

3.2 Recommended Management Actions

3.2.1 Overview

Management strategies and actions have been developed for an initial 10-year period for the CMP.

The management actions have been categorised in terms of the key threat or management objective being addressed.

The following information is provided for each management action:

- Action ID;
- Strategic approach of action;
- Action name and description (detailed descriptions are provided for select actions in **Section 3.2.4**);
- Location(s) for implementation (if site specific);
- Responsible and supporting organisations; and
- Performance measures.

A timeframe for implementation of the actions is specified. The term ‘ongoing’ is used where an action will need to be repeated regularly.

As discussed above, several of the management actions were split into sub-actions. The rationale for splitting these actions reflects different locations for the same action, with different implementation details that are best captured individually. Where this is the case, the sub-actions are listed with a letter appended to the action ID (e.g. BE_43a-h). Including sub-actions, there are **58** individual actions that are recommended in the CMP.

Indicative timing, estimated costs (including capital costs and any ongoing maintenance costs), and potential funding sources associated with implementing these actions are provided in the business plan table in **Section 5**.

Actions are presented in terms of actions to be implemented by Council (**Section 3.2.2**) and by other public authorities (**Section 3.2.3**).

Detailed descriptions of selected complex actions are discussed in **Section 3.2.4** and provided in **Appendix C**.

Key location overviews for areas where several management actions are designed to address management issues in an integrated manner are discussed in **Section 3.2.5** and provided in **Appendix D**.

Where environmental protection works are proposed, it has been assumed (and identified) that these may occur within the CWLRA.

Where management actions are proposed on Crown land (including Crown waterways), authorisations and approvals may be required under the *Crown Land Management Act 2016* (CLM Act). Where proposed works and activities occur on Crown land and Council is the appointed Crown Land Manager, if the use is consistent with the reserve purpose and there is an adopted Plan of Management, then in most circumstances no other form of authorisation under the CLM Act is required. Management actions undertaken on Crown land must consider Aboriginal Land Claims lodged under the *Aboriginal Land Rights Act 1983*. All activities relating to the use of Crown land must be consistent with *Commonwealth Native Title Act 1993*.

All recommended actions that have a specific location associated with them are shown on map series consisting of seven maps **RG-01-10 (A-G)**. All actions in this CMP apply to areas within the coastal zone.

3.2.2 Actions to be Implemented by Council

Of the 58 management actions **53** are to be implemented by Council, including:

- 14 actions that address bank erosion and/or Berry’s Canal adjustment;
- 8 actions that support integrated and collaborative management;
- 7 actions that address water quality threats;
- 6 actions that support land use planning;
- 6 actions that support environmental values;
- 5 actions that address threats from coastal hazards (inundation);
- 4 actions that support Aboriginal values and use of the coastal zone; and
- 3 actions that support boating and associated waterway and foreshore use and address the threats posed by those activities.

The management actions for implementation by Council are presented in **Table 3-7**.

Table 3-7 CMP Actions to be Implemented by Council

ID	Location	Management Action	Action Description	Key Threat/ Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
BE_17	Greenwell Point	Monitor and maintain the existing foreshore protection structures at Greenwell Point	<p>Sections of Greenwell Point foreshore are currently stabilised by a range of engineered structures including rock revetments, groynes and rock bags.</p> <p>Due to regular wear and tear, these are progressing through their design life and should be monitored and maintained to protect the public recreational foreshore area with suitable shallow nearshore areas where swimming can safely occur. This action involves the regular monitoring and maintenance as needed for these structures.</p> <p><i>This action is included in the Greenwell Point location overview in Section 3.2.5 and Appendix D.</i></p>	Bank erosion and Berry's Canal adjustment	Active Intervention	SCC		Assets maintain appropriate engineering and safety standards.	Year 1 and Ongoing
BE_38	Whole Study Area	Support private land bank stabilisation and restoration	<p>Foster a supportive framework to facilitate bank protection works on private lands, with a particular focus on education and awareness to encourage proactive landholder involvement. Collaborate with relevant stakeholders, government bodies, and potential funding entities to ensure a coordinated, well-resourced approach to bank restoration on private lands.</p> <p>Key elements include:</p> <ul style="list-style-type: none"> Engage with private landholders to identify opportunities for implementing and refining the potential management actions outlined in the Stage 2 Bank Condition Assessment. Encourage the installation of livestock exclusion fencing. Aligning with ENV_62, establish educational initiatives to raise awareness among landholders about best practices in bank management and restoration. Provide information on the variety of restoration methods including the use of rocks, large woody debris, vegetation planting, sand sausages, geotextile materials, and other nature based approaches. Work with supporting partners to raise awareness of required approval pathways and avenues for potential funding support available to landholders. Based on the assessment and engagement outcomes, prioritise supporting restoration works at identified locations including Bundanon, Shoalhaven Zoo, Mavromattes Reserve, areas downstream and upstream of Nowra Bridge, Broughton Creek, and Bolong Road, among others as identified in erosion severity mapping and prioritisation from the Stage 2 Bank Condition Assessment. Emphasise vegetation protection and enhancement as key components of the restoration strategy, aligning with broader environmental and sustainability goals. Focus to replant/regenerate native species on unconsolidated alluvial banks (leave active point bars for ongoing sediment transport in the estuary). Seek alignment with public stabilisation works to achieve extended benefits and reduce cost. 	Bank erosion and Berry's Canal adjustment	Active Intervention	SCC	DCCEEW LLS DPIRD Agriculture DPHI - Crown Lands	Increased awareness of bank management and stabilisation measures and best practice available to private landowners. Take up of livestock exclusion fencing, riparian vegetation management and appropriately designed bank stabilisation (where appropriate). Effective collaboration with LLS and other supporting partners.	Year 1 and Ongoing
BE_42	Berry's Canal	Develop an adaptation strategy for land loss along Berry's Canal	<p>Berry's Canal is continually expanding to accommodate tidal and riverine flow, with a balance between tidal flow and channel dimensions estimated to occur only with a doubling of the present-day cross-sectional area of the channel. Complete stabilisation of Berry's Canal is not feasible as it would require substantial hard engineering structures along both of the banks and channel to prevent further erosion and undercutting. Therefore, adaptation is required to manage the unavoidable land loss that will occur into the future. As land along Berry's Canal is owned both privately and publicly (including National Parks Estate), a coordinated strategy is required.</p> <p>Key elements of this action include:</p> <ul style="list-style-type: none"> Develop and disseminate educational materials and programs to inform local stakeholders, landowners, and the community about the causes and impacts of land loss along Berry's Canal. Organise workshops and forums to discuss adaptation strategies, share knowledge, and engage the community in proactive measures to accommodate land loss and mitigate its impacts. <p>Assess the extent of land loss, identify high-risk zones, and develop site-specific and asset-specific adaptation plans.</p> <ul style="list-style-type: none"> Incorporate outcomes into asset management plans of relevant asset owners. Engage with landowners, local authorities, and other stakeholders to discuss potential retreat scenarios, including the identification of alternative locations and the provision of support for affected individuals and businesses. Develop an integrated and overarching adaptation strategy that can guide long-term decision making. <p><i>This action is included in the Greenwell Point location overview in Section 3.2.5 and Appendix D.</i></p>	Bank erosion and Berry's Canal adjustment	Planning for Change	SCC	NPWS LLS Private Landholders Traditional Owners (TOs) TfNSW DPHI - Crown Lands	Workshops and forums held. Adaptation strategy developed	Within 4-7 Years

