

Jack Hiscock  
Natural Resources Officer  
Kempsey Shire Council  
22 Tozer Street  
Kempsey NSW 2440

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Re: Support for Kempsey Shire Council's Coastal Management Program Actions

Dear Jack,

North Coast Local Land Services (LLS) offers in-principal support for the Kempsey Coastal Management Program (CMP), including actions A2, A8.1, A8.2.

Your Program's objective and relevant actions aligns with the North Coast LLS Natural Resource Management Plan 2022-26. It also aligns with our Extended Plan 2021-26 (The Plan), through:

1. Landscape Management

Core service aim - Connect and work with partners to build resilience to changing climate and restore, conserve and manage North Coast landscapes.

The plan can be found on our website at: [Strategic plans - Website - Local Land Services \(nsw.gov.au\)](https://www.lls.nsw.gov.au/strategic-plans).

CMP Actions A2, A8.1 and A8.2

We agree to be a supporting agency for these three Coastal Management Program actions, subject to funding and staff availability.

Some other feedback:

- The Riverbank Restoration Project (RRP) should not be referenced in the table on page 70, as funding is not confirmed for our project sites at this point. RRP funding is only in place until June 2025, so largely outside the timeframes of this CMP
- Please confirm the \$ against A8.1 and A8.2 in the table on page 70 are not referring to contributions from RRP
- Re action A8.1 (page 51), please insert the text in yellow to this paragraph to clarify only 2021 and 2022 flood-affected land is included in RRP scope: "This action will support the River Rehabilitation Project (RRP), a statewide project being delivered by LLS. The purpose of the RRP is to identify, prioritise, and implement riverbank rehabilitation works for high priority erosion sites that have been impacted by [the 2021 and 2022] floodsing."
- Re action A8.1 and 2 (pages 50-52), we recommend that Kempsey Shire Council consults the Fisheries team running the NSW Estuary Asset Protection Program (contact is Kylie Russel at DPIRD: kylie.russell@dpi.nsw.gov.au) to check if their project is operating in Kempsey. Their remit focuses on estuarine areas more than RRP does.

For further information, please do not hesitate to contact Simon Abbott Team Leader Natural Assets Protection on 0455 894 962.

Yours sincerely,



Lauren Wilson  
Operations Manager  
North Coast Local Land Services



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13<sup>th</sup> September 2024

[ksc@kempsey.nsw.gov.au](mailto:ksc@kempsey.nsw.gov.au)

<https://yoursay.macleay.nsw.gov.au/coastal-management-program>

Dear Mick and Jack

Thank you for the opportunity to make comments on the Draft Kempsey Shire Coastal Management Program which is on public exhibition. The Kempsey Shire is to be commended for drafting a coastal management program aimed at developing a long-term strategy for the 80km of coastline within the Shire. This is an important task as highlighted by the key reasons for the program as listed in the introduction of the report.

The following will focus on the local issues around Stuarts Point and District. Unfortunately, we were not involved in assisting in the development of stage 1. scoping studies and stage 2. Vulnerabilities and Opportunities for the Arm of The Macleay and Northern most flood plain areas of Kempsey LGA. This submission highlights recommended considerations to be included for this part of the LGA. If it was considered and not a priority it's is not clearly explained in this document for review. The DP and OP plan 2023 item ENOP41 identified that this study was to be undertaken and SPaDCO looked forward to contributing, as stated in our submission 27/06/23.

We would welcome the inclusion of the following tasks

- Improvements and inclusions of updated hazard studies for Fishermans Reach, Stuarts Point and Grassy Head in revised maps (CVA Mapping)
- Improvements and inclusions of updated vegetation mapping of EEC's, (including Littoral Rainforests, Coastal Swamp Forests, Coastal Salt Marsh and Themeda Grassland) occurring in Fishermans Reach, Stuarts Point and Grassy Head in revised maps.
- Improvements and inclusions of clearly articulated policy in relation to coastal hazards in DCP and LEP (refer 3.1.4 A4)
- Education and announcement moving beyond the local paper (which we don't get) and council website (manty don't view it) (refer 3.1.2.A2)
- Coastal usage assessment including vehicles on Stuarts Point Beach and usage rates for proposed growth.
- Water quality monitoring and Threatened species monitoring for Grassy Head Stuarts Point Fishermans Reach and Arm of the Macleay



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Many areas of Coastal Risk are Crownland managed by council which confirms the need for a management plan or management of intent to address issues for each areas. Over the years local residents have collated local information into reports which could inform or assist in creating such management documents. (refer 2.10 and 3.1.3A3) We would be happy to assist in collating this for council.

Introduction of invasive species and weeds- early intervention is a time and monetary efficient way to address high-risk species. e.g. Camphor Laurel, Billygoat Weed, Coral tree and Cassia are some examples in this area. SPaDCO is willing to work with council to target.

Data collection of the entire environment including coastal hazards, coastal vulnerability (CVR) and coastal wetland littoral rainforest (CWLR) mapping would be welcomed. Eg; At Grassy Head Beach there are two unnamed creek outlets. These outlets could carry sea surge up creek to potentially flood the macadamia farm and blocking Grassy Head Road (refer 3.1.4) This area is identified as intertidal limit on Eungai topographical map. This issue is not mentioned in the report but should be identified as a hazard prone area. Page 44 suggests CMP stage 2 hazard study or check with council. Please note I have not reviewed this doc or checked with council.

Although stormwater management is lacking in most areas of Stuarts Point and district, it should not be ignored. (Refer 2.12) Stormwater discharge and runoff- Houses and agricultural properties get inundated by blocked water flows by roads. e.g. Grassy Head Road and Fishermans Reach Road. It should be noted that Stuarts Point and surrounds are situated with high ground water levels and therefore be a red flag in this document for consideration of management. At specific conditions many sites are high-risk residential areas and not mentioned in this report.

Stormwater management also relates to the sedimentation of the Arm of Macleay which (refer 2.15) impacts the hydrological pull of ground water ( see work: Professor Stuarts Khan UNSW, and others) and the frequent flushing for water quality. Sediment is freely allowed to enter the Arm of Macleay from overland flow and bank erosion. The Arm of the Macleay is potentially becoming a stagnant pond. The function and rise of the Arm of the Macleay due to sedimentation will eventually impact residents 'way of life. Water quality, water activities and the tourist attraction will be diminished.

Appendix A CZEAS includes extensive coastal areas and floodplain impacted by inundation and beach erosion but only mentions two issues of concern 1.the viewing platform and access to Grassy Head Beach (Fig5 p13 which is an old photo- the area is now stabilised with vegetation) and 2.Grassy Head Caravan Park. The town ships of Fishermans Reach, Stuarts Point and Grassy Head together with the agriculture land and access roads will all be impacted and unfairly omitted from this document.

The Arm of the Macleay at Fishermans Reach will endure further bank erosion (refer 2.18) resulting in Fishermans Reach Road collapse. Blocking boat access and potential escape route. Is this ramp capable of withstanding high flows. Not listed as high risk.



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Vehicular access at Grassy Head Holiday Park and Pedestrian access to Stuarts Point Beach would both be blocked. (refer 2.4) this is a potential escape route for fires if the one road in and road out situation remains. Further, it may impact the tourism potential of the area.

Millington Avenue and residential properties on Grassy Head Road is expected to be impacted by the road blocking overland flow, together with the two Holiday Parks. (Grassy Head and Stuarts Point) inundated by high tides.

-Figure 9. Incorrectly identifies Stuarts Point Holiday Park and omits Grassy Head Holiday Park. Is The Yarra convention centre secure? With expected high visitor populations at peak times, surely this is a high-risk residential area. The agricultural land and home at Wirrabeana property, Grassy Head Road the only exit road in the area, will be inundated with inflow via the creek from the ocean. The swell of population in peak holiday times would indicate a high risk if roads are blocked and people can't escape.

5.3 refers to Cliff instability. It is remiss not to mention the active large head cut at Grassy Headland the south end of Grassy Head Beach. Storm surges will undoubtedly further impact its secure nature. This is the southern access to the beach from the Holiday Park. (Refer 2.7 p.26) The overuse of dune "play" has left the dune precariously positioned to collapse with any storm pressure (refer 2.7p.26)

If roads are blocked. The boat ramp at Fishermans Reach is also a significant access point (refer 2.6) which will also be under threat as will the access road to it from bank erosion (refer 2.7) over 1000 residential properties in the area whose occupants may need to exit at this point. Adding visitors to Yarra convention centre and two holiday parks could swell this number to well over ten thousand. A serious area of concern.

We hope that The Storm Plan, CZEAS and Coastal Management for Kempsey which lead into the DP and OP plan are inclusive and consistent.

#### Appendix B Deferred Actions-

It is disappointing that recognition of significant indigenous heritage at the Golden Hole has not been identified as of High risk and that Ngambaa community were not mentioned (refer 2.5 page 25).

It is disappointing that the issue of derelict mine and accumulated contaminates in the flood plain (refer 2.14) are considered unfundable therefore deferred. Fishermans Reach, Yarrhapinni and others may be impacted heavily by this issue. It would be good to highlight the seriousness and potential impacts to agriculture and fishing industries. And include any mitigating measures.

Appendix C Coastal Vulnerability Areas-...*'details should be sort from Kempsey Shire'* at this stage this has not been investigated.

Planned 4.6% growth on the flood plains which are vulnerable to tidal inundation behind the existing township of Stuarts Point will need to be constructed and planned in a way to meet these risks (refer 2.9)



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In conclusion, It is not clear from this report the mitigating actions directed towards the district of Stuarts Point and surrounds. Including grants, Dune monitoring, water quality monitoring, state govt funding for estuary management, dredging, maritime infrastructure, monitoring threatened shore and water birds. The CMP and Table 5. Planned options fails to clarify any actions for the northern part of the coast of Kempsey Shire, it is then difficult to see how this study will mitigate risks of coastal impacts to this area.

Monitoring needs to be included in our areas so assessments by the NRCG can be aware of issues and update plans where necessary.

The community are willing and can assist in this ever-changing coastal environment. For example, Regular bird sightings are recorded on facebook, for the third-year running. Daily reports through the month of August by an expert photographer identified many threatened birds their location and abundance.

It is also disappointing to note that the GHD report for council June 2024 on stormwater Flooding study for Stuarts Point was not included in the references.

Looking forward to your response on these issues.

Regards

Mary-Lou Lewis

Chairperson on behalf of SPaDCO

Stuarts Point and District Community Organisation

Our ref: DOC24/266069

Jack Hiscock

Natural Resource Officer

Kempsey Shire Council

2 October 2024

By email: [jack.hiscock@kempsey.nsw.gov.au](mailto:jack.hiscock@kempsey.nsw.gov.au)

Cc: [John.Schmidt@environment.nsw.gov.au](mailto:John.Schmidt@environment.nsw.gov.au)

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**Subject:** Kempsey Coastal Management Program – Exhibition Draft, June 2024

Dear Jack

The Department of Planning, Industry and Environment – Crown Lands and Public Spaces (the department) has reviewed the Exhibition Draft Kempsey Coastal Management Program, June 2024, where relevant to the administration of the *Crown Land Management Act 2016* (CLM Act)

The department's feedback on the Exhibition Draft Coastal Management Program is documented in the attached Table. This includes several suggested amendments, which are intended to clarify the role of the department in managing the coastal zone within the study area.

