		0.6	1	1	0.6	0.8	1	0.6	0.8	0.8	8.2	17	Medium-long	Council	DCCEEW-BCS, DPFI-Planning	Yes	12, 13, 14, 15, 16, 39, 40, 55, 73	25 (Extreme)	Coast and Estuary Grant Council	
EW-I05	Tidal Inundation and Sea Level Rise	Review and update all asset management plans (AMPs) relevant to the coastal zone as per the CMP Study area	<p>Review and update all asset management plans (AMPs), relevant to the coastal zone within the CMP study area.</p> <p>Include an asset management approach to provide for replacement, relocation or retrofitting of public assets that are currently in coastal risk areas – including boat ramps, wharves, jetties, water and wastewater infrastructure, stormwater drainage infrastructure, foreshore protection infrastructure, roads and access tracks. The update of AMPs should be prepared considering current and future coastal hazard impacts, including the impacts of coastal and tidal inundation, and should outline plans and mitigation strategies to reduce the risk from such hazards. The Stage 2 Risk Assessment, the Stage 2 Coastal and Tidal Inundation Study, the Stage 2 Foreshore Erosion Assessment and the Stage 2 Synthesis Report should be used to inform the update of AMPs to account for coastal hazard impacts.</p> <p>AMPs by asset type will be updated by relevant asset custodian. Key elements of this action will include:</p> <ul style="list-style-type: none"> Engagement with Council assets teams to discuss the high-risk Council assets. 	EW-WQ03, EW-FE01, EW-A01	0.6	1	1	0.8	0.6	1	0.8	0.8	0.8	8.4	10	Medium	Council		Yes	12, 13, 14, 15, 16, 39, 40, 55, 73	25 (Extreme)	Council	



ID	Category	Action Name	Action Description	Related Actions	Total estimated cost (Implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal and estuarine processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Acceptability to the broader community	Acceptability to Agency Stakeholders	Social and Cultural Values	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Support Agency	Proceed to Stage 4?	Risk ID (from Risk Register Rev F)	Risk Score (Present day - 100 yrs.)	Potential Funding Source
			<ul style="list-style-type: none"> Identify assets that should be upgraded, removed, or relocated. Design and implement asset risk reduction works. AMPs are to be aligned with the emergency action sub-plan (refer action EW-I02).																			
EW-WQ01	Water Quality	Continue and implement refined surface water monitoring and reporting program	<p>This action will involve the implementation of the refined surface water monitoring and reporting program as documented in the Stage 2 CMP Estuary Health and Water Quality Studies. This monitoring program includes the maintenance of the Aquadata online portal for public access to water quality sampling results. Results should be interpreted for the community, with summary information about water quality, estuary health and recreational swimming suitability provided consistent with the NSW Water Quality Objectives and DCCEEW-BCS sampling, data analysis and reporting protocols.</p> <p>Council to apply for grant funding to undertake estuary health monitoring as per recommendations of the Stage 2 CMP Estuary Health and Water Quality Study, and produce regular summary estuary health report cards for community information, including aspects such as swimming suitability, impacts of drought, bushfires and flooding. Sanitary inspections, event sampling to understand pollutant inputs, investigation of events (e.g. fish kills) on an as-needs basis. Continued publication of water quality results on Council website.</p>		0.6	0.6	1	0.6	1	0.8	1	1	1	8.4	10	Short-Medium	Council	DCCEEW-BCS	Yes	1, 2, 18, 34, 37, 75	20 (Extreme)	Council
EW-WQ02	Water Quality	Collect maintenance data on existing Gross Pollutant Traps (GPTs) to enable an internal assessment of the effectiveness of existing stormwater runoff treatment/GPTs. Install Gross Pollutant Traps (GPTs) at suggested locations from the Stage 2 CMP Synthesis report and Council's existing audit of the GPTs.	<p>This will assist in informing future practice with Council with respect to confirming locations for installation of additional GPTs and assessing best practice methods for stormwater runoff treatment. Five water quality devices have been identified in the St Georges Basin study area as part of the Shoalhaven Stormwater Treatment Device Audit including two trash racks, two CDS units and one custom GPT (Optimal Stormwater Pty Ltd, 2023). Implement the recommendations of the Audit including maintenance and cleaning for the existing and new GPTs in the CMP study area in accordance with the "Guidelines for the Maintenance of Stormwater Treatment Measures" (Stormwater NSW 2020) and recording GPTs on Council's Asset database.</p>	EW-WQ02, EW-WQ03, EW-I05	0.4	0.6	0.8	1	1	0.8	0.8	1	0.8	8	20	Medium	Council		Yes	22	12 (High)	Council

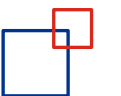
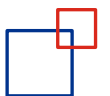


Table B2 – Site specific actions multicriteria assessment

ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Total estimated cost (Implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal and estuarine processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Acceptability to the broader community	Acceptability to Agency Stakeholders	Social and Cultural Values	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?	Risk IDs	Risk Score
BN01	Boating and Navigation	Recreation and safety	Sussex Inlet	Edgewater Avenue, Sussex Inlet	Undertake investigations to determine the impact of removal of gabion weir at Edgewater Avenue on sedimentation within canal at Alamein/Lions Park, identify feasible alternatives and implement the outcome of the investigation.	This action should identify appropriate management approaches to respond to shallow water within this canal. As is outlined in the Stage 2 Boating Study, community feedback suggests that siltation in this canal is impacting on existing moorings which may be being caused by the gabion weirs next to the ramp reducing stormwater flow velocity and scour potential. Further investigations are required with consideration of gabion removal. The action is to undertake a hydrodynamic/hydrologic investigation on the impact of removal of the weir that considers flow velocities in the canal with and without the gabion weir, scour potential in the canal with and without the weir, bank erosion upstream and downstream of the weir, impact on water quality, and impact on catchment flooding. The investigation should identify whether the weir should remain as is, and whether there are any feasible options to replace the weir. Also relates to Action BN06	0.8	0.8	0.8	0.8	0.8	0.6	1	1	0.6	7.8	11	Short	Council		Yes	56	20 (Extreme)
BN02	Boating and Navigation	Recreation and safety	Sussex Inlet	Sussex Inlet channel	Undertake a detailed investigation into the feasibility of targeted dredging within the Sussex Inlet channel at key shallow points to aid channel navigation	Shallow locations were identified in the Stage 2 CMP Boating and Navigation Study. These include locations near the mouth of St Georges Basin where it connects with the inlet channel, and at several locations between Alamein and The Haven. This does not include the highly dynamic ocean entrance bar, where dredging is not recommended. The investigations involve detailed environmental assessments including seagrass mapping, sediment sampling, and sediment transport modelling, as well as cost benefit analysis. Undertake ongoing monitoring of sand movements via regular survey to assess long term sustainability of dredging. Refer to Stage 2 Boating Study for further detail. The feasibility investigation will need to demonstrate consistency with Principle 5 of the Coastal Crown Land Guidelines 2023.Coastal Crown Land Guidelines 2023 - Principle 5 which indicates non-commercial dredging on coastal Crown Land should be in the broader public and/or environmental interest.	0.6	0.8	0.6	0.6	0.6	0.8	0.6	0.6	0.4	6.4	39	Medium-long	Council	TfNSW, DPIRD-Fisheries, DPHI-Crown Lands	Yes	56	20 (Extreme)
