A SUBMISSION ON THE FUTURE MANAGEMENT OF THE WAKOOL SYSTEM

Compiled by Wakool River Association in consultation with Kim Alvarez

Wakool River Association

27/04/2010

Extract:

The Wakool system is renowned as one of the major anabranches of the Murray River, with incredible biodiversity that is sustained within its complex set of rivers, creeks and wetlands. The system and adjoining forests are well recognised as having high ecological value that sustains a huge range of flora and fauna.

This proposal requests that serious consideration be given to the changing of operational procedures and provide a dedicated environmental allocation to better manage the water flow in the Wakool System.

It brings to light the importance of this the largest Murray River anabranch system to the health of the Murray system as a whole.

It proposes strategies for improvement and better management which would pave the way for future sustainable management strategies.

It is important that urgent consideration be given to this proposal and that these strategies along with proper scientific monitoring commence as soon as possible.

Table of Contents

1. Background:

The Murray River and its anabranches such as the Wakool River have been progressively regulated since the early 1900's. This has been a major factor in the economic and social development of the area, by providing a more secure water supply for stock and domestic purposes, irrigation, local towns, industries and more recently tourism and recreational activities. The politics in river regulation has also resulted in major changes to the flow regime and to the ecology of the river system.

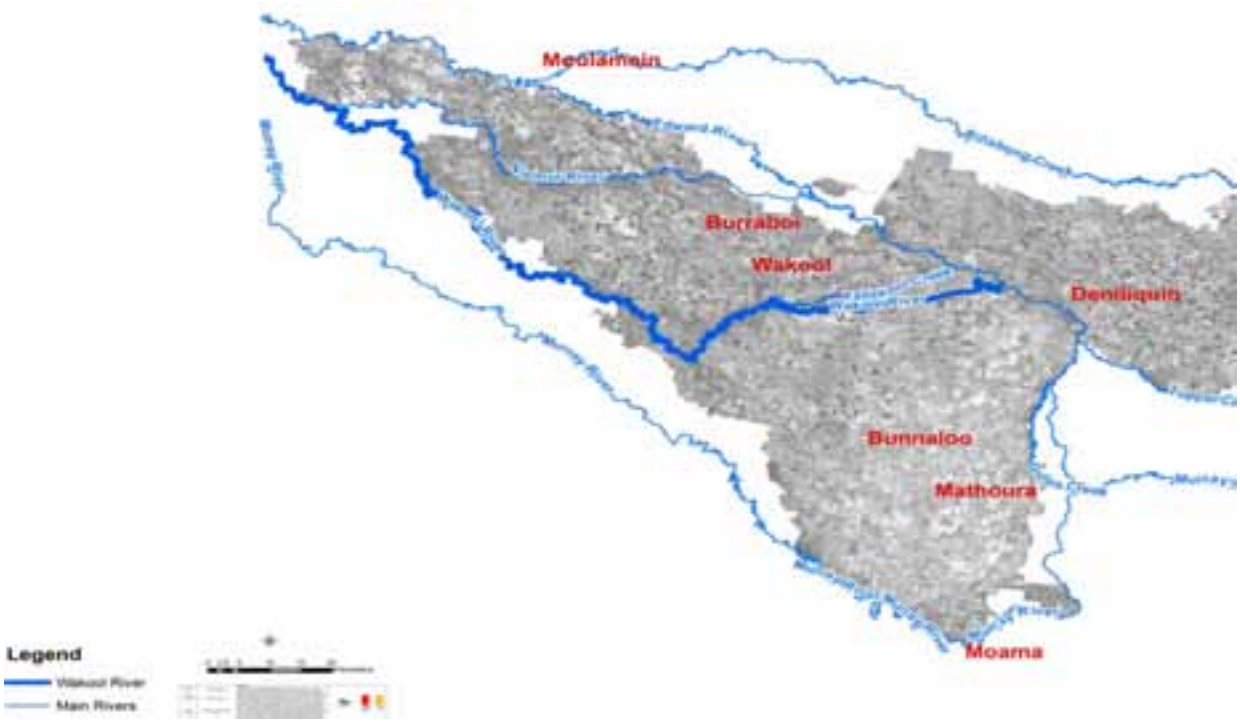

Figure 1: Primary River Orientation

The Wakool System is the major anabranch and floodplain of the Murray River (figure 2). At times it carries as much as double the flow of the mainstream Murray. In fact the original course of the Murray (prior to the lifting of the Cadell Fault) passed via the 'Greengully' drainage line flowing west from Mathoura to become the Wakool River itself. This system and the Lindsay River in Western Victoria are the only major anabranches of the Murray yet the Wakool system has received very little attention over the past thirty years. Even now in the midst of the worst drought in recorded history there is much talk of, and funds spent on, the artificial lower lakes in South Australia yet no talk of the possible better outcomes that might be achieved through proper planned management of these mid-river aquatic habitats.