Should you wish to discuss our feedback or the suggested amendments, please do not hesitate to contact Grant Nelson by email at [grant.nelson@crownland.nsw.gov.au](mailto:grant.nelson@crownland.nsw.gov.au).

Yours sincerely,



Grant Nelson

Senior Project Officer Coastal Unit

Crown Lands and Public Spaces

Ref No / page	Location	Description	Lead	Support	Comment	Recommendation
<b>Action A18</b>	Matty's Flat	Masterplan for Matty's Flat and Macleay River Entrance	Council	DPHI-Crown Lands	<p>Transport for NSW via Licence 618891 have responsibilities for land management in this area.</p> <p>ALC 7188 (Kempsey LALC) and ALC 26824 (Kempsey LALC) have been determined/granted in part for land in the Matty's Flat &amp; Macleay River Entrance Area.</p> <p>Council has not defined the extent of the Masterplan.</p>	<p>Crown Lands provides in principle to support to this action including 'supporting partner' responsibilities.</p> <p>However, all land owners/managers in the masterplan area should be included as a 'supporting partner' to this action in the CMP.</p> <p>Council should consult with relevant LALC's and TfNSW regarding support for this action as they have responsibilities for land or assets which may form part of the Masterplan.</p>



Ref No / page	Location	Description	Lead	Support	Comment	Recommendation
<b>Action A8.1</b>	various	Bank Management Assessment and Implementation plan	Council	DPI Fisheries; Crown Lands; LLS	<p>This action involves the preparation of a study to identify riverbank management issues and priority works for implementation.</p> <p>The action will also highlight areas that should exclude grazing which may be licenced by Crown Lands processes.</p>	Crown Lands provides in principle to support to this action including 'supporting partner' responsibilities.
<b>Deferred Actions D8.1 and D8.2 regarding Back Creek</b>	Back Creek	Prepare Back Creek Sediment and Hydrodynamic Investigation (D8.1) & Prepare an Options Study for Back Creek	Council	N/A	Both these deferred actions identify Crown Lands as a potential funding source. It is unlikely that Crown Lands would have funding to support these deferred actions.	Crown Lands be removed as a potential funding source for deferred action D8.1 and D8.2.

A10	Saltwater Creek; Killick Creek; Korogoro Creek	Manage Estuary Entrances	Council	Nil	<p>This action involves the management of estuary entrances in accordance with the Entrance Management Plans (EMP) for Saltwater Ck; Killick Ck and Korogora Ck.</p> <p>The EMP's are stand-alone documents and the CMP requires they be implemented.</p> <p>The EMPs refer to Plans of Management (PoM). Where artificial entrance management requires activities to be undertaken on Crown Waterway, a PoM will have no effect and a licence will be required 1.15(1) CLM Act. The EMPs incorrectly refer to 5.30 CLM Act.</p> <p>A review of EMPs indicate that they each provide 3 management options, do nothing, berm height management and direct mechanical opening. They also provide 3 primary pathways/ triggers including Berm Height; WQ thresholds &amp; Community View Points.</p> <p>Section 8 of each EMP titled 'Decision making Framework' includes a flow chart. The flow chart states "Is WQ below guideline levels?". Poor water quality are generally recorded as concentrations '<u>above</u>' the guideline value.</p> <p>The decision framework supporting each of the EMPs also includes a step to consider community viewpoints. The community viewpoints are best addressed during</p>	<p>It is recommended Council amend the EMP's to:</p> <ul style="list-style-type: none"> <li>- Acknowledge authorisation requirements under s1.15(1) of the CLM Act.</li> <li>- Amend wording related to the application of PoM which will only have relevance to activities on Council Managed Reserves.</li> <li>- Amend wording related to WQ triggers to correctly reflect the intent of the WQ thresholds.</li> <li>- Remove or replace/ amend 'Community Viewpoint' pathways in the decision making frameworks. An alternative may be an 'exceptional circumstances' pathway.</li> </ul>
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Ref No / page	Location	Description	Lead	Support	Comment	Recommendation
					<p>the development of the EMP which is prepared to provide Council with a science based policy position to guide procedures. Allowing further consideration of community views when an estuary is in a closed state may complicate decision making. An alternative would be to allow for exceptional circumstances. Such as follows:</p> <p>“exceptional or unexpected monitoring results or impacts such as chemical/ pollutant spills, fish kills, algal blooms, ecohealth or infrastructure related issues will be highlighted and forwarded to relevant authorising agencies for consideration”</p> <p>EMP’s incorrectly refer to ‘landowners consent’ requirements (section 3.1). Landowners consent is only required for activities that require development consent under Part 4 of the <i>Environmental Planning and Assessment Act 1979</i> (EP&amp;A Act). Artificial entrance management is likely to be undertaken under Part 5 of the EP&amp;A Act.</p> <p>The EMPs reference incorrect SEPP’s.</p>	<ul style="list-style-type: none"> <li>- Correct references to ‘landowner consent’ requirements.</li> <li>- Correct referencing to contemporary SEPP’s.</li> </ul>

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**From:** John Schmidt  
**Sent:** Thursday, 19 December 2024 11:24 AM  
**To:** Jack Hiscock  
**Cc:** Stuart Young; david.wainwright  
**Subject:** Kempsey CMP commentary feedback  
**Attachments:** Kempsey CMP post exhibition DPHI comments 16 Dec 2024 (002) JSand SY.docx

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Hi Jack  
With regards Kempsey CMP final edits

### Document

Check if Action Title and Number font can be improved for legibility, I find the pale blue gets washed out on white background.

Check all relevant supporting documents are clearly referenced.

Update text in Action A14 summarise JBP work ( noting Planning didn't realise JBP work on coastal hazards mapping existed)

### Planning Commentary

Most of Plannings very late commentary is around how existing wording can be changed to simplify planning pathways for works especially in mapped Coastal Wetlands and Littoral Rainforest which can potentially save Council time and resources.

Planning commentary is attached and has my commentary included which was reviewed and discussed with Stuart at MCEF

Stuart (MCEF) David (Salients) and I have discussed Plannings comments and our collective thoughts on how best to approach matters raised is summarised below

### Summary

Figure 1	Double check
A3	update
A4	we don't need to produce any additional maps or content in this CMP for the CVA. Planning did not have copies of the technical report and mapping by JBP used to underpin the CVA map during their review. Simple reference to and the including the JBP work as one of the "supporting documents" is enough at this stage to provide the additional detail planning wish to see. Council's planners will need to consider timeframes and specific hazards in their DCP (or potentially LEP), but those are matters for Council to decide on when implementing action A4.
A6.2	wording be updated to remove the reference to "new infrastructure" (which would then require development consent if new coastal protection works end up being proposed), and make clear that A6.2 is limited to ancillary coastal development (i.e. not coastal protection works) and "routine maintenance works or repairs to any existing coastal protection works" (wording from 2.1 (2)(a)(iv) of the SEPP).
A8.2	ignore
A11	agreed

A15 agreed  
A17 ignore  
A19 add note in revised guideline

We do not support inclusion of additional agencies in support role at this late stage when within the task we can just say that Council will consult.

We generally agree if word changes provide us with a more robust document and can save Council some time and resources down the track with streamlined planning pathways then that's OK

But if Council chooses not to bother and will deal with extra planning requirements triggered by works within mapped wetlands and littoral rainforest then some of the actions can remain unchanged. I believe Clarence took this approach.

Alex Macvean [alex.macvean@dpie.nsw.gov.au](mailto:alex.macvean@dpie.nsw.gov.au) has indicated she is available to assist with any questions or clarifications around planning issues and commentary.

Alex may be a good contact for future Council meetings where CVA mapping is on the agenda.

### **NPWS feedback**

I note NPWS have provided their final feedback that has been endorsed by their management

I worked with Josh on their actions and am comfortable with what's proposed.

Note the Crown will need to formalise they are OK to be included as a supporting Agency given the Laggies Breakwater is part of the Crown estate and was never transferred to MIDO asset register.

Suggest approach Grant Nelson [grant.nelson@crowland.nsw.gov.au](mailto:grant.nelson@crowland.nsw.gov.au) 0498 946 746

### **Kempsey LALC**

I met with Greg Douglas the CEO of KLALC for an on country meeting to discuss the Mattys Flat masterplan. At the conclusion he was satisfied with the intent of the masterplan and said he would provide a letter of support. Subsequent emails and messages have not been responded to. I will continue with reminders.

I understand that Local Aboriginal Land Councils are not public authorities so where their involvement in projects as a stakeholder is warranted we just mention that they will be invited to participate as part of the project. (NPWS mapping of the midden project is another action where similar wording can be provided)

I trust this is sufficient for you to advise David on what edits are required to finalise the CMP satisfying all the exhibition feedback. Noting where additional work or attendance to Council meeting may require a variation which I am happy to support.

I will be back on deck week beginning 6 January

Until then make sure you all have a great break over the holiday season.

Kind Regards

John Schmidt

**Senior Coast and Estuary Officer**

Water, Floodplains and Coast

Regional Delivery (North East)

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## Kempsey Shire CMP dated 24 June 2024

### DPHI Coastal Policy team review of management actions as of 13 December 2024

Council and the consultant are congratulated on exhibiting the draft CMP and for the important inclusion of CVA mapping as an action of the CMP.

The DPHI-Planning Coast Policy team are aware that the content and format of the CMP address the NSW DCCEEW certification requirements and do not seek to delay the process of presenting the CMP to the elected Council for adoption and future certification by the Minister for the Environment.

However, we believe there is an opportunity for our comments to assist Council with the timely and effective implementation of certain CMP actions after certification.

By providing an additional level of detail in certain Actions, we believe Council will be able to take advantage of streamlined planning approval pathways available in the Resilience and Hazards SEPP 2021 and Transport and Infrastructure SEPP 2021, for various coastal protection works, environmental protection works, and waterway and foreshore management activities identified in the CMP.

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These comments are based on the CMP only as the Coastal Policy team did not have access to related studies or supporting documents at the time of our review.

Because our comments are being provided at a late stage, we have included examples of the information and mapping provided in existing certified CMPs, which can facilitate streamlined pathways for future on ground works by Council. We hope that these examples will allow Council staff to consider a few specific updates to the CMP, if desired, prior to the February Council meeting.

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#### Overview:

In order to utilise streamlined approval pathways (REF) for certain actions in the CMP, additional information is required including:

- A detailed description of the proposed works and activities, to demonstrate how these works or activities align with the relevant definition under the Resilience and Hazards SEPP 2021 or Transport and Infrastructure SEPP 2021
- A written description of the location, scope or extent of the work and activities
- Maps identifying the location of the proposed works and activities, provided at a scale, including the location of coastal wetlands and littoral rainforests under the Resilience and Hazards SEPP 2021, to enable easy identification of any works classified as environmental protection works.

