

Curdies River Estuary Management Plan 2017 - 2025 2022 Review of Actions

About the Curdies River Estuary Management Plan (EMP)

The Curdies River Estuary Management Plan 2017 – 2025 (the Plan) is an eight-year action plan that was prepared to provide a clear picture of the main management activities required to maintain or improve the condition of the estuary. The Corangamite CMA took a lead role in developing the EMP, although it is only one stakeholder that has a role in the implementation of the actions identified in the action table below. It is intended that the EMP is used to seek funding, strengthen coordination amongst stakeholders responsible for estuary management and increase community understanding and appreciation for the natural values of the estuary.

A whole of catchment approach has been taken in developing the EMP, recognising that what occurs upstream will ultimately affect downstream. Therefore, the EMP is strongly aligned to, and supports the *Corangamite Waterway Strategy 2014-2022*.

The diversity of habitats, land use and land tenure surrounding estuaries typically results in the involvement of many groups undertaking management roles. This is the case for the Curdies River. Details of the partners roles and responsibilities in estuary management at a state and local level can be found in the Curdies River Estuary Management Plan 2017, which can be found on the Corangamite CMA Knowledgebase ([Curdies River Estuary Management Plan 2017 \(ccmaknowledgebase.vic.gov.au\)](http://ccmaknowledgebase.vic.gov.au))

Purpose of the review

The primary purpose of this document is to capture the status of the Plan's implementation and use that to help inform the next steps for the Curdies system in light of new knowledge and changes since its development. Secondary, this is one source of information that will be used to inform the current review of the *Corangamite Waterway Strategy (2014-2022)*. Lead partners were asked to review their actions in 2022 to provide a status on their completion. All actions are subject to funding and resourcing. The actions and their status update as of May 2022 are presented in the table below.

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cared for by thriving communities*

Key to actions table

Red	Has not occurred
Amber	Partial or in progress
Green	Has been completed

Curdies River Estuary Management Plan Action review 2022 table

Action	Lead	Project Partners	Status	Update on action in 2022 from the lead stakeholder
Work with landholders to find opportunities to install riparian fencing to exclude livestock	Corangamite CMA	Landcare, landholders	Green	On-going. Subject to funding and landholder agreement.
Continue to support and encourage riparian restoration works in the Curdies River catchment	Corangamite CMA	Landcare, landholders	Green	This is on-going. Subject to funding and landholder agreement. Landholders come to the CCMA directly, or through Landcare. The CCMA support and encourage restoration works. Since 2016, revegetation works, weed control and stock exclusion have been undertaken along 20.8km of Curdies River frontage, with an additional 13.04km committed over the next 2 years.
Pilot approaches to riparian fencing for stock exclusion on the floodplain that are flexible and meet the needs of farming systems, whilst providing sound ecological outcomes for the investment	Corangamite CMA	Landcare, landholders	Amber	Buffer width standards for stock exclusion are flexible to meet the needs of varying farming systems. For example, a lesser 10 metre buffer width is now accepted for dairy farms.
Support and encourage whole-farm planning initiatives with dairy farmers in the Curdies River catchment to reduce nutrient runoff to the river and tributaries	Corangamite CMA, Department of Economic Development, Jobs, Transport and Resources (DEDJTR)	WestVic Dairy, Landcare	Green	CCMA, WestVic Dairy, Agriculture Victoria and Landcare work in partnership to deliver the Sustainable dairies program, which supports dairy farmers with whole of farm nutrient management in the Gellibrand and Curdies River catchments.
Undertake investigations to better understand the flow requirements for the Curdies River estuary	Corangamite CMA	Department of Environment, Land, Water and Planning (DELWP), Southern Rural Water, research institutions	Red	This has not occurred due to funding/resource constraints. Due to no urban water storages in the catchment the ability to increase flows is also limited.
Undertake investigations to increase understanding of groundwater interactions with the Curdies River estuary	Corangamite CMA	Southern Rural Water, Department of Environment, Land, Water and Planning (DELWP), research institutions	Red	This has not occurred pending completion of larger projects including the DELWP lead Sustainable Yields project and confirmation of approaches to resource assessments including groundwater/surface water interactions.
Work with the water users in the Curdies catchment, such as irrigators and farm dam owners, to increase understanding and encourage more responsible water use	Southern Rural Water, Corangamite CMA	Moyne Shire, Corangamite Shire, Landcare	Green	Update from SRW: This work is on-going through field staff extension.
Establish stewardship/management agreements to support landholders to undertake sustainable land management practices	Corangamite CMA	Landholders, Department of Environment, Land, Water and Planning (DELWP), Parks Victoria	Green	This work is on-going through the Waterways Protection Program and Sustainable Dairies Program.
Establish terrestrial pest animal control (especially feral and domestic cat and fox control) as part of a large scale coordinated program to protect biodiversity values	Department of Economic Development, Jobs, Transport and Resources (DEDJTR), Moyne Shire, Corangamite Shire	Parks Victoria, Landcare, landholders, Corangamite CMA, Department of Environment, Land, Water and Planning (DELWP)	Red	This has not occurred due to funding/resource constraints.

