

Four engineering works can replace disastrous Murray Darling Basin Plan

Four engineering works can solve water management issues in South Australia, rather than the crude plan of the Murray Darling Basin Authority (MDBA) to take over 30% of irrigation water out of farm production.

Currently, the MDBA's plan is to take 2,750 gigalitres (5.5 Sydney Harbours, or one full Hume Dam) out of farm production in Australia's major food bowl. This will leave farmers high and dry in a 2-3 year drought and dramatically increase food prices to families.

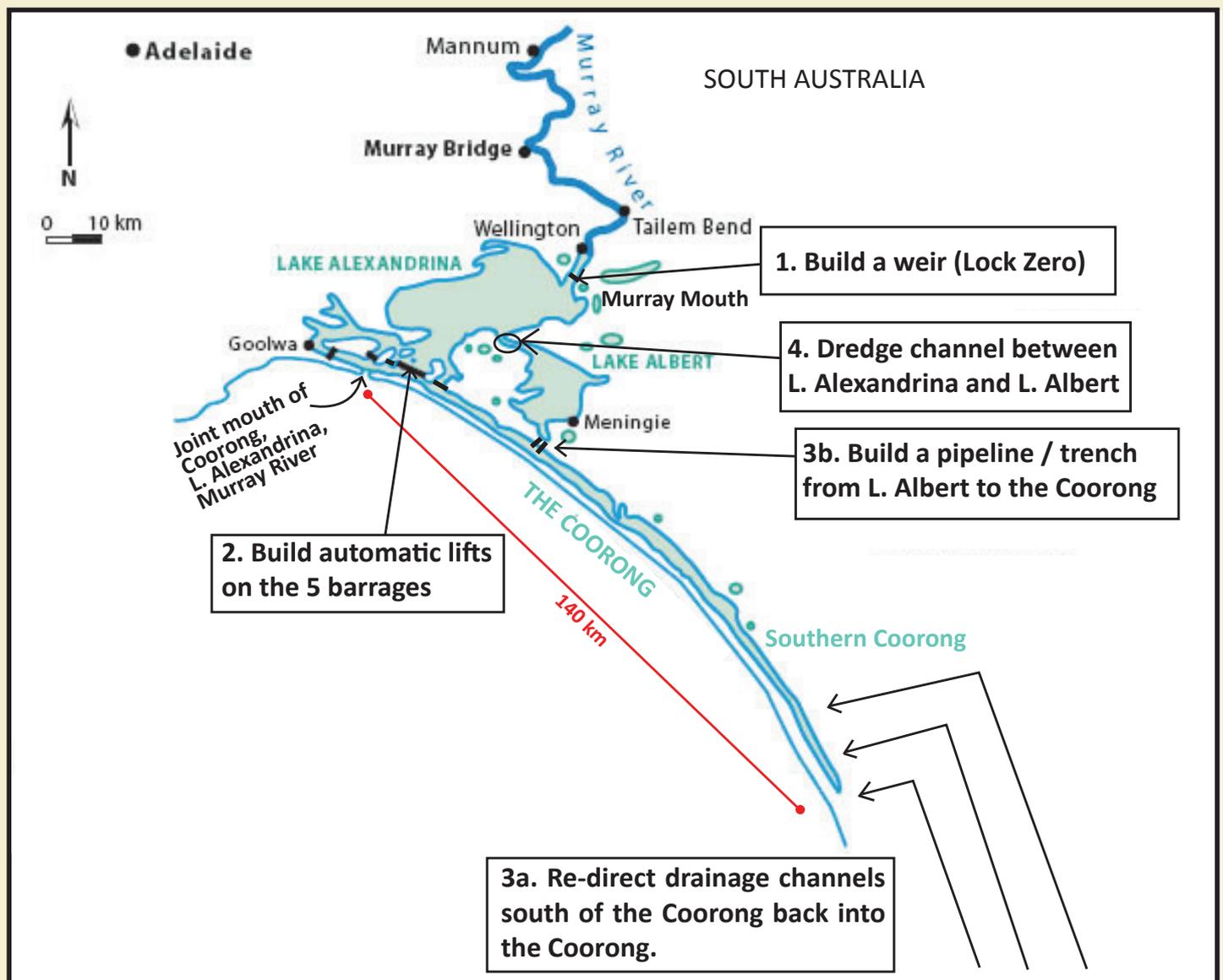
The Murray Darling Basin Plan is a political response to the Millennium drought.

It argues that this vast amount of fresh water will solve water management issues and reduce salt levels in South Australia's **Lakes Alexandrina** and **Albert**. Before human intervention these estuarine shallow lakes naturally degraded with high salt levels in drought periods and revived in wet times. At times the mouth to the sea naturally closed. These lakes lose over one million megalitres (1 million Olympic swimming pools) in evaporation annually.

Also, the Basin Plan says that this fresh water is needed for **The Coorong**, a long narrow strip of water between the Southern Ocean and land. The Southern Lagoon of the Coorong, (see map below), has major salinity issues but this is due to the South Australian drainage schemes that diverted fresh flows away from the Coorong, directly out to sea. Historically, the Southern Lagoon's water sources were from local rainfall and from the large a wetland catchment to the south of the Coorong, along the South Australian limestone coast.