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The action to map a Coastal Vulnerability Area is supported, but further information on the map in Appendix C and/or related text is required, to confirm which hazards, planning horizon or scenario is represented.

Relevant coastal hazard studies, risk assessment frameworks and the like, should be annexed to the CMP for context and completeness.

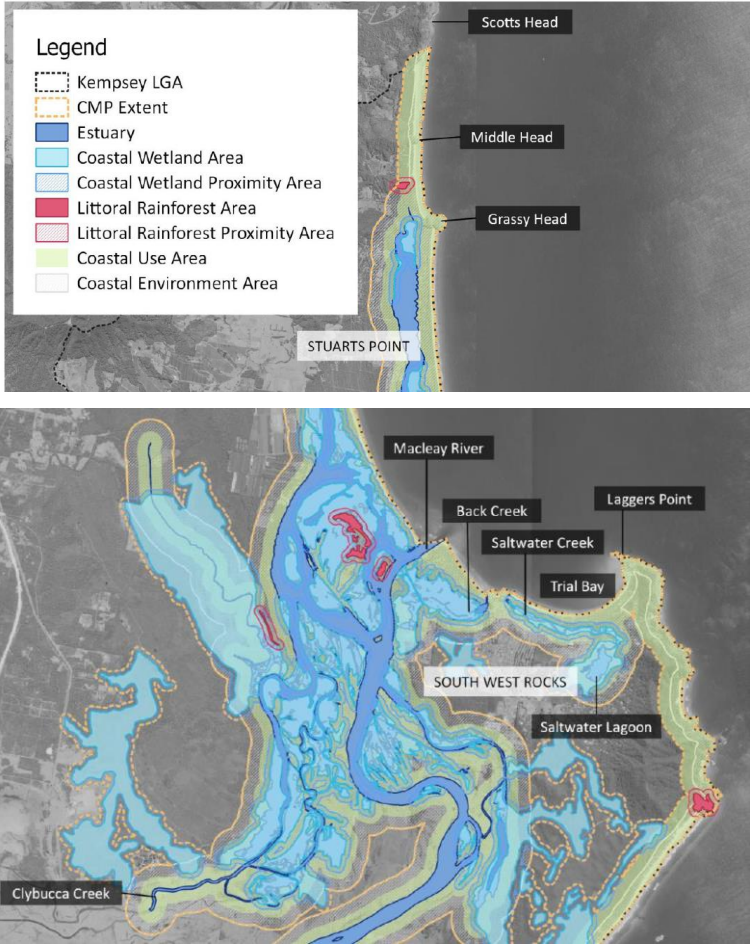
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CMP - Introduction

It is noted that Figure 1 includes the complete Coastal Wetland and proximity area, Coastal Environment Area and Coastal Use Area, with exception of area to be included in the Port Macquarie-Hastings CMP. It is unclear why Littoral Rainforests and their proximity areas are not fully included within the CMP extent.

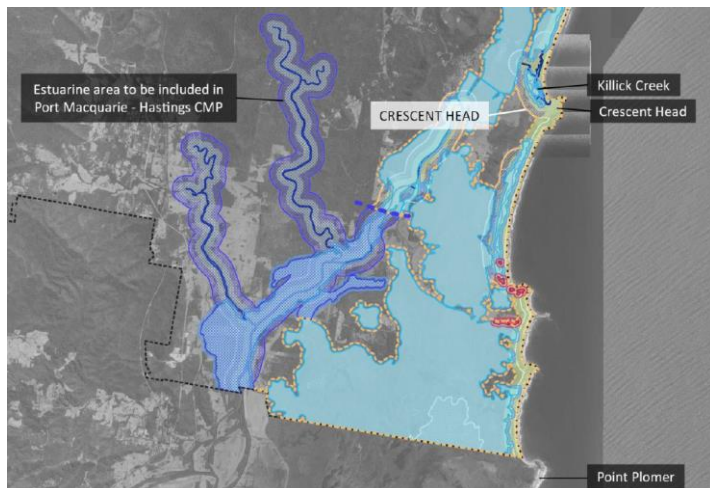
The mapping is inconsistent with the explanation of the study area of the CMP, and it is suggested that this minor inconsistency is addressed by updating the maps in Figure 1 to include all coastal management areas, including Coastal Wetlands and Littoral Rainforests and their proximity areas, as mapped in the Resilience and Hazards SEPP.

Location snapshots from Figure 1 maps provided for context:



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Commented [JS1]: Double check to make sure it reflects the SEPP mapping



#### CMP – Actions to be Implemented by Kempsey Shire Council or by public authorities

Note: Actions listed in table format for ease of reference.

Actions & Tasks	DPHI – Planning comment
<b>A3: Coastal Focused Weed Management</b> Undertake annual program of coastal-focused weed management.	<p>Where environmental protection works (EPW) are proposed and the streamlined Part 5 REF pathway under section 2.7 of the RH SEPP is sought, the minimum level of information required within the CMP Action is:</p> <ul style="list-style-type: none"> <li>- A description of the EPW and nature of the work, to align with the definition under the Resilience and Hazards SEPP 2021</li> <li>- A written description of the location, scope or extent of the work</li> <li>- A map of the locations of the proposed EPW, provided at a scale, including the Coastal Wetlands &amp; Littoral Rainforest Area from the R&amp;H SEPP, to enable easy identification of EPW.</li> </ul> <p>By including this information the provisions of section 2.7 of the RH SEPP may be applied and development consent for designated development may be avoided.</p>

*Excerpt from Kiama Open Coast CMP (certified) provided as an example:*

<b>Action K</b>	Control pests and weeds, and undertake targeted land, dune and marine revegetation, habitat restoration and protection works along the Kiama coastline to enhance environmental, community and cultural values
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**Commented [JS2]:** As Council already knows where most weed management activity is focussed  
 Use kiama example to prepare some rough indicative map areas and descriptors of known locations and weed method controls etc

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Actions & Tasks					
DPHI – Planning comment					
Detailed Plan	Defined tasks	Lead Agency	Supporting Agencies	Cost estimate	Funding options
	<p><b>K.1: Prepare a coastal habitat restoration and revegetation works plan that identifies, maps and prioritises specific works locations, along with works details suitable for implementation, such as weeds to be controlled and plants to be used, including species, habitats and locations that have cultural significance to the local community.</b> Works Plan to be based on the Illawarra Biodiversity Strategy, CMP Stage 1, and incorporate as a minimum the following locations using accepted best practice restoration techniques (See also Figure K-1):</p> <ul style="list-style-type: none"> <li>• Jones Beach dunes (reveg and pest/weeds),</li> <li>• Boneyards (reveg and pest/weeds),</li> <li>• Bombo Headland around Sydney Water and DPHI land (reveg),</li> <li>• Bombo Beach dunes (pest/weeds),</li> </ul>	Council	ISJO, DCCEEW-BCSG, LLS, NPWS, ILALC, JLALC	Council staff time or \$50,000 capex for consultancy	<p>Council budget if done internally, or</p> <ul style="list-style-type: none"> <li>• Coasts and Estuaries Grants Program</li> <li>• LLS</li> <li>• Environment Trust - Environmental Restoration and Rehabilitation</li> <li>• Protecting our Places Grants</li> <li>• Kiama Municipal Council</li> </ul>
	<ul style="list-style-type: none"> <li>• along coastal cliff walk between Kiama and Gerringong (reveg /weeds), and any additional land acquired to extend this walk as part of Action D.</li> <li>• Black Head (weeds/reveg)</li> <li>• Werri Beach dunes (reveg and pest/weeds),</li> <li>• Werri Lagoon Entrance area within the Coastal Wetland and Coastal Wetland proximity area (weeds)</li> <li>• Seven Mile Beach dunes (pest/weeds).</li> </ul> <p>Works plan to be developed in consultation with the Aboriginal community and other relevant stakeholders such as Sydney Water where stakeholder land is included for works. Works Plan is to set out priorities and timeframes for environmental works, including environmental protection works (EPW) within the Coastal Wetlands and Littoral Rainforests Areas (CWLRA) or the CWLRA proximity areas, including near the entrance of Werri Lagoon.</p> <p>The plan would also outline the need for any fencing and defined accessways to help protect vegetation from human disturbance, trampling and vandalism as well as to meet public accessibility needs.</p> <p>This document can be used as a guide for volunteer groups such as Landcare as well as to seek funding for bushland regeneration and pest control contractors / Indigenous Ranger teams.</p>				

#### A4: Integration of Planning Instruments

KSC to consider a planning proposal to adopt the CVA mapping under the RH SEPP (\$40,000 cost is for external consultancy to assist KSC).

KSC to consider revised mapping and management of CVA and CWLR land as part of its DCP review and provide clearly articulated policy in relation to coastal hazards (\$40,000 cost is for external consultancy to assist KSC).

It is recommended that the text in Action A4 and map in Appendix C of the CMP include clear information on what coastal hazards are assessed, the planning horizon and risk scenario being represented. An example from Kiama Open Coast CMP is provided below.

It is also suggested that the terminology be amended – **“CVA mapping was completed as part of the CMP Stage 2 hazard studies and should be certified under the RH SEPP. Prepare and submit a Planning Proposal to the Department of Planning, Housing and Industry to map the Coastal Vulnerability Area (CVA) within the Resilience and Hazards SEPP 2021.”**

The action and tasks include references to amendments to local controls and this is supported, however additional clarity is recommended, for example:

**Local planning controls and supporting documents should also be identified for review to ensure consistency with the CVA including:**

- **Review and amend the Kempsey LEP local clause and map provisions to ensure consistency with the CVA provisions**
- **Where the CVA identifies environmentally sensitive areas (including CWLRA) are vulnerable to impacts from**

**Commented [JS3]:** See next 2 comments

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Actions & Tasks	DPHI – Planning comment
	<p>coastal hazards, zoning and development controls may also require review</p> <p>- Amend the Kempsey DCP to include a risk-based assessment framework for areas affected by coastal hazards.</p> <p>Separate maps for each identified, defined coastal hazard should be included in CMP for clarity, future implementation and amendment purposes (reflecting 10yr life of CMP and intention to review and update existing mapping).</p> <p>It is also suggested that the statement – “SEPP mapping changes will also need to be incorporated into Planning Certificates” be identified as a note rather than an action.</p> <p>The EP&amp;A Regulations 2021 require Council to address coastal hazards and risks in Item 4 and Item 10 of a planning certificate, which may require coastal hazard notations to be updated prior to certification of the CMP, or publication of maps within the Resilience and Hazards SEPP 2021. Additional advice is available in <a href="#">Planning Circular PS21-033</a>.</p>

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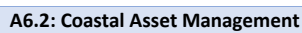
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Commented [JS4]: This is not an action but is already noted as a organisational constraint p45 in CMP

Excerpt from Kiama Open Coast CMP (certified) provided as an example:

