



## **AGENDA**

### **ENVIRONMENT AND SUSTAINABILITY COMMITTEE**

**TUESDAY 12 NOVEMBER 2019**

**at 5.30p.m.**

**BERRI BARMERA COUNCIL**  
**ENVIRONMENT AND SUSTAINABILITY COMMITTEE**

Notice is hereby given pursuant to Section 41 of the Local Government Act 1999, a Meeting of the Environment and Sustainability Committee will be held at the Berri Barmera Council Chambers, Wilson Street, Berri on Tuesday 12 November 2019 commencing at 5.30p.m.



**KARYN BURTON**  
**CHIEF EXECUTIVE OFFICER**

4 November 2019

**THE BERRI BARMERA COUNCIL  
AGENDA FOR A MEETING OF THE ENVIRONMENT AND SUSTAINABILITY COMMITTEE TO BE  
HELD ON TUESDAY 12 NOVEMBER 2019 AT 5.30PM AT THE BERRI BARMERA COUNCIL  
CHAMBERS, 19 WILSON STREET, BERRI**

---

**1: PRESENT:**

*(NOTE): Committee Members are:*

*Council: Cr Centofanti, Cr*

*Little, Cr Winnall, MES/MP and*

*MIS*

*Ex-Officio Mayor P Hunt*

*DEW*

*BB Landcare: S Schrapel*

*Crown Lands: M May*

*Community: S Rodley, D*

*Waterman, Dr M Bailey*

- 1.1:** In the absence of Chair Cr Mike Fuller, MES Myles Somers opened the meeting and called for nominations from the floor for the position of Chair.

**RECOMMENDATION:**

That Mayor Hunt preside the meeting in absence of Chair Cr. Mike Fuller

**2: APOLOGIES: Cr. Fuller**

**3: CONFIRMATION OF MINUTES:**

That the minutes of the Environment and Sustainability meeting held on 3 September 2019 are attached for members information and adoption.

**RECOMMENDATION**

**That the Minutes of the Environment and Sustainability Meeting held on 3 September 2019 be taken as read and confirmed.**

**4: MEMBERS DECLARATION OF INTEREST:**

**Committee members are required to:**

- 1 Consider Section 73 and 75 of the *Local Government Act 1999* and determine whether they have a material, actual or perceived conflict of interest in any matter to be considered in this Agenda.**
- 2 Disclose those interests in accordance with the requirements of Section 74 and 75A of the *Local Government Act 1999* on the approved form**

**5: CONFIDENTIAL ITEMS CONSIDERATION:**

**Committee Members request for additional information required for the 'public interest test' for proposed confidential items in the Agenda.**

- 6: DEPUTATION: Note Skype link up 6.00pm with Leanne Muffet regarding the Environmental Management and Sustainability Strategy.**

7: **QUESTIONS/MOTIONS WITH NOTICE:**

8: **BUSINESS:**

8.1 **Lake Bonney Caring for Country Management Plan**

<b>REPORT AUTHOR</b>	<b>M. Somers; MES/MP</b>
<b>RESPONSIBLE MANAGER:</b>	<b>M. Somers; MES/MP</b>
<b>RECORDS REF:</b>	<b>LBCCMP, I190926-2369</b>
<b>STRATEGIC LINKS:</b>	<b>Yes; Confident and Contributing Community; <i>Objective 1</i></b>
<b>FINANCIAL IMPLICATIONS:</b>	<b>Impact                      Yes</b>
	<b>Budget Description      Various</b>
	<b>Allocation                \$475,000</b>
	<b>Expenditure to Date    \$61,370</b>

---

**SUMMARY:**

Council has been success in securing funding from the Murray Darling Basin Authority for the delivery of the Lake Bonney Caring for Country Management Plan.

**REPORT:**

**Background:**

At the time of producing the report works have commenced following the Murray Darling Basin Authority issuing funding agreements for execution during September. The following activities have started with a number of key actions completed.

- Carpark upgrades at Pelican Point and Nappers Bridge.
- Pest and Animal control activities.
- Track rationalisation planning.
- Initial project signage design, ordering and installation.
- Initial campgrounds and day area design activity.

A further verbal update will be provided at this Committee meeting.

