



Site options profile #L14

Overland Corner - Draft

Lock 3 Master Plan



Location: River Chainage Markers 431 to 423 km (below Lock 3)

Land Tenure: First Peoples of the River Murray, Crown Land, National Trust of SA

Wetland Size: 450 hectares (Ha)

Normal Pool Level: 6.2 mAHd (downstream of Lock 3) and 7.0 mAHd (upstream inlet)

PROPOSED OPTIONS	
Option #1:	Improve floodplain condition by supporting opportunities for environmental watering and increasing the extent and duration of floodplain watering associated with managed and natural high-flow events, by enabling the retention of water through the replacement of the leaking downstream structure and upstream (inlet) levee with regulating structure and complementary blocking banks to 8.5 mAHd.
Description	Proposed works include an upgrade to the existing regulator to address water retention issues. Currently, the downstream (DS) regulator leaks, reducing the effectiveness of e-watering pumping events. This leaking DS structure and US (inlet) levee will be replaced with new regulating structures to 8.5 mAHd and complementary blocking banks will be installed at the managed inner lignum basin. This will enhance pumping outcomes by extending the current wetland management area and promote dual-management of inner lignum basins and the outer wetland.
Outcomes	• Benefits associated with an improved watering regime. • Conservation and improvement of floodplain vegetation. • Improved soil moisture conditions. • Enhanced capacity for greater exchange between the river and wetlands.

Option #2:	Support watering activities and outcomes proposed in 'Option 1' and those associated with the Regent Parrot Recovery Project by extending proposed infrastructure required to support 'Option 1' to 9 mAHd and constructing additional blocking bank at downstream basin.
Description	Overland Corner falls within the 'Katarapko Regent Parrot Floodplain Habitat Zone', identified as part of the Regent Parrot Recovery Project. The strategic watering of this site to support the conservation and improvement of vegetation important to regent parrots, is seen as a key part of realising the conservation of the current population. Proposed works include extending proposed infrastructure required to support Option #1 to 9 mAHd and constructing an additional blocking bank at DS basin. This would improve the ability to provide water to key areas of regent parrot habitat as well as providing opportunities to extend the duration and increase the extent of floodplain watering through pumping and high-flow retention. The existing access road would also be built up to enable access during watering events for important tourist activities.
Outcomes	• Conservation and improvement of vegetation important to regent parrots. • Support the conservation of the current regent parrot population.

Option #3:	Investigate options to install infrastructure that will deliver environmental water from above Lock 3.
Description	Proposed works would investigate alternate water transport options in order to save money on pumping costs. Pumping alternatives could include utilising the head difference that exists between weir pools 2 and 3 and connecting the wetland from upstream of Lock 3, via a gravity pipe into the upstream section of the wetland.
Outcomes	• Benefits associated with an improved watering regime. • Conservation and improvement of floodplain vegetation. • Improved soil moisture. • Enhanced capacity for greater exchange between the river and wetlands. • Reduced pumping and associated costs.

SITE BACKGROUND

Description

The Overland Corner wetland complex is located immediately downstream of Lock 3 on the east side of the River Murray. The wetland complex is bounded by Old Coach Road to the north, the River Murray to the south and west, and a combination of private land and Crown land dedicated to the National Trust of SA for reserve purposes to the east. The wetland complex is comprised of several temporary wetlands, which are not connected at pool level at normal flow conditions.

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

Prior to the regulation of flows in the River Murray and the construction of locks and weirs, Overland Corner would have had a more variable water regime. The stabilisation of water levels has led to reduced frequency and duration of inundation within the surrounding floodplains.

WETLAND ECOLOGY

Overland Corner wetland complex complements other wetlands nearby, providing a network of temporary and permanent aquatic habitat and was therefore given a moderate to high ecological value^{1,2}. Overland corner consists of a number of temporary wetlands which get inundated during River Murray flood events³.

Flora: The dominant wetland vegetation types on the floodplain include river red gum (*Eucalyptus camaldulensis*) and black box (*Eucalyptus largiflorens*) woodland, lignum and samphire shrubland, and sedgeland, see references for further details of species composition at site^{3,4}.

Fauna: Seven frog species have been recorded at Overland Corner among them the vulnerable southern bell frog (*Litoria raniformis*). The diversity of frog species at Overland Corner is considered to be high compared to other wetlands in the Riverland^{3,4}. The wetland also supports important habitat for wetland birds, migratory bird species and the vulnerable regent parrot (*Polytelis anthopeplus monarchoides*).