Action B	Introduce a Coastal Vulnerability Area (CVA), modify the Local Environmental Plan (LEP) and introduce a new Development Control Plan (DCP) to incorporate a risk-based land use planning approach to future development to adequately manage existing and future coastal risks
Location / Scale	Within the Coastal Management Area (CMA) of Council Local Government Area (LGA). Targeting locations where there may be conflict between CMA outcomes and purpose/objectives of existing land use zonings and their associated planning provisions. In the future, a defined CVA will capture the area potentially impacted by coastal erosion and inundation risks to 2120, so the LEP and supporting local policies, guidelines and strategies should carefully consider future CVA mapping to match planning provisions. Coastal erosion and coastal inundation mapping at 2120 along with current cliff instability areas are shown in CMP Stage 2 mapping. Refer <b>Figure B-1</b> for suggested scope of Kiama open coastline CVA.
Land use control and management	
B. Introduce a Coastal Vulnerability Area (CVA), modify the Local Environmental Plan (LEP) and introduce a new Development Control Plan (DCP) to incorporate a risk-based land use planning approach to future development to adequately manage existing and future coastal risks.  Task B.1 – Prepare and submit a Planning Proposal to State Government for mapping the Coastal Vulnerability Area (CVA).  Task B.2 – Undertake a thorough review of the LEP and supporting documents for consistency with the Coastal Management Program (CMP) and CVA.  Task B.3 – Review options and propose changes to the LEP and other land use planning controls, including a new Coastal Hazards DCP.  Task B.4 – Make recommended changes to the LEP and prepare the new DCP following appropriate legislated process, including public consultation.  Task B.5 – Update pre-lodgement Development Application (DA) checklist to include key elements of the Coastal Hazards DCP, the updated LEP and the R&H SEPP.  Task B.6 – Utilise the use of the pre-lodgement checklist for all coastal infrastructure development proposed within a coastal risk area (being assessed through both Parts 4 and 5 of the <i>Environment Planning &amp; Assessment Act 1979</i> ).	Council  DCCEEW-BCSG DPHI-Planning Sydney Water TNSW  Up to \$650k capex  <ul style="list-style-type: none"><li>Coasts and Estuaries Grants Program</li><li>Increasing Resilience to Climate Change Program (or similar future programs)</li><li>Kiama Municipal Council</li></ul>

Commented [JS5]: If Council are unsure about CVA then leave existing wording in CMP  
However if Council definitely wants to proceed then Kiama wording could value add to existing task description by providing more clarity on how a CVA can be introduced



Where coastal protection works (CPW) are proposed and the streamlined Part 5 REF pathway under section 2.16 of the RH SEPP is sought, the minimum level of information required within the CMP Action is:

- Commented [JS6]:** May accommodate this by cross referencing existing maps and descriptions etc fine tuning what is already identified in Emergency Action Sub Plan as the minimum  
Alex can discuss further

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Should investigations from **Action 6.1** recommend the removal and replacement of existing CPW, these works are outside the scope of the streamlined approval pathways from the R&H SEPP and T&I SEPP. For these works, an appropriate design, assessment, community consultation and approval process will be required.

CPW may be Regionally Significant Development under [Planning Systems SEPP Schedule 6 Item 8a](#), and may be

Actions & Tasks

DPHI – Planning comment

designated development if proposed in CWLR under the R&H SEPP [S2.7 CWLR](#).

Excerpt from Shoalhaven Open Coast & Jervis Bay CMP (certified) provided as an example:

ID	Location	Action Name	Action Description	Risk Being Addressed	Lead Agency	Support Partners	Priority	Timing	Performance Measures
CL 02	Callala Bay	Callala Bay foreshore restoration	This Action involves the restoration and revegetation of the foreshore along Progress Park, in between the boat ramp and Sheaffe Street. This should include: <ul style="list-style-type: none"><li>• An ongoing program of beach scraping/ sand redistribution works to increase the volume of the upper beach profile along the foreshore.</li><li>• Replacing the existing lawn vegetation at the seawards end of in progress park (seawards of the walking path) with more appropriate dune vegetation, in order to improved resilience of foreshore to long term erosion and promote natural beach recovery after storm events. There is space to accommodate this and keep some of the existing lawn reserve for community recreational use.</li></ul> Any revegetation and beach scraping/ beach nourishment works undertaken at this site should focus on enhancing and continuing the works already completed by Council at this site in mid-late 2023. The ongoing long term viability and optimisation could be informed by the outcomes of Action CL 01. Furthermore, as part of this Action, Council is to employ the most up to date beach scraping methodology in line with continued learnings and process improvements.	CHR 26 CHR 28 CHR 27 CHR 28 CHR 29 CHR 30 SER 9.5 SER 9.6 SER 9.7	SOC	DCCEE(WBCS) DPIRD Fisheries Crown Lands NPWS	Medium (16)	Year 1 and ongoing	Works completed.
CL 03	Callala Bay	Sheaffe Street stormwater improvements	The drainage at the road head to be collected and discharged to the beach in a manner which minimises its erosive impact at the back beach embankment and the beach berm. A vegetated grass swale could be constructed in between the road head and the dune – in order to capture excess storm water, recharge the dune aquifer, and prevent road runoff from worsening beach erosion.	SER 9.5 SER 9.6 SER 9.7	SOC	DCCEE(WBCS) DPIRD Fisheries Crown Lands	Medium (12)	Opportunistic, within 4-7 years	Works completed.
CL 04A	Callala Bay	Sailing School Shared Facility Building Coastal Protection Works – Stage 1: Design and Approvals	The Stage 2 risk assessment has indicated that the Sailing School Shared Facility building is a high value public asset considered to be exposed to a high level of coastal erosion risk. The existing coastal protection works in front of the sailing facility building are comprised of informal and ad hoc placement of rock bags. This informal structure should be replaced with a formal design of coastal protection works, including renewal/replacement of the existing timber launching ramp. An approximately 30m long, low crested revetment will be constructed to protect the building from undermining due to coastal erosion impacts under present day and future sea level rise. This scope of works is to include: <ul style="list-style-type: none"><li>• Undertake concept design and associated design investigations – such as foreshore survey, services location and geotechnical investigations to determine the subsurface conditions around the structure, and the presence of any underlying bedrock strata.</li><li>• Prepare a detailed design for the coastal protection works – which also includes renewal/replacement of the existing timber launching ramp.</li><li>• Undertake any required environmental assessments and approvals</li></ul> A reference design has been prepared using preliminary coastal engineering analysis and is provided below. These design parameters would be refined as part of the detailed design process.	CHR 28	SOC	DCCEE(WBCS) DPIRD Fisheries Crown Lands	High (24)	Within 1-3 years	Investigations completed, and clear direction for remaining stages established.
CL 04B	Callala Bay	Sailing School Shared Facility Building Coastal Protection Works – Stage 2: Implementation	The coastal protection works identified in Action CL 04A should proceed through to construction. This would also include obtaining any relevant approvals and environmental assessments required to undertake the works.	CHR 28	SOC	DCCEE(WBCS) DPIRD Fisheries Crown Lands	Medium (16)	Triggered by Action CL 04A	Works completed.
CL 05	Callala Bay	Upgrade Callala Bay car park and foreshore access facilities	The purpose of this action will be to upgrade the car park and foreshore access facilities – in order to provide increased amenity and to mitigate the erosive impacts of uncontrolled stormwater flows and unrestricted pedestrian and dinghy access to the foreshore. The works associated with this Action should include: <ul style="list-style-type: none"><li>• Car Park Works: Formalisation of stormwater runoff and overland flow drainage at the Callala Bay car park - to alleviate overland flow impacts on foreshore erosion</li><li>• Dinghy Storage: Provide formal dinghy storage at the car park area, in order to prevent abandoned and uncontrolled dinghy storage impeding foreshore amenity and access</li><li>• Formalise Access: Formalise pedestrian access to the foreshore in between the boat ramp and the sailing club, and replant native dune vegetation species across this foreshore area to promote foreshore resilience.</li></ul>	SER 9.5 SER 9.6 SER 9.7	SOC	DCCEE(WBCS) DPIRD Fisheries Crown Lands	Medium (14)	Within 4-7 years	Works completed.



Excerpt from Port Stephens CMP (certified) provided as an example:

Actions & Tasks

DPHI – Planning comment

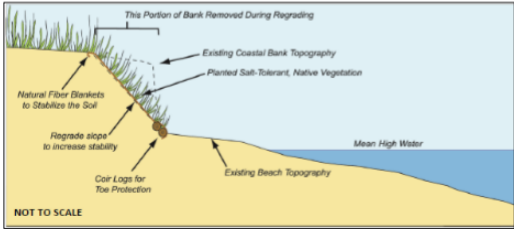
Action RA036 - Minor shoreline re-profiling and landscaping works at Kangaroo Point

This action proposes stabilising the foreshore using a nature-based solution to arrest the shoreline erosion and improve beach access and amenity along a roughly 120 metre section of shoreline where the timber wall was previously located. A co-benefit of this activity is short-term shoreline protection.

The works would involve:

- Shoreline re-profiling using a small bulldozer and placement of natural filter blankets over the reconstituted slope for stabilization. Beach scraping would be required in some areas to preserve existing trees and ensure a smooth plan layout of the shoreline. Sand would be pushed from around Mean Sea Level (MSL) to the top of the beach to reconstitute the dune profile (about 500 m³ or about 4 m³ per linear metre over the 120 m long section would allow an averaged one metre extra width of foreshore). Transitions with the stormwater outlet would be designed ensure no obstruction of stormwater discharge flow and reduce "edge effects".
- Placement of coir logs at the base of the reconstituted foreshore to limit scour by waves and promote vegetation establishment. Coir logs allow vegetation to grow within them. As they slowly biodegrade into their environment, they become part of the soil that supports vegetation growth.
- Planting and sediment controls on about 2,500 m² leeward of the coir logs (approximately 10 to 15 m wide along the 120 m long beach section). Standard re-vegetation at four plants per square meter with infill of mature stock (300 mm pot size), watered for 10 weeks. Average erosion sediment controls include jute mesh.
- The intent of the vegetation is to preclude access except at select locations.

A general schematic of the proposal is provided below, sourced from <https://www.northeastoceancouncil.org/>.



A8.2: Bank Management Improvements

Include identified bank management improvements within KSC's Operational and Delivery Plan on a priority basis.

Complete priority bank improvement actions.

Works proposed in **Action 8.1** may be classified as waterway or foreshore management activities under [Division 25 of the Transport and Infrastructure SEPP](#). The 'bank management improvements' may include coastal protection works, environmental protection works or waterway and foreshore management activities depending on the location and nature of the work.

If the TI SEPP is being used, the Actions must be compliant with [S2.7](#) of the TI SEPP (i.e. only emergency or routine maintenance works not within a CWLR) and be clear which provisions are relied upon to undertake the work without a DA.

The following information should therefore be provided for any of the proposed 'bank management improvement' Actions and tasks:

- A description of the nature of the work, to align with the relevant definition under the RH SEPP or TI SEPP
- A written description of the location, scope or extent of the work
- A map of the locations of the proposed work, provided at a scale, to enable easy identification of each location of the proposed work, and whether the work is 'environmental protection works' within a mapped Coastal Wetland and Littoral Rainforest under the RH SEPP.