**RECOMMENDATION:**

**That the Committee**

**having considered Report 8.1 titled Lake Bonney Caring for Country Management Plan as presented to the ordinary Council meeting, receive and note the report**

**ATTACHMENTS:**

**No**

**List**

## 8.2 SA Murray-Darling Basin Regional Action Plan

<b>REPORT AUTHOR</b>	T Alexander; Project Officer	
<b>RESPONSIBLE MANAGER:</b>	M. Somers; MES/MP	
<b>RECORDS REF:</b>		
<b>STRATEGIC LINKS:</b>		
<b>FINANCIAL IMPLICATIONS:</b>	<b>Impact</b>	<b>No</b>
	<b>Budget Description</b>	<b>N/A</b>
	<b>Allocation</b>	<b>\$ N/A</b>
	<b>Expenditure to Date</b>	<b>\$ N/A</b>

---

### **SUMMARY:**

The SA Murray-Darling Regional Action Plan was forwarded to Council from District Ranger Riverland Ms. Benita Dillon following her involvement in a Focus Group as part of Council's Environmental Management and Sustainability Strategy consultation. . The Regional Action Plan helps guide opportunities for regional collaboration whilst also advising Council on the priorities within the region as identified through extensive consultation with various stakeholders.

### **REPORT:**

The Regional Action Plan is attached for Committee Member's information.

### **RECOMMENDATION:**

**That the Committee having considered Report 8.2 titled SA Murray-Darling Basin Regional Action Plan as presented to the Committee meeting, receive and note the report**

### **ATTACHMENTS:**

**Yes**

**List**

**Attachment 1 – SA Murray-Darling Basin Regional Action Plan**

# South Australian Murray-Darling Basin Regional Action Plan

Upper Murray subregion summary

*A guide to natural resources management priorities*



Government  
of South Australia



**Natural Resources**  
SA Murray-Darling Basin

March 2017

This document should be cited as:

South Australian Murray-Darling Basin Natural Resources Management Board, 2017. *Regional Action Plan: A guide to natural resource management priorities in the South Australian Murray-Darling Basin, Upper Murray subregion summary.*

URL: [www.naturalresources.sa.gov.au/samurraydarlingbasin-rap](http://www.naturalresources.sa.gov.au/samurraydarlingbasin-rap)

For more information about this plan please contact:

South Australian Murray-Darling Basin Natural Resources Management Board

PO Box 2343

Murray Bridge SA 5253

Phone: (08) 8532 9100

Email: [SAMDBEnquiries@sa.gov.au](mailto:SAMDBEnquiries@sa.gov.au)

Website: [www.naturalresources.sa.gov.au/samurraydarlingbasin-rap](http://www.naturalresources.sa.gov.au/samurraydarlingbasin-rap)

The South Australian Murray-Darling Basin Natural Resources Management Board and the Government of South Australia, their employees and their servants do not warrant, or make any representation, regarding the use or results of the information contain herein as to its correctness, accuracy, currency or otherwise. The South Australian Murray-Darling Basin Natural Resources Management Board and the Government of South Australia, their employees and their servants expressly disclaim all liability or responsibility to any person using the information or advice herein.

This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/)



*The diverse soils, water resources, biodiversity and landscapes of the SA Murray-Darling Basin (SAMDB) are the foundation of many of the things we value; our livelihoods, lifestyles and our wellbeing.*

*We all play a role in managing these natural resources.*

## About this document

This document is a summary of the **Upper Murray subregion** of the Regional Action Plan for the South Australian Murray Darling Basin Natural Resources Management region. It contains an overview of the subregion, what is valued about the area, information on its landscapes, livelihoods and lifestyles, and a list of the natural resources management issues, including their impacts and their priority status. For more detail on specific issues including suggested actions to address them, please follow the links in this document or visit the Regional Action Plan online at [www.naturalresources.sa.gov.au/samurraydarlingbasin-rap](http://www.naturalresources.sa.gov.au/samurraydarlingbasin-rap).



Figure 1: Location of the Upper Murray subregion

# Upper Murray subregion

## Overview

The Upper Murray subregion is a semi-arid landscape through which the iconic River Murray meanders. The River Murray is also a point of discharge of saline aquifers of the Murray Basin, of which some originate in the Great Dividing Range and flow slowly westward until they reach the River Murray. It is dominated by dryland and irrigated farming with large areas of mallee bushland reserved for conservation. The River Murray, and associated wetlands, floodplains and anabranches, are the lifeblood of the region bringing water to this otherwise hot and dry landscape. It provides critical ecosystem services to the social, economic and ecological systems in the Upper Murray, which rely on appropriate timing, duration and volume of water delivery from upstream Murray-Darling Basin states.



