

Hindmarsh Island Wetland Complex Pre-Feasibility Fact Sheet

The proposal for Hindmarsh Island seeks funding to undertake feasibility investigations for Reconnecting Wetlands on Hindmarsh Island. The proposal aims to improve connectivity by removing barriers to flow at a number of sites to allow water to flow westward through the Hindmarsh Island wetland complex. Since the introduction of agriculture to the island, wetland channels have become blocked due to the construction of roads and earthen mounds. The proposed scope of work includes replacing culverts, installing new culverts and undertaking other on-ground works to remove blockages to flow.

The feasibility stage of this project would incorporate a detailed assessment of on-ground works requirements to improve connectivity throughout the wetlands, as well as opportunities for creating estuarine conditions.



Figure 1: Hindmarsh Island Wetland Location

Improving connectivity at this significant wetland complex would restore samphire ecosystems and other vegetation communities that provide critical habitat for birds, fish and other species, including a number of threatened species. There are also opportunities to create estuarine conditions for fish passage at Goolwa Channel. This proposal would contribute to achieving the long term vision for Hindmarsh Island, developed by the Hindmarsh Island Landcare Group, which has coordinated the planting of over 300,000 plants in the last 12 years.

The Hindmarsh Island wetlands are large temporary wetlands forming part of the Lake Alexandrina fringing wetland complex. The wetland complex includes wetland basins, a number of interconnecting channels and creeks and an estuary which extends throughout the eastern half of the island. The wetlands have a direct connection to Lakes Alexandrina and Albert and therefore water levels reflect lake depths.

The area comprises sand dunes covered by sand flats, which are covered by black clay and sand.

ECOLOGICAL SIGNIFICANCE AND CONDITION

Hindmarsh Island was rated the highest priority for on-ground works in an assessment undertaken of 15 Lower Lakes, Coorong and Murray Mouth (LLCMM) sites by the University of Adelaide in 2008. The ranking was based on predicted improvements in ecological condition for 12 ecological values. The primary reason for the high score of Hindmarsh Island was the diversity of habitats that would be enhanced by proposed on-ground works across a relatively large spatial scale.

Vegetation

The Hindmarsh Island wetland and channel complex consists of a series of channels that support a diverse range of aquatic habitats, including 13 different vegetation communities, the highest for all sites assessed as part of LLCMM Icon Site report. The wetlands feature a range of sedgeland and reedbeds, submerged *Ruppia magacarpa* beds and significant stands of mature *Melaleuca halaturorum* woodland (ibid).



Birds

Hindmarsh Island supports a highly diverse waterbird community, with 37 species having been observed, including the threatened species Latham's Snipe (*Gallinago hardwickii*), Lewin's Rail (*Lewinia pectoralis*), Cape Barren Goose (*Cereopsis novaehollandiae*), Australasian Shoveler (*Anas rhynchotis*) and Baillon's Crake (*Porzana pusilla*). The Golden-headed Cisticola (*Cisticola exilis*), another rare and protected bird, has also been observed at the wetland complex as has the critically endangered Orange Bellied Parrot (*Neophema chrysogaster*). Sixteen species listed as migratory birds under the EPBC Act 1999 have been observed.

Fish

Hindmarsh Island also supported the highest diversity of native fish in The Living Murray LLCMM Icon Site Environmental Water Management Plan review. The Island is home to 18 species of native freshwater, diadromous and estuarine fish, two of which are nationally threatened (Murray Hardyhead (*Craterocephalus fluviatilis*) and Yarra Pygmy Perch (*Nannoperca obscura*)) and listed under the EPBC Act 1999, while a third species (Southern Pygmy Perch (*Nannoperca australis*)) is protected under the South Australian Fisheries Management Act 2007.

Frogs

The wetland supports six frog species, including the critically endangered Southern Bell Frog (*Litoria raniformis*).

CULTURAL AND SOCIAL VALUES

Hindmarsh Island has strong cultural, spiritual, social and economic significance to the Ngarrindjeri people, who call it Kumarangk.

The Ngarrindjeri support the restoration and protection of Kumarangk and its wetlands and waterways and have indicated their desire to be involved in the restoration and ongoing management of the area.

Hindmarsh Island is home to approximately 1200 people and attracts a number of visitors who visit the Murray Mouth, enjoy recreational fishing, boating, camping and bird watching. Hindmarsh Island is part of The Living Murray LLCMM Icon Site and the Coorong and Lakes Alexandrina and Albert Ramsar site, and is subject to international migratory bird agreements.

LAND OWNERSHIP AND SITE GOVERNANCE

There are a number of properties within the geographic scope of proposed environmental works, mostly private landholdings. To date, most private landholders within the proposed geographic project scope have been actively

involved in the Hindmarsh Island Landcare group revegetation projects.