Action	Lead	Project Partners	Status	Update on action in 2022 from the lead stakeholder
Work with public and private land managers to implement weed control works on the floodplain and surrounding land	Department of Economic Development, Jobs, Transport and Resources (DEDJTR)	Landcare, landholders, Corangamite CMA, Department of Environment, Land, Water and Planning (DELWP), Parks Victoria		Ongoing. Weed removal occurs through CCMA Waterway Protection Program works.
Increase community education about the impact of garden plants encroaching surrounding native vegetation	Department of Economic Development, Jobs, Transport and Resources (DEDJTR)	Parks Victoria, Moyne Shire, Corangamite Shire		Although not a listed agency for this action, this action has been undertaken by Heytesbury Landcare.
Establish native indigenous vegetation at the estuary, in accordance with the appropriate Ecological Vegetation Classes (EVCs)	Corangamite CMA	Department of Environment, Land, Water and Planning (DELWP), Parks Victoria, Landcare, landholders		Completed as per first action in table and is on-going through the Waterways Protection Program and the Curdies Estuary Fish Habitat Restoration Program.
Protect and enhance stands of remnant EVCs on private and public land at the estuary, with a particular focus on those that are threatened e.g., Swamp Scrub (EVC 53)	Corangamite CMA	Department of Environment, Land, Water and Planning (DELWP), Parks Victoria, Landcare, landholders		Completed as per first action in table and could be ongoing as part of Sustainable Dairies program.
Increase the participation of landholders in the CCMA Coastal Tender and Saltmarsh Tender programs	Corangamite CMA	Landcare, landholders, Parks Victoria		The CCMA Saltmarsh Protection Program supported 23ha of works at 3 sites along the Curdies Estuary through the Peterborough Lands Trust. These sites are under 10-year management agreements.
Increase the extent and protection of habitat for known rare and endangered bird species including the Hooded Plover, Rufouse Bristlebird and Orange Bellied Parrot	Department of Environment, Land, Water and Planning (DELWP)	Parks Victoria, Landcare, landholders, Corangamite CMA		The CCMA Estuaries Team liaise with BirdLife Australia to determine if any Hooded Plovers are present prior to an artificial estuary opening, and if so, inform Parks Victoria to avoid nesting/fledgling areas. Parks Victoria undertakes regular compliance patrols at the estuary entrance, and undertakes monitoring and other support activities during Hooded Plover breeding season.
Undertake a survey of native fish species utilising the estuary	Corangamite CMA	Research institutions, EstuaryWatch, Fisheries Victoria		Curdies wide eDNA survey conducted in 2019 looking for Yarra Pygmy Perch. As part of the Curdies Estuary Fish Habitat Restoration Project, fish monitoring has been conducted in the upper estuary, fish hotels (large wood installations) are being added to the estuary as fish habitat, community events have been held with recreational fishers and the broader community and a follow up survey will be conducted after the habitat installation.
Build on existing surveys of in-stream vegetation, through further research and/or implementation of in-stream structures where appropriate, to support native fish populations in particular the vulnerable Yarra Pygmy Perch	Corangamite CMA	Arthur Rylah Institute, Fisheries Victoria		As per above update.
Use existing monitoring of estuary vegetation to inform future management of the estuary	Corangamite CMA	Department of Environment, Land, Water and Planning (DELWP), Parks Victoria, Landcare, landholders		This is on-going. Sites under CCMA management agreements (e.g., through the Waterways Protection Program) are revisited and assessed to determine ongoing management support needed, including native vegetation establishment and weed control.
Support research on bird species utilising the wetlands and build this knowledge into the future management of the estuary	Department of Environment, Land, Water and Planning (DELWP)	Research institutions, Corangamite CMA		DELWP provides funding for the Eastern Australian Waterbird Survey.