ID	Location	Management Action	Action Description	Key Threat/Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
BE_43	Various	Bank stabilisation and riparian restoration on high-priority public foreshores	<p>This overarching action aims to provide a structured, coordinated, and community-inclusive approach to bank stabilisation at priority Council owned and managed sites along the Lower Shoalhaven River, aligning with the insights from the Stage 2 Bank Erosion Study⁵. There are eight (8) specific sites (described below in BE43a-h). Works are either considered to be coastal protections works (under the RH SEPP), or waterway and foreshore management activities (under the Transport and Infrastructure SEPP). Appropriate planning pathways for each are described in the detailed description in Appendix C.</p> <p>Council's role is to lead the implementation of these works with support from multiple stakeholders.</p> <p>A detailed description of this action is discussed in Section 3.2.4 and provided in Appendix C and includes information about:</p> <ul style="list-style-type: none"> • Details of collaboration • Stabilisation techniques • Maintenance and vegetation • Approval pathways • Potential funding sources • Key locations identified in Stage 2 	Bank erosion and Berry's Canal adjustment	Active Intervention	SCC	Various as listed below in sub actions	Various as listed below in sub actions	Various as listed below in sub actions
BE_43a	Watersleigh	Undertake necessary detailed investigations and stabilisation works at site SR_018 (Site ID and map provided in Detailed Description)	This is a very high priority site on Council managed land located along the right bank (looking downstream) of the Shoalhaven River, near Watersleigh. The proposed management action is an engineered structure/s of Large Woody Debris, which could be in the form of bank parallel and/or a mixture of perpendicular structures, covering a length of approximately 415 m. This site is a high use area for towed water sports. Alternative and/or complimentary strategies that may need to be considered might include similar structures but using rock (e.g. Rock Fillets, Rock Revetment), as well as other management measures such as educational campaigns around appropriate boating behaviour.	Bank erosion and Berry's Canal adjustment	Active Intervention	SCC	DPIRD Fisheries LLS TOs TfNSW	Bank stabilisation works complete, providing effective erosion control and enhanced habitat. Monitoring and maintenance program established (related to ECON_08 and CTF_16).	Within 1-3 Years
BE_43b	Watersleigh	Undertake necessary detailed investigations and stabilisation works at sites SR_061, SR_062, SR_063 & SR_064 (Site ID and map provided in Detailed Description)	These are very high priority sites on Council managed land located along the left bank (looking downstream) of the Shoalhaven River, near Watersleigh. The proposed management action is an engineered structure/s of Large Woody Debris, which could be in the form of bank parallel and/or a mixture of perpendicular structures, covering a combined length of approximately 2,620 m. Riparian Vegetation Management in combination with Large Woody Debris will help to maintain the works over time. Alternative and/or complementary strategies that may need to be considered might include Rock Revetment. There is an opportunity to undertake revegetation works in a cost effective manner at site SR_066 concurrently to works at SR_062 to SR_064.	Bank erosion and Berry's Canal adjustment	Active Intervention	SCC	DPIRD Fisheries LLS TOs TfNSW	Bank stabilisation works complete, providing effective erosion control and enhanced habitat. Monitoring and maintenance program established (related to ECON_08 and CTF_16).	Within 1-3 Years
BE_43c	Longreach	Undertake necessary detailed investigations and stabilisation works at sites SR_071, SR_073 & SR_082 (Site ID and map provided in Detailed Description)	These are very high priority sites on Council managed land located along the left bank (looking downstream) of the Shoalhaven River, between Longreach and the Ski Park. The proposed management action is an engineered structure/s of Large Woody Debris, which could be in the form of bank parallel and/or a mixture of perpendicular structures, covering approximately 170 m (SR_071), 256 m (SR_073), and 188 m (SR_082), respectively. Alternative and/or complementary strategies that may need to be considered might include Rock Fillets and Groynes. LLS did some previous works at site SR_082, funded under the Bushfire Recovery Grant. There is an opportunity to align with previous works and an engaged community with recent experience.	Bank erosion and Berry's Canal adjustment	Active Intervention	SCC	DPIRD Fisheries LLS TOs TfNSW	Bank stabilisation works complete, providing effective erosion control and enhanced habitat. Monitoring and maintenance program established (related to ECON_08 and CTF_16).	Within 1-3 Years
BE_43d	Bomaderry Creek	Undertake necessary detailed investigations and stabilisation works at site BOM_11 (Site ID and map provided in Detailed Description)	This is a high priority site on Council managed land located on Bomaderry Creek, upstream of the Council managed boat ramp. The proposed management action is an engineered structure/s of Large Woody Debris, which could be in the form of bank parallel and/or a mixture of perpendicular structures, covering approximately 255 m. Alternative and/or complementary strategies that may need to be considered might include Rock Revetment, Geotextile Sand Container, Rock Fillets, and Riparian Vegetation Management. LLS did some works for the private lands adjacent to this site, funded under the Bushfire Recovery Grant. There is an opportunity to align with previous works and an engaged community with recent experience.	Bank erosion and Berry's Canal adjustment	Active Intervention	SCC	DPIRD Fisheries LLS TOs TfNSW	Bank stabilisation works complete, providing effective erosion control and enhanced habitat. Monitoring and maintenance program established (related to ECON_08 and CTF_16).	Within 4-7 Years

⁵ The Stage 2 Report (Rhelm, 2023c) has identified other very high priority segments requiring bank stabilisation (i.e. Burrier Bank) outside the Coastal Zone that require consideration outside the implementation of this CMP as they impact the study area and general estuary health.

ID	Location	Management Action	Action Description	Key Threat/Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
BE_43e	Shoalhaven Heads	Undertake necessary detailed investigations and stabilisation works at site SH_02 (Site ID and map provided in Detailed Description)	<p>This is a high priority site on Council managed land located at Shoalhaven Heads, near Hay Avenue west of the existing rock revetment. The erosion severity here is mapped as "moderate". Riparian vegetation along the mid to upper bank is in reasonable condition. This area corresponds with Zone 1 and Zone 2A from (WRL, 2022) which are mapped as medium/medium-high management priority, and span approximately 500 m.</p> <p>The proposed management action, aligned with recommendations from WRL (2022) and WRL (2017) is beach nourishment. Stabilisation and ongoing monitoring and management utilising best practice revegetation techniques and other erosion and sediment controls is also required. This aligns with action SH.02 from the SCC Open Coast and Jervis Bay CMP which enables sand from the dry notch to be used for nourishment of the beach in front of the Shoalhaven Heads SLSC, or along the River Road foreshore. An additional source of sand from Seven Mile Beach can also be used. This area is illustrated in Map RG-01-10A which indicates where sand can be sourced.</p> <p>The works associated with this action are categorised as coastal protection works under the RH SEPP and appropriate planning pathways will be used during action implementation.</p> <p><i>This action is included in the Shoalhaven Heads location overview in Section 3.2.5 and Appendix D.</i></p>	Bank erosion and Berry's Canal adjustment	Active Intervention	SCC	DPIRD Fisheries LLS TOs TfNSW DPHI - Crown Lands	Bank stabilisation works complete, providing effective erosion control and enhanced habitat. Monitoring and maintenance program established (related to ECON_08 and CTF_16).	Within 4-7 Years
BE_43f	Crookhaven River	Undertake necessary detailed investigations and stabilisation works at site CH_19 (Site ID and map provided in Detailed Description)	<p>This is a high priority site on Council managed land located on the Crookhaven River, near Crookhaven Drive. The primary management strategy is Management of Existing Control for an approximate 280 m length of the foreshore. Reconstruction may be necessary, with alternatives like Concrete Block, Geotextile Sand Container, and Renourishment to be considered. Consideration of riparian restoration should also be incorporated into this action.</p>	Bank erosion and Berry's Canal adjustment	Active Intervention	SCC	DPIRD Fisheries LLS TOs TfNSW DPHI - Crown Lands	Bank stabilisation works complete, providing effective erosion control and enhanced habitat. Monitoring and maintenance program established (related to ECON_08 and CTF_16).	Within 4-7 Years
BE_43g	Nowra	Undertake necessary detailed investigations and stabilisation works at sites SR_094 & SR_096 (Site ID and map provided in Detailed Description)	<p>These are high priority sites on Council managed land, on the left bank (looking downstream) of the Shoalhaven River, stretching from the Ski Park to the Golf Course, where high valued assets at risk from bank erosion are located. The proposed management action is an engineered structure/s of Large Woody Debris, which could be in the form of bank parallel and/or a mixture of perpendicular structures, covering approximately 65 m (SR_094) and approximately 200 m (SR_096). Alternative and/or complementary strategies that may need to be considered might include Rock Fillets, Rock Revetment, and a Shoalhaven Sand Sausage (one long continuous sandbag filled on site with mud and sand, installed along toe of the bank) installed downstream at the golf course.</p>	Bank erosion and Berry's Canal adjustment	Active Intervention	SCC	DPIRD Fisheries LLS TOs TfNSW DPHI - Crown Lands	Bank stabilisation works complete, providing effective erosion control and enhanced habitat. Monitoring and maintenance program established (related to ECON_08 and CTF_16).	Within 4-7 Years
BE_43h	Bomaderry Creek	Undertake necessary detailed investigations and stabilisation works at site BOM_13 (Site ID and map provided in Detailed Description)	<p>This is a medium priority site on Council managed land located on Bomaderry Creek, downstream of the Council managed boat ramp. The Management of Existing Control is suggested for an approximate 50 m stretch. Further structural and geotechnical engineering investigation may reduce the scope of works.</p> <p>LLS did some works for the private lands adjacent to this site, funded under the Bushfire Recovery Grant. There is an opportunity to align with previous works and an engaged community with recent experience.</p>	Bank erosion and Berry's Canal adjustment	Active Intervention	SCC	DPIRD Fisheries LLS TOs TfNSW DPHI - Crown Lands	Bank stabilisation works complete, providing effective erosion control and enhanced habitat. Monitoring and maintenance program established (related to ECON_08 and CTF_16).	Within 8-10 Years

