

The Murray Darling Basin Plan

The Lower Murray River and Coorong Lower Lakes Murray Mouth Dilemma – We need more than a freshwater solution that can't be delivered

Background to Plan

The Murray-Darling Basin Plan was developed to improve the health of rivers and floodplains by acquiring water for the environment, at an estimated cost of \$13 billion to the Australian taxpayer. The Basin Plan was signed into law in November 2012 under the Commonwealth Water Act 2007. It was agreed to return 2,750 gigalitres (GL) to the environment from consumptive use. Another 450 GL (sometimes called 'upwater') above 2,750 GL to enhance environmental outcomes can be recovered if projects pass a socio-economic neutrality test.

The Lower Murray

Geographically speaking the Lower Murray starts around Lock 11 near Mildura and travels approximately 800kms to the Murray Mouth. Before the Murray Mouth, the Coorong, and the Lower Lakes (Lake Alexandrina and Lake Albert) are considered to be major interconnected coastal water bodies between the Murray River and the Southern Ocean in South Australia.

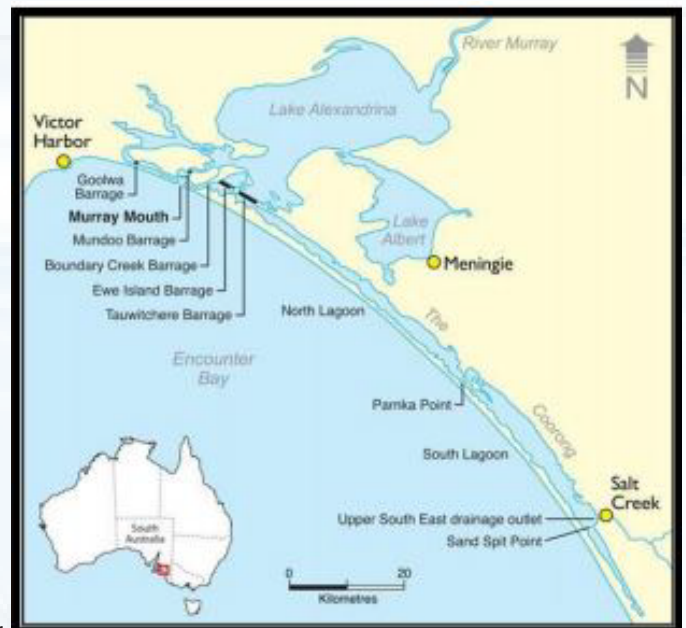
The river channel has undergone considerable development over the last 100 years with the installation of 11 lock systems turning a once highly variable flowing river system into a series of weir pools which experience very little height variation for most of the year. The series of locks were originally established for navigation for steamboats, but are now maintained to provide drinking, irrigation, and recreational opportunities. Although there are many social benefits of maintaining weir pools, the ecology of the system is highly degraded due to a flowing environment being turned into a pooled environment. The weir pool stillwater environment and the freshwater Lower Lakes provides the perfect conditions for carp, and it is estimated there are millions of carp in this section, which affect the entire Murray and Darling river systems

The Lower Lakes / Murray Mouth

As Adelaide's population increased in the early 1900's and flows from upstream decreased as irrigation in upstream reaches increased, SA was faced with needing to secure a more reliable freshwater supply. Construction of the barrages began in 1935 and were completed in 1940, preventing sea water from entering Lake Alexandrina to keep the Lower Lakes as a completely freshwater system. Prior to the construction of the barrages tidal influences periodically pushed seawater back up the Murray as far as 250km upstream during low flow periods. Blocking tidal influence into the Lower Lakes resulted in sediment build up outside of the barrages, and a complete loss of the estuary environment that existed before the barrages.

