



Site options profile #L3

Katarapko Island (South)

- Draft

Lock 3 Master Plan



Location: Weir Pool 3, River Chainage Markers 513 to 482
Land Tenure: Crown Land (National Parks and Wildlife Service SA)

Wetland Size: 2,310 hectares (Ha)
Normal Pool Level: 9.8 mAHd

PROPOSED OPTIONS	
Option #1:	Promote the conservation of the local regent parrot population, by supporting the installation of a new embankment and structure enabling watering activities as described within the Regent Parrot Recovery Project.
Description	Katarapko Island (South) falls within the 'Katarapko Regent Parrot Floodplain Habitat Zone', identified as part of the Regent Parrot Recovery initiative. The strategic watering of the south part near Yabby Creek to 12 mAHd supports the conservation and improvement of vegetation important to regent parrots, is seen as a key part of the realising the conservation of the current population.
Outcomes	• Conservation and improvement of vegetation important to regent parrots. • Support the conservation of the current regent parrot population.
Option #2:	Improve floodplain condition by supporting opportunities for environmental watering and increasing the duration of floodplain watering associated with managed and natural high-flow events, by enabling the retention of water to 12 mAHd, through the installation of regulating structures, complementary embankments and exploring the potential of utilising the existing disposal basin infrastructure [including existing Central Irrigation Trust (CIT) network].
Description	This option aims to support the capability to retain water through the installation of new regulating structures and complementary blocking banks to 12 mAHd, and explore the potential of utilising the existing disposal basin infrastructure, in order to extend the duration of watering events such as those associated with high-flow events as well as promoting opportunities for delivering water via pumping. To support its 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 the holding of water within the wetland to support pumping activities 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, including recent structure upgrades delivered through the Riverine Recovery Project. This also includes exploring opportunities for delivery of water through the existing CIT network. This option will also need to consider the current watering activities within Yabby Creek for the 'horseshoes' located on the Katarapko Island (South).
Outcomes	• Benefits associated with an improved watering regime. • Support the conservation of the current regent parrot population. • Conservation and improvement of vegetation important to regent parrots. • Improved soil moisture conditions. • Increased opportunities for stands of black box woodland to receive water.
Option #3:	Improve floodplain condition by supporting opportunities for environmental watering and increasing the duration of floodplain watering associated with managed and natural high-flow events, by enabling the retention of water to 13 mAHd, through the installation of regulating structures, complementary embankments and exploring the potential of utilising existing disposal basin infrastructure.
Description	This option seeks to enhance the existing floodplain infrastructure to support opportunities to retain water, to extend the duration of watering events such as those associated with high-flow events, as well as promoting opportunities for delivering water via pumping. This also includes exploring opportunities for delivery of water through the existing CIT network.

	Additional existing infrastructure to those highlighted in 'Option 2' within the northern part of the floodplain present an opportunity to significantly increase the extent of inundation by investigating and where needed, remediating these structures to support the holding of water to 13 mAHD.
Outcomes	• Benefits associated with an improved watering regime. • Support the conservation of the current regent parrot population. • Conservation and improvement of vegetation important to regent parrots. • Improved soil moisture conditions. • Increased opportunities for stands of black box woodland to receive water.

SITE BACKGROUND

Description

Katarapko Island (South) is located on the River Murray opposite the township of Loxton within the Murray River National Park (Katarapko section). The northern and southern horseshoe Lagoons, consist of ephemeral wetlands covering approximately 123 hectares (ha), and are connected to the River Murray via Yabby Creek (inlet) and Bank 6 Creek (outlet). The island is only land accessible via Stone Weir, located at the inlet to Katarapko Creek.

Cultural Significance

The River Murray and Mallee Aboriginal Corporation (RMMAC) holds native title over the River Murray within the Lock 3 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

The Katarapko Island Horseshoe Lagoon Complex was established in 1964 as a saline disposal basin and received water from the Loxton Comprehensive Drainage Schemes (CDS). This included an extensive embankment around the perimeter of the site. In the 1990s, improvement to irrigation practices and the construction of a piped water delivery system within the Loxton Irrigation Area significantly reduced the amount of irrigation drainage water delivered to the Katarapko Island Disposal Basin. Subsequently, additional inlet and outlet structures were installed to facilitate flushing flows through the basins. Since river regulation and the construction of locks and weirs along the River Murray, the water regime in the island has been altered. The lack of inundation in these areas following the construction of Lock 3 in 1925, has resulted in the decline of floodplain habitat within the wetland complex¹.