The Wakool system lies between the Edward R. to the north and the Murray to the south. Among these are the Wakool R, Niemur R, Merran Ck, Colligan Ck, Yallakool Ck plus many

other small effluents. It includes a wide diversity of wetlands and riverine habitats that are of cultural, economic and environmental significance to the Murray region.

The system is a highly braided complex mix of rivers, creeks and wetlands made up of approximately 1100kms of watercourses (Fisheries report, 2009) that supply water to around 600 households (DWE) and businesses, and waters countless numbers of stock and native fauna. The Wakool River meanders its way through the middle of the system for some 300 kilometres.

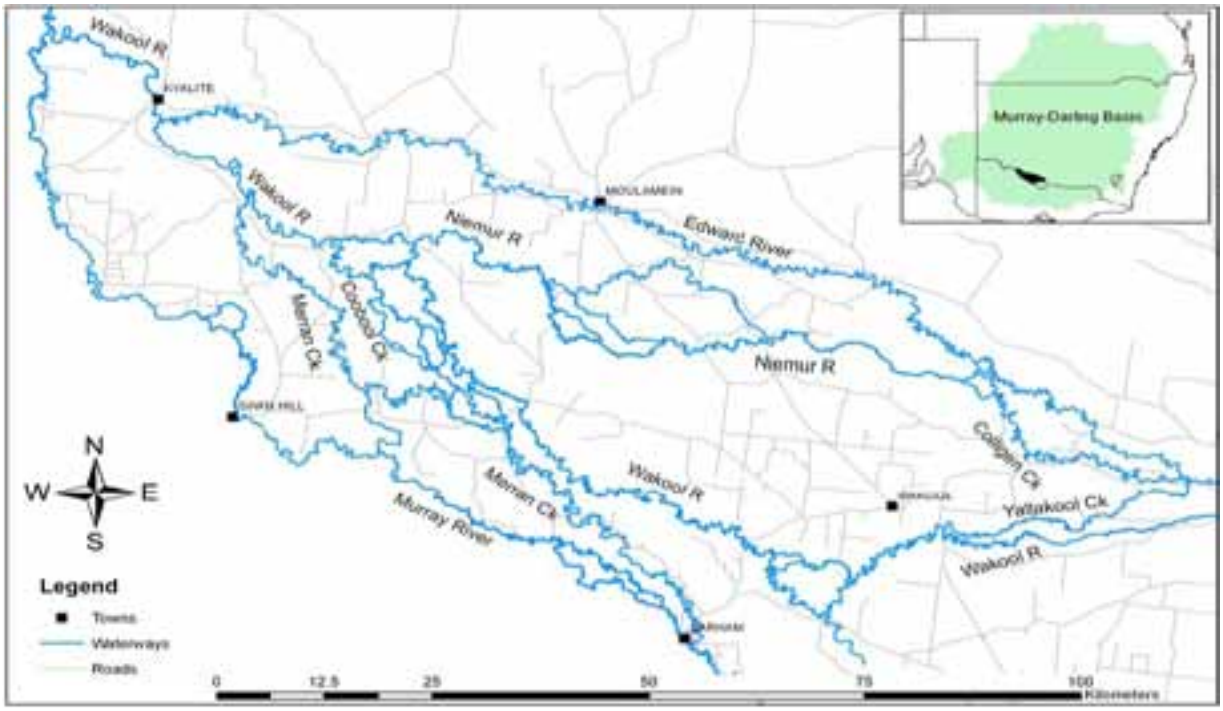

Figure 2: The Wakool River System

Parts of the system adjoin the Koondrook/Perricoota Forest, one of the Living Murray's Icon Sites. The River system and surrounding forests are recognised as having high ecological value and a vast array of biodiversity. Recent baseline fish studies have supported anecdotal evidence that this system is the best native fish breeding ground and recruitment area of the entire Murray Darling Basin. Two separate reports (NSW DPI Nov 2008, MIL MDFRC Oct 2007) have put native fish abundance at around 90% of the total. The Authority's *Damian Green* (River operator MBDA) has produced a detailed account of the Wakool/Edward River system and its environmental assets.

