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## Senate Inquiry into water management in the Coorong and Lower Lakes

10 September 2008

Committee Secretary  
Senate Rural and Regional Affairs and Transport Committee  
Department of the Senate  
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To Whom It May Concern:

We would like to offer the Committee the following considerations with regard to points 1a), d) and 2c) in the terms of reference:

We are a group of researchers engaged in an exploration of the water quality history of the Coorong, using a variety of analytical tools and bioindicators to reconstruct changes over the last 6,000+ years. We were approached by the Department of Water Land & Biodiversity Conservation (DWLBC) in 2004 to prepare a report for the government, with particular regard to the RAMSAR review reporting obligations due in 2005. Though our research is ongoing, the main findings of the report still hold with regard to our understanding of how the Coorong has functioned in the past, and how it has been impacted since European settlement.

The report is available at:

[http://www.dwlbc.sa.gov.au/assets/files/USE\\_CoorongWQChangeDraftNov05.pdf](http://www.dwlbc.sa.gov.au/assets/files/USE_CoorongWQChangeDraftNov05.pdf)

In summary, the data suggests that:

- The system was essentially marine, even the south lagoon, with only minimal evidence demonstrating regular pulses of Murray River flows entering the lagoons, and what little there is suggests that it failed to penetrate past approximately halfway down the North Lagoon in the past.
- It seems that the main function of the River Murray in the past was to maintain an opening at the Mouth, which in turn allowed marine water to replenish the lagoons, though the estuary would have been more extensive than it is today.
- There is, however, evidence to support regular pulses of fresher/brackish water into the South lagoon, presumably from the South East, either as surface flows, or in groundwater.  
(the recent report by Geoscience Australia (Ralf Haese *et al.*) may be useful on this point: <http://www.ga.gov.au/ausgeonews/ausgeonews200809/index.jsp>).
- Though the data also supports regular episodes of hypersalinity in the South lagoon, the system, prior to European intervention, had a number of mechanisms to correct itself before they were turned off by drainage construction in the SE of South

Australia, the erection of regulatory structures throughout the Murray-Darling basin, and of barrages at the mouth.

Pumping marine water into the Coorong seems to us to be the best option to remediate the elevated salinities now prevailing in the south lagoon and the southern part of the north lagoon. We have some concerns that, subject to the water being available, opening the barrages and allowing freshwater out, will do little or nothing to improve the ecological condition of the lagoons.

In addition, research is currently underway investigating the long term flow and salinity regime of Lake Alexandrina and the Goolwa Channel, using a similar suite of analytical tools as those being used for the Coorong. Preliminary data suggests that:

- Lake Alexandrina has been, for the most part, fresh for the last 5,000 years.
- The Goolwa Channel has fossil biological evidence indicating both fresh and marine water sources, suggesting that the estuary extended at least as far as Point Sturt, but only periodically penetrated further into Lake Alexandrina, over the same period.

Should you require more information with regard to the Coorong, please contact (from the Faculty of Sciences / Earth & Environmental Science):

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Thank You for your attention