© SATC, Houseboat - *Headings Cliffs, Riverland*  
Photographer: Adam Bruzzone

The most significant economic activity of the Upper Murray subregion is irrigated horticulture.<sup>69</sup> Tourism and recreation also contribute to the local economies. Renmark, Berri, Loxton, Waikerie and Morgan are the main towns in the area.

The Upper Murray subregion includes the northern section of the First Peoples of the River Murray and Mallee Region (First Peoples) River Murray and Crown Lands Indigenous Land Use Agreement (ILUA) area.<sup>122</sup> The Mannum Aboriginal Community Association Incorporated (MACAI) are heavily involved in natural resources management and heritage protection along the River Murray below Morgan. Small areas in the west of this subregion fall within the Ngadjuri Nation #2 Native Title Claim area.<sup>114</sup>

Conservation features include large reserves of semi-arid woodlands making up the Riverland Biosphere Reserve, including Danggali, Chowilla, Gluepot, Calperum and Taylorville; and wetlands connected to the River Murray, including Katfish Reach and Pike River.

## What do we value about this area?

- Lifestyle values: rural-living, river shacks, water-based recreation, volunteering and strong community cohesion<sup>61, 69</sup>
- Cultural, social and economic values of Traditional Owners<sup>120,124</sup>
- Natural beauty; river connection and landscape aesthetic, including the iconic River Murray cliffs<sup>78</sup>
- Secure freshwater supplies from the River Murray for town supplies, domestic and industrial use<sup>41,69</sup>
- Viable agricultural productivity from irrigated horticulture, dryland farming and floodplain grazing<sup>69</sup>
- Ecosystem services<sup>69</sup>
- Tourism associated with the River Murray (camping, fishing and houseboating) and European history
- Biodiversity conservation of a unique and recognised biodiversity hotspot, including large conservation reserves of the Riverland Biosphere Reserve - Danggali Conservation Park, Chowilla Station, Calperum Station, Gluepot Reserve and Taylorville Reserve.<sup>41,66, 67, 69</sup>

## Socio-economic drivers of change

- Corporatisation of farms.
- Technology-driven change to labour.
- Relatively low land values.
- Climate change and variability.
- Low IT access - affecting access to information.
- High water costs (town water supply prices to water stock in parts of the subregion)
- Federal and State water policies and water markets
- River regulation and operation.
- Change in land tenure (lifestyle blocks, shacks, permanent residents increasing).



## Profile of the Upper Murray subregion

### Landscapes

There are multiple distinct landscapes in the Upper Murray subregion:

- Riverine corridor: river channel, floodplains and wetlands within the gorge and valley geomorphic regions. This acts as a natural point of disposal for saline groundwater discharging from aquifers within the Murray Basin.
- Iconic park and priority floodplains including Murray River National Park (Katfish Reach) and Ramsar site
- Highly modified agricultural landscape (Irrigated agriculture and dryland farming between the river and conservation areas)
- Large conservation reserves (Bookmark, Danggali, Chowilla, Calperum, Gluepot and Taylorville)<sup>69</sup>

Rainfall across the region is low (240-300 mm) meaning that the relatively reliable water supplies from the river are of paramount importance to irrigation, dryland agriculture, towns and residents. The hot, dry climate is ideal for growing almonds, grapes and other horticultural crops. The soils are typically sandy in the Bookmark landscape grading to cracking clays along the river and floodplain.<sup>79</sup>



The vast tracts of semi-arid mallee woodlands in the north of the subregion (the Bookmark [biophysical landscape](#)) are a biodiversity hotspot for the region and the nation, supporting mallee flora and fauna including rare and threatened species, some of which occur nowhere else in the world. These mallee woodlands are protected within several large conservation reserves totally over 1.2 million hectares. Along with the shrublands of the Pastoral

subregion, the mallee woodlands of the Upper Murray represent the most intact vegetation of the SAMDB region, the least affected by vegetation clearance.