BN03	Boating and Navigation	Recreation and safety	Sussex Inlet	Sussex Inlet entrance	Investigate the feasibility of providing a boat ramp on the ocean side of the Sussex Inlet entrance to provide an alternative safe access to the ocean and reduce the need for boats to cross the entrance bar	This action would include the following works as suggested within the Stage 2 Boating Study: <ul style="list-style-type: none"> Investigation of feasibility of proposed boat ramp location/s Consultation with the local community and relevant stakeholders Consultation with Crown Lands regarding obtaining access as land is currently managed by Minister for Crown Lands Concept design of the preferred solution/s Undertaking required environmental assessment and obtaining necessary approvals Detailed design of the preferred solution/s 	0.6	0.8	0.2	0.6	0.4	0.8	0.5	0.2	0.2	5.1	43	Medium-long	Council	TfNSW, NPWS, Jerrinja LALC, DPIRD-Fisheries	No	57	12 (High)
BN04	Boating and Navigation	Recreation and safety	Sussex Inlet	Lions Park Sussex Inlet	Undertake repairs to existing boating infrastructure and upgrade facilities at	This action involves the following works as recommended within the Stage 2 Boating Study and the Stage 2 Foreshore Erosion Assessment. The works associated with this action should include undertaking necessary design investigations and development of detailed design, as well as preparing required	0.4	1	0.6	0.6	0.6	0.8	0.8	0.6	0.6	6.8	33	Medium-long	Council	TfNSW DPIRD-Fisheries DPHI-	Yes	59	12 (High)



ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Total estimated cost (implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal and estuarine processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Acceptability to the broader community	Acceptability to Agency Stakeholders	Social and Cultural Values	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?	Risk IDs	Risk Score
					the Lions Park Boat Ramp	environmental assessments, and obtaining approvals and permits for: <ul style="list-style-type: none"> repairs to the timber seawall and undermined fish-cleaning table (Site Ref S013 in Stage 2 Foreshore Erosion Assessment); provision of wash-down facilities investigate replacement of and widening of concrete ramp and scour protection, provision of on-ramp pontoons additional overflow parking as per concept design provided in the CMP Stage 2 Boating Study repair of local ancillary infrastructure as per existing Council designs. Consider public accessibility and other needs such as the inclusion of recreational fishing platforms in the design It is noted that the Lion Park Boat Ramp is presently licenced to Council (L323697). Future maintenance to the ramp should be in accordance with the existing licence or the licence should be appropriately amended.														Crown Lands			
BN05	Boating and Navigation	Asset Management	Sussex Inlet	Nielson Lane Boat Ramp	Undertake upgrade of Nielson Lane Boat Ramp and Carpark by providing on-ramp pontoon, additional lane, investigate extending carpark and providing linemarkings	<p>The Stage 2 Boating Study identified that the existing Nielson Lane boat ramp facility does not meet the standards outlined in the NSW Boat Ramp Guidelines (RMS 2015), as well as several other issues at this ramp, including:</p> <ul style="list-style-type: none"> inadequate capacity at existing ramp to cater for demand no pontoon facility inadequate parking for trailers and no marked parking spaces no marked manoeuvring area ramp can often become submerged when water levels in the Inlet are high. <p>This action involves the following works as recommended within the CMP Stage 2 Boating Study:</p> <ul style="list-style-type: none"> necessary investigations, design, approvals and permits for upgrade of the ramp and parking area replacement of and widening of concrete ramp and scour protection, provision of on-ramp pontoons and upgrade of parking as per concept provided in the CMP Stage 2 Boating Study consider public accessibility and other needs such as the inclusion of recreational fishing platforms in the design <p>The Nielson Lane boat ramp does not currently appear to be authorised under the Crown Land Management Act 2016. DPHI-Crown Lands authorisation requirements will need to be ascertained in conjunction with DPHI-Crown Lands prior to implementing improvements.</p>	0.4	1	0.6	0.6	0.6	0.8	0.8	0.6	0.6	6.8	33	Medium-long	Council	TfNSW DPIRD-Fisheries DPHI-Crown Lands	Yes	59	12 (High)
BN06	Boating and Navigation	Recreation and safety	Berrara Creek	Berrara Creek, Lakeland Avenue Reserve	Provide a formalised storage rack or area for kayaks at Lakeland Avenue Reserve and promote this area as a non-powered craft area	As outlined within the Stage 2 Boating Study and the Stage 2 Foreshore Erosion Assessment (Bank Section BC05) this stretch of foreshore is impacted by erosion which is being exacerbated by the informal storage of watercraft along the bank. This action involves the development and implementation of formalised watercraft storage systems to reduce erosion along this foreshore area. Non-powered water craft storage likely to involve designated concrete slab with steel tube kayak racks. On-going monitoring and policing will be required to prevent reoccurrence of ad-hoc storage.	0.8	0.8	0.8	0.6	0.6	0.8	0.67	0.8	0.6	7.27	26	Medium-long	Council	NPWS	Yes	8	15 (High)
BN07	Boating and Navigation	Protect and restore the coastal environment	Swan Lake	Swan Lake Natural Launching Area	Management of Watercraft storage on eastern edge of Swan Lake channel	<p>This involved the development and implementation of formalised watercraft storage systems at more suitable location (e.g. Ski Beach) as outlined in the Stage 2 Boating Study. This would be undertaken in conjunction with a removal program for ad hoc/unattended watercraft (e.g. dinghies, canoes, kayaks etc) that are stored in this heavily vegetated foreshore area. The purpose of this is to reduce the impact of informal boat storage on the foreshore of Swan Lake and increase the health and resilience of the foreshore. This action includes assessing available landside locations for storage and choosing the location with the least impact to the foreshore.</p> <p>On-going monitoring and policing will be required to prevent reoccurrence of ad-hoc storage.</p>	0.8	0.6	0.8	0.6	0.6	0.8	0.4	0.8	0.6	6.8	33	Medium-long	Council		Yes	19, 72, 79	12 (High)



ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Total estimated cost (implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal and estuarine processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Acceptability to the broader community	Acceptability to Agency Stakeholders	Social and Cultural Values	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?	Risk IDs	Risk Score
