

Managing Salinity on Riverland Floodplains

The South Australian Riverland Floodplains Integrated Infrastructure Program (SARFIIP) is improving the health of the River Murray and its wetlands and floodplains, one project is tackling salinity.

Salinity Management Measures Project

Between 2015 and 2020, the Salinity Management Measures (SMM) Project is being delivered by the Department of Environment, Water and Natural Resources as part of the South Australian Riverland Floodplains Integrated Infrastructure (SARFIIP) program.

SARFIIP is a joint Australian Government and South Australian Government initiative over seven years to improve the health of the River Murray and its wetlands and floodplains.

SARFIIP has four components:

Pike Floodplain Inundation Measures which will construct regulators, blocking banks and associated works

Katarapko Floodplain Inundation Measures which will construct regulators, blocking banks and associated works

Salinity Management Measures will investigate the construction of salt interception and groundwater management works and measures to enhance the benefits of inundation of the Pike and Katarapko floodplains and investigate the protection of the River Murray from salinity impacts of the projects.

Environmental Pathways Package which will integrate wetland and floodplain management between Lock 1 and the SA border.

Why has salinity increased?

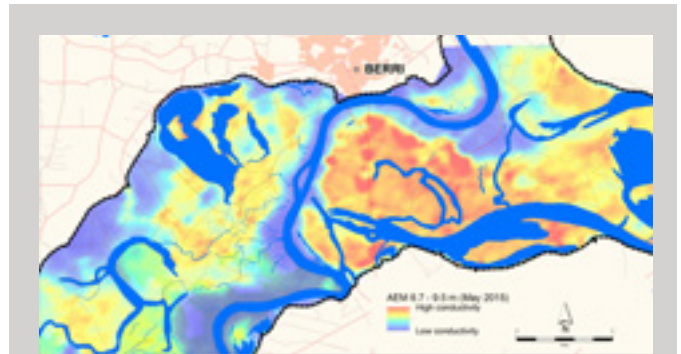
Regulation (controlling flow using locks and weirs) of the River Murray since the 1920s has caused naturally saline groundwater beneath the floodplains to rise. As a result, the root zone of vegetation is increasingly exposed to dangerously high salinity.

River regulation has reduced natural flushing of the system, as well as the frequency and duration of floods which previously leached salt away from the plant root zone.

Irrigation has also contributed by recycling saline water back into the system, raising groundwater levels and reducing naturally diluting flows.

Land clearing has also contributed to raising groundwater levels.

The combined effect is long-term salt accumulation in the floodplain soils, groundwater and surface water.



Groundwater Salinity Map Extract: Katarapko Floodplain

Yellow-red areas represent more saline groundwater. Blue represents lower salinity. Dark blue areas suggest low salinity river water interacting with floodplain groundwater, flushing these areas. It is these areas that are most likely to provide favourable conditions for healthy floodplain vegetation and fauna habitats.

The impact of high salinity

The aquatic ecosystems of the Murray-Darling Basin are vulnerable to excessive salinity. Salinity is known to cause:

- A decline in floodplain vegetation condition
- Reduction in key species such as river red gums
- General degradation of aquatic and floodplain habitats as salt accumulates in the sediment, surface water and groundwater





Vegetation die back due to salinity



Managed salinity aids floodplain health

Integrating Salinity Management

The integration of salinity management into broader floodplain management and operations can achieve a significant range of ecological, economic and social outcomes.

The Salinity Management Measures (SMM) project will complement the construction of regulators and blocking banks at Pike and Katarapko floodplains, which are being built to manage flooding (inundation) and water levels to improve and protect the region's wetlands and floodplains (approximately 20,000 ha).

The SMM project will maximise the opportunities introduced through these flow management projects by:

- Promoting a neutral impact from salinity caused by infrastructure to control the inundation of wetlands and floodplains
- Protecting existing low salinity groundwater zones
- Managing groundwater near inundation zones to maximise the area suitable for vegetation (in terms of salinity)
- Enhancing the benefits of inundation of the Pike and Katarapko floodplains and protect the River Murray from salinity impacts

The project will also contribute to developing opportunities for further, long-term, salinity management in SA.

Next steps

As the project continues through to 2020 it will move from planning, evaluation and concept design (2015) into detailed design and construction.

Ongoing activities include groundwater and surface water investigations to understand how management actions may impact real time and long term salinity targets in the River Murray and how groundwater management will benefit ecological recovery.

Surveys and monitoring have been undertaken on-ground, in-stream and even by air. In 2015 an airborne electromagnetic (AEM) survey over the Katarapko Floodplain was conducted by a low-flying helicopter towing magnetic measuring equipment.

The results provided a useful insight into groundwater processes, including the movement or displacement of salt water into the floodplain and river.

This research, together with other survey and monitoring will inform the most appropriate approaches to managing saline groundwater.

Construction will include the drilling of pump and monitoring bores, construction of pipelines and installation of pumps to move saline water to disposal basins.

Community Engagement

From the start, SARFIIP has been driven by community with more than 100 local project ideas initially raised by the community in consultation. The legacy and ongoing success of SARFIIP will remain dependent on community involvement and support.

Community engagement is focussed on ensuring people are consulted and informed in a coordinated way, towards local ownership of the program. We are working in the Riverland with stakeholders including those represented on the Pike Community Reference Committee and Katfish Reach Steering Group.

The Traditional Owners and recognised native title holders, the First Peoples of the River Murray and Mallee, are being engaged in SARFIIP to protect their unique cultural heritage.

Funding

SARFIIP is a \$155 million program funded by the Australian Government and implemented by the South Australian Government to improve the watering and management of River Murray floodplains in South Australia's Riverland.

Further information

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