

Chowilla Floodplain Icon Site

Chowilla Regulator In-channel Rise Event – 2015

During spring and early summer in 2015, a low level operation of the Chowilla Regulator occurred (see map overleaf). These activities were undertaken to further test the regulator, optimise the management of fishways at both the regulator and inlet weirs, and provide valuable information on the benefits to the following ecological components:

- Long-lived riparian vegetation including River Red Gum (*Eucalyptus camaldulensis*), Black Box (*Eucalyptus largiflorens*) and River Cooba (*Acacia stenophylla*)
- Wetland and floodplain understorey species
- Water quality and the mobilisation of carbon and nutrients, including the capacity to provide a food source for fish, frogs and birds
- Extension of available habitat and the associated population dynamics for wetland species including small-bodied fish, riparian frogs and waterbirds.

Operation of the Chowilla Creek Regulator

Commencing in early October, stop logs were progressively placed in the Chowilla regulator to gradually raise water levels behind the structure and through the anabranch by up to 1.5 metres. Water levels were held up for approximately five weeks with some variation between 17.8 and 17.6 metres AHD during that time.

From mid-November, the stop logs in the regulator were gradually removed with the watering event concluding and water levels returning to normal pool level in mid-December.

The watering event provided freshening along the anabranch channels and connected some of the lower lying floodrunners providing benefits to near bank trees and understorey vegetation.



Raised water levels in Punkah Creek during operation



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Operation of Pipeclay and Slaney Creek weirs

The inlet weirs on Pipeclay and Slaney Creeks were managed to vary inflows during the Chowilla regulator testing and through the summer – autumn period. This is an important component of flow management through the Chowilla anabranch and is necessary to ensure targets to manage water quality and protect important fish habitat were met. Fishways at these weirs were observed and adjusted throughout the event.

Work is continuing to refine the management of flows through the upgraded Pipeclay and Slaney weirs in conjunction with achieving optimal operation of the new fishways.



Pipeclay weir in operation during the event

Monitoring

A range of monitoring was conducted throughout the event including:

- Surface water monitoring - the network provided extensive data on water levels, flows, salinity, dissolved oxygen and temperature. Importantly, water quality remained within acceptable levels throughout the event. The monitoring data collected for the surface water surveys can be accessed via the DEWNR Water Connect site at <https://www.waterconnect.sa.gov.au/Systems/RTWD/Pages/Default.aspx>
- Flow gauging - Department of Environment, Water and Natural Resources (DEWNR) staff undertook flow gauging to validate the calculation of flows over the structures.
- Soils and groundwater – groundwater levels and salinity and soil condition monitoring was undertaken at a number of sites.
- Murray cod – the movement of Murray cod (*Maccullochella peelii*) was tracked via the network of radio receivers and targeted monitoring by the South Australian Research and Development Institute. A PIT tag reader has been installed at the Chowilla regulator vertical slot fishway and detects movement of those fish that have been tagged through the fishway.
- Vegetation monitoring - consisting of the annual tree condition monitoring (undertaken in early October) across the icon site, as well as annual understorey vegetation and Lignum (*Duma florulenta*) monitoring (conducted in late summer and autumn respectively).
- Birds - waterbird and bushbird species were recorded during spring surveys.

Results from monitoring will become available as analysis of data is completed.



Pumping to wetlands

During spring-summer, 229 megalitres of environmental water from The Living Murray program was also pumped to three wetland sites (Brandy Bottle, Punkah Creek Floodrunner and Punkah Creek Depression). These sites did not receive water during the 2014 regulator testing and were targeted due to declining tree condition. Tree health, waterbird, frog and water quality monitoring occurred at these sites in conjunction with the environmental watering. Floodplain and wetland plant response was also noted at each site.

The environmental watering led to the increased presence of floodplain and wetland plants including Lignum (*Duma florulenta*), Spiny Mud-grass (*Pseudoraphis spinescens*) and Spiny Sedge (*Cyperus gymnocaulos*). These plants provide excellent habitat for the five species of frogs also recorded at the sites.

The Southern Bell Frog (*Litoria raniformis*), Peron's Tree Frog (*Litoria peroni*), Long-thumbed Frog (*Limnodynastes fletcheri*), Eastern Sign-bearing Froglet (*Crinia parinsignifera*) and Spotted Grass Frog (*Limnodynastes tasmaniensis*) were the five species recorded at those sites monitored. The Southern Bell Frog is listed as Vulnerable under the *Commonwealth* Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

Improvements in the condition of long-lived vegetation species such as River Red Gum, Black Box and River Cooba trees around the wetlands was also recorded.