The River Murray channel, wetlands and floodplains of the riverine corridor are key environmental assets of the Upper Murray and provide a range of environmental values including refuge for native species. These aquatic environments contain a number of ecosystem types that differ in their water-regime preferences, including river red gum woodlands, black box woodlands and lignum shrublands.<sup>66</sup> Other ecosystem types of the Upper Murray include semi-arid woodlands (native pine, black oak, acacia), canegrass tussock grasslands, chenopod shrublands and grassy woodlands.<sup>28,92</sup>

Many plants, animals and sites (listed or otherwise) are culturally significant to Traditional Owners.<sup>120,123,124</sup> Aboriginal creation ancestor stories (sometimes called Dreamtime or Dreaming Stories) explain how natural elements in the landscape were formed or how certain species came to be. The stories describe how creation ancestors shaped and shifted the landscape, how they crafted its beauty and natural resources and then gifted these places to specific groups of people across South Australia.<sup>116</sup>

Prior to European settlement the hydrology of the lower River Murray was notable for its high variability (both in flow and quality), driven by climatic cycles, significant weather events and saline groundwater inflows. Environmentally, the river and associated wetlands provided a highly productive and diverse range of habitats that supported a variety of aquatic and terrestrial species well adapted to both flooding and drought. Catchment

development (including extraction and storages) in the Murray-Darling Basin has led to a significant reduction in flows, reduced flooding and much less exchange of water with the floodplain.

The river has been regulated since the 1940s and this stretch contains Lock 6 (near the SA/Vic/NSW border) to the Lock 2 weir pool, which ends at Blanchetown (Lock 1) in the Lower Murray and Plains subregion. The current average annual flows at the South Australian border are only 52 per cent of the flows prior to regulation<sup>103</sup> with a significant reduction in the annual spring pulse.<sup>100</sup> The lower River Murray has retained a degree of inter-annual flow variability, even if most of the variability in river level has been lost. Under natural conditions water levels in the river were set by changes in flow volumes and were as a result highly dynamic.

The introduction of regulating features such as weirs, along with high extraction rates, not only decreased flow magnitude, but established a largely constant water level in stark contrast to the natural hydrological variation. In particular, the presence and management of the locks and weirs has virtually eliminated all of the variation in low flow water levels so that each reach acts like an extended static lake with a "normal pool level". Variations over this pool level are driven by infrequent higher incoming flow rates, weir operations and climatic factors (including evaporation), but water levels much less than pool level rarely occur, even during extreme droughts in the Murray-Darling Basin.<sup>104</sup> As a result of the reduction in flooding, and operating the river near a relatively constant low flow pool level, about 30 per cent of the wetland area along the South Australian River Murray has been isolated and now only receives water irregularly during very high flows. Conversely, the other 70 per cent of wetland area is now effectively permanently connected to the river at pool level and are therefore inundated at all times.<sup>105</sup>

The River Murray is also a point of discharge of saline aquifers of the Murray Basin, some of which originate in the Great Dividing Range and flow slowly westward until they reach the River Murray. By the time the slow moving water reaches Loxton salinity levels reach 20,000 mg/L. Salt interception schemes (SIS) are operated along the river to reduce salinity impacts to the River Murray. There are currently over 200 bores and about 250 km of pipelines which pump and pipe the saline groundwater. SIS bores pump groundwater from Loxton, Murtho, Pike, and Bookpurnong into the

Noora evaporation Basin, while SIS water collected from Woolpunda, Waikerie and Qualco is piped to the Stockyard Plains disposal basin. The Noora and Stockyard Plains Basins now provide permanent wetland ecosystems supporting many significant bird species.

The Upper Murray subregion contains 62 state listed threatened flora species and 68 state listed threatened fauna species. Two flora and fourteen fauna species are also listed nationally under the *Environment Protection and Biodiversity Conservation Act (1999)*. A full list of threatened species recorded in this subregion can be downloaded [here](#).

## Livelihoods

This subregion is naturally a semi-arid landscape with low rainfall, yet it is the largest horticulture production area in the state.

The relatively reliable water supply from the River Murray is of paramount importance to the local industry and economy, sustaining irrigated agriculture, horticulture and viticulture close to the river.



The Traditional Owners of this subregion have used and actively managed the natural resources of the area for many thousands of years. Today there is a strong interest from Traditional Owners in natural and cultural resource based economic opportunities in this subregion.<sup>120</sup> A relatively large number of Aboriginal people are employed in natural and cultural resources management roles within this subregion with much of the work focusing on the management of the River Murray and adjacent areas. Significant capacity has been built within the community to continue playing a key role in natural resources management into the future and employment in natural resources management in the area has significant economic and social outcomes for the Aboriginal community.<sup>126</sup>

The majority of the Upper Murray subregion (~1,238,000 ha) is dedicated to nature conservation within the Danggali, Chowilla and privately managed Calperum, Taylorville, and Gluepot Reserves and Parks north of the River Murray. This reflects the relatively poor soils of the area and the distance to reliable water sources in the river.