Humans have interfered with the natural movement of water for some considerable time. Examples include building of cuttings on the Tuppal, Bullatale, Coobool and Eagle creeks and Poon Boon lakes. The construction of Stevens Weir (1935), Hume dam (1935), Dartmouth Dam (1975) and the Snowy Mountains Scheme (1950-1975) gradually provided a more reliable supply of water to the region, but each change has reduced the dynamics and

variability of the flows.

The MDBC River model calculates that in comparison to ‘natural’ conditions, the current river management strategy reduces the occurrence of ‘freshes’ greater than 5,500 ML/day in the Edward River at Deniliquin from 87 to 38 years in 100.

Anecdotal evidence has suggested that the extent of aquatic vegetation in the rivers and wetlands of the Wakool System has dramatically reduced in the past 30 years.

Under natural conditions the Wakool would operate in harmony with the Murray. Being an anabranch system of the Murray it would rise and fall in concert, providing a valuable refuge and breeding ground for the aquatic flora and fauna. The Murray, being steeper would drain relatively rapidly leaving the deep pools of the Wakool as a safe haven for aquatic animals awaiting the next Murray fresh.

Picture 1: Wakool River – Deep hole November 2008

For efficiency reasons (and to some degree the health of the mainstream Murray) the flows in the Murray are managed in a way that minimises the unseasonal flows into effluent streams. This is a benefit to the Barmah-Millewa forests but has consequential loss in the diversity of flows that would have naturally occurred in the anabranches including the Wakool system.

Australian farmers also inhabit this part of the Murray where irrigation has allowed farms to become highly efficient primary producers. The Wakool landholders well recognise that water supplies will never be permanent and as such have developed farming practices that can deal with water shortage and capitalise on opportunistic availability of water. The predominance of restrictable licences ('General Security') and the opportunistic 'Supplementary' licences lay testament to this. The table below details the water entitlements held by farmers within the Wakool System.

Table 1: Wakool system water entitlements

Sub Region (Megalitres)	General Security	High Security	Stock & Domestic	Supplementary	Total
Wakool	32,862	275	748	4,046	37931
Niemur	12,098	299	199	1,298	13894
Merran	30,913	0	482	2,837	34332
Total	75,873	574	1,429	8,181	86157

Source: State Water

The system has 86,000 shares allocated, of which 1430 are Stock and Domestic and 574 are High Security. Over the last 3 years irrigators have had no access to this water, which has created enormous hardship.

2. Current situation:

Current Management Strategy:

At present Wakool landholders acknowledge they are in the midst of the worst drought on record and water is at a premium.

Unfortunately, the current management strategy of the Wakool system is to disconnect it from the main Murray/Edward system and use a stop-start policy to provide essential stock and domestic requirements only. In 2007 the MDBC contributed one parcel of environmental water (6000 Ml). This ad-hoc management has lead to things such as:

- Prolonged drying out of the river bed;
- Nil, or poor quality, Stock and Domestic water;
- Increased salinity levels;
- Stress on native flora and fauna;
- Most recently, huge native fish kills.
- After three years of drying out deep holes, acid sulphate soils are now being identified as another environmental disaster for parts of the system.
- Increased vegetative congestion by flood runners including the main channels.

Figure 3: Massive fish kills – Niemur R. Feb 2009

Towards the end of 2007 landholders accepted a restriction (Section 323 order) on their licenses which prevents the use of any pump over 50mm. This has been implemented to great beneficial effect for the system, with small Stock and Domestic and environmental water parcels previously delivered. This is a real signal of intent from the landholders and displays how concerned they are with the health of the river system. However, the stop/start nature of this strategy is inefficient and does not provide a continuing safe refuge habitat nor does it provide for an effective stock and domestic supply.

An environmental parcel of water (see strategy 1) to bridge the gap of Stock and Domestic water could be delivered in a responsible manner which can lead to positive outcomes.

Salinity is a problem that can be managed:

Salinity is now recognised nationwide as being the most significant environmental disaster to ever affect our landscape. Salinity is a naturally occurring problem which has been aggravated by human interaction. The Wakool R. is the original bed of the Murray and is actually considerably lower in cross section (9.6meters deeper) (Pels, 1968**)** than both the present Murray to the south and the Edward to the north, therefore when it is disconnected and is allowed to dry out, the deep holes in the lower section gradually intercept the induced groundwater, the majority of which is highly saline and in some cases leads to acid-sulphate problems. It is for this reason Wakool Landholders are keen to do all that can be to ensure long term viability of the river and the flora and fauna it supports.