ID	Location	Management Action	Action Description	Key Threat/ Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
BE_44	Shoalhaven Heads	Beach nourishment along the toe of the existing rock revetment at Shoalhaven Heads	<p>A rock revetment was constructed in 2021 along River Road to prevent further erosion and protect valuable assets. The development conditions of consent for this structure were that sand would be used to cover the toe of the revetment. This is necessary for maintaining the designed function of the asset for the purpose of bank erosion.</p> <p>The proposed management action consists of beach nourishment works to:</p> <ul style="list-style-type: none"> cover the toe of the revetment in line with the engineering specifications and AMP for the structure reprofile the erosion scarp and nourish the beach extending from the eastern end of the existing rock revetment, up to and including the foreshore area adjacent to the shared user path and the River Road boat ramp infrastructure. <p>The length of shoreline to be nourished is approximately 200 m. The volume of sand needed is approximately 1,500 m³.</p> <p>The sourcing of marine sands from Seven Mile Beach is required, utilising heavy plant machinery to stockpile and then transport material to the River Road foreshore area. The material can then be scraped and profiled on site. This area is illustrated in Map RG-01-10A which indicates where sand can be sourced.</p> <p>Stabilisation and ongoing monitoring and management utilising best practice revegetation techniques and other erosion and sediment controls is also required.</p> <p>DPHI Crown Lands is nominated as a support agency to this action. The works are located on Council managed Crown Reserve 52855 and subject to an existing Crown Lands licence LI 639728 for activities in the Crown Waterway at this location.</p> <p>The works associated with this action are categorised as coastal protection works under the RH SEPP and appropriate planning pathways will be used during action implementation. Nourishment will be undertaken based on observation or survey triggering the need for nourishment. And this has been estimated for the purpose of the business plan (Table 5-3) to occur twice during the course of the CMP 10-year timeframe.</p> <p><i>This action is included in the Shoalhaven Heads location overview in Section 3.2.5 and Appendix D.</i></p>	Bank erosion and Berry's Canal adjustment	Active Intervention	SCC	DPIRD Fisheries Crown Lands	Nourishment complete Monitoring and maintenance program established (related to ECON_08 and CTF_16).	Within 4-7 Years
BE_45	Crookhaven Heads	Implement a living shoreline bank stabilisation solution along the Crookhaven River shoreline adjacent to Crookhaven Heads	<p>This action will involve the implementation of the final design and proposed coastal protection works identified for the Crookhaven River shoreline adjacent to Crookhaven Heads. This section of shoreline is being investigated concurrently to the CMP (to determine opportunities to implement a living shoreline approach to support opportunities for fish habitat and erosion protection within an area of approximately one hectare. The investigations will result in a final design that will be developed in consultation with key stakeholders including State Government agencies, recreational fishers and Traditional Owners. Options being investigated involve the installation of mangroves and riparian vegetation and mangroves along the foreshore and intertidal area, as well as oyster reef restoration. The design process is being modelled on the successful Wagonga Inlet living shoreline project, of which a rendered illustration is provided in Figure 3-10.</p> <p>All necessary approvals and permits will be obtained as part of this initial investigation, so that this management action will address the implementation of this design only. The works associated with this action are categorised as coastal protection works under the RH SEPP and appropriate planning pathways will be used during action implementation.</p>	Bank erosion and Berry's Canal adjustment	Active Intervention	SCC	DPIRD Fisheries LLS TOs/Jerrinja LALC TfNSW DPHI - Crown Lands Oyster farmers	Bank stabilisation works complete and monitoring and maintenance program established (related to ECON_08 and CTF_16).	Within 4-7 Years

ID	Location	Management Action	Action Description	Key Threat/Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
BE_46	Shoalhaven Heads	Design and implement a living shoreline solution along the foreshore adjacent to the caravan park at Shoalhaven Heads	<p>The shorelines at Shoalhaven Heads are a dynamic environment. To support resilience of this area to coastal processes, sea level rise and human usage, this action seeks to restore the intertidal habitat and formalise and improve public access.</p> <p>Benefits to the community include:</p> <ul style="list-style-type: none"> Improved foreshore protection and water quality Enhanced access to mangrove areas Improved amenity and opportunities for recreational activities Enriched estuarine habitats Improved habitat for fish and other marine biodiversity Increased carbon sequestration and storage. <p>'Living' shorelines provide a natural approach to coastal protection by using plants and other natural elements to prevent erosion, rather than traditional methods such as rock walls. The design and implementation would consider both the Australian guide to nature-based methods for reducing risk from coastal hazards (ESCC Hub, 2021) and the NSW Coastal Design Guidelines (2023), as well as drawing on existing examples such as the award winning Wagonga Inlet Living Shoreline in Narooma. The proposed outcome is an innovative solution to coastal management to protect this valuable section of the inlet, long-term.</p> <p>A similar concept used at Wagonga is illustrated in Figure 3-10. The design of the living shoreline would be undertaken in consultation with the community, but could include elements such as:</p> <ul style="list-style-type: none"> Intertidal habitat of existing and improved mangroves and saltmarsh Intertidal shellfish reef habitat Terrestrial planting between the existing path and intertidal zone Birdlife perches Formal access (boardwalk, jetty, viewing platforms, pontoons or swim areas). <p>Key elements of the action include:</p> <ul style="list-style-type: none"> develop a detailed design in consultation with key stakeholders including State Government agencies, community groups, recreational fishers and Traditional Owners obtain all necessary approvals and permits construct works ongoing monitoring and maintenance. <p>The works associated with this action are categorised as coastal protection works under the RH SEPP and appropriate planning pathways will be used during action implementation.</p> <p><i>This action is included in the Shoalhaven Heads location overview in Section 3.2.5 and Appendix D.</i></p>	Bank erosion and Berry's Canal adjustment	Active Intervention	SCC	DPIRD Fisheries LLS TOs/Jerrinja LALC TfNSW DPHI - Crown Lands Oyster farmers	Bank stabilisation works complete and monitoring and maintenance program established (related to ECON_08 and CTF_16).	Within 1-3 Years
BOAT_37	Whole Study Area	Boat Ramp and Facilities Consolidation and Rationalisation Plan	<p>This action involves the development of a 'Boat Ramp and Facilities Consolidation and Rationalisation Plan' and aligns with a similar broader LGA-wide action as well as Action BOAT_38.</p> <p>A detailed description of this action (in combination with BOAT_38) is discussed in Section 3.2.4 and provided in Appendix C. It includes information about considerations for the plan including:</p> <ul style="list-style-type: none"> A review of existing boat ramp conditions, facilities, usage, and distribution. Increased efficiency through reduced maintenance cost and logistical complexity. Opportunities arising from repurposing of decommissioned ramps, such as new uses for vacated public space. Enhancing amenity and capacity of remaining ramps, including security, parking, ramp lanes and pontoons. Reduced need for dredging to access decommissioned ramps. The potential provision of suitable passive vessel launch sites, suitable vessel pumpout facilities, fuelling facilities, and slipway facilities. 	Boating and associated waterway and foreshore usage	Active Intervention	SCC	TfNSW	Boat Ramp and Facilities Consolidation and Rationalisation Plan developed and clear direction for future management of the assets is established.	Within 1-3 Years

ID	Location	Management Action	Action Description	Key Threat/Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
BOAT_38	Whole Study Area	Develop and implement a comprehensive boat ramp facility upgrade and asset management program	<p>This action aims to provide a holistic approach towards managing and maintaining Council-managed boat ramp facilities, drawing from insights gathered from the Stage 2 Boating Demand Study and associated community engagement.</p> <p>A detailed description of this action (in combination with BOAT_37) is discussed in Section 3.2.4 and provided in Appendix C. It includes information about considerations for the plan including:</p> <p>Alignment with Council's Asset Management Systems and Plans; and action CTF_16</p> <ul style="list-style-type: none"> • 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. • Monitoring of boat ramp approaches and navigational channels with maintenance dredging as needed; • Upgrading facilities and amenities. • Parking and traffic management. • Security and anti-social behaviour. • Community engagement and education. 	Boating and associated waterway and foreshore usage	Active Intervention	SCC	TfNSW	Boating facilities are incorporated into an effective asset management program, and boat ramp upgrades and decommissions are complete.	Year 1 and Ongoing
BOAT_40	Whole Study Area	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 Crookhaven Heads. Particular attention will be given to education and awareness of the impacts of boat wakes on bank erosion and appropriate boating behaviour to minimise this impact.</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>TfNSW will continue to enforce boating rules and restrictions, manage navigational aids and signage and undertake community education within the Lower Shoalhaven River estuary to ensure the safety of boat users and reduce impacts to the environment.</p> <p>This action is aligned with <i>ENV_62: Develop and deliver an estuary management and ecosystem education/communications program.</i></p>	Boating and associated waterway and foreshore usage	Alert	SCC	TfNSW	Council website updated with latest education materials. Signage installed at strategic locations. Enhanced community understanding of responsible boating, etiquette and how to minimise environmental impacts.	Year 1 and Ongoing
CS_12	Whole Study Area	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, including reports available for public consumption. • The Status of CMP Actions, with details of the actions and recent updates/progress. • Information pertaining to upcoming community consultation events, and avenues for engagement; and • Links to relevant materials such as The NSW Coastal Management Framework, and the Marine Estate Management Strategy. • How coastal zone systems function and how integrated management responses benefit Council and local communities. 	Integrated and collaborative management	Alert	SCC		Plan developed and implemented.	Year 1 and Ongoing