**Commented [JS7]:** ignore  
Cannot preempt what sites will be identified in assessment  
However if keen to simplify planning process where mapped SEPP wetlands and littoral rainforest exist for potential works  
Provide an overall map of lower estuary where wetland exist and flag that a range of river foreshore techniques may be used including rock fillets, rock armour, hybrid fillet and cobbles

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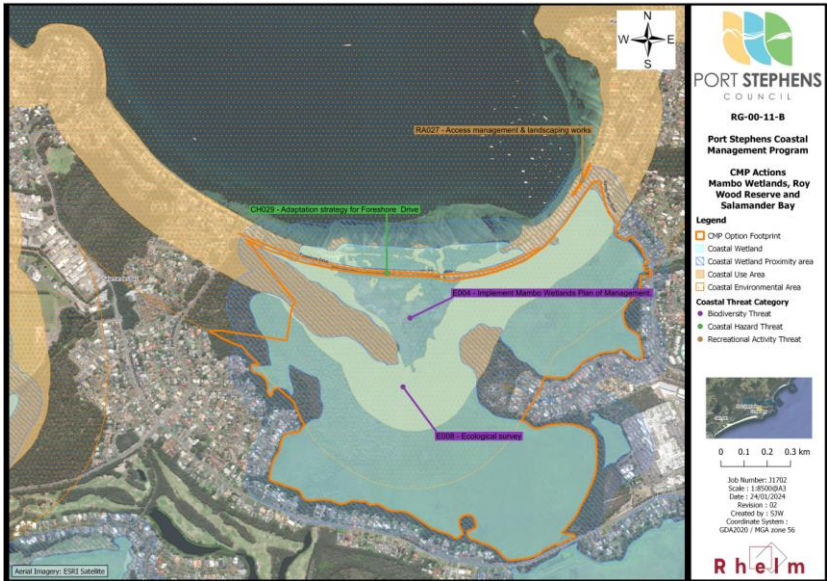


Actions & Tasks

DPHI – Planning comment

Excerpt from Port Stephens CMP (certified) provided as an example:

Action ID	Relevant CMAs	Management Action	Action Details	Location	Lead Agency	Partners	Timing	Performance Measures
E004	Coastal Wetland Area, CEA, CUA	Support implementation the Mambo Wetlands Plan of Management (POM, PSC, 2006) , as updated from time to time. Activities to be implemented under the POM include environmental protection and other works including: <ul style="list-style-type: none"><li>Annual weed control programs.</li><li>Identify and control weeds at the source, using bush regenerators in on-ground control works.</li><li>Annual bush regeneration program as prioritised by PSC Bushland Assessment Tool.</li><li>Annual feral animal control program.</li><li>Ensure fire trails are maintained.</li><li>Periodic, mosaic burning regime.</li></ul>	The Mambo Wetlands comprises a large area of Coastal Wetland.	Mambo Wetlands	PSC	NA	Year 1 and ongoing	Annual activities undertaken as per the program in the POM.
E005	Littoral Rainforest Area, CEA, CUA	Support implementation of the Soldiers Point Littoral Rainforest Management Plan (Kleinfielder, 2021). Activities to be implemented under the Plan include environmental protection and other works, such as: <ul style="list-style-type: none"><li>Monitoring the condition of the rainforest and undertaking works according to prioritisation by the PSC Bushland Assessment Tool.</li><li>Weed control by spot spraying and removing invasive species.</li><li>Planting local, endemic rainforest species in suitable locations.</li><li>Formalising walking tracks.</li></ul>	There is an area of Littoral Rainforest located at Soldiers Point.	Soldiers Point	PSC	NA	Year 1 and ongoing	Annual activities undertaken as per the program in the Management Plan.



Actions & Tasks	DPHI – Planning comment
<p><b>A11: Community Conservation and Restoration Programs</b></p> <p>Submission of community coastal-focused conservation and restoration projects through the state government Coast and Estuary Grants Program, targeting enhanced management and restoration of coastal threatened or endangered ecological communities and coastal management areas.</p> <p>Administering any awarded CMP funding to external / community groups.</p>	<div data-bbox="76 432 890 1003"> </div> <p>This action indicates work may be undertaken within coastal threatened or endangered ecological communities.</p> <p>Should this include work within coastal wetlands and littoral rainforests under the Resilience and Hazards SEPP 2021, these would be classified as environmental protection works (EPW).</p> <p>Where environmental protection works (EPW) are proposed and the streamlined Part 5 REF pathway under section 2.7 of the RH SEPP is sought, the minimum level of information required within the CMP Action is:</p> <ul style="list-style-type: none"> <li>- A description of the EPW and nature of the work, to align with the definition under the Resilience and Hazards SEPP 2021</li> <li>- A written description of the location, scope or extent of the work</li> <li>- A map of the locations of the proposed EPW, provided at a scale, including the Coastal Wetlands &amp; Littoral Rainforest Area from the R&amp;H SEPP, to enable easy identification of EPW.</li> </ul> <p>By including this information, the provisions of section 2.7 of the RH SEPP may be applied and development consent for designated development may be avoided.</p> <p><b>Please note:</b> Any work not undertaken by or on behalf of a public authority may also require development consent.</p>

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Commented [JS8]: Elaborate task with some wording like Kiama

Kempsey Council will know where existing community projects and groups are located and the nature of works typically undertaken

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Actions & Tasks		DPHI – Planning comment			
Excerpt from Kiama Open Coast CMP (certified) as an example:					
Action K	Control pests and weeds, and undertake targeted land, dune and marine revegetation, habitat restoration and protection works along the Kiama coastline to enhance environmental, community and cultural values				
	K.2: Engage field teams, including existing Landcare groups and Aboriginal-led organisations to implement pest and weed control, revegetation, fencing and habitat restoration works. Where works are identified as Environment Protection Works (EPWs) within Coastal	Council	ISJO, DCCEEW-BCSG, LLS, NPWS, Landcare, ILALC, JLALC	Approx. \$2500/ha. For budgeting purposes, adopt	<ul style="list-style-type: none"><li>Coasts and Estuaries Grants Program</li><li>LLS</li></ul>
	<p>Wetland and Littoral Rainforest Areas (CWLRA), appropriate planning pathways will be used.</p> <p>Where appropriate, works should be undertaken in accordance with the coastal habitat restoration and revegetation works plan targeting high priority locations outlined within Action K.1. Pest and weed control and other environmental protection works should also target the following key locations as a minimum:</p> <ul style="list-style-type: none"><li>Jones Beach dunes (reveg and pest/weeds),</li><li>Boneyards (reveg and pest/weeds),</li><li>Bombo Headland around Sydney Water and DPE land (reveg),</li><li>Bombo Beach dunes (pest/weeds),</li><li>along coastal cliff walk between Kiama and Gerringong (reveg / weeds), and any additional land acquired to extend this walk as part of Action D,</li><li>Werri Beach dunes (reveg and pest/weeds),</li><li>Seven Mile Beach dunes (pest/weeds)</li><li>Werri Lagoon entrance within the Coastal Wetlands and Coastal Wetland proximity area (weeds),</li><li>Black Head (weeds/reveg).</li></ul> <p>Continue to maintain revegetated areas until such time that vegetation has fully established.</p> <p>Existing active community groups including Bombo Headland Landcare Group and Seven Mile Beach Landcare Group should be consulted prior to assigning environmental works orders.</p>			\$250,000/yr opex (covering 100 ha/yr)	<ul style="list-style-type: none"><li>Environment Trust - Environmental Restoration and Rehabilitation</li><li>Kiama Municipal Council (including through Landcare, Coastcare support)</li><li>Protecting our Places Grants</li><li>Crown Reserve Improvement Fund</li></ul>
A15: Revised Coastal Wetland and Littoral Rainforest Mapping		Action 15 proposes a review of existing CWLRA mapping. It is suggested that this action be expanded to include:			
<p>Background study including consolidation and review of available information, consideration of the new guidelines when they are available, and confirmation of the likely scope of mapping and associated ground truthing (\$30,000).</p> <p>Complete mapping and ground truthing to DCCEEW guidelines (\$180,000).</p> <p>KSC to prepare a planning proposal to adopt the CWLR mapping under the RH SEPP (\$40,000 estimated cost for external consultancy to assist KSC).</p>		- preparation of a planning proposal to amend the RH SEPP coastal wetland and littoral rainforest area mapping			
		- review of any relevant local planning controls within the Kempsey LEP and DCP			
		- review the land zoning of any new or amended CLWRA.			
A17: Willow Street Coastal Vulnerability Adaptation Plan		The NSW Reconstruction Authority could be identified as a support agency for this Action.			
Excerpt from Port Stephens CMP (certified) provided as an example:					

Commented [JS9]: Amend task wording as per planning recommended wording

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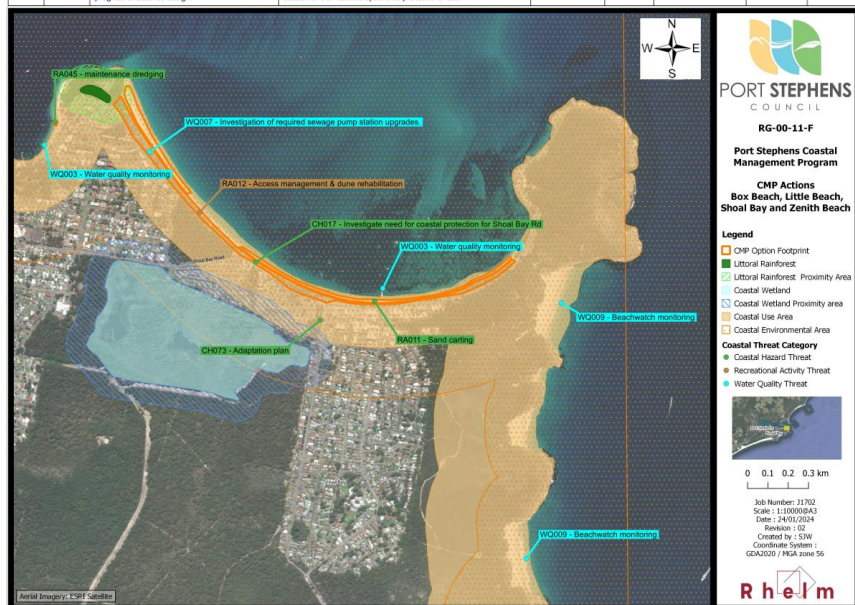
Commented [JS10]: Ignore with this action but mention that Council could consult with RA Do not include RA as a support agency

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## Actions & Tasks DPHI – Planning comment

Action ID	Relevant CMA	Management Action	Action Details	Location	Lead Agency	Partners	Timing	Performance Measures
CH073	CEA, CUA	Develop a climate change adaptation plan for the Shoal Bay precinct. The output of the plan will be an agreed and costed adaptation pathway that identifies thresholds and triggers for action.	The adaptation plan should aim to develop a more detailed understanding of the existing and future risk from coastal hazards to natural and built assets and infrastructure in Shoal Bay which can then be discussed with the stakeholders with respect to the key attributes and activities undertaken in Shoal Bay that the community would like to maintain into the future and under climate change conditions. One key issue that has been identified to date is the risk to Shoal Bay Road from coastal hazards - it is the only road servicing this locality.  Further information on this action is provided in <b>Section 3.2.4</b> .	Shoal Bay	PSC	DCCEEW-EHG, DPH – Crown lands, Utilities (e.g., HWGL, NPWS)	Year 2-3	Plan prepared.
CH017	CEA, CUA	Undertake investigations to assess the risk to Shoal Bay Road from coastal erosion and evaluate the feasibility of different strategies to manage the identified risk. Based on the outcomes of the investigations, identify a suitable option to progress to detailed design.	Shoal Bay Road is the sole access for Shoal Bay and Fingal Bay. The section of the road east of Beach Road is close to the shoreline. In the absence of erosion hazard lines for the Outer Port, the extent and timing of coastal erosion risk to the road is unknown. This action proposes a coastal erosion risk assessment and, if required, an assessment of feasible options to protect the road.	Shoal Bay	PSC	NA	Year 2 to 3	Investigations and design complete.