BN08	Boating and Navigation	Recreation and safety	Swan Lake	Swan Lake Ski Beach	Upgrade the boat ramp and associated facilities at "Ski Beach" Swan Lake to reduce user conflict, improve the ramps surface and extend it to allow for use when water levels are low.	As outlined in the Stage 2 Boating Study, this action involves: <ul style="list-style-type: none"> Undertaking necessary investigations, design and approvals relating to assessment of the integrity of the surface of the Ski Beach boat ramp at Swan Lake (asset ID 13003625). This assessment should include consideration of the extension of the ramp to allow for launching of vessels when water levels are low. Construction of the design Provide line markings in the carpark The Ski Beach boat ramp below the MHWL does not currently appear to be authorised under the Crown Land Management Act 2016. DPHI-Crown Lands authorisation requirements will need to be ascertained in conjunction with DPHI-Crown Lands prior to implementing improvements.	0.4	0.8	0.6	0.6	0.4	0.8	1	0.6	0.6	6.6	38	Medium-long	Council	TfNSW DPIRD-Fisheries DPHI-Crown Lands	Yes	80	10 (High)
BN09	Boating and Navigation	Recreation and safety	St Georges Basin	Wandandian Creek	Advocate for a speed limit reduction along Wandandian Creek	Council to advocate on behalf of the community for a reduction in the speed limit to 4 knots within Wandandian creek channel to reduce impact of boat wash on bank erosion, consistent with previous Estuary Management Plan recommendations.	0.8	0.8	0.4	0.6	0.6	0.8	0.5	0	0.4	5.7	40	Medium-long	Council	TfNSW DCCEEW-BCS	No	40	12 (High)
BN10	Boating and Navigation	Recreation and safety	Sussex Inlet	Seacrest Boat Ramp	Provide line markings and repair of pavement in carpark at Seacrest Boat Ramp and manoeuvring area, provide scour protection for ramp	The following issues were observed at the Seacrest Boat ramp during site inspections as reported in the Stage 2 Boating Study: <ul style="list-style-type: none"> the ramp car park and manoeuvring area pavement is in a very poor condition the shoreline immediately adjacent to the ramp is suffering from erosion the carpark and manoeuvring area has no line markings The ramp does not currently meet the standards outlined in the NSW Boat Ramp Guidelines (RMS 2015). This action involves the following works at the Seacrest boat ramp (Asset ID 13003604) as recommended within the Stage 2 Boating Study: <ul style="list-style-type: none"> necessary investigations, design, approvals and permits line markings and repair of pavement in carpark and manoeuvring area provision of scour protection on the sides and toe of the ramp to improve safety The boat ramp below the MHWL does not currently appear to be authorised under the Crown Land Management Act 2016. DPHI-Crown Lands authorisation requirements will need to be ascertained in conjunction with DPHI-Crown Lands prior to implementing improvements.	0.6	1	0.6	0.6	0.6	0.8	0.8	0.6	0.6	7	32	Medium-long	Council	TfNSW DPIRD-Fisheries DPHI-Crown Lands	Yes	19, 59	15 (High)
BN11	Boating and Navigation	Recreation and safety	St Georges Basin	Basin View Boat Ramp	Provide an on-ramp pontoon on the centre of the ramp at the Basin View Boat Ramp	This action involves the following works as recommended within the Stage 2 Boating Study: <ul style="list-style-type: none"> necessary investigations, design, approvals and permits for provision of on-ramp pontoon to improve safety. The on-ramp pontoon would be similar to the existing pontoon at John Williams Reserve in Sanctuary Point. The boat ramp below the MHWL does not currently appear to be authorised under the Crown Land Management Act 2016. DPHI-Crown Lands authorisation requirements will need to be ascertained in conjunction with DPHI-Crown Lands prior to implementing improvements.	0.8	1	0.6	0.6	0.6	0.8	0.8	0.6	0.6	7.2	30	Medium-long	Council	TfNSW DPIRD-Fisheries DPHI-Crown Lands	Yes	43	12 (High)
CO1	Cultural and Social	Community and Stakeholder Engagement	St Georges Basin	St Georges Basin	Investigate and consult with relevant landholders, DPHI-Crown Lands and NSW LALC to improve the Foreshore Walk around St Georges Basin "Basin Walk". This would include connecting missing links and enhancing the walk's	This action includes: <ul style="list-style-type: none"> consultation with relevant landholders exploring opportunities to connect missing links in the foreshore walk around St Georges Basin (asset ID 13009145) consideration of the provision of boardwalks below high-water mark investigation of the potential need for easements and / or land acquisition designs to consider current and future erosion and inundation risks to ensure future resilience 	0.6	0.8	0.2	0.8	0.6	0.8	1	0.2	1	6.8	33	Medium	Council	DPHI-Crown Lands DPHI-Planning DPIRD-Fisheries LALC	Yes	42	9 (High)



ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Total estimated cost (implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal and estuarine processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Acceptability to the broader community	Acceptability to Agency Stakeholders	Social and Cultural Values	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?	Risk IDs	Risk Score
					resilience against foreshore erosion and inundation																		
C02	Cultural and Social	Recreation and safety	Swan Lake	Swan Lake, Ski Beach	Investigate design and construct a pontoon or similar structure (e.g. jetty or high-water level beach) near "Ski Beach" Swan Lake to allow for recreational use (e.g. swimming) when water levels are high and beach access is restricted	This action was identified in the Stage 2 Boating Study as a solution to address the lack of a beach when lake levels are high. This action will investigate a design solution for the installation of pontoons around 30 m offshore for swimming and/or boats to tie up to. This action will include undertaking the necessary investigations, completion of a design, and obtaining approvals and permits for provision of a pontoon/jetty prior to the construction of this structure. Land below the MHWM at Ski Beach is Crown Land and authorisation under the Crown Land Management Act 2016 may be required.	0.6	0.8	0.4	0.8	0.6	0.6	0	0.6	0.6	5.6	41	Medium	Council	DCCEEW-BCS DPIRD-Fisheries DPHI-Crown Lands	No	14, 71	16 (High)
E01	Ecological Environment	Protect and restore the coastal environment	Swan Lake	Swan Lake	Implement updated Entrance Management Policy (EMP) for Swan Lake	This action should implement the recommendations and updated EMP developed concurrently with the CMP. Community education and information program to be developed to inform of the new EMP as part of Action EW-C01. Ongoing enforcement by DPIRD-Fisheries and Council officers to reduce the incidences and risks associated with illegal entrance openings by community members. Council to Continue to monitor and record entrance conditions including openings and closures of Swan Lake as part of its broader Environmental Monitoring Program.	0.8	0.8	1	1	1	0.6	1	1	0.8	8.6	1	Medium	Council	DCCEEW-BCS, DPIRD-Fisheries, DPHI-Crown Lands, NPWS	Yes	77	9 (High)
E02	Ecological Environment	Community and Stakeholder Engagement	Swan Lake	Swan Lake	Continue ongoing collaboration with state government agencies and research institutions, to implement a research project specifically on the ecology of Swan Lake.	Continue ongoing collaboration with state government agencies and research institutions, to implement a research project to understand: <ul style="list-style-type: none"> any changes to the ecology of Swan Lake and the likely causes. scientific assessment to understand Swan populations, their possible decline and any management recommendations. causes of degradation of habitat for shorebirds and decline in Ruppia seagrass extents impact of droughts and bushfires on Swan Lake ecology distribution and presence of Green and Golden Bell Frogs 	0.6	0.6	1	0.6	0.8	0.8	1	1	0.6	7.8	10	Medium-long	Council	DCCEEW-BCS, DPIRD-Fisheries, NPWS	Yes	75	20 (Extreme)