ID	Location	Management Action	Action Description	Key Threat/Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
CS_13	LGA	Undertake a LGA wide coastal zone Aboriginal Cultural Heritage Survey, and development of local protection/management plans	<p>This action involves engaging with the relevant Local Aboriginal Land Councils, Traditional Owners, custodians and knowledge holders, and an archaeologist to undertake an updated cultural heritage survey of the coastal zone - and in doing so:</p> <ul style="list-style-type: none"> fill existing information gaps within the estuary wide Aboriginal Cultural Heritage Mapping and update the Aboriginal Heritage Information Management System (AHIMS). There would likely be a publicly available GIS layer and private layer with sensitive information/ details to refer to knowledge holder for more information. It is anticipated that there would be three main tasks for this action: Consultation with the relevant Local Aboriginal Land Councils and Traditional Owners and knowledge holders. An Aboriginal cultural heritage assessment, which should include survey field work, and recording of cultural heritage sites (such as midden sites) and detailed documentation of findings. This would consider tangible and intangible values. The development and prioritisation of local, site-specific management plans for protection and preservation of these sites. These would be developed in partnership with the Aboriginal community and culturally appropriate representatives. 	Aboriginal values	Avoid Future Impact	SCC	Jerrinja LALC Jerrinja Tribal Group Nowra LALC NPWS	Consultation conducted, survey undertaken, and plan developed.	Within 1-3 Years
CS_14	Whole Study Area	Engage with relevant Local Aboriginal Land Councils and local Traditional Owner Groups to develop a cultural educational and awareness program	<p>This action involves engaging with relevant Local Aboriginal Land Councils and local Traditional Owners, custodians, and knowledge holders to develop and roll out a cultural educational and awareness program - related to the Aboriginal Cultural Heritage (ACH) - specific to the estuary. Design of the program should be led by either relevant Local Aboriginal Land Councils or local Traditional Owner groups.</p> <p>The program could involve educational methods such as:</p> <ul style="list-style-type: none"> School programs including 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. 	Aboriginal values	Alert	SCC	Jerrinja LALC Jerrinja Tribal Group Nowra LALC DPIRD-Fisheries	Program developed and being implemented.	Year 1 and Ongoing
CS_15	Whole Study Area	Provide opportunities and help build capacity to local Aboriginal Ranger Programs, to enhance their role in management of Sea Country	<p>This action involves working with relevant Local Aboriginal Land Councils and local Traditional Owner Groups to bolster existing ranger programs and facilitate a greater role for these programs in coastal management across 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. Utilise Aboriginal ranger teams, alongside other qualified contractors, to undertake on ground works associated with dune restoration and monitoring programs. 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 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>	Aboriginal values	Alert	SCC	Jerrinja LALC Jerrinja Tribal Group Nowra LALC DPIRD-Fisheries NPWS	Capacity of local ranger teams increased. Increased role for TO Groups in coastal management across the LGA.	Year 1 and Ongoing
CS_16	Crookhaven Heads	Protection of Midden at Crookhaven Heads	<p>A site of great cultural significance to the Jerrinja People has been identified consisting of an extensive midden that is currently being impacted on by erosion, inundation and shoreline recession due to coastal processes occurring at the mouth of the Crookhaven River. This action involves the protection and preservation of this site in consultation and partnership with Traditional Owners. The works associated with this action are categorised as coastal protection works under the RH SEPP and appropriate planning pathways will be used during action implementation.</p> <p>A detailed description of this action is discussed in Section 3.2.4 and provided in Appendix C and includes information about:</p> <ul style="list-style-type: none"> Interpretative signage to be installed at the site. Interim 'soft works' to provide a short term solution to coastal hazard impacts on the site. Design of longer term solution in consultation with Traditional Owners and state government agencies. Alignment with action CS_13. 	Aboriginal values	Active Intervention	SCC	Jerrinja LALC Jerrinja Tribal Group DPIRD Fisheries	Interpretive signing installed at site. Interim works completed. Longer term protection action designed and constructed. Maintenance program established (related to ECON_08, CTF_16 and CS_13).	Within 1-3 Years

ID	Location	Management Action	Action Description	Key Threat/Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
CTF_08	Greenwell Point	Prepare a climate change adaptation strategy for Greenwell Point	<p>This action involves preparing a climate change adaptation strategy for Greenwell Point in consultation with the local community and key stakeholders.</p> <p>Greenwell Point faces significant future risks from sea level rise, including increased frequency and severity of inundation events. Key results from the Stage 2 risk assessment highlight that vital assets, such as residential properties, critical infrastructure, and commercial areas, are at risk of flooding.</p> <p>The output of the strategy will be an agreed and costed adaptation pathway that identifies thresholds and triggers for action.</p> <p><i>This action is included in the Greenwell Point location overview in Section 3.2.5 and Appendix D.</i></p>	Coastal Hazards (inundation)	Planning for Change	SCC	DPIRD Agriculture LLS TfNSW DPHI Planning DPHI Crown Lands	Adaptation strategy developed.	Within 4-7 Years
CTF_09	LGA	Maintain planning controls to reduce future coastal hazard impacts	<p>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 intertidal ecosystems 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. <p>Update and maintain notation to section 10.7 (5) certificates for properties affected by coastal hazards consistent with NSW Government legislation using CMP hazard information.</p> <p>Wherever possible, use zoning and planning controls to maintain open spaces where mangrove and saltmarsh communities can migrate in response to climate change and sea level rise.</p>	Land use planning	Avoid Future Impact	SCC	DPHI Planning	LEP 2014 and DCP 2014 maintained. Future revisions of these plans contain equivalent planning controls.	Year 1 and Ongoing
CTF_13	LGA	Undertake a Planning Proposal to adopt a CVA and CWLRA (pending further information)	<p>This involves the preparation of a planning proposal to seek formal inclusion of a Coastal Vulnerability Area (CVA) into the RH SEPP. Council is to investigate if Coastal Wetland or Littoral Rainforest Areas (CWLRA) need adjustment based on information obtained through action ENV_32. Any planning proposals relating to CMPs are to be aligned through Council's Environmental Planning Instruments as best as possible.</p>	Land use planning	Avoid Future Impact	SCC	DPHI Planning	Future successful planning proposal for CVA mapping, and updated CWLRA (if deemed necessary).	Within 1-3 Years
CTF_14	Whole Study Area	Implement the Lower Shoalhaven River Coastal Zone Emergency Action Subplan (CZEAS)	<p>This action would involve the implementation of the CZEAS for the Lower Shoalhaven River in the event that it is activated by a coastal emergency. The CZEAS is included as Appendix E and discussed in Section 6. This will primarily address emergency response to relevant coastal hazards as defined in the Coastal Management Act 2016 and will need to be consistent with the Shoalhaven City Local Flood Emergency Sub Plan 2014.</p>	Coastal Hazards (inundation)	Emergency Response	SCC	NSW SES DCCEEW	Plans activated and implemented in a timely manner when needed.	Year 1 and Ongoing
CTF_16	Whole Study Area	Review and update all asset management plans (AMPs), relevant to the coastal zone within the CMP study area	<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 Detailed Risk Assessment (Rhelm, 2023b), Tidal and Coastal Inundation Assessment (Stantec, 2023), Bank and Riparian Condition Assessment (Rhelm, 2023f) and the Stage 2 Synthesis Report (Rhelm, 2023a) 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 the relevant asset custodian. Key elements of this action will consider:</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.</p> <p>A detailed description of this action (in combination with CTF_16a and ECON_08) is discussed in Section 3.2.4 and provided in Appendix C.</p>	Coastal Hazards (inundation)	Planning for Change	SCC		Plans updated, fit for purpose and being actively implemented enabling effective asset management, repairs and upgrades.	Year 1 and Ongoing