### 3.4.2 A19: Produce Macleay River Estuary Riverbank Restoration Guide

It is recommended that Council include a review of locations identified as coastal wetlands and littoral rainforests under the Resilience and Hazards SEPP 2021. In these locations, **work not undertaken by or on behalf of public authorities may be classified as designated development** under section 2.7 of the Resilience & Hazards SEPP 2021.

**Commented [JS11]:** Make a note for the review of the Riverbank Restoration Guide to include explanation of the planning requirements for any works within Coastal wetlands and littoral rainforests

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CMP - Appendix B Deferred Actions

Actions & Tasks	EP Comments
<b>D2: Coastal Focussed Riparian Rehabilitation Partnership Program</b> Annual rehabilitation projects in identified priority sub catchments.	It is recommended that Council include a review of locations identified as coastal wetlands and littoral rainforests under the Resilience and Hazards SEPP 2021.  In these locations, work not undertaken by or on behalf of public authorities may be classified as designated development under section 2.7 of the Resilience & Hazards SEPP 2021.
<b>D3: Migration Pathways Assessment</b> Migration pathways assessment, with prioritisation, recommendations, and costing. Consultation with other landholders and government agencies to assess the feasibility of recommendations.	Suggest identification of <i>DPHI- Planning</i> as a support agency given provisions of Resilience & Hazards SEPP 2021.
<b>D5.1: Macleay Coastal Floodplain Wetland Management</b>	Suggest identification of <i>DPHI- Planning</i> as a support agency as it relates to the Marine Estate Management Strategy agricultural drainage programs.

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Commented [JS12]: Don't bother

Commented [JS13]: Ignore already dealt with

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Commented [JS14]: Add consultation with MEMA (collective of state agencies including planning)



## NSW National Parks and Wildlife Service

Mr Craig Milburn  
General Manager  
Kempsey Shire Council  
P.O. Box 3078  
West Kempsey NSW 2440

ksc@kempsey.nsw.gov.au

Attn: Mr Jack Hiscock

Dear Mr Milburn

I refer to the Draft Kempsey Shire Coastal Management Program (CMP).

NPWS reserves represent a significant portion of the Macleay Valley and Local Government Area (LGA). Significant coastal reserves include:

- Arakoon National Park (NP) - Trial Bay Gaol and Laggars Point Area.
- Hat Head NP - most of the coast between Arakoon NP/Little Bay and Crescent Head.
- Goolawah NP and Regional Park
- Yarrahappinni Wetlands NP
- Clybucca Aboriginal Area and Historic Site.
- The northern section of Limeburners Creek NP

I note that NPWS is not listed in any actions within the current draft document. NPWS has previously supplied comments to Council for Stage 3 – Action Development (attached).

NPWS engages in LGA CMPs to ensure important coastal management issues in reserve are addressed. Management of Trial Bay and significant floodplain wetlands are key issues for NPWS.

NPWS request that the following actions and associated Lead and Supports roles be included in the CMP.

### **Lead** role Actions:

- Action A10: Manage Estuary Entrances - amend to include Goolawah Lagoon with the addition of the following task with NPWS as the Lead:
  - NPWS to investigate options for improving the natural condition and ecological function of Goolawah Lagoon. See suggested wording attached.
- Action D1: Indigenous Values Mapping – move to priority actions in the main body of the CMP, include NPWS as the lead, and increase the capital cost to \$80,000.
- Action New: Trial Bay Foreshore Management ([see the NPWS strategy](#)):
  - Work with the Laggars Point Breakwall asset owner to develop stabilisation options to prevent further beach recession.  
NPWS proposes a partnership with Kempsey Shire Council on this action given it has significant implications for local and regional tourism.
  - Assess the current and future recession of the foreshore and the role Laggars Point Breakwater has in maintaining position and alignment of Trial Bay Beach.
  - Undertake dune management and foreshore revegetation.

## **Support** role Actions:

To acknowledge existing collaboration on the management of coastal ecosystems and community and visitor access to the coast, NPWS requests to be added in a support role for:

- Action A3 – Coastal focused weed management.
- Action A13 - Protection and Management of Migratory and Threatened Shore and Water Birds.
- Action A5 - Coastal Usage Assessment - NPWS suggest revising wording to reflect collaboration between stakeholders including NPWS.

NPWS recommends the following specific editorial comments be considered:

1. Floodplain Wetland Actions D5.1, D5.2, D 5.3 to apply to the broad floodplain and be facilitated via a whole of government approach.
  - a) Remove the reference to NPWS in D 5.1 and D5.3.
  - b) Include a synopsis of direction for CC1 (ie. TfNSW land) in D5.1 to reflect options selection and refinement of floodplain infrastructure and water regimes. (See comments in attached PDF of D5.1 to 5.3)
2. Council reviews the wording of the Floodplain management actions to ensure that the wording does not restrict access to Blue Carbon funding for landholders by triggering the “regulatory additionality” criteria that makes projects ineligible for Blue Carbon registration.

**NB:** Preliminary internal advice suggests that the existing deferred CMP action wording are unlikely to preclude future Blue Carbon projects for NPWS reserve.

**Prior to providing a formal letter of support, NPWS requests the opportunity to complete a review of the final amended CMP.**

NPWS participation in actions is subject to funding availability and reserve management priorities. NPWS must be consulted prior to any works proposed on NPWS estate.

If you have any further questions about this matter, please contact Mr Josh Chivers, at [josh.chivers@environment.nsw.gov.au](mailto:josh.chivers@environment.nsw.gov.au).

Kind Regards

Gordon Cameron  
**Manager Carbon and Restoration Program Unit**  
**18/11/2024**

## New Action for Deferred action list: Improving the natural condition and ecological function of Goolawah Lagoon

**Capital Costs** Nil

**Annual Costs** \$50,000

**Implementation Timeframe** 3-6 years

**Lead Agency** NPWS

**Potential Funding Sources** NPWS annual budget allocations

### Description

Goolawah Lagoon is a significant coastal freshwater lagoon located between the Goolawah Beach dune system and Point Plomer Road, forming an important landscape feature within Goolawah National Park. Historically, prior to European settlement, the lagoon was a brackish barrier lake with an intermittently open and closed entrance (an ICOLL). Past sand mining activities are believed to have led to a reduction in the frequency of the lagoon's natural opening to the ocean, negatively impacting its ecological health. Prolonged closure of the lagoon, combined with elevated water levels, poses a risk to adjacent properties. Runoff from Point Plomer Road is contributing to deteriorating water quality, and both water quality and invasive weed issues are further exacerbated by the lagoon's almost permanent closure.

The Goolawah National Park, Goolawah Regional Park and Limeburners Creek National Park plan of management (2024) highlights the need to enhance the natural condition and ecological function of Goolawah Lagoon.

### Tasks

- Investigate options for improving the natural condition and ecological function of Goolawah Lagoon including entrance management.

## D1: Indigenous Values and Mapping

This action to be moved from the Deferred actions list in the Appendices to be included in the main body of the CMP.

**Capital Costs** \$80,000 (Subject to funding availability)

**Annual Costs** Nil

**Implementation timeframe** 1-5 years

**Lead Agency** NPWS

**Potential Funding Sources** NPWS annual budget allocations.

### Description

This action involves collaboration with Traditional Owners, stakeholders (including LALC) and other government departments to map and define the significance and management issues relating to the midden on the northern shoreline of the Macleay estuary running from Clybucca to Stuarts Point. It will include a literature review, mapping, and ground truthing of these areas. Ongoing consultation with the local Indigenous community will occur throughout the project to ensure their strong involvement. The findings of the mapping will be discussed between the project stakeholders to identify the next steps, which may consider management options or education opportunities.

### Tasks

**Commented [JC1]:** (indicative budget, however, this work may likely to be undertaken inhouse)

- Map the midden location and extent and assess its significance and any threats to its conservation.
- Develop management options, educational and Cultural opportunities.

## New Action for deferred action list: Implement Coastal Management Actions from the NPWS Trial Bay Visitor Precincts Coast and Foreshore Protection Strategy

**Capital Costs** \$150,000 (Subject to funding availability and reserve management priorities)

**Annual Costs** Nil

**Implementation timeframe** 5-10 years

**Lead Agency** NPWS

**Support Agency** Crown Lands

**Potential Funding Sources** NPWS annual budget allocations

### Description

The Trial Bay Visitor Precincts Coast and Foreshore Protection Strategy was prepared in 2022. Development of the strategy involved key stakeholders reviewing the issues and developing and evaluating coastal management actions for the Arakoon National Park section of Trial Bay/Trial Bay Beach.

Key considerations were the future use and precinct planning for the Foreshore. The strategy found that Laggars Point breakwater acted as a control on the position of the Trial Bay Beach but had been damaged and reduced in length.

The Laggars Point Breakwater structure is located on Crown land. The responsibilities for the management of the Laggars Point Breakwater remain undetermined. The strategy recommends consultation occur with various stakeholders including Crown Lands to determine roles and responsibilities of all parties.

Subject to the outcomes of this consultation, the strategy recommended modelling to assess the relationship between the breakwater and the alignment of the shoreline. It also recommended condition monitoring and repair and maintenance of the breakwater.

### Tasks:

- Work with Crown lands as landowner and other relevant stakeholders to :
  - Clarify and formalise management responsibilities for the Laggars Point Breakwater.
  - Assess the condition and stability of the Laggars Point Breakwater.
  - Identify feasible actions for breakwater maintenance to support the stabilisation of the Trial Bay foreshore.
- In conjunction with CMP action A14, Revised Coastal Hazard Assessment, undertake modelling to assess the impact the breakwater length and condition has on the Trial Bay Beach foreshore.
- Undertake dune management, revegetation and beach scraping to support foreshore management.