The Coorong

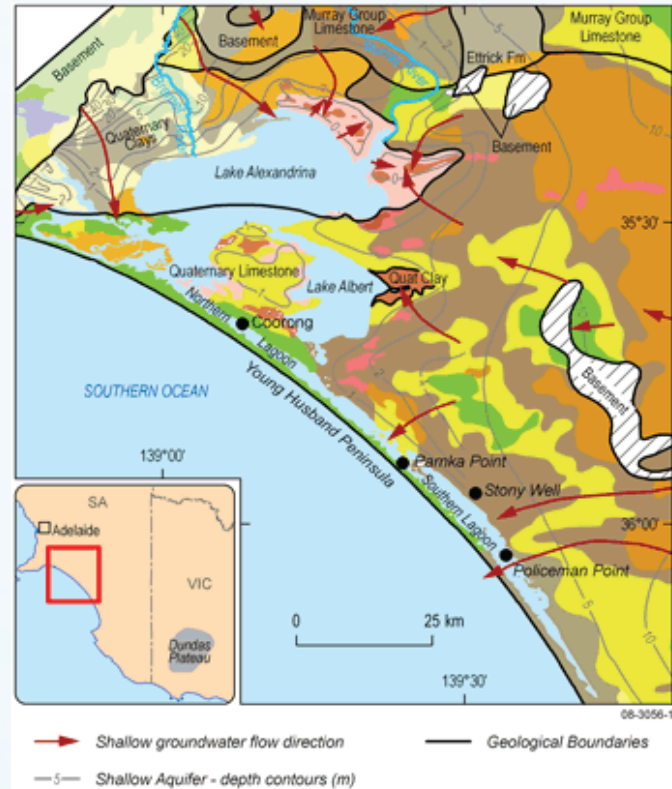
The Coorong is a shallow stretch of water along the south east coast of South Australia. It comprises a north and south lagoon and varies in width of between 2 – 3 km's. Freshwater historically entered the southern Coorong (South Lagoon), before a series of extensive drains were built to divert surface water directly out to sea. One of the unique characteristics of the region is the slight gradient declining east to west and south to north; the natural gradient indicates historically water from high rainfall winter inundation periods fed into the South Lagoon. The discovery of carbonate deposits or 'tufa' (concentric carbonate cylindrical tubes) found on the eastern shore of the Coorong's South Lagoon during the Millennium Drought are indicative of the significant contribution groundwater discharge played in maintaining the health of the entire 'end of system'.



Construction of an extensive network of drains in the South East of South Australia first began in the 1800's, the purpose being to address persistent inundation and lowland flooding, enabling both agricultural growth and the development of infrastructure such as roads. The construction of drainage in the lower South East continued until 1972, resulting in 1875km of drains and floodways. In the 1990's construction of the upper South East Drainage System began resulting in an additional 714km of drains and floodways.

RAMSAR Listing and what it means for management

In 1985 both the Lower Lakes and the Coorong were listed under the Ramsar Convention; they were categorized as fresh at the time of listing and this is the main reason why the government insists they need to be maintained in this state - to meet the requirements under the Ramsar convention. Yet the convention acknowledges that a country may re-establish an ecological character that existed prior to the date of designation and also for including natural variability and known past and current trends. Therefore, if an estuary situation was advocated for, this would not contravene the Ramsar agreement.



More than just Freshwater Solutions to environmental challenges – Saving water through other restoration measures

Freshwater will not solve the ecological challenges of the Lower Murray, and unless a multiple measures approach integrating local solutions is implemented, the health of the system will continue to degrade. A series of pragmatic approaches that could be trialled in collaboration with the affected third parties are described below. In combination with a realistic flow regime and appropriate land management, the health of the Lower Murray can be improved if a more than 'just add water' approach is taken. This could include – weir pool manipulation, Lower Lakes Barrage Estuary trials, Lower Lakes water level manipulation, increased works/projects, Coorong South Drainage Scheme and wetland rehabilitation and Lock Zero.

Way forward and future

The word integrated is integral in relation to meeting the targets we want for our river and wetland systems. Single measure approaches fail to address multi-faceted challenges and the MDB Plan 'Just Add Water' approach will continue to fail until it embraces a fully resourced multiple measures approach. We have the knowledge, tools, and programs to proceed with a multiple measures approach to the MDB Plan, it only takes political will and appropriate investment.

Recommendations

1. Employ a multiple measures approach within the MDB Plan including a suite of measures that are not just aimed at water recovery but ecosystem health recovery in unison with a triple bottom-line approach to stimulate rural economies
2. Fund recommendation 1 by stopping further acquisition of water entitlements for the environment, and re-invest money into multiple measures approach to achieve greater triple-bottom line outcomes.
3. Invest the remaining SDLAM funds into an evidence-based, multiple measures approach to achieve the desired environmental outcomes in the Lower Murray, including localised restoration projects to return greater volumes of water to the southern Coorong from the south east of South Australia.
4. Investigate the different ecological character options available under the Ramsar Convention guidance.