WETLAND ECOLOGY

Ecological role: Katarapko Island is part of a larger protected area with diverse habitat and wetland types and is of high conservation value¹⁻³. Katarapko Island South is within the Murray River National Park, which is proclaimed to conserve a significant proportion of South Australia's floodplain environments which are not represented widely in other reserve systems⁴.

Flora and fauna: The major vegetation communities within Katarapko include river red gum (*Eucalyptus camaldulensis*) and black box (*Eucalyptus largiflorens*) woodland, lignum and samphire/ chenopod shrublands. It is home to a wide variety of wildlife, some of them listed as species of conservation significance under national and/or state legislation^{1,5}. Katarapko is a priority floodplain for environmental flows in South Australia and is currently the only Demonstration Reach for Native Fish in South Australia^{5,6}.

WETLAND MANAGEMENT

Current Management:

The Department for Environment and Water's (DEW) National Parks and Wildlife Service SA is responsible for the management of the Katarapko section of the Murray River National Park. The Park is a popular destination for recreational tourism, including kayaking, fishing, camping and birding. The Katarapko Island Horseshoe Lagoons are controlled through structures located at the inlet and outlet flow paths of the Horseshoe Lagoons. Environmental water is delivered by the Murraylands and Riverland Landscape Board via pumping using a barge on the River Murray. Current management aims to control wetting and drying regimes as well as extend inundation duration during unregulated flows.

Infrastructure:

Katarapko Island Horseshoe Lagoons Bank 6 Water Inlet Regulator Sluice Gate: This structure consists of five bay 1.2 m high, manually operated timber sluice gate structures that enable water to be held in the Katarapko Island Horseshoe Lagoons to extend the inundation time or manage the recession of a natural flood event at the wetland. When the inlet regulator is not in operation, the structure is fully open to allow movement of water into the Katarapko Island Horseshoe Lagoons during high flows. The northern inlet, Bank 6 upstream flow path structure connects to the main river channel when flows exceed 40,000 megalitres per day (ML/day) and river level is 12.0 mAHD¹.

Yabby Creek Outlet Regulator: This structure consists of four rows of 1200 mm x 1200 mm x 488 mm long concrete box culverts with aluminium stop logs and enables water to be held in the Katarapko Island Horseshoe Lagoons to extend the inundation time or manage the recession of a natural flood event at the wetland if desired. When the outlet regulator is not in operation, the structure will be fully open to allow movement of water into the Katarapko Island horseshoe lagoons during high flows. The southern outlet, Yabby Creek, becomes connected to the river channel at the elevation level of 10.02 mAHD and when flows exceed 15,000 ML/day¹.

As noted above, an embankment surrounds the former footprint of the saline irrigation basin constructed in 1964.

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 Katarapko Island South, these included:

Environmental

- Due to the isolated nature of the island, there is a risk associated with allowing easier access from the mainland to the island.
- There is a low to medium risk associated with acid sulfate soils at this site⁷. This would require further assessment before any construction works or wetting and drying activities are undertaken.
- Construction works need to be mindful of the impact on existing vegetation within Katarapko Island.
- Construction and operations need to be mindful of the presence of salt in groundwater and accumulation of salt from evaporation of surface water.
- Need to consider current natural flooding and whether the proposed banks on north end would impede flows.
- Investigate whether existing embankments are in the right spot for the desired outcomes.

Cultural

- High density of cultural material in the area. Construction works need to be mindful not to disturb areas of cultural importance.

Community/Social

- Site has strong community and historical value; further construction may be unpopular.
- National parks management requirements are important for this option; need to consider requirements for closing the park during construction including communications.

Economic

- Potential opportunity for tourism (kayaking/ canoeing); construction needs to be mindful of these recreational activities.

Operational/logistics

- Construction works need to be mindful on the impact on existing vegetation and cultural heritage within Katarapko Island.
- Consider utilising/ improving CIT network to pump water to the North Island as well.