E03	Ecological Environment	Protect and restore the coastal environment	Swan Lake	Swan Lake	Monitor risk of breakout of Swan Lake at The Gap, assess the implications should a break-out occur and undertake sand scraping and dune revegetation to build up the dune.	Monitor the of berm level at "The Gap", Swan Lake as well as the current entrance berm, to assess the risk of a lake breach at "The Gap" location. If required use beach scraping, combined with dune revegetation to build up the dune and stabilise it to reduce risk of breakout. Assess the implications of breakout at "The Gap" to estuary dynamics through a hydrodynamic modelling assessment (refer to Action E05). The results of this study should be presented to the community for their information and understanding as a community education exercise. Refer to CMP Stage 2 Foreshore Erosion Assessment (Bank Section SW03) and Swan Lake and Berrara Creek Entrance Management Review, as well as the updated Swan Lake Entrance Management Policy (refer action E01) for details. Collected data should form part of Shoalhaven City Council's Environmental Monitoring Program and link to the on-line environmental monitoring dashboard.	0.8	0.8	0.8	0.8	0.8	0.8	1	0.8	0.6	8	6	Medium	Council	DCCEEW-BCS DPHI-Crown Lands	Yes	73, 75, 76, 77	20 (Extreme)
E04	Ecological Environment	Asset Management	Swan Lake	Swan Lake	Investigate the impact on hydrodynamics, tidal dynamics and channel morphology of Swan Lake in relation to the	This investigation is already underway given the Swan Lake is due for upgrade/replacement as it is at the end of its design life. Consider the impact of inundation levels during the detailed design of the new bridge using a hydrodynamic model study.	0.8	0.8	0.8	0.8	0.8	0.8	1	0.8	0.6	8	6	Medium-long	Council	DCCEEW-BCS	Yes	76	9 (High)



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					design and replacement of the Swan Lake bridge																		
E05	Ecological Environment	Protect and restore the coastal environment	Berrara Creek	Berrara Creek	Implement a range of techniques for monitoring of entrance openings and closures at Berrara Creek	<p>Monitor Berrara Creek entrance conditions using a range of techniques and implement the recommendations of the CMP Stage 2 Swan Lake and Berrara Creek Entrance Management review. This includes:</p> <ul style="list-style-type: none"> Monitor the entrance of Berrara Creek, and in particular record when it closes and opens to the ocean using CoastSnap or other similar citizen science initiative. Continue to maintain the water level recorder in the lake to capture a longer term water level data set Council to conduct surveys of entrance berm levels during entrance closures Analyse citizen science results, supplemented with other data such as from remote sensing (e.g. Inlet Tracker) and water level records. <p>Collected data should form part of Shoalhaven City Council's Environmental Monitoring Program (EMP) and link to the on-line environmental monitoring dashboard and inform community engagement and education on entrance management at Berrara Creek.</p>	0.8	0.8	1	0.6	0.8	0.8	0.75	0.8	0.6	7.75	17	Medium	Council	NPWS, DCCEEW-BCS, DPIRD-Fisheries	Yes	3, 7	9 (High)
FE01	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Wandandian Creek	Support private land bank stabilisation and restoration.	<p>The objective of this action is to assist with the facilitation of bank management on private lands through collaborative efforts, focusing on revegetation, habitat enhancement, and livestock management, ensuring the implementation of best practices and sustainable solutions.</p> <p>Council's role is to support collaboration with multiple stakeholders, not to implement works directly. This action will involve working collaboratively with farmers/foreshore landowners in conjunction with NSW Local Land Services (LLS) to support change in farming practices to mitigate foreshore erosion (e.g. stock access to lake foreshore) and promote bank stability. This would be done in conjunction with other site-specific measures in identified deteriorated foreshore areas, including:</p> <ul style="list-style-type: none"> Engage with property owners to provide education on the importance of managing livestock access to foreshores and the broader environmental benefits. Offer guidelines, support, and potential incentives for compliance to promote proactive landholder involvement. Foster a close collaboration with Local Land Services (LLS) to support property owner engagement, education, and the implementation of livestock management measures. Discuss the viability of proposed actions with LLS to ensure alignment with broader environmental and community objectives. reinstatement of a riparian vegetation buffer along foreshore areas and installation of fencing to prevent foreshore stock access and promote bank stability. This initiative will require voluntary agreement and cooperation from landholders along with support from LLS. Establish a framework to monitor and evaluate the effectiveness of livestock management, fencing, and revegetation initiatives, ensuring ongoing alignment with environmental objectives and continuous improvement. <p>The following specific locations where works were identified throughout the Stage 2 CMP Foreshore Erosion Assessment should be considered through this action. Recommended treatment options are listed in the Stage 2 report and details should be provided to the relevant landowner.</p> <ul style="list-style-type: none"> Wandandian Creek (reach W001) Ralph Lucas Waterway (reach S010) 	1	0.6	0.8	0.8	0.8	0.8	1	0.8	0.6	8	6	Short-Medium	Council	LLS	Yes	40	12 (High) (erosion severity - "high")
FE02	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Wandandian Creek	Undertake necessary investigations, detailed designs and implement foreshore erosion	<p>Undertake necessary investigations, detailed designs and implement foreshore erosion stabilisation works at site W001 along Wandandian Creek. The primary management option is Large Woody Debris (LWD) covering a length of 780m. Concept designs for this management approach are illustrated in Appendix D of the Stage 2 Foreshore Erosion Assessment. Use of large woody debris along the banks will help to divert/alter and/or dissipate flows from the bank, to allow</p>	0.6	0.4	0.8	0.6	0.8	0.6	1	0.8	0.6	6.8	33	Medium	Council	LLS DPHI-Crown Lands	Yes	40	12 (High) (erosion severity - "high")



ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Total estimated cost (implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal and estuarine processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Acceptability to the broader community	Acceptability to Agency Stakeholders	Social and Cultural Values	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?	Risk IDs	Risk Score
					stabilisation works along Wandandian Creek	sediment to deposit and riparian vegetation to become established. Alternative and/or complimentary strategies that may need to be considered might include the construction of a rock revetment where infrastructure is at risk. Installation of fencing to exclude stock and riparian revegetation to be considered where this is lacking (Refer to action FE01). Refer to Stage 2 CMP <i>Foreshore Erosion Assessment</i> and the <i>SE Bushfires Affected Coastal Waterways Recovery Plan</i> .																	