ID	Location	Management Action	Action Description	Key Threat/Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
CTF_16a	Whole Study Area	Review and update floodgate and associated drainage infrastructure asset management plans (AMPs)	<p>This action is aligned with CTF_16 with a specific focus on floodgates.</p> <p>The purpose of this action is to undertake systematic inspection and repair of end-of-line floodgates. This will feed into a critical review of Council's asset management program to determine which floodgates need upgrading or removal. This critical review should be informed by the recommendations in the Shoalhaven River Floodplain Prioritisation Study (WRL, 2023), which indicated when individual floodgates may lose functionality with sea level rise. This may involve modifications to these assets and associated drainage systems to optimise their ability to support estuary health including mitigating the risk of Acid Sulfate Soils while either supporting current land-uses through minimising tidal impacts on private land or identifying opportunities for land-use change such as coastal wetland restoration and Blue Carbon production.</p> <p>This action is to be aligned with: ENV_58 Support multi-stakeholder projects to implement actions in priority subcatchments identified in the Shoalhaven River Floodplain Prioritisation Study (WRL 2023) and NSW Blue Carbon Strategy.</p> <p>A detailed description of this action (in combination with CTF_16 and ECON_08) is discussed in Section 3.2.4 and provided in Appendix C.</p>	Coastal Hazards (inundation)	Planning for Change	SCC	DPIRD Fisheries	Same as for CTF_16. Opportunities identified for forward looking adaptation for floodgates and associated drainage infrastructure that will lose functionality due to sea level rise.	Year 1 and Ongoing
CTF_20	Shoalhaven Heads	Implement the Entrance Management Policy and undertake review	<p>Implement the Entrance Management Policy (EMP) in accordance with the associated Review of Environmental Factors (REF). Both being updated at the time of public exhibition of the CMP.</p> <p>Review and potential subsequent update to be undertaken as part of Lower Shoalhaven River Floodplain Risk Management Study and Plan (FRMSP), and Lower Shoalhaven River & St Georges Basin Flood Evacuation Capability Assessment & Triggers.</p> <p>A detailed description of this action is discussed in Section 3.2.4 and provided in Appendix C.</p> <p><i>This action is included in the Shoalhaven Heads location overview in Section 3.2.5 and Appendix D.</i></p>	Coastal Hazards (inundation)	Alert	SCC	DCCEEW Crown Lands DPIRD Fisheries	Entrance plan updated and implemented in a timely manner when needed.	Year 1 and Ongoing
ECON_04	Whole Study Area	Establish a CMP Governance Framework	<p>This action involves establishing a CMP Governance Framework including the following elements:</p> <ul style="list-style-type: none"> • Establish a CMP working group. • Clearly define its purpose, objectives, and functions. • Define its roles and responsibilities of its members. • Execute the function of the Working Group. • Meet regularly to implement CMP and track progress. 	Integrated and collaborative management	Planning for Change	SCC	DCCEEW DPIRD Fisheries DPIRD Agriculture LLS TfNSW NPWS LALCs Community and industry representatives	Working group established and functioning.	Year 1 and Ongoing
ECON_05	LGA	Establish one new Full Time Equivalent (FTE) Coast & Estuary Officer roles within Council	Establish one new FTE Coast & Estuary Officer role within Council - in order to oversee the implementation of Council's Lower Shoalhaven River CMP, (including long-term funding options) and build Council's capacity to respond to emerging issues.	Integrated and collaborative management	Planning for Change	SCC		Roles established and maintained for 10 year CMP duration.	Year 1 and Ongoing
ECON_06	Whole Study Area	Review Council's coastal management planning policies every 10 years	Review Councils coastal management and planning policies for the 10 year CMP implementation lifecycle. This should include consideration of the latest environmental data, observed coastal hazard impacts, and state government policies.	Integrated and collaborative management	Planning for Change	SCC	DCCEEW	Review completed.	Within 8-10 Years

ID	Location	Management Action	Action Description	Key Threat/Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
ECON_08	Whole Study Area	Develop and implement a program for regular and ongoing monitoring of 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. • Floodgates. • Sewer and water infrastructure. <p>The program should be integrated into Council's broader asset management program (Actions BOAT_38, CTF_16 and CTF16a).</p> <p>A detailed description of this action (in combination with CTF_16 and CTF_16a) is discussed in Section 3.2.4 and provided in Appendix C.</p>	Integrated and collaborative management	Avoid Future Impact	SCC		Plan developed and implemented with regular collection of data undertaken.	Year 1 and Ongoing
ECON_11	Whole Study Area	Review water sharing plans in the light of climate change and increasing population	<p>Upon its review Council will provide advice to State Government on consistency of the water sharing plan with the CMP and supporting and enhancing coastal values. This highlights the interplay between water sharing plans and estuary health to inform future water management. Key elements include:</p> <ul style="list-style-type: none"> • Build on and consider the Assessment of the Impacts of Water Extractions and Tallowa Dam Discharges on Salinity Dynamics in the Shoalhaven River Estuary (2021). • Identify areas of concern where water sharing arrangements may be contributing to adverse environmental conditions within the estuary in light of climate change and increasing population. • Collate and analyse existing data on water flows, quality, and estuary health in conjunction with water sharing plan provisions. • Facilitate stakeholder discussions to understand different perspectives and to garner support for sustainable water management practices that prioritise estuary health. • Develop a set of recommendations based on the findings to improve water sharing arrangements, with an emphasis on enhancing the health and resilience of the Lower Shoalhaven River estuary. • Prepare and disseminate a comprehensive report to relevant stakeholders, including local councils, water management authorities, and the community, outlining the findings and recommendations for future action. 	Environmental values	Planning for Change	SCC	DCCEE Universities	Completion of a report outlining the findings from data analysis, stakeholder discussions, and recommendations for improved water sharing arrangements aligning water sharing plans with estuary health and resilience goals for the Lower Shoalhaven River estuary.	Within 8-10 Years
ECON_14	Whole Study Area	Continue ongoing collaboration with state government agencies and research institutions	<p>Continue to collaborate with State and Federal government agencies, universities and other stakeholders 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, water quality, 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). 	Integrated and collaborative management	Alert	SCC	LLS TfNSW DPIRD Fisheries DPIRD Agriculture NPWS Universities DCCEE	Collaboration with government agencies and research institutions is successfully arranged.	Year 1 and Ongoing

ID	Location	Management Action	Action Description	Key Threat/ Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
ENV_09	Shoalhaven Heads, Greenwell Point, Nowra	Inclusion of additional Beachwatch sites	<p>In response to community concerns about water quality and the impacts on public health and safety, and based on the findings in the Stage 2 Water quality and monitoring program assessment (Rhelm, 2023d), several locations are to be included as regular Beachwatch sites, with regular water quality monitoring and reporting to communicate the safety of recreational activities to the broader public. These sites include:</p> <ul style="list-style-type: none"> • Shoalhaven Heads • Greenwell Point • The Grotto (Nowra) <p>A detailed description of this action (in combination with Action ENV_43) is discussed in Section 3.2.4 and provided in Appendix C.</p>	Water Quality	Active Intervention	SCC	DCCEEW	Sites added to the Beachwatch list and regular updates provided to the community.	Year 1 and Ongoing
ENV_21	Whole Study Area	Update Council Plans of Management (POMs) for locations in the coastal zone to support objectives of the CMP	<p>Update the relevant Plans of Management (POMs) 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, 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 • minimising grazing access. <p>Existing Council PoMs to be updated include:</p> <ul style="list-style-type: none"> • Greenwell Point • Crookhaven Heads • The Grotto and Greys Beach • Nowra Showground • Generic Council Managed Crown Lands x3 (Natural Area, Parks, Community Use) 	Land use planning	Planning for Change	SCC		POMs updated.	Within 1-3 Years
ENV_31	Whole Study Area	Enact the CMPs Monitoring, Evaluation and Reporting (MER) Program to track progress and report on outcomes	<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 (which is part of the IP&R framework), including progress towards or full achievement of the performance targets included for each action. 	Integrated and collaborative management	Alert	SCC		Annual reviews completed.	Year 1 and Ongoing

ID	Location	Management Action	Action Description	Key Threat/Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
ENV_32	Whole Study Area	Continue Council's program of mapping threatened ecological communities (TECs) across coastal reserves	<p>Carry out surveys to ground-truth and map the distribution and condition of TECs in the coastal zone 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.</p> <p>It should be noted that the outcomes of this work may be used to inform future amendments to the Coastal Wetland and Littoral Rainforest Area mapping under the RH SEPP, which could be undertaken through a planning proposal (Action CTF_13).</p>	Land use planning	Planning for Change	SCC	DCCEEW DPHI-Planning	Mapping complete and planning instruments updated.	Within 1-3 Years
ENV_39	Whole Study Area	Implement environmental protection works to enhance ecological communities in coastal reserves within the CMP Study Area	<p>This action will involve a range of measures and environmental protection works (EPW) to ensure the protection of existing riparian and estuarine vegetation, as well as rehabilitation of currently impacted areas. Maps series RG-01-10 identifies public land within the Coastal Wetlands and Littoral Rainforest Area where EPW described in this action are to occur. Appropriate approval pathways will be used during the implementation of EPW associated with this action.</p> <p>Works under this action would consider the following aspects:</p> <ul style="list-style-type: none"> • Available mapping resources including data from the Stage 2 Bank Condition and Riparian Assessment Study. • 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 under sea level rise. This would require consultation with private landholders and installation of informative signage and fencing in key areas to protect vegetation and habitats. For public lands, Council is to consider rezoning identified wetland migration areas for conservation purposes when updating the LEP (refer Action CTF_09). • 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 EPW will also be identified through cultural engagement and cultural surveys (Actions CS_13 and CS_14). 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). • Installation of informative signage and fencing in key areas to protect vegetation and habitats. • Undertake rehabilitation works in damaged vegetated areas and ongoing implementation of ecological restoration and EPW 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 ENV_32) 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 and EPW to enhance ecological communities in coastal and estuarine reserves. • Continued estuarine macrophyte mapping for the waterbody and foreshores as part of a Marine Estate Management Strategy project. • 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. 	Environmental values	Active Intervention	SCC	LLS	Implementation of restoration and protection works complete across identified riparian and estuarine areas,.	Year 1 and Ongoing