KEY STAKEHOLDER INVOLVEMENT

- Berri Barmera Council
- Berri Barmera Landcare
- Central Irrigation Trust (CIT)
- Commonwealth Environmental Water Office (CEWO)
- Friends of the Riverland Parks
- Katarapko Advisory Panel (KAP)
- Murraylands and Riverland Landscape Board
- National Parks and Wildlife Service SA
- Regent Parrot Recovery Team
- River Murray and Mallee Aboriginal Corporation (RMMAC)
- SA Water

REFERENCES

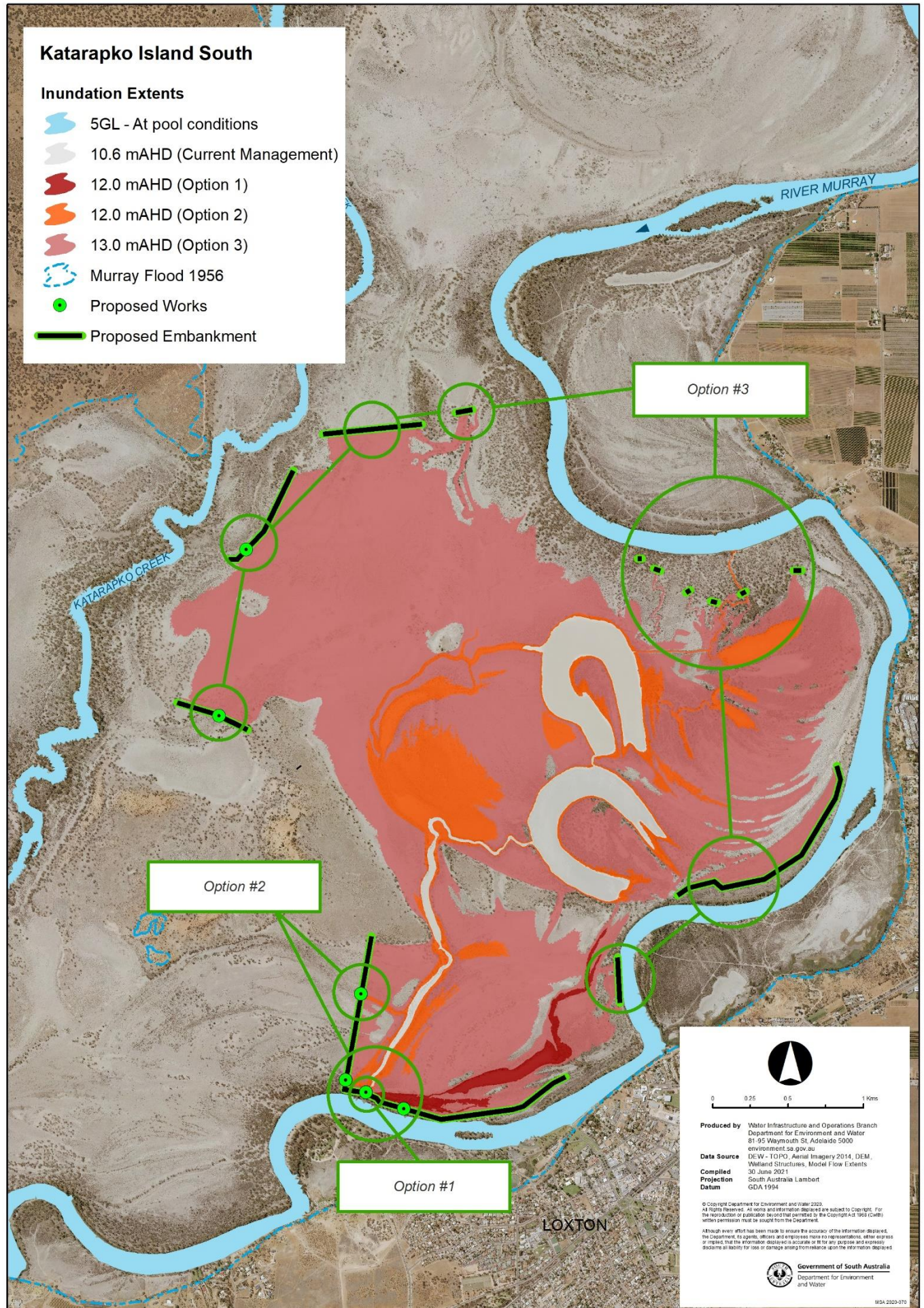
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Katarapko Island South

Inundation Extents

-  5GL - At pool conditions
-  10.6 mAHD (Current Management)
-  12.0 mAHD (Option 1)
-  12.0 mAHD (Option 2)
-  13.0 mAHD (Option 3)
-  Murray Flood 1956
-  Proposed Works
-  Proposed Embankment



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

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Datum GDA 1994

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