Action	Lead	Project Partners	Status	Update on action in 2022 from the lead stakeholder
Support the PhD research project titled, 'Mitigating Climate Change with Blue Carbon Ecosystems' and incorporate the findings into the management of the Curdies River estuary where appropriate	Corangamite CMA	Deakin University, Moyne Shire, Corangamite Shire, Department of Environment, Land, Water and Planning (DELWP), Parks Victoria, landholders		CCMA has commenced but it has not yet been completed. Deakin University undertook a study and found that sea level rise will mean that long-term carbon offset opportunities will be limited within the Curdies estuary.
Undertake investigations to further understand the implications of storm surge events and sea level rise on the Curdies River estuary, and in particular the ability for the natural environment to adapt	Moyne Shire, Corangamite Shire, Corangamite CMA	Department of Environment, Land, Water and Planning (DELWP), Parks Victoria, SES		This has not occurred due to funding/resource constraints.
Continue to document case studies on storm surge events, and other extreme climatic events, as they occur	Moyne Shire, Corangamite Shire, Corangamite CMA	EstuaryWatch, Parks Victoria, SES		This has not occurred due to funding/resource constraints.
Consider local estuary monitoring data alongside Municipal Emergency Response Plans for all flooding events including estuarine and riverine flooding, as well as storm surge events	Moyne Shire, Corangamite Shire, SES	EstuaryWatch, BoM, Parks Victoria, Corangamite CMA		The CCMA and SES liaise and share data if new community brochures are being created.
Prepare a coordinated approach to collating storm surge data and issuing alerts to the community and stakeholders	Moyne Shire, Corangamite Shire, SES	Parks Victoria, Corangamite CMA		This has not occurred due to funding/resource constraints.
Support the guiding adaptation responses identified for the Curdies River estuary in the Corangamite Natural Resource Management Plan for Climate Change, in particular actions that will support the estuary to adapt naturally to the impacts of climate change	Corangamite CMA	Department of Environment, Land, Water and Planning (DELWP), Parks Victoria, Local Government, Landcare, EstuaryWatch, landholders		This is on-going. The CCMA continues to work alongside other agencies in matters relating to climate change.
Continue to adopt a risk-based approach to estuary mouth opening	Corangamite CMA, Parks Victoria	Moyne Shire, Corangamite Shire		A risk-based assessment is undertaken by CCMA prior to all permitted artificial estuary openings undertaken by Parks Victoria (the Permit Holder for artificial estuary openings of the Curdies estuary).
Prepare a MOU between the relevant agencies and stakeholders to ensure a coordinated approach to the management of artificial estuary openings	Corangamite CMA, Department of Environment, Land, Water and Planning (DELWP)	Department of Environment, Land, Water and Planning (DELWP), Parks Victoria, Moyne Shire, Corangamite Shire, landholders		An Interim MOU in place between CCMA and Parks Victoria.
Ensure the Estuary Entrance Management Support System (EEMSS) continues up-to-date information	Corangamite CMA	Parks Victoria, Moyne Shire, Corangamite Shire		Any new data/research can be added into the Estuary Entrance Management Support System (EEMSS) by Corangamite CMA, so it is up-to-date and relevant.
Investigate opportunities for blue carbon projects on the floodplain to support landholders adapt land management to support estuarine inundation	Corangamite CMA	Department of Environment, Land, Water and Planning (DELWP), landholders, Moyne Shire, Corangamite Shire, research institutions		See action 'Support the PhD research project titled, 'Mitigating Climate Change with Blue Carbon Ecosystems' and incorporate the findings into the management of the Curdies River estuary where appropriate'.
Assess the costs and benefits of investing in modifications to existing public assets and infrastructure at risk of flooding e.g., Old Ocean Road	Moyne Shire, Corangamite Shire, Corangamite CMA	Department of Environment, Land, Water and Planning (DELWP), Parks Victoria		This has not occurred due to funding/resource constraints.
Assess the suitability of local government planning controls e.g. overlays, to ensure they acknowledge the variable inundation regime of intermittently open estuaries	Moyne Shire, Corangamite Shire	Corangamite CMA, Parks Victoria		This has not occurred due to funding/resource constraints.