ID	Location	Management Action	Action Description	Key Threat/Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
ENV_41 ⁶	Whole Study Area	Support implementation of the Domestic Waterfront Structures Landowners Consent Strategy Shoalhaven River and Crookhaven River Estuaries (DPI, 2022)	<p>DPIRD Fisheries (2022) released the Domestic Waterfront Structures Landowners Consent Strategy (DWS) for the Shoalhaven and Crookhaven River Estuaries. The DWS provides a streamlined approach to assessing and granting landowner consent for domestic waterfront structures, using a 'traffic light' system to categorise the suitability of different locations.</p> <p>This action supports the implementation of the DWS and aims to increase community awareness about riparian and marine vegetation, the importance of maintaining it, and the requirements for obtaining consent for waterfront structures. These efforts will be delivered through community education programs and agency websites. Targeted education will be crucial in reinforcing compliance and protecting the estuarine environment (refer Action ENV_62).</p>	Environmental values	Avoid Future Impact	Various as listed below in sub actions	Various as listed below in sub actions	Various as listed below in sub actions	Year 1 and Ongoing
ENV_41a	Whole Study Area	Removal of derelict domestic waterfront structures	<p>This sub-action focuses on the identification and removal of derelict or unauthorised domestic waterfront structures. Where opportunities arise, SSC and Crown Lands will jointly lead efforts to remove these structures, ensuring that activities align with the objectives of the DWS and contribute to estuary health. DPIRD Fisheries will provide support as required, particularly where structures may impact marine habitats.</p> <p>Where this activity occurs in mapped Coastal Wetlands or Littoral Rainforest areas, it may be classified as 'environmental protection works', enabling a more streamlined approval pathway under the RH SEPP. Noting that appropriate approval pathways will still be used during action implementation. This action is subject to resource availability and funding.</p>	Environmental values	Avoid Future Impact	DPHI Crown Lands SCC	DPIRD Fisheries	Removal of 80% of identified derelict waterfront structures within mapped priority areas, ensuring compliance with DWS objectives.	Year 1 and Ongoing
ENV_41b	Whole Study Area	Continued compliance action for unauthorised vegetation harm and waterfront works	<p>This sub-action addresses the prevention of illegal clearing or harm to riparian and marine vegetation, focusing on unauthorised activities associated with waterfront structures, private access, or other amenity developments. Given the different heads of power across agencies, compliance actions will be conducted jointly by SSC, Crown Lands, and DPIRD Fisheries. These agencies will collaborate to ensure enforcement for a range of offences, depending on jurisdiction.</p> <p>These compliance actions will be supported by ongoing community education efforts and targeted campaigns, emphasising the legal requirements for riparian and marine vegetation protection. This action is subject to funding and resource availability.</p>	Environmental values	Avoid Future Impact	DPIRD Fisheries DPHI Crown Lands SCC		Successful enforcement of compliance actions for reported cases of unauthorised vegetation harm, supported by community education and aerial surveillance, with a focus on high-priority areas.	Year 1 and Ongoing
ENV_42	Various	Enhance urban stormwater runoff treatment through infrastructure development and Water Sensitive Urban Design (WSUD) in urban areas of the Lower Shoalhaven River coastal zone	<p>Water Sensitive Urban Design (WSUD) is an approach to urban planning and design that integrates the water into the urban landscape to minimise environmental degradation and improve water quality. This management action involves the implementation of infrastructure improvements such as gross pollutant traps (GPTs), constructed wetlands, and bioretention basins to enhance urban runoff treatment. It is comprised of three sub-actions, ENV_42a,b &c.</p> <p>A detailed description of this action (and sub-actions) based on the findings of the Urban Runoff Assessment and Treatment Options Stage 2 Study (Rhelm, 2023e) is discussed in Section 3.2.4 and provided in Appendix C. It includes information about the location, design, costs and benefits of proposed works .</p>	Water Quality	Active Intervention	SCC		Various as described in sub actions.	Various as described in sub actions.
ENV_42a	Terara	Undertake necessary detailed designs for establishment of a wetland at Terara (site UWQ_03 from Stage 2 Study)	<p>The proposed wetland at Terara (UWQ_03) aims to enhance the effectiveness of existing and future on-site measures for managing urban runoff. Although the wetland may not significantly reduce pollutant loads as a percentage within the Shoalhaven River, it is expected to improve overall water quality management. The recommended configuration is an offline wetland with an inlet pond and trash rack, which promotes a healthier wetland environment compared to configurations without these treatment train features.</p> <p>This action involves undertaking required investigations and detailed design to have a shovel-ready project. The construction phase is not included as part of the action in the CMP, however if council obtains funding, then it could proceed with this next stage.</p> <p>See detailed description as discussed in Section 3.2.4 and provided in Appendix C.</p>	Water Quality	Active Intervention	SCC		Detailed design developed.	Within 4-7 Years

⁶ Note that Action ENV_41 is in both **Table 3-7** & **Table 3-8** due to a shared lead agency role with DPIRD Fisheries.

ID	Location	Management Action	Action Description	Key Threat/Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
ENV_42b	Shoalhaven Heads	Undertake necessary detailed designs and construct a trash rack at Shoalhaven Heads (site UWQ_04 from Stage 2 Study)	<p>Trash racks are WSUD measures designed to reduce gross pollutant loads entering receiving waterways. Trash racks may take a few forms including nets, or metal bars which prevent debris from flowing into receiving waterbodies. This action involves detailed design and construction of a trash rack at Shoalhaven Heads (site UWQ_04 from Urban Runoff Assessment and Treatment Options Stage 2 Study (Rhelm, 2023e)).</p> <p>See detailed description as discussed in Section 3.2.4 and provided in Appendix C.</p> <p><i>This action is included in the Shoalhaven Heads location overview in Section 3.2.5 and Appendix D.</i></p>	Water Quality	Active Intervention	SCC		Trash rack installed and effective asset management program in progress.	Within 1-3 Years
ENV_42c	Bomaderry	Undertake necessary detailed designs and construct a trash rack at Bomaderry (site UWQ_05 from Stage 2 Study)	<p>Trash racks are WSUD measures designed to reduce gross pollutant loads entering receiving waterways. Trash racks may take a few forms including nets, or metal bars which prevent debris from flowing into receiving waterbodies. This action involves detailed design and construction of a trash rack at Bomaderry (site UWQ_05 from Urban Runoff Assessment and Treatment Options Stage 2 Study (Rhelm, 2023e)).</p> <p>See detailed description as discussed in Section 3.2.4 and provided in Appendix C.</p>	Water Quality	Active Intervention	SCC		Trash rack installed and effective asset management program in progress.	Within 1-3 Years
ENV_43	Whole Study Area	Revise and implement Council's water quality monitoring program for the Lower Shoalhaven River	<p>A review of available water quality datasets and reports was undertaken during Stage 2 of the CMP to evaluate the current monitoring and reporting activities in the context of their objectives or aims (Rhelm, 2023d). This report provides a range of recommendations to improve water quality and estuarine health data collection, quality control and reporting.</p> <p>A detailed description (in combination with Action ENV_09) of the revised water quality monitoring framework is discussed in Section 3.2.4 and provided in Appendix C. It includes:</p> <ul style="list-style-type: none"> • Monitoring program objectives • Monitoring parameters for ecosystem health and recreational water quality • Sampling procedure • Quality assurance and control • Data analysis and reporting. 	Water Quality	Avoid Future Impact	SCC	DCCEEW	Monitoring program underway, annual reporting completed.	Year 1 and Ongoing
ENV_44	Whole Study Area	Continue septic system performance assessments and regulation	Council's Environmental Health Team conducts performance assessments of onsite septic systems. Private landholders (including government system owners) are responsible to fix their own septic system if it is not performing up to standard. Regulatory tools are available to enforce compliance from property owners. This action involves the continuation of this program within Council.	Water Quality	Active Intervention	SCC		Effective identification and remediation of non-functioning septic systems.	Year 1 and Ongoing
ENV_51	Whole Study Area	Develop and implement water quality controls into future development	<p>This action involves a review and update of the water quality development and planning controls within the Shoalhaven Local Environmental Plan (LEP) 2014 and Shoalhaven Development Control Plan (SDCP) 2014 that apply to new development within the Shoalhaven River catchment area. This review would consider the following aspects:</p> <ul style="list-style-type: none"> • Pollutant reduction targets for future development within the Shoalhaven and Crookhaven River estuaries catchment to be based on Neutral or Beneficial Effect (NorBE) for all greenfield development. • Possible future application of the "Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land use Planning Decisions" (OEH, 2017) for Shoalhaven and Crookhaven River. • Avoiding land use intensification in high risk areas as per mapping in "Shoalhaven Local Government Area Estuary Health Diffuse Source Pollution Risk Assessment Mapping" (DPIE, 2020). • Inclusion of a range of Stormwater Quality Improvement Devices (SQIDs) to meet NorBE outcomes including incorporating wetlands and raingardens in private and public development. 	Land use planning	Avoid Future Impact	SCC		LEP 2014 and DCP 2014 reviewed. Future revisions of these plan reflect best practice water quality planning controls.	Year 1 and Ongoing