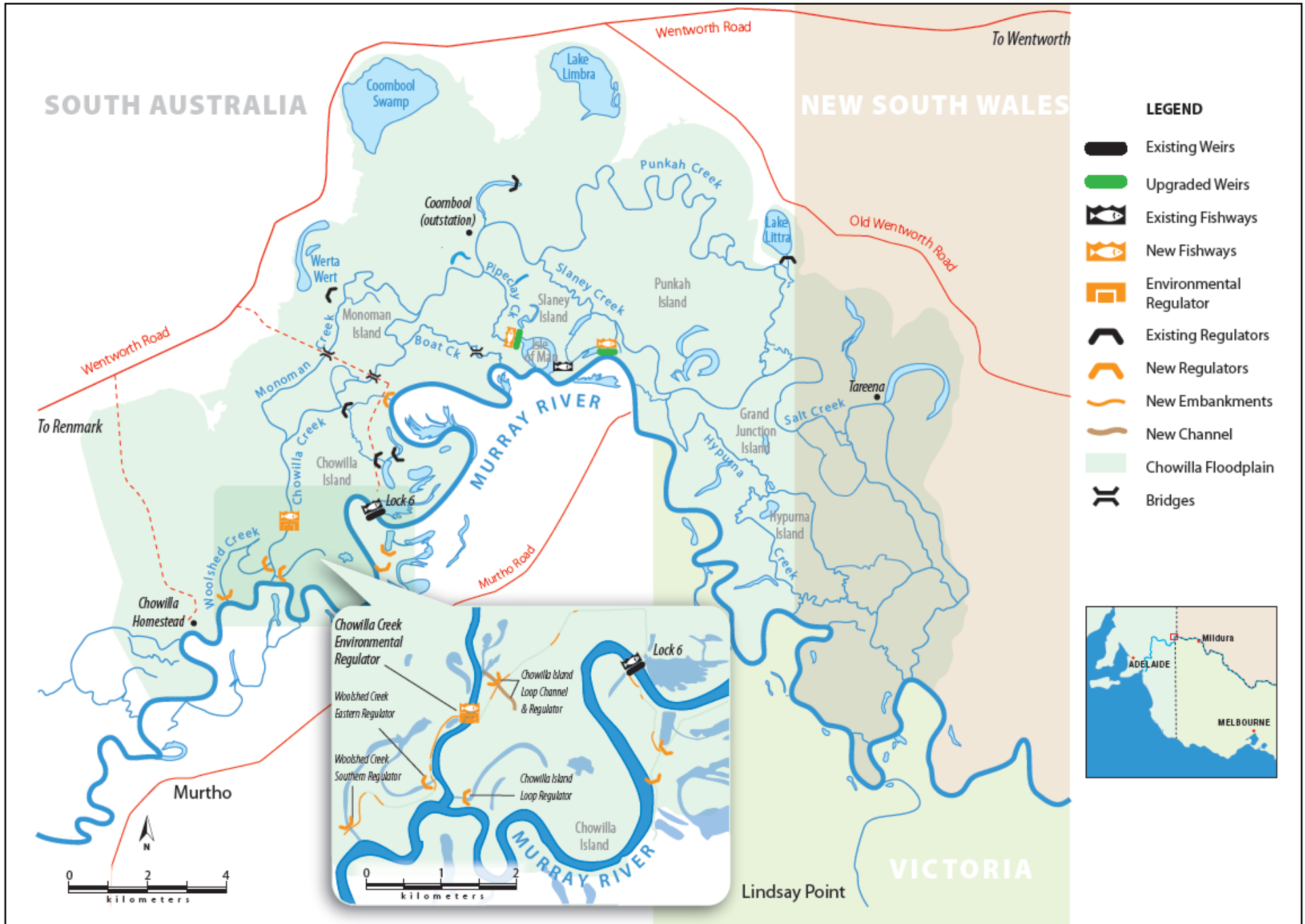
Punkah Creek Floodrunner with the establishment of Spiny Mud-grass in the water column



Southern Bell Frog recorded at environmental watering site



Map of Chowilla Floodplain showing location of infrastructure.





Regent Parrot (*Polytelis anthopeplus*) in seeding saltbush plant.

Image captured by Helga Kieskamp during the 2015 Chowilla winter bushbird survey

FOR MORE INFORMATION

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Further information is also available at these websites:

Department of Environment Water and Natural Resources (SA)

<http://www.environment.sa.gov.au/chowilla-floodplain>

Chowilla Game Reserve

<http://www.environment.sa.gov.au/parks/>

Natural Resources South Australian Murray Darling Basin

<http://www.naturalresources.sa.gov.au/samurraydarlingbasin/home>

The Living Murray

<http://www.mdba.gov.au/>

Commonwealth Environmental Water Holder

<http://www.environment.gov.au/ewater/>

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