**Commented [GN2]:** The strategy identifies TFNSW as a stakeholder so I have added this comment.

NPWS suggested changes in yellow highlight:

## Primary actions

### *A10: Manage Estuary Entrances*

**Capital Costs** Nil

**Annual Costs** \$20,000<sub>o</sub> (No NPWS funds identified – initial step is to review the Miscellaneous Entrances report)

**Implementation Timeframe** Ongoing

**Lead Agency** KSC, NPWS (Goolawah Lagoon)

**Potential Funding Sources** KSC, NPWS

#### **Description**

Most of the estuary mouths throughout the Kempsey coastline are affected by shoaling, sedimentation, and erosion. They include systems that are referred to as Intermittently Closed and Open Lakes and Lagoons (ICOLLs), which can oscillate between different entrance states, and/or entrances that were constructed as flood mitigation outlets as part of the broader Lower Macleay Flood Mitigation Scheme. Management of these entrances is challenging, and KSC has developed a suite of Entrance Management Plans (EMPs) outlining how and when the estuary entrances should be managed. The EMPs adopt a flexible and adaptable approach to ensure the environmental and social values of each estuary are protected. EMPs exist for Saltwater Creek, Killick Creek, and Korogoro Creek.

Goolawah National Park, Goolawah Regional Park and Limeburners Creek National Park Plan of Management (2024) recommend an investigation of options for improving the natural condition and ecological function of Goolawah Lagoon.

All management actions should be undertaken in accordance with the EMPs.

#### **Tasks**

- Manage entrances in accordance with the relevant EMP, in conjunction with available resources.
- NPWS to investigate options for improving the natural condition and ecological function of Goolawah Lagoon.

Note that the EMPs are provided as supplementary documents to the CMP.

#### **Constraints**

- Planning Constraints: Nil. Exhibition and adoption of EMPs to occur as part of CMP Stage 4.
- Legal Constraints: Ensure consistency with the Coastal Zone Emergency Action Subplan (CZEAS).
- Organisational Constraints: Nil.

## Deferred actions

### **D1: Indigenous Values and Mapping**

This action to be moved from the Deferred actions list in the Appendices to be included in the main body of the CMP.

**Capital Costs** \$80,000 (Subject to funding availability)

**Annual Costs** Nil

**Implementation timeframe** 1-3 years

**Lead Agency** NPWS

### Description

This action involves collaboration with Traditional Owners, stakeholders (including LALC) and other government departments (e.g., NPWS) to identify and protect special Aboriginal cultural values and sites of strong cultural history and geological significance. Initial tasks will focus on identification and mapping of sites with high importance, including the extent of middens along former shoreline Stuarts Point, Fishermans Reach to Clybucca. It will include a literature review, mapping, and ground truthing of these areas. Ongoing consultation with the local Indigenous community will occur throughout the project to ensure their strong involvement. The findings of the mapping will be discussed between the project stakeholders to identify the next steps, which may consider management options or education opportunities.

### Tasks

- Engagement with Traditional Owners and development of project scope.
- Aboriginal cultural value site identification and mapping.
- Consideration of management options and educational opportunities.
- Clearly map midden extent within landscape, describing its physical context, geomorphic setting, recent geology, and human use.

### Links to KSC Delivery Program 2022-2026 and Operational Plan 2023-2024

- CO.OP5 Work with the Aboriginal community to honour and communicate cultural heritage through placemaking, education and public art.

(As discussed on the 31 October - NPWS will aim to source internal funding, however, NPWS commitment is subject to available resources and reserve management priorities)

## **New Action:** Implement Coastal Management Actions from the NPWS Trial Bay Visitor Precincts Coast and Foreshore Protection Strategy.

### Description

Over the past decade, coastal geomorphic processes, together with major storms, climate change and visitor activity, have eroded areas of Trial Bay visitor precinct beach and foreshore. This has led to safety concerns around foreshore stability, fallen trees and the collapse of beach access tracks, while also reducing the viability of coastal ecosystems through the loss of endemic vegetation and changes to local hydrology. Of equal concern, it has required the periodic closure of TBVP beach and foreshore areas, potentially tarnishing Trial Bay's reputation as a year-long holiday destination.

The Trial Bay Visitor Precincts Coast and Foreshore Protection Strategy was prepared in 2022. Development of the strategy involved key stakeholders in reviewing the issues and developing and evaluating coastal management actions for the Arakoon National Park section of Trial Bay. Key considerations were the future use and precinct planning for the Foreshore, Laggards Point



Breakwater, existing seawall and eroding section of Trial Bay Beach near the Runaway Creek entrance.

#### Tasks:

##### Trial Bay Foreshore Management:

- Work with the Laggery Point Breakwall asset owner to develop stabilisation options to prevent further beach recession.  
NPWS proposes a partnership with Kempsey Shire Council on this action given it has significant implications for local and regional tourism.
- Assess the current and future recession of the foreshore and the role Laggery Point Breakwater has in maintaining position and alignment of Trial Bay Beach.

Undertake dune management and foreshore revegetation

#### D5.1: Macleay Coastal Floodplain Wetland Management (Collombatti-Clybucca)

#### D5.2: Macleay Coastal Floodplain Wetland Management (Belmore Swamp)

#### D5.3: Macleay Coastal Floodplain Wetland Management (Kinchela Creek)

**Please see PDF doc with suggested minor wording changes for actions D5.1 to D5.3.**

Constraints

- Planning Constraints: Nil.
- Legal Constraints: There may be a need for compulsory reporting to the EPA and public notification should the values exceed public health requirements.
- Organisational Constraints: Nil.

D4.2: Antimony and Arsenic Contamination Study

Capital Costs	\$300,000
Annual Costs	Nil

Description

The antimony and arsenic contamination review will develop a monitoring program throughout the estuary, floodplain, and marine environment. This action will implement the program, with any results elevated above trigger levels to be assessed and mitigation options proposed. The results will be shared with the NRCG, who will develop a communication strategy for the region.

Tasks

- Antimony and arsenic contamination monitoring and review.
- Assessment of levels, review of any trigger exceedances, and development of communication strategy.

D5.1: Macleay Coastal Floodplain Wetland Management  
(Collombatti-Clybucca)

Background

This task proposes ongoing KSC support and involvement with aspects of the NSW Marine Estate Management Strategy (MEMS) associated with the Macleay Estuary floodplain. The MEMS is a statewide strategy to protect and manage waterways, coastlines, and estuaries over a ten-year period (2018–2028). Initiative 1 of the MEMS is focused on improving water quality. Poor water quality specifically originating from diffuse agricultural runoff has been identified as one of the highest priority threats to the environmental assets within NSW estuaries (BMT WBM, 2017). Diffuse agricultural runoff was also identified as a significant threat to the social, cultural, and economic benefits derived from the marine estate.

Two major sources of poor water quality impacting the NSW marine estate are acid sulfate soils (ASS) and low oxygen ‘blackwater’ runoff from coastal floodplains. These impacts are particularly

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pronounced within floodplains which have been drained for agriculture, such as the Lower Macleay floodplain, which was significantly altered by the Macleay River Flood Mitigation Scheme, following a major flood in 1950.

MEMA initiated the Coastal Floodplain Prioritisation Study to identify priority locations across major NSW coastal floodplains, including the Macleay, where the greatest improvements in water quality could be achieved through strategic management actions that reduce the impacts of ASS and blackwater runoff. The Macleay River Floodplain Prioritisation Study (Water Research Laboratory, 2023) was developed to provide an evidence-based assessment of 11 floodplain subcatchment drainage areas in the Kempsey LGA. The top three highest priority subcatchments in the Macleay River floodplain were identified as:

- 1 Collombatti-Clybucca
- 2 Kinchela Creek
- 3 Belmore Swamp

It is estimated that these three floodplain subcatchments account for over 50% of the overall blackwater generation risk from the Macleay's floodplain, and that the Collombatti-Clybucca subcatchment is solely responsible for approximately 70% of the corresponding acid generation risk in the Macleay. Addressing water quality issues from these three subcatchments will result in significant improvements in the overall health of the estuary.

Short and long-term management options were developed as a guide to help plan for rehabilitation, including further detailed investigation, design, and landholder consultation. The estimated costs to implement all actions recommended by WRL (2023) over the three subcatchments are of the order of \$30m and will have ongoing impacts to farmland due to lost productivity. A significant proportion of the estimated cost is for the acquisition of privately owned land. The purchase of land on this scale is not viable for KSC given current funding constraints. However, there is potential that these may arise in future.

These three sites are priority sites under the NSW Government's Blue Carbon Strategy<sup>9</sup>. Therefore, it seems likely that the viability of these sites to earn carbon credits will eventually be assessed. However, the potential to earn carbon credits through wetland rehabilitation was not a factor in the Coastal Floodplain Prioritisation Study.

<sup>9</sup> <https://www.environment.nsw.gov.au/topics/water/coasts/blue-carbon-strategy>

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Description

This action relates to management of the Collombatti-Clybucca subcatchment. Management of the remaining two priority subcatchments, Kinchela Creek and Belmont Swamp, is addressed in actions D5.2 and D5.3, respectively.

Multiple studies relating to management of the Collombatti-Clybucca wetland area have been completed. Management options from the following studies have been considered:

- Macleay River Floodplain Prioritisation Study (Water Research Laboratory, 2023)
- Pacific Highway Upgrade Biodiversity Offset Program: Hydrological assessment – Clybucca offset properties (Water Research Laboratory, 2021a)
- Clybucca Wetlands Management Options Study (Water Research Laboratory, 2020)
- Collombatti-Clybucca Floodplain Remediation Feasibility Study (Water Research Laboratory, 2017)

The Macleay River Floodplain Prioritisation Study (Water Research Laboratory, 2023) divides the Collombatti-Clybucca subcatchment into five management areas, CC1 through CC5. WRL (2023) suggested that water quality management efforts focus on areas CC1, CC2 and CC4. Of those three areas, CC1 is considered the highest priority, followed by CC2 and then CC4.

Area CC1 comprises land purchased by Transport for NSW (TfNSW) as part of the Oxley Highway to Kempsey Pacific Highway Upgrade Project, which was completed in 2013. TfNSW is required to protect wetland habitat in this area to meet offset obligations for that project. Strategies recommended in the Macleay River Floodplain Prioritisation Study (Water Research Laboratory, 2023) and the preceding Clybucca Wetlands Management Options Study (Water Research Laboratory, 2020) focus on modifications to the drainage network located within area CC1.

Ownership of this land is being transferred to NPWS with that transfer expected to occur in 2024/2025. The multi-agency Clybucca Inter-Agency Working Group has been investigating and managing the ongoing rehabilitation of Clybucca Wetlands and will oversee the continuing rehabilitation of these areas.

1	chiverj	15/11/2024 14:50:55
Suggest that this be reworded to say Ownership is likely to be transfered to another public land manager. (don't ref NPWS)		
2	chiverj	15/11/2024 14:55:09
Add " A whole government approach to the management of these areas is preferred approach.		