Grazing of modified pastures is the dominant agricultural land use (117,850 ha) followed by grazing of natural pastures (~89,000 ha). Cropping covers 59,000 ha whilst irrigated horticulture (seasonal and perennial), cropping and pastures covers ~46,260 ha and includes crops such as wine grapes, citrus and increasingly almond orchards<sup>40,92</sup> as well as a range of other perennial tree crops and cut flowers. Freshwater aquaculture is also an emerging land use in this subregion. In general, mixed dryland farming occurs south of the river and pastoral activities occur north of the river, outside of conservation reserves. Irrigated horticulture along the river corridor and its associated service industries (including export of related technology and innovation) provide significant economic and social benefits plus the aesthetic values of irrigated perennial crops interlaced in a semi-arid environment. The Millennium Drought had a lesser effect on agricultural industries in the Riverland compared to that experienced below Lock 1, although there has been a trend away from family 'blocks' towards larger corporate farms. Residential land (~6220 ha) is centered around townships such as Renmark, Berri, Loxton, Waikerie and Morgan and along the river.



Employment options are reasonably diverse in this subregion, with retail, tourism and hospitality featuring strongly. The Upper Murray region, especially Berri, is also a regional hub for many government departments and services with state government being a significant employer. The region also hosts several positions in various

sectors, which are funded by the Federal Government.

## Lifestyles

Cultural practices such as camping, fishing, and hunting and gathering, are important to Traditional Owners of this subregion. Their ability to undertake such practices directly relates to natural resources and their condition, as well as a range of other issues including access to sites and legal regulations and restrictions.<sup>124, 120</sup>



The *Aboriginal Heritage Act 1988* protects Aboriginal sites, objects and remains in all areas of South Australia.<sup>117</sup> The First Peoples River Murray and Crown Lands ILUA<sup>121</sup> covers proper consideration by State Government Departments of Aboriginal Heritage matters. The protection of Aboriginal Heritage is a key concern for local Traditional Owners.<sup>124,120</sup> Protecting natural resources and playing an active role in their management is a key priority for the Traditional Owners of this area.<sup>123, 120, 124</sup>

A total of 37,332 people live in the Upper Murray subregion (2011 figures).<sup>61</sup> There was significant population decline between 2001 and 2011, partially driven by declines in agricultural trade and reduced succession on farms.<sup>61</sup> The subregion has an average proportion of elderly people and lone person households compared to the rest of the state.<sup>61</sup>

The Loxton Waikerie, Renmark Paringa and Berri Barmera Councils share the bulk of the local government responsibilities of this predominantly dryland and irrigated horticultural community, although small areas are contained within the Mid-Murray Council area. The Murray Mallee Local Government Association, in turn, represents the local governments of this subregion.

A study into factors that may affect the community's ability to respond to changing conditions or circumstances found some vulnerabilities in; its remoteness as a function of distance from metropolitan Adelaide, below average internet access (68 per cent of households in 2011) and comparatively low numbers of graduates, people who have completed high school and women in managerial or technical occupations. Additionally, the fact that agriculture has experienced declining terms of trade appears to be reflected in the substantially below average median household income and this subregion also has amongst the highest levels of unemployment in the SAMDB region.<sup>61</sup>

However, on the other hand, housing affordability is good, there is greater economic diversity than in some other parts of the SAMDB region and the

community is well-connected socially with significant cross-over between dryland farming, irrigation and conservation communities. It also hosts many thriving sporting leagues and large numbers of local clubs. The area also has higher levels of volunteering than the state average, which is an indication of a connected, cooperative and supportive community. A range of NRM volunteer groups are active in the region, some of which are highly active in activities such as citizen science, wetland management and revegetation, with these activities being supported by several local action planning groups.

Tourism in the region is strongly associated with the large water bodies such as the River Murray and Lake Bonney. Key activities include water-skiing, wake boarding, house boating and fishing.<sup>78</sup>



## What do we need to work on?

The following table describes the natural resources management issues and their impacts on the values of the Upper Murray subregion, presented in order of decreasing priority. Detailed actions can be found within the RAP online by clicking on the relevant issue within this table.