FE03	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Basin View / Mathie St	Undertake necessary investigations, detailed designs and implement stabilisation works at site BV03 to protect wastewater assets from erosion at Mathie St, Basin View	Undertake necessary investigations, detailed designs and implement stabilisation works at site BV03 to protect wastewater assets from erosion at Mathie St, Basin View (Site ID and map provided in Stage 2 Study). The Stage 2 Foreshore Erosion Assessment identified this site as being subject to medium erosion severity, but with a high risk to infrastructure and high impact on amenity. The primary management option includes the maintenance, repair and upgrade of existing rock revetment, removal of building rubble and Stormwater runoff management covering a combined bank length of 40m at the end of Mathie Street. For detail and map refer to Stage 2 CMP Foreshore Erosion Assessment (Bank section Ref BV03)	0.8	1	0.8	0.6	0.6	0.8	1	0.8	0.6	7.8	11	Medium	Council	DPHI-Crown Lands	Yes	12	16 (High) (erosion severity - "medium")
FE04	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Basin View / Watersedge Ave	Undertake necessary investigations and implement stabilisation works to reduce erosion at Watersedge Avenue Basin View.	Undertake necessary investigations and implement stabilisation works to reduce erosion at site BV02 near Watersedge Ave, Basin View (Site ID and map provided in Stage 2 Foreshore Erosion Assessment) The primary management option is the installation of a cobble beach covering a length of 50m, combined with riparian vegetation. Strategies for managing navigational and boating related issues in this area will be undertaken through action EW-BN01 and EW-BN02. For detail and map refer to Stage 2 CMP Foreshore Erosion Assessment for Basin View (Bank section ref: BV02).	0.6	0.8	0.8	0.8	0.8	0.8	1	0.8	0.6	7.8	11	Medium	Council	DCCEEW-BCS DPHI-Crown Lands	Yes	40	12 (High) (erosion severity - "medium")
FE05	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Old Erowal Bay / Prentice Ave	Undertake necessary investigations and implement stabilisation works to reduce erosion at site OEB01 at Prentice Reserve, Old Erowal Bay	Undertake necessary investigations and implement stabilisation works to reduce erosion at site OEB01 at Prentice Reserve, Old Erowal Bay (Site ID and map provided in Stage 2 Study). This is a public recreation reserve (Lot 7026 DP 1074334) managed by Council. The primary management options include the installation of cobble beach, riparian vegetation, no-mow zones and/or large woody debris to break up wave energy along a bank length of 390m. For detail and map refer to Stage 2 CMP Foreshore Erosion Assessment for Old Erowal Bay (Bank section ref: OEB01) The potential to authorise any proposed or existing activities on the Crown Land on the foreshore (Lot 7026 DP1074334) and below the MHWM under the Crown Land Management Act 2016 will need to be investigated. Site is included in the Regional Crown Reserve R1011528 and is subject to undetermined claims under the Aboriginal Land Rights Act and the Native Title Act. Appropriate authorisation should be sought from DPHI-Crown Lands for any recreational infrastructure located on this land.	0.6	0.8	0.2	0.8	0.8	0.8	1	0.8	0.6	7.2	27	Medium	Council	DPHI-Crown Lands, DCCEEW-BCS	Yes	40	12 (High) (erosion severity - "medium")
FE06	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	McCleans Point (East)	Undertake necessary investigations and implement stabilisation works to reduce erosion at McCleans Point	Undertake necessary investigations and implement stabilisation works to reduce erosion at site MP01, McCleans Point East (Site ID and map provided in Stage 2 Study). The bank covers a length of around 900 m, with installation of a cobble beach in short sections where root zones of large trees have been undermined. Most of the length of this bank can be managed by riparian vegetation, no-mow zones and large woody debris to break up wave energy. Drainage works to control rainfall/runoff are also needed to prevent damage to Basin track. For detail refer to Stage 2 CMP Foreshore Erosion Assessment for McCleans Point East (Bank section ref: MP01)	0.6	0.8	0.8	0.8	0.8	0.8	1	0.8	0.6	7.8	11	Medium	Council	DPHI-Crown Lands, DCCEEW-BCS	Yes	40	12 (High) (erosion severity - "medium")
FE07	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Erowal Bay (East)	Undertake necessary investigations, detailed designs and implement stabilisation works	Undertake necessary investigations, detailed designs and implement stabilisation works to protect critical sewer assets at site EB01, Erowal Bay East (Site ID and map provided in Stage 2 Foreshore Erosion Assessment) The primary management option in the short term is the installation of a Cobble beach and rock revetment to protect critical sewer infrastructure along a bank length of 40m at Wharf Road. This rock revetment should incorporate incorporating	0.6	0.8	0.6	0.8	0.8	1	1	0.8	0.6	8	6	Medium-long	Council	DPHI-Crown Lands, DCCEEW-BCS	Yes	40	12 (High) (erosion severity - "low")



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					to protect critical sewer assets at Erowal Bay (east)	elements from Environmentally Friendly Seawalls Guide (OEH 2012). The longer term option is to investigate the feasibility of landward relocation of critical sewer infrastructure along a stretch of foreshore approximately 230 m in length within private properties (as per action EW-104 and as per the recommendations of GHD (2015)). For detail refer to Stage 2 CMP Foreshore Erosion Assessment for Erowal Bay East (Bank section ref: EB01)																	
FE08	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Blackett Park, St Georges Basin	Undertake necessary investigations, implement management controls and stabilisation works to reduce erosion at Blackett Park	Undertake necessary investigations, implement management controls and stabilisation works to reduce erosion at site STB01, Blackett Park (Site ID and map provided in Stage 2 Study) The banks and vegetation at this location are being undermined by erosion. The primary management strategy is the implementation of no mow zones to help encourage vegetation growth along a bank length of 320m. Additional options include the installation of a cobble beach to provide protection to root zone of undermined trees. The relocation of park furniture landward should be considered during the asset management review where it is at risk from erosion. For detail refer to Stage 2 CMP Foreshore Erosion Assessment for Blackett Park, St Georges Basin (Bank section ref: STB01)	0.6	0.8	0.8	0.8	0.8	0.8	1	0.8	0.6	7.8	11	Medium	Council		Yes	40	12 (High) (erosion severity - "low")
FE09	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Erowal Bay (West)	Undertake riparian restoration works to reduce erosion and the undermining of vegetation at Erowal Bay (west) and Wrights Beach	Undertake riparian restoration works to reduce erosion and the undermining of vegetation at sites EB02, Erowal Bay West and WB01, Wrights Beach (Site ID and map provided in Stage 2 Foreshore Erosion Assessment). The primary management option is riparian vegetation management including planting of saltmarsh/mangroves to reduce undercutting of banks and toppling of casuarinas along a bank length of 50m and 180m respectively. For detail refer to Stage 2 CMP Foreshore Erosion Assessment for St Georges Basin (Bank section refs: EB02 and WB01)	0.8	0.6	0.8	0.6	1	0.6	1	1	0.6	7.6	18	Medium	Council	DPHI-Crown Lands, DCCEEW-BCS	Yes	40	12 (High) (erosion severity - "low")