WETLAND MANAGEMENT

Current Management:

Wetland management is undertaken by the Murraylands and Riverland Landscape Board in conjunction with the National Trust of SA, SA Water, Commonwealth Environmental Water Office (CEWO), and local landholders. During e-water pumping events, several sandbags need to be placed on the leaking main regulator. Approximately, 500 megalitres (ML) of water are pumped to Overland Corner during each event. Several ecological surveys are also regularly completed at the wetland complex, which includes surveys of the threatened Southern bell frog.

Infrastructure:

A downstream regulating structure (5 box culverts) was installed in 2003, which helps retain water during e-water pumping events. This is the main regulator at Overland Corner. A pump is located on the upstream side of the wetland and is connected to the designated pumping channel. A local landholder is the current owner of the existing pumping infrastructure. The maximum pump capacity is 20 megalitres per day (ML/day). In addition, two pipe culverts under vehicle access tracks are located on the eastern side of the wetland but are not used to regulate water levels. Non-permanent infrastructure also occurs across the upstream inlet and adjacent to the River Murray. The bank previously held water during pumping projects but is now a barrier to natural flows.

Cultural Heritage: Construction works need to be mindful not to disturb areas of cultural importance.

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 Overland Corner, these included:

Environmental

- There is a low to medium risk associated with acid sulfate soils at this site⁵. This would require further assessment before any construction works or wetting and drying activities are undertaken.
- Good opportunities to improve floodplain vegetation.
- Note that the site is currently a fish free environment with healthy bird/amphibian and submerged plant communities and lots of community engagement; the current pumping approach keeps the site fish-free.
- Would need to manage option 3 for risk of allowing carp to enter the site.
- Return flows may be inhibited by blocking banks.

Cultural

- Construction works need to be mindful not to disturb areas of cultural importance.

Community/Social

- MDBA needs to be engaged early if changing Joint Venture structures.
- The connection between the Overland Hotel and houseboats that tie up on the river is very important socially.
- Note this is a National Trust of SA and Biosphere site with high levels of community connection.

Operational/logistics

- Need to build access tracks to 8.5-9 mAHD.
- Construction may encounter issues with physical constraints of site. Nowhere for lay-down areas etc.
- Potential investigations could look at feasibility and effectiveness of retrofitting fish screens at 'Liggy Flat'.
- Note that Option 3 offers reduced O&M costs by allow passive filling and not needing to pump (but risk of introducing carp).

KEY STAKEHOLDER INVOLVEMENT

- Berri Barmera Council
- Berri Barmera Landcare
- Central Irrigation Trust (CIT)
- Commonwealth Environmental Water Office (CEWO)
- Murraylands and Riverland Landscape Board
- National Parks and Wildlife Service SA
- National Trust of SA
- Private Landholders
- River Murray and Mallee Aboriginal Corporation (RMMAC)
- Regent Parrot Recovery Team
- SA Water
- Murray-Darling Basin Authority (MDBA)

REFERENCES

1. Jensen A, South Australia, Department of Environment and Natural Resources, South Australian River Murray Wetlands Management Committee. Wetlands atlas of the South Australian Murray Valley: a summary of current knowledge of Murray Valley wetlands as a basis for integrated catchment management. Adelaide: Dept. of Environment and Natural Resources; 1996.
2. Thompson MB. River Murray Wetlands - Their Characteristics, Significance and Management. Adelaide: University of Adelaide for the Department of Environment and Planning and the Nature Conservation Society of South Australia; 1986.
3. Robertson H. Overland Corner Wetland Mangement Plan- February 2007. Prepared for the Overland Corner Wetland Group, National Trust of South Australia and the Berri Barmera Local Action Planning Committee; 2006.
4. SKM. River Murray Wetlands Baseline Survey – 2005. South Australian Murray Darling Basin Natural Resources Management Board.; 2006.

5. Grealish G, Shand P, Grocke S, Baker A, Fitzpatrick R, Hicks W. Assessment of Acid Sulfate Soil Materials in the Lock 1 to Lock 5 Region of the Murray-Darling Basin. CSIRO: Water for a Healthy Country National Research Flagship.; 2010.



Pictures: Top left, Overland Corner downstream; Top right, wetland side of downstream structure; Bottom left, river side of the downstream structure; Bottom right, Southern bell frog