### Key to values



	NRM issue	What impacts are these having on our natural resources?	Priority	Values affected
<b>Working together</b>	Community awareness, knowledge and participation in natural resource management.		Foundational	
<b>Climate change adaptation</b>	Building resilience to a changing climate.		Foundational	
<b>Managing carp herpes virus release</b>	Water quality impacts of carp herpes virus release.	Potential severe adverse impacts on water quality due to increased carbon loads (decomposing fish) in waterways, and potential large black water events.	High	
<b>Water quality and managing black water events</b>	Water quality (turbidity, salinity, blue-green algae, acid-sulphate soils) and 'black water' (low oxygen) events associated with lack of, or low flows.	Impacts on water dependent species (not all species have tolerances to sustain past certain thresholds of different water quality parameters).	High	
<b>Managing risks to biodiversity from wildfire</b>	Catastrophic loss of biodiversity due to wildfire.	Loss of significant populations of plants and animals and potentially species due to a wildfire burning through large or particularly significant areas.	High	
<b>Floodplain watering</b>	Change in flooding regimes on floodplains.	Decline in condition of floodplain vegetation and dependent fauna.	High	
<b>Reducing the impacts of pest animals</b>	Over-grazing/damage by kangaroos, goats, pigs, rabbits (unmanaged).	Decline in the condition of native vegetation and suitability of habitat for native species, particularly affecting the ground layer; poor understorey and tree recruitment (including tree recruitment on the floodplain); increased risk of erosion and weed invasion, affecting the capacity of vegetation to recover and water quality.	High	
<b>Managing flows for aquatic ecosystem health</b>	Change in river flow regimes (extent, duration and timing) as a result of river regulation, upstream extraction and water sales, drought, climate change and potential change in future water demands, causing decline of appropriate instream habitats for native species.	Decline in aquatic habitat condition and disruption of breeding cycles of aquatic species. Prolonged static water levels affect the condition of habitat in the river channel. Loss of drought refuges; loss of floodplain connectivity and associated reduction in the productivity of aquatic systems.	High	
<b>Managing fire regimes for biodiversity</b>	Inappropriate fire regime; particularly too frequent burning.	Lack of recruitment of fire-dependent species; decline in condition of native vegetation if fires too frequent or absent. Decline in fauna that are dependent on specific habitat types (influenced by fire).	High	
<b>Industry adaptation to a future with less water</b>	Changes in availability and security of irrigation water due to upstream extraction, water sales and climate change.	Decline in profitability of irrigated farming enterprises, willingness to invest in new infrastructure and land use; Affects the mixture of farming systems in use; Reduced community capacity and resilience after drought.	High	
<b>Threatened species recovery</b>	Threatened species habitat decline and species-specific threats resulting in the decline of threatened fauna and flora.	Risk of extinction to threatened fauna and flora.	High	

(cont.)	NRM issue	What impacts are these having on our natural resources?	Priority	Values affected
<b>Preventing herbicide resistance</b>	Emergence of herbicide resistant weeds, especially under continuous cropping.	Direct impacts on capacity for weed control and profitability of cropping; indirect threat to soil health if the management alternative results in increasing cultivation and erosion risk.	Med	
<b>Managing plague animal outbreaks</b>	Pest animals (particularly plagues of mice and locusts).	Decline in land condition, sustainability of production, and capacity to recover after drought.	Med	
<b>Reducing soil erosion risk</b>	High erosion risk to soil assets associated with cultivation and periods of low cover in cropping zones.	Direct impacts on capacity for weed control and profitability of cropping; indirect threat to soil health if the management alternative results in increasing cultivation and erosion risk.	Med	
<b>Sustainable grazing on floodplains</b>	High total grazing pressure (stock and pest animals, particularly over-abundant kangaroos) causing decline in condition of floodplain habitat.	Decline in the condition of floodplain vegetation, particularly ground layer flora; poor shrub and tree recruitment due to grazing/trampling of seedling; increased risk of weed invasion, and erosion.	Med	
<b>Managing fire regimes on floodplains</b>	Changed fire regime causing decline in condition of floodplain habitats. (Or wildfire impact)	Lack of recruitment of fire-dependent species; decline in condition of native vegetation if fires too frequent or absent.	Med	
<b>Controlling carp and other aquatic pests</b>	Pest aquatic animals (particularly carp, the priority pest species).	Decline in condition of aquatic habitats. Reduction in native fish populations. Affects biodiversity and lifestyle values due to impacts on native fish populations.	Med	
<b>Water quality for production</b>	Impacts of upstream land management and water extraction on water quality and salinity.	Affects the suitability of water for irrigated agriculture and consumptive uses, especially perennial fruit crops.	Med	
<b>Re-wilding our landscapes</b>	Loss of ecosystem engineers (providing disturbance).	Lack of recruitment of native flora requiring disturbance. Decline in condition of native vegetation.	Med	
<b>Soil health for sustainable production</b>	Management of soil health (i.e. nutrition, fertility, biology) affecting production capacity and susceptibility to additional soil degradation processes.	Affects the profitability and sustainability of production. Poor soil health can lead to on site degradative processes such as soil acidity, erosion, compaction, and sodicity as well as off-site impacts on adjacent lands, watercourses and groundwater systems	Med	
<b>Managing new pest animal and disease risk</b>	New and emerging pest animals and diseases.	Potential threat to crop/stock health, affecting the productivity and profitability of primary industries.	Med	
<b>Reducing predation of native fauna</b>	Predation of native fauna by foxes, cats.	Decline in populations of native fauna, particularly of small weight-range species. Localised extinctions of many native species has occurred over the last century, and predators are thought to have been the main reason for species decline.	Low	
<b>Promoting responsible recreation</b>	In-appropriate recreation (wake-boarding, jet skis, dirt bikes, four-wheel driving, removal of timber by campers), and poor houseboat sanitation compliance.	Habitat disturbance; erosion of river banks by wave action; decline in aquatic habitat and water quality; timber removal reduces the quality of habitat for a range of ground-dwelling native species.	Low	
<b>Containing new environmental weeds</b>	New and emerging weeds.	Reduction in quality of appropriate habitat for native species.	Low	
<b>Reducing the impacts of pest animals</b>	Over-grazing/ damage by kangaroos, goats, rabbits, hares, foxes affecting production and irrigation infrastructure.	Increase in unpalatable species or weeds in over-grazed areas, increase in soil erosion and compaction, damage to irrigation piping and farming infrastructure caused by foxes and hares.	Low	
<b>Reducing the impacts of pest animals on floodplains</b>	Over-grazing/damage - by pigs affecting aquatic habitat/ floodplains.	Decline and loss of palatable and grazing-sensitive species; increased risk of erosion and weed invasion. Decline in condition of native vegetation and suitability of habitat for native species.	Low	