Over the years there have been various flow rates on trial to minimise the downstream effect of salinity. It was proven that even a small constant flow, achieves the desired result. The effectiveness of wise salinity control was recognised by Government as far back as 1988 when the first Salinity and Drainage Strategy was developed for the main stream Murray.

Picture 2: Poor quality saline water at the Gee Gee Bridge October 2008

Many native fish species can adapt to high levels of salt providing the water continues to move. But the symbiotic relationship between the river and its surrounds under the current regime is continuing to be severely jeopardised. Under the stop/start regime the dense saline water settles to the bottom of deep holes. In these dark conditions, micro-organisms consume most of the oxygen, rendering the area unsuitable for many species such as the iconic Murray Cod and platypus.

Even with low level flows it has been proven that the already dense poor quality water will remain stratified from released fresh water whereby providing water suitable for Stock and Domestic purposes and not just relocate the problem.

3. Strategies for consideration:

Firstly, to **DEVELOP** a Management plan to manage the system both in the short/medium term and in the long term.

Secondly, to **RECOGNISE** the Wakool system as an integral part of the Murray Darling system and declare it to be one of the "Icon Sites".

(1) Short/Medium Term – within 4 years

To avoid a repeat of the recent (Feb 09) environmental and social disaster, the Authority needs to secure an environmental parcel of water for the Wakool system. This parcel needs to be managed in concert with all other water such as Stock & Domestic flushes and rain freshes (and any limited irrigation supplies) in a manner that avoids salinity stratification and habitat damage. This Plan and consequential flows must be ready before the spring of 2009.

Possible ways to achieve goals include but are not limited to:

- Commonwealth environment water holder (Federal Environmental Water) should assign some of its water entitlement to the task of caring for the Wakool system on the basis of it being an integral part of the Murray Mainstream which is already on the list of 'icon sites'.
- NSW environmental water e.g. Murray Wetland Working Group should raise the Wakool in its priority for access to its water entitlement.
- The Authority's 'Living Murray Initiative' should be expanded to include the Wakool.
- The Authority should use the Wakool and Niemur River as valid carrier streams. By so doing it will a) reduce the Barmah Choke problems; b) better utilize the existing Stock & Domestic flows, and; c) reduce the environmental degradation caused by unseasonal high flows in the Murray and Edward Rivers.
- If a continuous flow was made available to the system, NSW would save in excess of 20,000 ML per year. These savings would be as a result of not having to replenish the holes and the unnecessary recharging of surrounding areas and aquifers that dissect the river. For example; this year a small flow of just 15ML per day, sustained for 5-6 weeks down the Wakool R, managed to flow 80 kilometres with great environmental benefits and no fish kills at all. Compared to the pulsing of higher flows in the other streams where major fish kills took place.

(2) Long Term

Develop a long term management plan that fits in with MDBA's basin plan recognising the Wakool system as an integral part of the Murray system. Possible ways to achieve goals include:

- Recognise the Wakool system as a Living Murray icon or be recognised as a Key Environmental Asset on the basis of it:

1) Already being publicly recognised as the best native fish breeding and recruitment ground in the Murray Darling Basin. i.e. More than 90% of fish are native.

2) Consisting of 1100km of continuous real wetlands, and

3) Is a renowned habitat for native animals and a recognised bird breeding area, some of which are on the endangered species list.

Present Management

Future Management

4. Summary:

The Wakool system is located in the middle region of the Murray. It is regarded as the lungs of the Murray with the deep holes supporting vital natural ecosystems.

A broad range of benefits will flow to the Region, the Broader Communities and the entire Murray Darling Basin from a more effective management of the Wakool System. They include amongst other things:

- Avoid irreversible damage to the native flora and fauna and other aspects of the environment
- Ensure the long term survival of the native flora and fauna
- Reduce algae blooms
- Maintain drought refuges
- Prevent any further massive fish kills
- Reduce the levels of salt and acidification and the associated habitat damage
- Improved Water Quality for both the environment and consumers
- Enhance the high ecological and bio-diversity values
- Enhance the social economic and culture values of the area
- Enhancing habitats for threatened and vulnerable species
- Boost tourism and recreation in the region thereby reducing reliance on land activities
- Allow family's relying on the river system to better plan and manager their future
- Give young people of the area hope and reassurance that they can have a viable future