



Site options profile #B1

Bulyong Island - Draft

Bookmark Creek Master Plan



Location: Weir Pool 5, River Chainage Markers 588 to 582

Land Tenure: National Parks and Wildlife Service SA

Wetland Size: 2,382 hectares (Ha)

Normal Pool Level: 16.4 mAHD

PROPOSED OPTIONS	
Option #1:	Improve floodplain condition in the ex-disposal basin, by supporting opportunities for environmental watering and increasing the duration of floodplain watering associated with managed and natural high-flow events, including weir pool raising by enabling the retention of water to 17.2 mAHD, exploring the potential of utilising and repairing existing disposal basin infrastructure and the installation of complementary structures and embankments.
Description	This option aims to explore the capability to retain water by utilising the existing disposal basin infrastructure, the installation of new regulating structures and complementary blocking banks to 17.2 mAHD, in order to extend the duration of watering events such as those associated with weir pool raising, high-flow events as well as promoting opportunities for water delivering via pumping. Due to the prior function as a disposal basin, there is a significant network of blocking banks and complementary structures designed to support the retention of water on the floodplain. This presents an opportunity to investigate and where needed, remediate these existing structures to support holding water within the wetland and extend the duration of watering events such as those associated with managed and natural high-flow events. To achieve this, a number of outflow points would also need to be investigated and potentially remediated to ensure water is retained. This also includes exploring opportunities for water delivery through an old Renmark Irrigation Trust (RIT) network, used previously to support the transport of water from the RIT network to Bulyong island.
Outcomes	• Benefits associated with an improved watering regime. • Conservation and improvement of wetland vegetation. • Improved soil moisture conditions.
Option #2:	Investigate the opportunity for water delivery through the assessment and repair of RIT infrastructure that was used previously to support the transport of water from the RIT network to Bulyong island.
Description	This option aims to utilise current RIT infrastructure to allow additional watering of the floodplain. To achieve this, a number of structures would need to be investigated and potentially remediated through 'Option 1' to ensure water can be transported to Bulyong Island through the RIT network.
Outcomes	• Benefits associated with an improved watering regime. • Conservation and improvement of wetland vegetation. • Improved soil moisture conditions.
Option #3:	Improve floodplain condition in the Eastern Basin, by supporting opportunities for environmental watering and increasing the duration of floodplain watering associated with managed and natural high-flow events, including weir pool raising by enabling the retention of water to 17 mAHD, exploring the potential of utilising and repairing existing disposal basin infrastructure and the installation of complementary structures and embankments.
Description	This option aims to support the capability to maximise the opportunity presented by weir pool raising and capacity to retain water, through the installation of regulating structures and complementary blocking bank to 17 mAHD. This will support the capacity to extend the duration of watering events such as those associated with high-flow events and weir pool raising, as well as prompting opportunities for delivering water via pumping.
Outcomes	• Benefits associated with an improved watering regime. • Conservation and improvement of wetland vegetation. • Improved soil moisture conditions.

SITE BACKGROUND

Description

Bulyong Island is located within the Murray River National Park on the eastern bank of the River Murray, upstream of the town of Renmark. The island is physically separated from the town of Renmark by Ral Ral Creek, an anabranch of the River Murray that flows along its eastern margin. Bulyong Island contains a variety of fluvial landforms including discontinuous levees, oxbows, back swamps, lakes and low terraces¹.

Cultural Significance

The River Murray and Mallee Aboriginal Corporation (RMMAC) holds native title over the River Murray within the Lock 5 Reach. The First Peoples intimate knowledge and understanding of Country and active participation across all levels is vital to the effective management of this landscape

Post-colonial Use

Bulyong Island was formerly used as a saline drainage water disposal basin. By October 1967 a series of embankments and an inlet/outlet structure had been established and the area began to receive drainage water from the Renmark and Chaffey Irrigation areas. Discharge to the island occurred until 1983, when the disposal basin was taken out of commission. The flood of 1989 breached the basin embankment. The embankments were further removed in 1990 so that the basin lost its holding capacity. Relics of some regulating structures still remain. In June 1991, the island was established as part of the Murray River National Park¹.