## References

- 28 SAMDB, 2012. Landscape Conservation Priorities Fact Sheets - November 2012
- 41 Riverland Connection to Country Workshop 5 December 2012 - Mapping Landscape Values
- 61 Econsearch, 2015. Community Adaptive Capacity Index for the SAMDB NRM Region.
- 66 DEWNR, 2015. Long term watering plan for the South Australian River Murray Water Resource Plan Area. Draft for consultation.
- 67 Commonwealth of Australia, 2012. *Water Act 2007, Basin Plan*.
- 69 SAMDB NRM Board, 2014. *SA Murray-Darling Basin natural resources management plan: - Volume A, strategic plan*. South Australian Murray-Darling Basin Natural Resources Management Board, Murray Bridge, South Australia.
- 78 SAMDB Social-Ecological Systems mapping workshop, Murray Bridge, 16th February 2015.
- 79 Hall, J., Maschmedt, D., and Billing, B., 2009. *The Soils of Southern South Australia*. Department of Water, Land and Biodiversity Conservation. Government of South Australia, Adelaide.
- 92 DEWNR, EGIS GIS data <http://egisdata.env.sa.gov.au> [Accessed March 2015].
- 99 Riverine Recovery Project Business Case
- 100 Maheshwari, B.L., Walker, K.F., and McMahon, T.A., 1995. *Effects of regulation on the flow regime of the River Murray, Australia*. Regulated Rivers: Research and Management, 10, 15-38.
- 103 CSIRO, 2008. *Water availability in the Murray*. A report to the Australian Government from the CSIRO Murray-Darling Basin Sustainable Yields Project. CSIRO, Australia
- 104 WaterConnect River Murray at Lock 4, Loxton Irrigation pump station, Loveday Pump Station and upstream of Moorook.
- 105 Walker, K.F., 2006. Serial weirs, cumulative effects: the Lower River Murray, Australia. In: *The Ecology of Desert Rivers* (ed. R. Kingsford), pp. 248-279.
- 114 National Native Title Tribunal, 2016. Native title Applications and Determination Areas. As per the Federal Court (30 June 2016) – Commonwealth of Australia MAP
- 116 DSD, 2016. Department of State Development, Aboriginal Affairs and Reconciliation website. <http://www.statedevelopment.sa.gov.au/aboriginal-affairs/aboriginal-affairs-and-reconciliation/aboriginal-heritage>. [Accessed: Sept, 2016].
- 117 DSD, 2015. *Aboriginal Heritage Guideline 10 – Risk Management*, Department of State Development, Aboriginal Affairs and Reconciliation, South Australia. [http://www.statedevelopment.sa.gov.au/upload/aard/heritage/Risk\\_Management.pdf?t=1474958967890](http://www.statedevelopment.sa.gov.au/upload/aard/heritage/Risk_Management.pdf?t=1474958967890) [Accessed: Sept, 2016].
- 120 DEWNR, 2016. SA Murray-Darling Basin Regional Action Planning workshop with First Peoples of the River Murray and Mallee Region, Berri, 4th February 2016. Internal document.
- 121 *First Peoples River Murray and Crown Lands Indigenous Land Use Agreement 2011*, <http://www.nntt.gov.au/Indigenous-Land-Use-Agreements/Search-Registered-ILUAs/ILUA%20Register/2011/SI2011.025/ILUARegisterExport.pdf>
- 122 DEWNR, 2016. ENVmaps, Native Title ILUA spatial dataset #1092. [Accessed 22 Sept 2016].
- 123 RMMAC, 2013. River Murray and Mallee Aboriginal Corporation Strategic Plan 2013-2016, Rural Solutions, 2013.
- 124 DEWNR, 2016. SA Murray-Darling Basin Regional Action Planning workshop with Mannum Aboriginal Community Association Incorporated (MACAI), Mannum, 27th January 2016. Internal document.
- 126 NR SAMDB, 2015. *Riverland Working on Country Project: Most significant change evaluation report*. SA Murray-Darling Basin Natural Resources Management Board, June 2015.