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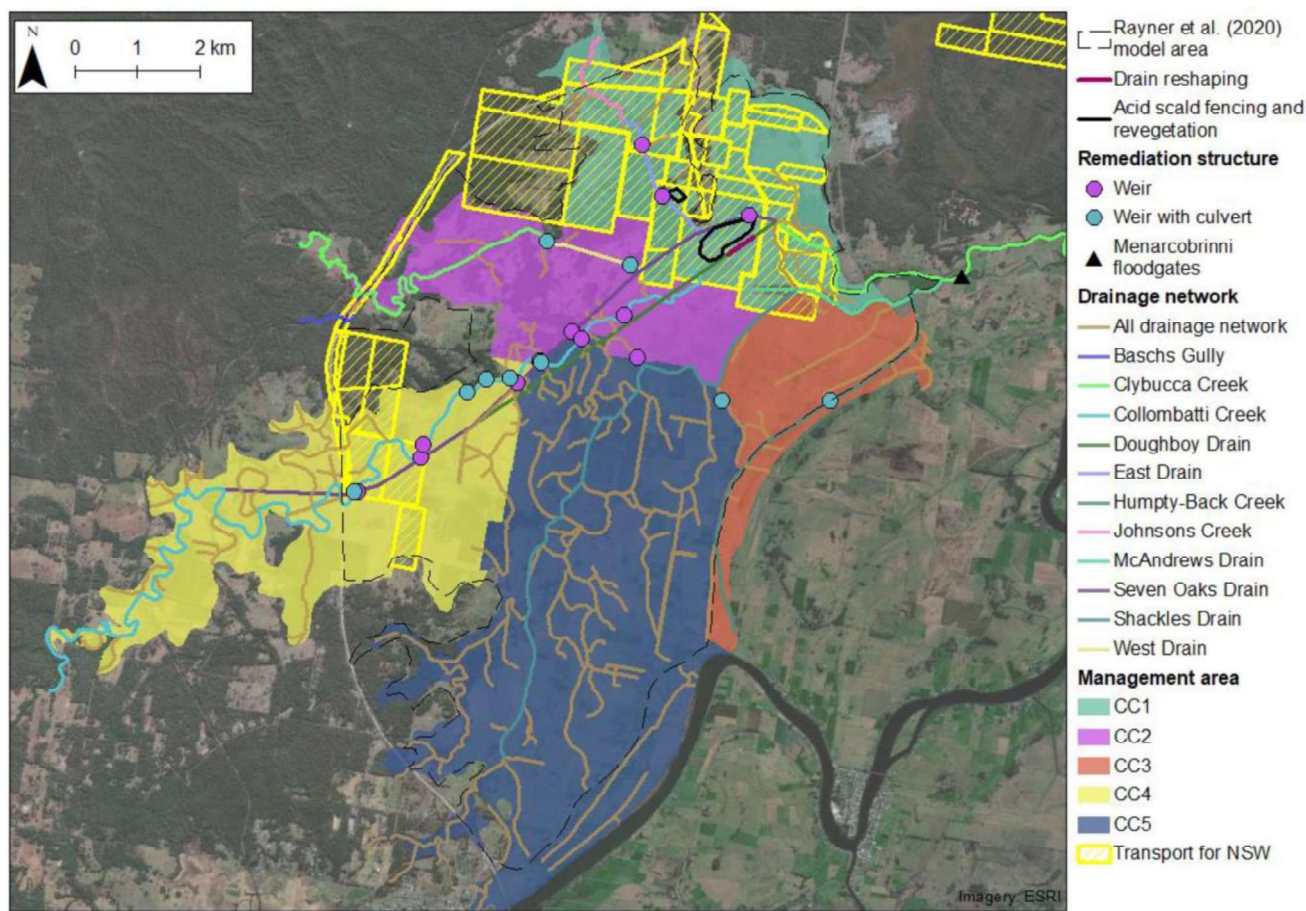


Figure 8 Collombatti-Clybucca Management Areas from the Macleay River Floodplain Prioritisation Study (Water Research Laboratory, 2023)

Given that works in area CC1 will be the responsibility of NPWS, none of the recommended works in CC1 have been included in this CMP. Even so, KSC will remain involved with the project to identify opportunities to coordinate activities in other areas.

WRL (2023) also recommend management options for areas CC3 and CC5, although these areas are not considered as high priority as Area CC2 and CC4. WRL (2023) noted that present land use in areas CC3 and CC5 will remain sustainable in the short-term. Furthermore, some of the strategies for these areas would require acquisition of privately owned land.

Accordingly, the recommended actions focus on the requirements of areas CC2 and CC4, and other elements of this floodplain wetland where KSC has jurisdiction. For those areas, WRL (2023) recommend short and long term works, with suggested short-term works including wet pasture management and fencing for stock exclusion from wetland areas. Long-term management recommendations require acquisition of land and modification of flood gates to enable tidal flushing.

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Management options for the Collombatti-Clybucca floodplain are also outlined in the Clybucca Wetlands Management Options Study (Water Research Laboratory, 2020). The management options were developed with input from the Clybucca Inter-Agency Working Group. The working group is currently chaired by LLS and includes representatives of DPI Fisheries, DCCEEW, NPWS, and Crown Lands.

Option 4b from that study is the preferred option of the Clybucca Inter-Agency Working Group. The option involves modifying the Menarcobrinni floodgates to allow controlled tidal flushing upstream of the floodgates. WRL (2020) estimated the cost of design and on-ground works would be \$175,000. However, this cost does not account for additional requirements such as environmental assessments, technical investigations, consultation, or land acquisition.

A more detailed assessment of the preferred management options from the previous studies, which involve modification of flood gates for tidal flushing, is required. The preferred management options require acquisition of private land, and this should be undertaken opportunistically if funding becomes available.

Tasks

- Continue to maintain weirs on upstream sections of Seven Oaks Drain and Collombatti Creek.
- Ongoing maintenance of the Menarcobrinni floodgates.
- Detailed investigation of management options recommended by WRL (2023) for the Collombatti-Clybucca catchment, and option 4b from WRL (2020) (estimated \$70,000).
- Investigate the feasibility of establishing blue carbon offsets sites (estimated \$30,000).
- Opportunistic land acquisition for wetland rehabilitation.
- Clybucca Inter-Agency Working Group to continue wetland rehabilitation efforts within areas CC1 and CC2, with support from DPI Fisheries, NPWS, LLS and EHG.
- Consultation with floodplain landowners regarding land management practises such as wet pasture management and construction of paddock water retention structures, land use changes (via acquisition), participation in biodiversity offset schemes. (estimated \$10,000).
- Opportunistic wetland improvement works, for example, fencing for stock exclusion from wetland and remediation areas, pest and weed management.

1 | chiverj18/11/2024 09:14:18

New task: Investigagte options to refine, design, fund and facilitate implementation of both short and long term actions (WRL, 2017, 2020, 2023).

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Constraints

- Planning Constraints: There are no planning constraints associated with the maintenance of existing assets, consultation, and communication with landholders and/or wetland rehabilitation works which are otherwise permissible under planning law, providing that appropriate investigation takes place. Subsequent actions, such as modifying the operation of the Menarcobrinni floodgates will likely require and Environmental Impact Statement to be prepared.
- Legal Constraints: Providing that land owner permission is gained for wetland improvement works, the works are permissible.
- Organisational Constraints: The absence of KSC representation from the Clybucca Inter-Agency Working Group is of concern and should be rectified.

D5.2: Macleay Coastal Floodplain Wetland Management (Belmore Swamp)

Description

This action is related to Action D5.1, which aims to address the three highest priority subcatchments identified in the Macleay River Floodplain Prioritisation Study (Water Research Laboratory, 2023). It targets the Belmore subcatchment and the recommended management options from that study for improving water quality issues related to ASS and blackwater.

WRL (2023) outlined a range of potential management options that require further investigation. They noted that extensive works have been completed within the subcatchment to mitigate ASS and blackwater, and that these works should be continued.

All land within the Belmore subcatchment is privately owned, and long-term management strategies recommended by WRL (2023) would require acquisition of privately owned land. WRL (2023) estimated that the cost of purchasing land required for remediation would be around \$13M, with the works costing an additional \$1.8M, excluding the necessary investigations needed before works can commence. Land acquisition for rehabilitation could occur opportunistically when/if funding is available.

Tasks

- Opportunistic land acquisition for wetland rehabilitation.
- Continue works opportunistically to remediate ASS and reduce risk of blackwater and promote the growth of water tolerant vegetation. Example works include infilling drains, excluding stock

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from wetland areas, encouraging wet pasture, and installation of water retention structures such as weirs or drop boards. (WRL (2023) estimated total cost of \$1.1M for entire subcatchment).

- Investigate the present, individualistic management of floodgate structures on the Belmore River to determine if a revised, coordinated strategy could reduce the frequency and/or severity of blackwater events (estimated \$20,000).
- Consultation with floodplain landowners regarding land management practices such as wet pasture management and construction of paddock water retention structures, land use changes (via acquisition), participation in biodiversity offset schemes (estimated \$10,000).
- Further investigation of the conceptual long-term strategy devised by WRL (2023) to restore the natural hydrology of the Belmore catchment (estimated \$80,000).
- Investigate the feasibility of establishing blue carbon offset sites (estimated \$30,000).

D5.3: Macleay Coastal Floodplain Wetland Management (Kinchela Creek)

Description

This action is related to Action D5.1, which aims to address the three highest priority subcatchments identified in the Macleay River Floodplain Prioritisation Study (Water Research Laboratory, 2023). It targets the Kinchela Creek subcatchment and the recommended management options from that study, as well as recommendations from the related East Kinchela (Swan Pool) Remediation Study (Water Research Laboratory, 2021b), for improving water quality issues related to ASS and blackwater.

WRL (2023) ranked the Kinchela Creek subcatchment as the highest priority Macleay subcatchment for blackwater. The study recommends catchment-wide management options for Kinchela Creek. In comparison, the East Kinchela (Swan Pool) Remediation Study (Water Research Laboratory, 2021b) focused on the management of Swan Pool. Both studies noted that catchment-wide management actions would provide the most significant benefits, rather than management on a 'paddock scale'.

WRL (2021b) identified that the most effective management strategy for improving the quality of water discharged from Swan Pool would be to rehabilitate the natural floodplain hydrology and create wetland habitat. It was highlighted that, although applying broad scale strategies would have the greatest impact on water quality, present agricultural land use poses a challenge to their

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implementation. WRL recommended a five-stage process for the remediation of Swan Pool, detailed in Section 5 of that report, and including the following:

- 1 Administration and planning (including identification of funding and responsibilities)
- 2 Data collection, assessment of preferred strategy and detailed design
- 3 Land use change.
- 4 Implementation
- 5 Monitoring and adaptive management

Similarly to Belmore River, the long-term management strategies recommended by WRL (2023) for the entire subcatchment would require acquisition of privately owned land, with an estimated acquisition cost of \$15.5M. Land acquisition for rehabilitation should occur opportunistically when/if funding is available.

Tasks

- Opportunistic land acquisition for wetland rehabilitation.
- Continued management of floodgates in accordance with their corresponding management plan.
- Consultation with floodplain landowners regarding land management practises such as wet pasture management and construction of paddock water retention structures, land use changes (via acquisition), participation in biodiversity offset schemes (estimated \$10,000).
- Progress the first stage from the five stage process detailed in WRL (2021b) for remediation of Swan Pool (identify funding, identify ownership, etc.) (estimated \$20,000).
- Detailed investigations of catchment-wide management options recommended by WRL (2023), for example, installing weirs or drop board structures and infilling drains (estimated \$60,000 for studies).
- Investigate the feasibility of establishing a blue carbon offset site (estimated \$30,000).

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