FE10	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Tomerong Creek	Undertake necessary investigations and implement stabilisation works to reduce erosion at Tomerong Creek.	Undertake necessary investigations and implement stabilisation works to reduce erosion at Tomerong Creek. The primary management option is to use large woody debris, as well as already fallen vegetation to protect a bank length of approximately 900m. This would be complimented by other actions to improve stormwater management by controlling catchment outflows through onsite stormwater detention.	0.6	0.4	0.8	0.6	0.6	0.4	0.6	0.4	0.6	5.4	42	Medium-long	Council		No	40	12 (High)
FE11	Foreshore Erosion	Protect and restore the coastal environment	St Georges Basin	Tullarwalla Inlet	Undertake works to reduce erosion by restricting access by vehicles including 4WDs at sites TW01 and maintenance of existing works at TW02 near the Tullarwalla Lagoon and Inlet	Undertake works to reduce erosion by restricting access by vehicles including 4WDs at sites TW01 and maintain the existing works at TW02 near the Tullarwalla Lagoon and Inlet (Site ID and map provided in Stage 2 Study). The primary management option is to install bollards like those already installed at northern foreshore (or a similar alternative such as rock). For detail refer to Stage 2 CMP Foreshore Erosion Assessment for Tullarwalla Lagoon and Inlet (Bank section ref: TW01 and TW02)	0.8	0.8	1	0.8	0.8	0.8	1	0.8	0.6	8.2	2	Medium	Council	DPHI-Crown Lands, DCCEEW-BCS, NPWS	Yes	40	12 (High) (erosion severity - "low")
FE12	Foreshore Erosion	Protect and restore the coastal environment	Sussex Inlet	Sussex Inlet - The Haven	Undertake necessary investigations and implement stabilisation works to reduce erosion along the unstable dune at The Haven, Sussex Inlet	Undertake necessary investigations and implement stabilisation works to reduce erosion of the unstable dune at The Haven, Sussex Inlet (Site IDs H01-H03 and map provided in Stage 2 CMP Foreshore Erosion Assessment Study). This site was identified as being subject to high erosion severity, with medium impact on the environment, amenity and safety. Works are proposed to be undertaken along the toe of the dune to mitigate ongoing erosion, increase the width of the foreshore and encourage natural regeneration of the sand dune. The primary management option for the toe of the dune, along a bank length of 775m, involves the maintenance, upgrade and repair of the existing geotextile	0.6	0.6	0.6	0.6	0.8	1	1	0.6	0.6	7.4	23	Medium-long	Council	DPHI-Crown Lands, DCCEEW-BCS, NPWS, DPIRD-Fisheries	Yes	51	16 (High) (erosion severity - "high")



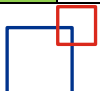
ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Total estimated cost (implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal and estuarine processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Acceptability to the broader community	Acceptability to Agency Stakeholders	Social and Cultural Values	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?	Risk IDs	Risk Score	
						<p>groynes as required to ensure they are still performing their intended function. This option should also investigate the potential for the upstream extension of existing geotextile groyne field along the foreshore, and/or renourishment with sand won from potential future dredging (if dredging found to be feasible) to expand the beach width (refer to action BN03). The extension of the groyne field can be undertaken either independently or in conjunction with nourishment from potential dredging.</p> <p>This action will be complemented by continuing collaboration with NPWS and Crown Lands to implement educational actions to discourage public access through informal access tracks, promoting the use of the existing NPWS access track, as well as sand sliding on the dune through the use of fencing and signage to restrict access, as well as other education activities and resources for tourists and tourist operators (Refer action EW-C01 and EW-C09).</p> <p>The implementation of this action will involve:</p> <ul style="list-style-type: none"> - Refinement of the bank stabilisation options assessment to identify a preferred solution for this stretch of foreshore - Development of detailed design for the preferred solution - Undertaking necessary environmental assessments and obtaining relevant permits and licences to undertake works. Works will need to be undertaken in consultation and agreement with the land manager, NPWS and Crown Lands and the action will formalise Councils responsibilities in relation to the governance and ongoing management of the existing/ future infrastructure. - Implementation of the preferred solution in accordance with the detailed design. <p>Monitoring and maintenance of the works to ensure their ongoing safety, effectiveness and impacts (positive and negative). For detail refer to Stage 2 CMP Foreshore Erosion Assessment for The Haven (Bank section ref: H01-H03).</p>																		
FE13	Foreshore Erosion	Protect and restore the coastal environment	Sussex Inlet	Alamein, Sussex Inlet	Consult and collaborate with the land manager to maintain public access and amenity to the foreshore fronting the Alamein Caravan Park at Sussex Inlet	<p>Consult and collaborate with the land manager to maintain public access and amenity to the foreshore fronting the Alamein Caravan Park at Sussex Inlet. This area currently offers public recreation value to the community through access to walking paths, the foreshore and waterway. Council should continue to work with the land manager through future development to ensure that public access to this land can be maintained to retain recreational and amenity values at this site. Council is to make available to the land manager reports produced as part of this CMP and consult as required to ensure any future works undertaken along the foreshore are consistent with the coastal hazards, risks and opportunities for this site identified through the CMP.</p>	0.8	0.6	0.8	0.6	0.6	0.8	0.8	0.6	1	7.4	23	Medium-long	Council	DPHI-Crown Lands	Yes	51	16 (High) (erosion severity - "medium")	
FE14	Foreshore Erosion	Protect and restore the coastal environment	Sussex Inlet	Sussex Inlet, u/s Nielson Lane	Undertake necessary investigations, detailed designs and implement stabilisation works to reduce erosion and improve public access and environmental values upstream of the Nielson Lane boat ramp, Sussex Inlet	<p>This action responds to a long-term management solution for the foreshore fronting Nielson Lane, Sussex Inlet. This action will be implemented in a staged approach to ensure the foreshore is stabilised and to reduce risks to the environment and public use of this area.</p> <p>Stage 1 involves interim works to make-safe the existing foreshore protection (e.g. timber sleeper) and encourage the regeneration of riparian vegetation along a bank length of 350m. This will involve undertaking the necessary environmental assessments and obtaining appropriate licences and permits to undertake this work. It will also require survey to assess land tenure and identify the location of the MHW.</p> <p>Stage 2 will be undertaken concurrently and will involve the undertaking of necessary investigations, detailed designs and environmental assessments to determine an appropriate long-term stabilisation method for this foreshore. The primary management option for this location is an environmentally friendly seawall (consistent with the Environmentally Friendly Seawalls Guide (OEH 2012)) that incorporates natural habitat as well as public accessibility features along a bank length of 350m.</p>	0.4	1	0.4	0.6	0.8	1	1	0.8	1	8	4	Medium-long	Council	DPHI-Crown Lands, DCCEEW-BCS, DPIRD-Fisheries, TfNSW	Yes	51	16 (High) (erosion severity - "medium")	



ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Total estimated cost (implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal and estuarine processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Acceptability to the broader community	Acceptability to Agency Stakeholders	Social and Cultural Values	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?	Risk IDs	Risk Score	
						<p>The design phase will:</p> <ul style="list-style-type: none"> Consider nature based solutions as well as more traditional engineered rock features incorporate features to allow for improved public access to the foreshore such as walkways, platforms for fishing and ability to access boating activities. consider long-term channel evolution/tidal flows. involve consultation with the community and key stakeholders to ensure the design is consistent with policy frameworks and community expectations. <p>The implementation of the final design would be done progressively once domestic waterfront licensed structures have reached the end of their useful life and are removed, with licenses not likely to be renewed as part of the MEMS DWF Strategy.</p> <p>Refer to the Stage 2 CMP Foreshore Erosion Assessment (Bank section ref: S004) for further description.</p>																		
FE15	Foreshore Erosion	Protect and restore the coastal environment	Sussex Inlet	Croppers Cabins, The Haven, Sussex Inlet	<p>Undertake necessary investigations and implement stabilisation works to reduce erosion of the steep sandy dune at "The Big S", Sussex Inlet</p>	<p>Undertake necessary investigations and implement stabilisation works to reduce erosion of the steep sandy dune at site H05 "The Big S", Sussex Inlet (Site ID and map provided in Stage 2 Study). This site is located on the outside bend of the entrance channel to Sussex Inlet. The site was identified as having high erosion severity, with a medium environmental impact and a medium impact on amenity and safety.</p> <p>A preliminary assessment of existing infrastructure during Stage 2 of the CMP found that areas of the existing timber toe protection had failed. This action should seek to maintain, repair and upgrade this existing structure, across a bank length of 300m. Works will need to be undertaken in consultation and agreement with the land manager, NPWS and Crown Land.</p> <p>This action will formalise Councils responsibilities in relation to the governance and ongoing management of the existing/future infrastructure.</p> <p>Refer to the Stage 2 CMP Foreshore Erosion Assessment for The Big S and Croppers Cabins (Bank section ref: H05). This includes a concept design for the reconstruction of the timber wall (see Figure 4.4 of the Stage 2 Foreshore Erosion Assessment Report).</p> <p>This action will be complemented by continuing collaboration with NPWS and Crown Lands to implement educational actions to discourage public access through informal access tracks and sand sliding on the dune including brush matting to restrict access, signage as well as other education activities and resources for tourists and tourist operators (Refer action EW-C01 and EW-C09).</p> <p>Monitoring and maintenance of the works to ensure their ongoing safety, effectiveness and impacts (positive and negative).</p>	0.6	0.8	0.8	0.8	0.6	0.8	1	0.8	0.4	7.4	22	Medium-long	Council	DPHI-Crown Lands, DCCEEW-BCS, NPWS, DPIRD-Fisheries	Yes	51	16 (High) (erosion severity - "medium")	
FE16	Foreshore Erosion	Protect and restore the coastal environment	Swan Lake	Swan Lake, Errol Bond Reserve	<p>Undertake investigations and collaborate with local Aboriginal representatives to protect the aboriginal midden in Errol Bond Reserve from further erosion</p>	<p>Undertake recommended investigations and collaborate with local Aboriginal representatives to protect the aboriginal midden at site SW02 in Errol Bond Reserve from further erosion (Site ID and map provided in Stage 2 Foreshore Erosion Assessment). This action involves working with appropriate local Aboriginal and Heritage representatives to determine culturally appropriate solutions to protect the midden from further erosion along a bank length of 50m. This would include consideration of moving the location of the informal beach access point for unpowered watercraft westward so that it does not impact the midden and planting suitable riparian vegetation on, or around the midden. These restoration works would also ideally be undertaken by Aboriginal organisations / contractors / rangers. These works would be done under the TI SEPP. Refer to CMP Stage 2 Foreshore Erosion Assessment (Bank Section SW02) Activities below MHWM will require authorisation by DPHI-Crown Lands.</p>	0.8	0.4	1	0.8	0.8	0.6	1	0.8	0.8	7.6	18	Short	Council	Jerrinja LALC Jerrinja Tribal Group DPHI-Crown Lands DCCEEW-Heritage	Yes	24, 30, 31, 32	12 (High) (erosion severity - "low")	



ID	Category	Strategy	Estuary	Location	Action Name	Action Description	Total estimated cost (implementation & maintenance)	Impact on Safety	Approvals, Statutory and Policy Compliance	Impact on coastal and estuarine processes	Overall environmental benefit and Ecological Impact	Effectiveness of Option	Acceptability to the broader community	Acceptability to Agency Stakeholders	Social and Cultural Values	Weighted Total Score	Rank	Timeframe	Owner/Lead Agency	Supporting Agencies	Proceed to Stage 4?	Risk IDs	Risk Score
FE17	Foreshore Erosion	Protect and restore the coastal environment	Berrara Creek	Berrara Creek, below Berrara Beach Holiday Chalets	Undertake necessary investigations, detailed designs and recommended stabilisation works to reduce erosion at Berrara Creek	Undertake necessary investigations, detailed designs and implement stabilisation works to reduce erosion at sites BC01, BC02 and BC03 at Berrara Creek below Berrara Beach Holiday Chalets (Site ID and map provided in Stage 2 Foreshore Erosion Assessment). The bank at this location is being undercut due to tidal flows and requires stabilisation. The primary management option is to install foreshore protection works consisting of rock revetment along a bank length of 160m. An alternative option is to batter sections of the bank to a stable angle combined with revegetation. Initial investigations will need to include an assessment of the geotechnical stability of the slope, considering the outcomes of the geotechnical investigations completed as part of the Open Coast and Jervis Bay CMP (2024). The stabilisation method must consider impacts to cultural heritage artefacts and consultation will be undertaken with the Jerrinja People during the design and implementation stage. For detail refer to the CMP Stage 2 Foreshore Erosion Assessment Bank Section BC01, BC02 and BC03	0.6	1	0.4	0.6	0.4	1	1	0.6	0.6	7.2	30	Medium	Council	LLS NPWS	Yes	4, 6, 11	6 (Moderate); erosion severity "medium"
FE18	Foreshore Erosion	Protect and restore the coastal environment	Berrara Creek	Berrara Creek - Service Road opposite Fishermans Rock	Assist NPWS to undertake necessary investigations and implement works to repair and prevent further erosion damage to the service road opposite Fishermans Rock, Berrara Creek	This land is within an Endeavour Energy powerline easement, but the erosion is impacting land managed by NPWS. In delivering this management action Council's role will be to collaborate and assist in the undertaking of necessary investigations and implement works to repair and prevent further erosion damage to the service road at site BC07 opposite Fishermans Rock, Berrara Creek (Site ID and map provided in Stage 2 Foreshore Erosion Assessment). This action will be implemented as funding opportunities arise. The primary management options are to redirect drainage from the road to prevent further erosion of the site, either by using additional gravel sills along the road, or the installation of a dish drain to direct drainage away from the creek banks. The eroded gully can be repaired by filling (with gravel and covered with compacted topsoil) and revegetated with riparian vegetation. For detail refer to Stage 2 CMP Foreshore Erosion Assessment (Bank section ref: BC07)	0.8	0.8	1	0.6	0.8	0.8	1	0.4	0.6	7.6	18	Short	Council	NPWS	Yes	4, 6, 11	6 (Moderate); erosion severity "medium"