WETLAND ECOLOGY

Bulyong Island is within the Murray River National Park which conserves a significant proportion of South Australia's floodplain environments which are not represented widely in other reserve systems¹.

Flora and fauna: There is limited information on the flora and fauna composition at the site and no recent survey has been conducted. The major vegetation communities within Bulyong Island include river red gum (*Eucalyptus camaldulensis*) and black box (*Eucalyptus largiflorens*) woodland, lignum and samphire/ chenopod shrublands¹. The island is home to a number of species, such as western grey kangaroos, emus, pelicans, kingfishers and parrots².

WETLAND MANAGEMENT

Current Management:

Bulyong Island is currently under the management of the National Parks and Wildlife Service SA and can only be accessed via boat or canoe (no vehicle access). The closest boat launching point is at the Goolwa Street boat ramp. The Island is a popular recreational area for boating and fishing.

Infrastructure:

The Island has minimal infrastructure to support active environmental water management. As noted above, a series of embankments and an inlet/outlet structure were installed in 1967 in support of the drainage irrigation areas. The basin embankment has since been breached, and further sections of the embankment have been removed, diminishing its holding capacity. Relics of some regulating structures still remain.

ISSUES AND DRIVERS

As part of the Master Planning Project engagement process, an ongoing register of issues and drivers relating to sites and options was maintained. These highlighted key considerations and investigations that would need to be factored in and undertaken as part of any next steps towards realising the outcomes described within the option profiles. For Bulyong Island, these included:

Environmental

- Potential investigations are needed into salinity impacts and groundwater issues at the site as well as feasibility of recovery, and high flow dynamics/impediments.
- Potentially need comparative analysis of expanding water on floodplain with a downstream regulator vs pumping onto floodplain.
- Introducing Exotic Flora and Fauna: There is a risk of enabling access of pest species to Bulyong Island via construction activities.

Cultural

- There are areas of potential cultural significance that would need to be protected during weir pool manipulation.

Community/Social

- Bulyong Island landholders must be engaged through design and construction.

Operational/logistics

- Integrity tests on embankments are required, including managing for potential spill-over impacts.
- Ongoing operations and maintenance costs and access need to be considered.
- A breach in existing embankment will need to be remediated.

KEY STAKEHOLDER INVOLVEMENT

- Commonwealth Environmental Water Office (CEWO)
- Murraylands and Riverland Landscape Board
- National Parks and Wildlife Service SA
- Renmark Irrigation Trust (RIT) – including the Environmental Watering Committee
- Renmark Paringa Council
- Renmark Paringa Landcare
- River Murray and Mallee Aboriginal Corporation (RMMAC)
- SA Water

REFERENCES

1. DENR. Murray River National Park Management Plan (Including Rilli Island, Media Island and Kapunda Island Conservation Parks). 1994.
2. National Parks and Wildlife Service South Australia, Department for Environment and Water. Murray River National Park [Internet]. 2020 [cited 2020 Nov 23]. Available from: https://www.parks.sa.gov.au/find-a-park/Browse_by_region/Murray_River/murray-river-national-park

Bulyong Island

Inundation Extents

-  5GL - At pool conditions
-  16.8 mAHD (20GL 50cm - Weir Pool Raise)
-  17.2 mAHD (Option 1)
-  17.0 mAHD (Option 3)
-  Proposed Works
-  Proposed Embankment

Option # 2

Option # 1

Option #3



0 0.25 0.5 Kms

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Data Source DEW - TOPO, Aerial Imagery 2014, DEM,
Wetland Structures, Model Flow Extents

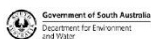
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Projection South Australia Lambert

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