The current Basin Plan is entirely focused on delivering water from upstream in the basin to the Coorong, lower lakes and Murray Mouth Ramsar site at the end of the Murray, with little or no funds available for engineering works that are NECESSARY to solve environmental issues in this area.

For example, the Coorong's Southern Lagoon is hyper-saline due to the building of drainage works between the 1860s and the 1970s, according to the South Australian



Government Department for Environment and Heritage publication, *A long-term plan for the Coorong, lower lakes and the Murray Mouth* (2009), pg 19.

The SA planning paper says that this large area, with frequent high rainfall, used to create flood flows between the ancient sand and limestone ranges that run parallel to the coast. However they have been crossed with large man-made drainage channels, some as big as rivers. About 2,000 km of drains have been constructed (Impact of Drains on Sea grasses in the South East of South Australia, Rachel J. Wear et al, SARDI Research Report Series No. 129, April 2006, pg 13). These drains now redirect flows out to sea, bypassing The Coorong.

The “long-term plan for the Coorong” paper says that the Coorong Southern Lagoon varies in capacity from 140,000 megalitres (140,000 Olympic swimming pools) when full in winter, to 90,000 megalitres late summer. Yet the flows (that now bypass The Coorong) down the three main drainage channels average 136,400 megalitres annually, equal to the Coorong Southern Lagoons capacity. In the wet year of 2000, the flow down the three main drains (Black Drain, Drain L and Drain M) was 449,900 megalitres, more than three times the full capacity of the lower Coorong, or one Sydney Harbour (pg 19).

The Coorong stretches 140km along the coast adjacent to the Lower Lakes, entering the ocean jointly with water from Lake Alexandrina and the Murray River (see map below). Taking an extra 5.5 Sydney harbours of water from food production in the Murray Darling Basin, cannot reduce salinity in the southern Coorong. Even after April 2010-March 2012 proved to be the wettest 24 months on record in Australia (according to the Bureau of Meteorology, the huge Murray flows did not relieve hyper-salinity conditions in the Southern Coorong and Lake Albert.

Four engineering works funded by the Federal government can solve the water management issues of the lower lakes and the Coorong (see proposals on map).

1. Build a weir near the end of the Murray (Lock Zero): It would guarantee quality fresh water for Adelaide by stopping salt water flowing back up the Murray from the lower lakes in a drought. It will also store fresh water for release into the lower lakes when needed to reduce salinity. This project has been planned for many years.

2. Put automatic lifts on the barrages: Five sets of concrete barrages, stretching over 7.6 km, separate Lake Alexandrina from the Northern section of the Coorong and the ocean. The barrage gates are inefficient and some can only be opened with a mobile crane. (Photo 1 below shows the heavy, manually lifted concrete gates at Goolwa). Manually opening or closing these gates makes it slow and difficult to operate the barrage gates to:

- enable effective interaction of fresh water with marine flows in the remaining 11% estuary, which is essential to limit sedimentation of the mouth to the ocean;
- prevent sea water entering back into the lower lakes when the Barrage gates are open (reverse sea flow back into the lakes is a common occurrence during southerly swell periods);

- prevent adaptive management in extreme drought years. Historically in periods of low flows, the lakes would be predominantly salty rather than fresh. Today in an extreme drought the lakes are totally reliant on inflow from the Murray River, as seawater is excluded from the estuary by barrages. Allowing seawater back into the lakes in major droughts would prevent environmental issues such as the creation of acid sulphate soils as lake beds become exposed to the air. Adaptive management of this region would enable natural fresh/salt water variations of this previously estuarine lakes system, which is important for a range of local aquatic species like Mulloway and Butter Fish.

To date, only a small section of the barrages have been automated. Constructing more automated lifts on the barrages gates is essential to improving the health of the lakes.



3.a. Restore some of the natural drainage from the Coorong’s wetlands catchment back into the Southern Lagoon of the Coorong. Restoring these natural flows is the ONLY way to flush hyper-saline water from the southern end of the Coorong to the Northern Coorong, Lake Alexandrina, Murray mouth. It’s interesting that the Australian Conservation Foundation and the Conservation Council SA have now come to support this project in their submission (on Environment Victoria letterhead, June 12, 2012) to the House of Representatives Regional Australia Committee into the potential role that new environmental works and projects could play in partially offsetting sustainable diversion limit (SDL) reductions under the Basin Plan.

3.b. Possibly build a short pipeline/trench from Lake Albert to the Coorong. This would help drain saline water from Lake Albert into the Coorong and out to sea, pulling fresh water from Lake Alexandrina into Lake Albert.

4. Dredge the channel between Lake Alexandrina and Lake Albert. This would facilitate more fresh water flowing from the Murray into Lake Albert, and down the pipeline/trench into the Coorong.

State and federal politicians must oppose their governments signing up to the current Murray Darling Basin Plan, until sensible solutions are adopted by Federal Water Minister Tony Burke and funded by the Federal government. These solutions MUST preserve Australia’s primary food bowl.

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