FE19	Foreshore Erosion	Protect and restore the coastal environment	Berrara Creek	Berrara Creek, Berrara Waters Foreshore	Undertake necessary investigations, designs and implement works to reduce foreshore erosion at Berrara Creek in the public reserve near "Berrara Waters"	Undertake necessary investigations, designs and implement works to reduce foreshore erosion at site BC04, Berrara Creek in the public reserve near "Berrara Waters"(Site ID and map provided in Stage 2 Foreshore Erosion Assessment) The primary management option is to undertake riparian vegetation management and restoration, supplemented by the use of some rock, for example rock fillets beneath undermined bank section. These works would be implemented under the TI SEPP. For detail refer to Stage 2 CMP Foreshore Erosion Assessment (Bank section ref: BC04)	0.6	0.8	0.8	0.6	0.4	0.8	1	0.8	0.6	7.2	27	Short	Council	DCCEEW-BCS, NPWS	Yes	4, 6, 11	6 (Moderate); erosion severity "low"
FE20	Foreshore Erosion	Protect and restore the coastal environment	Berrara Creek	Berrara Creek, Berrara Lagoon Reserve - Lakeland Ave	Undertake necessary investigations, designs and implement works to improve stormwater infrastructure and reduce erosion at Berrara Lagoon Reserve	Undertake necessary investigations, designs and implement works to improve stormwater infrastructure and reduce erosion at site BC05, Berrara Lagoon Reserve (Site ID and map provided in Stage 2 Foreshore Erosion Assessment). Stormwater infrastructure is currently inadequate and is leading to foreshore erosion at this location. The primary management option is to improve stormwater capture prior to its discharge into Berrara Creek by either capturing stormwater runoff upstream of the site or through the use of a swale adjacent to the boat ramp area. For detail refer to Stage 2 CMP Foreshore Erosion Assessment (Bank section ref: BC05)	0.6	0.8	1	0.6	0.6	0.8	1	1	0.6	7.8	11	Medium	Council	DCCEEW-BCS, NPWS	Yes	4, 6, 8, 11	15 (High) (erosion severity - "low")
FE21	Foreshore Erosion	Protect and restore the coastal environment	Sussex Inlet	Pelican Shores, Sussex Inlet	Undertake necessary investigations, designs and implement works to improve foreshore protection works	Undertake necessary investigations, designs and works to improve foreshore protection works at site S013 near Pelican Shores and Marine Rescue, Sussex Inlet (Site ID, map and photos in Stage 2 Foreshore Erosion Assessment). The existing timber and concrete foreshore protection between Pelican Shores and Marine Rescue is collapsing. This action should seek to maintain, repair and upgrade this existing structure, reconstructing where required across the bank. Alternatively, the existing failing foreshore structure could be removed, with this	0.6	0.8	0.8	0.6	0.4	0.8	1	0.8	0.6	7.2	27	Medium	Council	DPHI-Crown Lands	Yes	51	16 (High)



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					near Pelican Shores and Marine Rescue, Sussex Inlet	area replanted and naturalised. For detail refer to Stage 2 CMP Foreshore Erosion Assessment (Appendix C Site Photos) An identification survey is recommended to identify the boundary of the Crown Reserve R69668. Activities below the MHWM will require additional authorisation under the Crown Land Management Act 2016. It is noted that there are multiple commercial and non-commercial Crown Land tenure holders in this area. Council to undertake identification survey to identify the boundary of the reserve i.e. MHWM and investigate opportunities for the formal appointment as Crown Land Manager for this reserve to enable foreshore stabilisation works to be carried out.																		
I01	Tidal Inundation and SLR	Emergency Planning and Response	Sussex Inlet	Sussex Inlet	Address identified tidal and coastal inundation risk to low-lying caravan parks on Crown Land in St Georges Basin by working with them to update their emergency response plans to prepare for and respond to coastal hazards	Using the outcomes and mapping produced as part of the Stage 2 Coastal and Tidal Inundation Study, undertake a review and update of each Caravan Parks existing Flood Emergency Plan based on Council's existing Development Control Plan Chapter (G10) relevant to Caravan Parks on Flood Prone Lands Supporting Document 2 to reflect the consideration of coastal hazards in the emergency response planning for at risk locations.	0.8	1	0.8	0.8	0.4	1	1	0.8	0.6	8.2	2	Medium	Council	DPHI-Crown Lands	Yes	13	16 (High)	
I02	Tidal Inundation and SLR	Emergency Planning and Response	Swan Lake	Swan Lake	Address identified tidal and coastal inundation risk to "The Springs Cabins" road access to allow continued access during high Swan Lake levels	This should include Council contacting the owners regarding the changes to the trigger levels for entrance intervention at Swan Lake, working with them to understand their access limitations and requirements during high lake levels and ensure continued access is available. This may include developing a formal agreement with the owners for provision of an alternative access point (e.g. via Yarroma Ave) or considering raising the culvert level on the private access road. Refer to CMP Stage 2 - Swan Lake and Berrara Creek Entrance Management Review and Stage 2 - Tidal and Coastal Inundation Study	0.8	1	0.8	0.6	0.6	1	0.5	0.8	0.4	7.5	21	Medium-long	Council	DCCEEW-BCS	Yes	73, 78	16 (High)	
I03	Tidal Inundation and SLR	Asset management	Swan Lake	Swan Lake, The Springs Road Cudmirrah	Raise the footpath next to "The Springs Road" Cudmirrah (North of bridge) and provide cross-drainage to allow tidal inundation to occur without impacting local infrastructure and amenity	This footpath is currently inundated in places when Swan Lake Water levels are below lake entrance trigger levels. Raise this footpath to allow continued access along the foreshore during high Swan Lake water levels. The height of this infrastructure should take into account future needs for a raised entrance trigger level in accordance with the updated Entrance Management Policy (Action E01), tidal and coastal inundation risks and climate change. Refer to CMP Stage 2 - Swan Lake and Berrara Creek Entrance Management Review and Stage 2 - Tidal and Coastal Inundation Study. Cross-drainage below the raised footpath is to be provided in the form of pipe culverts or similar, subject to detailed design, to allow tidal inundation to continue to occur without impacting environmental values, local infrastructure and amenity.	0.6	1	0.8	0.6	0.6	1	1	0.8	0.6	8	4	Medium-long	Council		Yes	73, 78	16 (High)	
WQ01	Ecological Environment	Protect and restore the coastal environment	Swan Lake	Swan Lake	Install Rain Gauge within the Swan Lake Catchment to provide data to enable future warning systems and inform entrance management.	Install Rain Gauge within the Swan Lake Catchment to provide data to enable future warning systems and inform entrance management. The installation of a rain gauge within the Swan Lake catchment will enable Council to collect data on actual rainfall to be used in the management of the Swan Lake entrance. This data can be used for informing early warning systems for flooding and entrance management and also be used for predictive model calibration. Collected data should form part of Shoalhaven City Council's Environmental Monitoring Program and link to the on-line environmental monitoring dashboard.	0.8	0.8	1	0.8	0.6	0.6	0.6	1	0.6	7.4	23	Short	Council	DCCEEW-BCS	Yes	73, 78	20 (Extreme)	

