NSW SDL ADJUSTMENT PROJECTS | SUPPLY MEASURE

Murray and Murrumbidgee Valley National Parks SDL Adjustment Supply Measure – Millewa Forest

February 2017

The Basin Plan sets a sustainable diversion limit (SDL) for each catchment and aquifer in the Basin, as well as an overall limit for the Basin as a whole. In order to meet the new limits, 2750 GL of water needs to be recovered Basin-wide. NSW's share of this "SDL gap" is 1310 GL, with approximately 965 GL[1] of water recovered to date. For the remaining 345 GL of recovery, NSW is pursuing investment by the Commonwealth Government in a range of projects and programs, with infrastructure projects being prioritised over water buybacks.

This document provides an overview of Millewa component of the *Murray and Murrumbidgee Valley National Parks* supply measure project being proposed by NSW.

This is a joint proposal by NSW and Victorian agencies. The major feature of the hydrology of the site is the capacity constraint of the River Murray at 10,600 ML/day downstream Yarrawonga Weir, the Edward River at 1,600 ML/day below the Edward River offtake regulator and the Gulpa Creek at 350 ML/day below the Gulpa Creek offtake regulator. These capacity constraints mean that high irrigation delivery flows in spring and summer can cause unseasonal "over-watering" where they spill onto floodplain areas without alignment to river flows. The works proposed aim to improve environmental outcomes by addressing this overwatering.

Fast Facts

Location	Millewa forest is the NSW portion of the Barmah-Millewa Forest, and is located between the townships of Deniliquin to the north, Tocumwal to the east and Barmah to the south in southern NSW (Figure 1)
Type of project	Supply measure involving works and implementation of an improved environmental watering regime to enhance ecological outcomes within the project area
Status	Business case submitted in August 2015 and is being assessed by inter-jurisdictional SDL adjustment advisory committee (SDLAAC)
Estimated SDL adjustment	Potentially 24 GL combined with Yanga National Park
Related SDL adjustment projects	Yanga National Park works

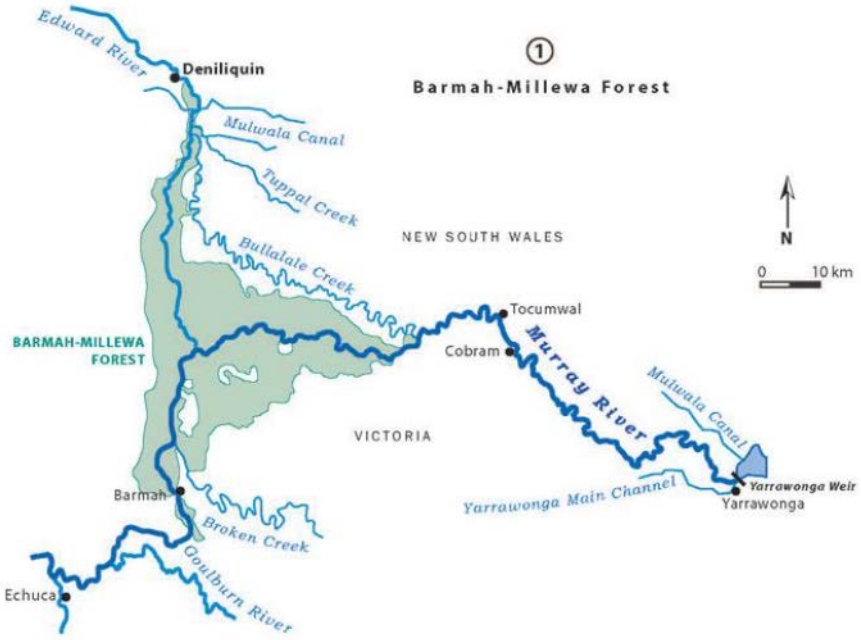
[1] Information sourced from MDBA website. Includes Commonwealth water recoveries contracted through the Sustainable Rural Water Use and Infrastructure Program (SRWUIP) Infrastructure projects, the South Australian River Murray Sustainability Program (SARMSP) and the Water Smart Australia Program. Estimates do not take into account potential changes as a result of the Northern Basin Review, and proposed changes to the long term diversion limit equivalent factors.

The project area

The Millewa Forest forms part of the renowned 66,000 hectare Barmah-Millewa Forest located in the south central NSW Riverina (Figure 1). Barmah-Millewa is the largest contiguous River red gum forest in Australia, a Ramsar wetland, a Living Murray icon site, and a vital component of the River Murray and Edward-Wakool River ecosystems.

The floodplain and wetland systems within Millewa are areas of national and international significance, providing habitat, breeding and nursery grounds for colonial water birds and migratory species listed under international agreements, populations of rare and endangered species of fish, small mammals and birds, and endangered and vulnerable plants.