ID	Location	Management Action	Action Description	Key Threat/Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
ENV_58	Whole Study Area	Support multi-stakeholder projects to implement actions in priority subcatchments identified in the Shoalhaven River Floodplain Prioritisation Study (WRL 2023) and NSW Blue Carbon Strategy	<p>The Shoalhaven River Floodplain Prioritisation Study (WRL 2023) identifies subcatchments that pose the biggest threat to estuary health due to their capacity to produce acid-sulfate soil (ASS) and blackwater discharge (deoxygenated water pulses). It also identifies management options to modify existing drainage systems to mitigate these threats.</p> <p>The NSW Blue Carbon Strategy provides a roadmap to support blue carbon projects in New South Wales which restore coastal and marine biodiversity and ecosystems, while working towards our Net Zero goals. It aims to provide the catalyst for action, increase participation in the emerging blue carbon market and leverage the many co-benefits of blue carbon projects, such as improved water quality, coastal protection and enhanced habitat for fish and birds.</p> <p>There is also an Intertidal Marine Vegetation Strategy that will be prepared by DPIRD Fisheries for the Shoalhaven/Crookhaven system.</p> <p>The purpose of this action is for Council to provide support to multi-stakeholder projects to implement actions in priority subcatchments in the Shoalhaven River Floodplain Prioritisation Study (WRL 2023) as funding opportunities arise and supported by these and other relevant strategies and studies. Key elements include:</p> <ul style="list-style-type: none"> Supporting and participating in stakeholder consultation and engagement. Promoting educational materials in line with action ENV_62. Serving as the consent authority on relevant projects. 	Water Quality	Active Intervention	SCC	DCCEE W TOs NPWS DPIRD Fisheries DPIRD Agriculture LLS Private Landowners	Successful implementation of management actions in priority subcatchments identified in the Shoalhaven River Floodplain Prioritisation Study, with Council actively participating in stakeholder engagement, promoting educational materials, and serving as the consent authority for relevant projects.	Year 1 and Ongoing
ENV_62	Whole Study Area	Develop and deliver an estuary management and ecosystem education/communications program	<p>The purpose of this action is to increase public awareness and capacity related to estuary management. It involves developing and delivering a multi-channel education/communications program that utilises Council resources to share information to the broader community. Importantly, material will be developed in consultation with relevant stakeholders (i.e. Aboriginal community representatives for cultural heritage).</p> <p>Topics to be covered include:</p> <ul style="list-style-type: none"> Responsible boating related to public safety, water quality, and bank erosion Cultural heritage Estuarine ecosystems Entrance management Coastal planning Oyster reef restoration Blue Carbon/SLR Private landholder conservation Bank erosion and restoration ASS and Blackwater. <p>A detailed description of this action is discussed in Section 3.2.4 and provided in Appendix C. It includes:</p> <ul style="list-style-type: none"> Key messaging for each topic Information about relevant stakeholders Details on different delivery methods (i.e. locations for educational signage) Cost breakdown. 	Integrated and collaborative management	Alert	SCC	DCCEE W TOs DPIRD Fisheries DPIRD Agriculture LLS TfNSW	Communication education material developed for all topics with consultation and collaboration with identified supporting partners. Education program developed and being delivered.	Year 1 and Ongoing
ENV_63	Whole Study Area	Investigate opportunities and support implementation of oyster reef restoration activities within the estuary	<p>The purpose of this action is to determine opportunities to incorporate oyster reef restoration into estuary management in the Shoalhaven River estuary. This may be alongside bank restoration/stabilisation works or other habitat enhancement works. This action will incorporate Indigenous knowledge and support Sea Country values. It is aligned with several Marine Estate Management Strategy (MEMS) initiatives including: (1) Improving Water Quality and Reducing Litter; (2) Delivering Healthy Coastal Habitats with Sustainable Use and Development; (6) Ensuring Sustainable Fishing and Aquaculture; and (8) Enhancing social, cultural and economic benefits. The action involves planning, stakeholder engagement, design, construction and monitoring (aligned with ENV_64) and is subject to obtaining appropriate funding which may be sourced from various grants programs relevant to the marine estate.</p> <p>Council would serve as the lead for this action during planning and approvals with support from DPIRD Fisheries during the implementation phase.</p>	Environmental values	Active Intervention	SCC	DPIRD Fisheries	Completion of planning and stakeholder engagement for oyster reef restoration in the Shoalhaven River estuary, with successful acquisition of funding and initiation of at least one restoration project, ensuring alignment with MEMS initiatives and incorporation of Indigenous knowledge and Sea Country values	Year 1 and Ongoing

ID	Location	Management Action	Action Description	Key Threat/ Objective Addressed	Strategic Approach	Lead Agency	Partners	Performance Measures	Timing
REC_03	Whole Study Area	Keep foreshore recreational areas cleared from post-flood debris and maintained for tourism purposes, including Shoalhaven Heads, Greenwell Point, and Orient Point.	Access to foreshore areas for recreational purposes is deemed to be high value and highly essential by the community and visitors to the area. This action involves the removal of post-flood debris from key recreational areas. Removal activity will be subject to available resources and occur when Council determines there is a risk to public safety and recreational amenity and will need to comply with Council and DPIRD Fisheries policy, with permits to be obtained where/when required.	Environmental values	Active Intervention	SCC	DPIRD Fisheries	Debris clearance implemented in a timely manner when needed.	Year 1 and Ongoing
REC_04	Whole Study Area	Improve public foreshore access to include all-ability access	<p>Council will initiate a comprehensive assessment to identify and enhance public access points along the foreshore, with a special focus on improving all-ability access. This will involve evaluating existing pathways, ramps, and facilities, and identifying gaps in current access provisions. Recommendations will include the installation of wheelchair-friendly pathways, accessible ramps, and other facilities to ensure equitable access. Engage with disability advocacy groups and accessibility experts to ensure that improvements meet the needs of all community members. This initiative aims to promote inclusive enjoyment of the foreshore while respecting environmental sensitivities and local ecological balance.</p> <p>This action also includes site selection, design and construction of priority accessways, subject to funding.</p>	Land use planning	Active Intervention	SCC		Completion of an all-ability access assessment for public access points along the foreshore, with at least 50% of identified gaps addressed through the design and construction of wheelchair-friendly pathways and ramps, subject to available funding and stakeholder engagement.	Within 1-3 Years

3.2.3 Actions to be Implemented by Public Authorities

Public authorities have been identified to support Shoalhaven City Council to implement the majority of the management actions in the CMP, predominately through the provision of technical or project management support. However, there are also several actions for which a public authority has been identified as the lead agency.

Of the 58 actions, there are 7 identified for implementation by public authorities, including:

- Four (4) actions that support environmental values;
- Two (2) actions that address coastal hazard inundation threats; and
- One (1) action that supports integrated and collaborative management.

These actions are presented in **Table 3-8**.