MANAGEMENT HISTORY

The wetlands have been extensively modified since European settlement with large scale clearing and long term grazing. Most have not been connected to each other since the 1956 River Murray floods.

The wetlands of surrounding catchments have been drained and/or converted to different land uses leaving little connectivity of wetlands in the landscape. The remaining wetlands are now extremely important in the area in providing refuge habitat.

In the last 12 years the Hindmarsh Island Landcare Group, in partnership with local landowners, has undertaken extensive revegetation of more than 80 species along the remnant watercourses. To date, over 300,000 plants have been planted. The long term vision of the revegetation efforts has been the reconnection of sites across the landscape.

Over recent years a number of on-ground works have been implemented at Hindmarsh Island including:

- sediment removal to improve connectivity at northern entrance of Boggy Creek;
- upgrade of culverts – culverts have been upgraded to improve water flow from the southern end of Boggy Creek to Shadows Lagoon and through Hunters Creek at the Denver Road Bridge; and
- fish way installation – a purpose build fish-friendly regulator was installed at Hunters Creek near the entrance to the Coorong in 2009 to allow for fish passage between estuarine and freshwater environments.

Most on-ground infrastructure work to date has been undertaken on public land (Wyndgate property on the eastern side of the Island, purchased jointly by the Commonwealth and State governments in 2001). This proposed project is significant as it would be the first major infrastructure work undertaken on private land to allow for comprehensive management of the wetland as a single integrated system.

THE PROJECT PROPOSAL

Description

The proposal involves removing barriers to flow at a number of sites to allow water to flow westward through the Hindmarsh Island wetland complex. Since the introduction of agriculture to the Island, wetland channels have become blocked due to the construction of roads and earthen mounds. The proposed scope of work includes replacing culverts where appropriate; installing new



culverts where required; and undertaking other on-ground works to remove blockages to flow.

The feasibility stage of this project would involve reviewing requirements at these sites and identifying potential additional sites with blockages.

In addition, the project proposal seeks to provide for estuarine conditions at several locations including the mouth of Hunters Creek and Goolwa Channel edge.

Outcomes and Benefits

The reconnection of disconnected creeks and channels by upgrading and installing culverts has been identified as a priority project in the Hindmarsh Island Wetland Management Plan and would add value to the significant investments made within the wetlands in recent years.

Potential outcomes include:

- unimpeded water flow throughout the wetlands of Hindmarsh Island to improve variety and quality of vegetation, including aquatic samphire, riparian vegetation and trees;
- re-established connectivity through the wetland complex and between the Lower Lakes and Coorong via Hindmarsh Island;
- estuarine conditions in Hunters Creek / Goolwa Channel outlet; and
- demonstration of a holistic approach to wetland restoration, with strong community government partnerships.

Potential benefits include improved:

- wader habitat;
- habitat for fish breeding;
- riparian health;
- fish passage; and
- amenity values for locals and tourists, for recreational activities and ecological tourism.

In September 2012, a panel of Department of Environment, Water and Natural Resources (DEWNR) technical experts identified the potential for this proposal to achieve the outcomes identified above as 'high'. The LLCMM Scientific Advisory Group considers there is merit in exploring opportunities for estuarine fish passage from Hunters Creek.

There is also potential for this proposal to create a freshwater lens, minimising salinity incursions from groundwater. In addition, the project also has potential to improve soil health through facilitating fresh and groundwater connectivity.

FEASIBILITY OVERVIEW

The feasibility stage of this project would incorporate a detailed assessment of on-ground works requirements to

improve connectivity throughout the wetlands, as well as opportunities for creating estuarine conditions.

Objectives of Feasibility Investigations

The objectives of the feasibility investigations and activities would be to:

- Identify possible/optimal flow paths through the wetland
- Determine key locations requiring environmental works, the scope of work required at each site (including road works/closures) and estimated costs.
- Undertake assessment of ecological and other risks
- Ensure key stakeholder ownership of project. In particular:
 - support from landholders to undertake work on their property
 - negotiations with DPTI relating to road works required
 - Ngarrindjeri support and ownership of project
- Determine ongoing operation and maintenance requirements, responsibilities and costs
- Identify approvals required to implement project.

Project Management

The project would be managed by DEWNR.

ACKNOWLEDGEMENTS

The contribution of the South Australian River Murray Regional Community, including the many individuals and various local groups and organisations for their generous involvement and enthusiasm is greatly acknowledged. This partnership approach enabled the community ideas to be captured and prioritised by utilising and sharing local knowledge in the development of proposals.

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For more information

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