Figure 1: Location of Barmah-Millewa Forest (Source: MDBA).



The proposal

The Millewa proposals have been assessed as delivering considerable practical hydrological and environmental benefits. In northern and central Millewa (Little Edward River and Gulpa Creek) and south Moira Lake/Moira Channel, adding sills and regulators are proposed to address unseasonal overwatering caused by high summer irrigation supply flows.

The proposed replacement of the Moira Lake Regulator will allow more active management of Moira Lake levels to respond to natural river flows, while preventing ingress of high summer irrigation flows. The enhanced ability to manage Moira Lake will contribute significantly to the ongoing restoration of Moira Lake and its unique Moira grassland. It will also benefit native fish recruitment for species such as Golden perch, Murray cod, and Trout cod, and waterbird breeding including the threatened Australasian bittern and the migratory White-bellied sea eagle.

The prevention of unseasonal overwatering along the Edward River, Gulpa Creek Cutting and the southern section of the Moira Lake will have localised benefits in restoring River red gum forest, and grasslands and sedgelands.

In eastern Millewa, the east-west flow of the Aratula Creek effluent system is disrupted by a south-north irrigation delivery channel (to the Bullatale Creek). The reintroduction of flows into the Aratula Creek system is likely to benefit small-bodied native fish (such as the threatened Southern pygmy perch) and enhance the condition of the River red gum forest that provides

essential habitat for the threatened Superb parrot and Squirrel glider. The proposal includes works to stabilise the intersection of the Aratula Creek and supply channel to minimise the impact of east to west flows, in the 10-15,000 ML/d range (as measured at the River Murray at Yarrawonga).

At Warwick Creek, a new regulator will allow managed environmental flows into the creek for benefit of small-bodied fish. Further, the ability to manage levels in the Douglas Swamp will enhance provision of drought refuge, native fish habitat and waterbird breeding habitat.

Ecological Outcomes

By providing an appropriate watering regime for environmental assets and values, enhanced ecological outcomes can be achieved for:

- River red gum and wetland communities, including the Moira grasslands,
- Native fish, including small-bodied wetland specialists and large bodied species,
- Colonial nesting waterbirds and migratory bird species,
- Threatened species, including the Australasian bittern, Southern pygmy perch, Murray cod and Trout cod, Superb parrot, and Squirrel glider.

Risks and Impacts

A rigorous risk assessment was completed as part of the Business Case development. The table below shows a summary of the risks which had an initial rating of high. Once the mitigation was applied the residual risk was low or moderate. Please refer to the business case for the full risk assessment.

Description of threat	Mitigation
Barriers to movement / dispersal of biota	Adopt fish passage measures for infrastructure where feasible. Adopt operational approaches to mitigate fish impacts (minimising head of water; regulator gates fully open or fully closed; open/close sequences on flood recession)
Cultural artefacts are damaged or lost due to construction activities	Cultural heritage approval processes and proactive engagement with Indigenous stakeholders. Minimise construction footprint at work sites. Desktop cultural heritage assessment accompanies this business case. Further site investigation will be undertaken as part of implementation.
Proposed flow regimes unattainable with proposed structures	Undertake additional survey and modelling to verify outcomes prior to final design and construction.
Designs deficient due to insufficient or incorrect data	Undertake additional survey at sites where this is critical.
Works do not meet design objectives	Undertake formal commissioning of projects upon completion. Undertake site verification during target flow events to assess performance.
Costs exceed approved funds due to errors or omissions or because of costly mitigation requirements	Communication plans and approvals processes will be put in place.

Consultation

Extensive consultation and engagement activities have been underway since the early stages of the project. Existing channels of communication have been established between key agencies, groups and individuals. Stakeholders will continue to be engaged as the proposal proceeds through the design and regulatory assessment phases.

Next steps for adjustment mechanism confirmation

Date	Details
30 June 2017	BOC notification of final approved SDL adjustment package
Late October 2017	MDBA public consultation on proposed SDL adjustment
15 December 2017	MDBA recommend SDL adjustment to Commonwealth Water Minister
February 2018	Amendments tabled in parliament
From March 2018	Commence detailed design, construction and commissioning under Commonwealth funding

More information

Background on the Basin Plan implementation and the SDL adjustment process can be obtained from:

www.mdba.gov.au

DPI Water is the lead agency for the implementation of the Basin Plan agreements within NSW. Reports on NSW SDL adjustment activities reports can be obtained from:

http://www.water.nsw.gov.au/Water-management/Water-recovery

Acknowledgements

NSW Office of Environment and Heritage is the proponent of this project. NSW DPI Water, and WaterNSW have all contributed to the development of the Business Case for this NSW SDL adjustment project.