Table 3-8 CMP Actions to be Implemented by Public Authorities

ID	Location	Management Action	Action Description	Key Threat/Objective Addressed	Lead Agency	Partners	Performance Measures	Timing
ECON_10	Whole Study Area	Support agricultural sector productivity, resilience and adaptation	<p>DPIRD Agriculture is a NSW Government Agency tasked with supporting research and development know-how to increase productivity and resilience across NSW agriculture sectors and environment. Their work is relevant to coastal management, specifically as it relates to coastal hazard resilience, climate change adaptation and on-farm practices to protect estuarine ecological health.</p> <p>This action commits DPIRD Agriculture to continue developing and implementing targeted programs and information resources to achieve their directive of increased productivity and resilience across NSW agriculture sectors and environment, and to support sustainable adaptation to the effects of climate change such as sea level rise.</p> <p>Supporting partners such as Council, DPIRD Fisheries, and DCCEEW will:</p> <ul style="list-style-type: none"> Support ongoing DPIRD Agriculture programs that assist dairy farms in preparing and recovering from natural hazards such as coastal inundation, including by sharing information and supporting communication/education programs. Support engagement with stakeholders including local communities, farmers, policymakers, and relevant organisations to gather insights and prioritise concerns. Collaborate with the DPIRD Agriculture, landowners, and established groups such as Dairy NSW for adaptation planning and to discuss potential impacts of future SLR. Explore opportunities for achieving co-benefits, such as promoting local biodiversity, enhancing recreational spaces, and supporting local economies. Explore opportunities to diversify production systems or alternative income streams that consider climate change impacts where typical production means become less viable (e.g. Blue Carbon or other environmental/biodiversity land management incentives on low-lying land impacted by tidal inundation). 	Coastal Hazards (inundation)	DPIRD Agriculture	SCC DPIRD Fisheries DCCEEW	Development and implementation of targeted adaptation programs and information resources by DPIRD Agriculture, with increases in stakeholder engagement and resilience strategies across NSW agricultural sectors, particularly addressing coastal hazard resilience and climate change adaptation.	Year 1 and Ongoing
ECON_13	Crookhaven Heads	Monitor existing breakwall infrastructure at Crookhaven Heads	<p>This is a Transport for NSW (Marine Infrastructure Delivery Office) (MIDO) led action. Monitoring will be based on the findings in:</p> <ul style="list-style-type: none"> Dwyer PG and Dengate C (2021) An audit of trained river entrances, armoured harbours and groynes and their multi-use and eco-features in NSW: Shellharbour to the Victorian border (illustrated volume III). NSW Government 	Integrated and collaborative management	TFNSW	SCC	Regular monitoring and condition assessments undertaken.	Year 1 and Ongoing
ENV_19	Saltwater Swamp and Brundee Swamp	Minimise vehicle access to floodplain wetland areas in Nature Reserves	Recreational vehicles such as trail bikes and 4WDs can seriously damage sensitive wetland habitats, and reducing their access to core wetland areas helps maintain estuary health. While some vehicle access may be essential for fire management, the purpose of this action is to minimise vehicle access via softer means such as signage and education, and with moderate access management structures such as fencing and bollards.	Environmental values	NPWS	SCC	Access control assets installed and maintained. Degraded wetland habitat recovery.	Year 1 and Ongoing
ENV_41 ⁷	Whole Study Area	Support implementation of the Domestic Waterfront Structures Landowners Consent Strategy Shoalhaven River and Crookhaven River Estuaries (DPI, 2022)	<p>DPIRD Fisheries (2022) released the Domestic Waterfront Structures Landowners Consent Strategy (DWS) for the Shoalhaven and Crookhaven River Estuaries. The DWS provides a streamlined approach to assessing and granting landowner consent for domestic waterfront structures, using a 'traffic light' system to categorise the suitability of different locations.</p> <p>This action supports the implementation of the DWS and aims to increase community awareness about riparian and marine vegetation, the importance of maintaining it, and the requirements for obtaining consent for waterfront structures. These efforts will be delivered through community education programs and agency websites. Targeted education will be crucial in reinforcing compliance and protecting the estuarine environment (refer Action ENV_62).</p>	Environmental values	Various, as described in sub actions.	Various, as described in sub actions.	Various, as described in sub actions.	Year 1 and Ongoing
ENV_41a	Whole Study Area	Removal of derelict domestic waterfront structures	<p>This sub-action focuses on the identification and removal of derelict or unauthorised domestic waterfront structures. Where opportunities arise, SSC and Crown Lands will jointly lead efforts to remove these structures, ensuring that activities align with the objectives of the DWS and contribute to estuary health. DPIRD Fisheries will provide support as required, particularly where structures may impact marine habitats.</p> <p>Where this activity occurs in mapped Coastal Wetlands or Littoral Rainforest areas, it may be classified as 'environmental protection works', enabling a more streamlined approval pathway under the RH SEPP. Noting that appropriate approval pathways will still be used during action implementation. This action is subject to resource availability and funding.</p>	Environmental values	DPHI Crown Lands SCC	DPIRD Fisheries	Removal of 80% of identified derelict waterfront structures within mapped priority areas, ensuring compliance with DWS objectives.	Year 1 and Ongoing

⁷ Note that Action ENV_41 is in both Table 3-7 & Table 3-8 due to a shared lead agency role with SCC.

ID	Location	Management Action	Action Description	Key Threat/Objective Addressed	Lead Agency	Partners	Performance Measures	Timing
ENV_41b	Whole Study Area	Continued compliance action for unauthorised vegetation harm and waterfront works	<p>This sub-action addresses the prevention of illegal clearing or harm to riparian and marine vegetation, focusing on unauthorised activities associated with waterfront structures, private access, or other amenity developments. Given the different heads of power across agencies, compliance actions will be conducted jointly by SSC, Crown Lands, and DPIRD Fisheries. These agencies will collaborate to ensure enforcement for a range of offences, depending on jurisdiction.</p> <p>These compliance actions will be supported by ongoing community education efforts and targeted campaigns, emphasising the legal requirements for riparian and marine vegetation protection. This action is subject to funding and resource availability.</p>	Environmental values	DPIRD Fisheries DPHI Crown Lands SCC		Successful enforcement of compliance actions for reported cases of unauthorised vegetation harm, supported by community education and aerial surveillance, with a focus on high-priority areas.	Year 1 and Ongoing
ENV_46	Whole Study Area	Cost-benefit analysis and feasibility study(ies) of alternative floodplain land use options	<p>Subject to funding, this action will be led by DPIRD Fisheries with support from DPIRD Agriculture, DCCEEW and SCC. It involves an investigative cost-benefit analysis and feasibility study(s) of alternative floodplain land use options to inform decision making for land holders currently undertaking agriculture on low-lying land that will progressively become more constrained for traditional agricultural uses with rising sea levels and more frequent tidal inundation.</p> <p>It will consider:</p> <ul style="list-style-type: none"> • Constraints to the functionality of the existing drainage network, as informed by the data presented in the Shoalhaven River Floodplain Prioritisation Study (WRL, 2023), and linking to Action CTF_16a. • Potential fisheries (including aquaculture) values from restoration of natural flows, including reinstatement of tidal exchange and rehabilitation of former wetland and backswamp areas. • Economic evaluations, undertaken for coastal floodplain wetland areas, of current agricultural land uses in light of an increase in sea level over the near (2050) and long (2100) term. • Potential for carbon storage in restored wetlands and backswamps as a future revenue source. • Value of ecosystem services provided by accommodating landward retreat of estuarine vegetation communities. <p>This action supports the ongoing and high value existing agricultural production on the floodplain where feasible and considers that other uses may be more viable in some locations in the future. A particular focus will be on identifying those broad factors (sea level rise, water quality, increased farming risk, engineering limitations of drainage infrastructure) influencing the economically viable and socially acceptable strategies for implementation. The assessment should include broad consideration a range of factors including, but not limited to:</p> <ul style="list-style-type: none"> • Land ownership scenarios • Potential carbon sequestration benefits • Potential impacts on farm viability and cash flow • Potential funding streams for farmers to undertake hydrological works, e.g. market-based approaches, public-private investment strategies and collective arrangements that promote cooperative action, financial incentives (e.g. grants, price signals and trading mechanisms, which are of particular importance where hydrological works are required to alter drainage patterns), non-financial measures (e.g. Government extension services) and regulatory frameworks (DEWHA, 2009). 	Coastal Hazards (inundation)	DPIRD Fisheries	DPIRD Agriculture SCC DCCEEW	Study completed and findings communicated to relevant agencies and stakeholders.	Within 4-7 Years
ENV_64	Whole Study Area	Resurvey the estuary in 10 years' time to determine the location, condition, extent and vulnerability of oyster reefs in the estuary	<p>This action involves resurveying the estuary to determine the success of the works to install/improve oyster reefs. Monitoring and evaluation of oyster recruitment and fish assemblages at proposed restoration sites is required to assess the success of restoration projects in terms of provision of additional fish habitat. In line with DPIRD Fisheries oyster reef survey methodology, it will establish a mapping and reporting program for restored oyster banks and reefs (aligning with ENV_63). Results of the monitoring will be reported in the relevant annual estuary health report card, developed by DPIRD Fisheries. Note that implementation of this action is dependent on DPIRD Fisheries successfully accessing additional funding.</p>	Environmental values	DPIRD Fisheries	SCC	Estuary re-surveyed and results reported in Estuary Health Report Card.	Within 8-10 Years