Action	Lead	Project Partners	Status	Update on action in 2022 from the lead stakeholder
Ensure future works, planning and strategies consider Indigenous and European heritage values for the Curdies River estuary	All	Traditional Owners		This is on-going.
Identify and incorporate cultural risks in EEMSS	Corangamite CMA, Parks Victoria	Traditional Owners, Moyne Shire, Corangamite Shire, Department of Environment, Land, Water and Planning (DELWP)		EEMSS currently considers environmental and socioeconomic factors, it does not consider cultural heritage values as of yet. Parks Victoria has completed the necessary assessments as required by relevant legislation to ensure that there are no risks to Cultural Heritage Values from artificial opening activities. Parks Victoria holds a strong relationship with Traditional Owners Eastern Maar, and works collaboratively with them on land management activities.
EstuaryWatch volunteers continue to be supported in the collection and analysis of water quality monitoring data at the Curdies River estuary	Corangamite CMA	EstuaryWatch		This is on-going, although with some impacts due to Covid-19 lockdowns.
Support Landcare and EstuaryWatch (e.g., through funding, resource provision and sharing expertise and knowledge) so that they can continue to promote the natural values of the estuary to the wider community	Corangamite CMA, Department of Environment, Land, Water and Planning (DELWP)	Landcare, EstuaryWatch		This is on-going. The Curdies EstuaryWatch group has monitored mouth condition i.e., photo point monitoring, and conducted physio-chem parameters at two water testing sites in the estuary since 2013.
Increase community education about the impact of upstream activities on the estuary	Landcare	EPA		This is on-going.
Ensure research and information relating to the management of the estuary is communicated and made accessible to interested community organisations and members	Corangamite CMA	Landcare, EstuaryWatch, Parks Victoria		This is on-going. The CCMA coordinated Curdies Community Information Session 2021 provided an on-line meeting allowing community and agencies to engage and learn. The results from the Index of Estuary Condition report 2021 was shared through CCMA communication channels and through an online presentation.
Conduct studies to understand the economic value of recreational fishing in the Curdies River estuary	Department of Economic Development, Jobs, Transport and Resources (DEDJTR)	Department of Environment, Land, Water and Planning (DELWP), VRFish, research institutions, Corangamite CMA		This has not occurred due to funding/resource constraints. The Australian Government funded Curdies Estuary Fish Habitat Restoration Program is being undertaken in partnership with OzFish, VRFish and local angling groups and focuses on pre and post intervention monitoring, community engagement, riparian works and instream works.
Support initiatives arising from relevant tourism strategies that are environmentally sensitive and promote the natural values of the Curdies River estuary	Moyne Shire, Corangamite Shire	Parks Victoria, Corangamite CMA, Department of Environment, Land, Water and Planning (DELWP)		This has not occurred specifically at the Curdies River estuary due to funding/resource constraints. Objectives for environmentally sensitive tourism strategies are included in the Great Ocean Road and Parks Authority's (GORCAPA) Great Ocean Road Action Plan.
Advocate for management approaches that protect and enhance the natural values of the estuary and wetlands, particularly in high use areas	Corangamite CMA, Department of Environment, Land, Water and Planning (DELWP)	Parks Victoria, Moyne Shire, Corangamite Shire, MSV		This is on-going. Management approaches undertaken by DELWP and CCMA in the catchment aim to protect and enhance the natural values of the system. CCMA and other agencies advocate for landholders to undertake these management approaches.
Advocate opportunities for passive recreation at the estuary, in particular bird watching	Department of Environment, Land, Water and Planning (DELWP), Parks Victoria	Moyne Shire, Corangamite Shire, Corangamite CMA, Birdlife Australia		Specific program has not occurred due to funding/resource constraints. Recreational participation in the catchment is advocated for by CCMA in the Regional Catchment Strategy (RCS).

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Support research that increases the understanding of the value and impact of the recreation (e.g., fishing and boating) on the ecology of the estuary	All	Research institutions, VRFish, DEDJTR, Department of Environment, Land, Water and Planning (DELWP), Parks Victoria, Corangamite CMA		Specific program has not occurred due to funding/resource constraints. The Australian Government funded Curdies Estuary Fish Habitat Restoration Program includes pre and post intervention monitoring to understand changes in fish populations as a result of riparian and instream management activities.