### 8.3 Environmental Management and Sustainability Strategy

REPORT AUTHOR	M. Somers; MES/MP	
RESPONSIBLE MANAGER:	M. Somers; MES/MP	
RECORDS REF:		
STRATEGIC LINKS:	Yes; Valued Natural Environment/resources; <i>Objective 1 &amp; 2</i>	
FINANCIAL IMPLICATIONS:	Impact	Yes
	Budget Description	Environment and Sustainability Strategy
	Allocation	\$30,000
	Expenditure to Date	\$-

---

#### **SUMMARY:**

The Environmental Management and Sustainability (EMS) Strategy provides a vision, shared objectives and pathways to progress sustainability across the council area. The strategy expresses the actions required to incorporate practices across services, operations and programs

#### **REPORT:**

The development of the EMS Strategy commenced in September with four focus groups, school based activities, pop up and online survey activity. The information gathered is to be considered by consultant Leanne Muffet from Strategic Matters and will largely inform the draft strategy being developed for public consultation early in 2020.

Leanne will be discussing the Strategy Framework with the Committee via Skype at this meeting at approximately 6.00pm.

#### **RECOMMENDATION:**

**That the Committee having considered Report 8.3 titled Environmental Management and Sustainability Strategy as presented to the Committee meeting, receive and note the report**

#### **ATTACHMENTS:**

No

**8.4 Riverland Special School Waste Education Project video**

<b>REPORT AUTHOR</b>	<b>M. Somers; MES/MP</b>	
<b>RESPONSIBLE MANAGER:</b>	<b>M. Somers; MES/MP</b>	
<b>RECORDS REF:</b>		
<b>STRATEGIC LINKS:</b>	<b>Yes; Valued Natural Environment/resources; <i>Objective 1 &amp; 2</i></b>	
<b>FINANCIAL IMPLICATIONS:</b>	<b>Impact</b>	<b>Yes</b>
	<b>Budget Description</b>	<b>Environment and Sustainability Strategy</b>
	<b>Allocation</b>	<b>\$30,000</b>
	<b>Expenditure to Date</b>	<b>\$-</b>

---

**SUMMARY:**

A video produced by the Riverland Special School on litter and waste education will be shown.

**REPORT:**

Members may then want to discuss ways in which Council might support the Riverland Special School.

**RECOMMENDATION:**

**That the Committee having considered Report 8.4 titled Riverland Special School Waste Education Project video as presented to the Committee meeting, receive and note the report**

**ATTACHMENTS:**

**No**

**9: OTHER ITEMS:**

**9.1 Ideas for general discussion and future consideration:**

- Environmental Grants and Awards
- Council badged reusable cups and shopping bags
- Tree Day 20 November –verbal update Dave de Grancy.

**10: ITEMS FOR COMMUNICATION:**

**11: NEXT MEETING: 14<sup>th</sup> January 2020**

**12: CLOSURE:**