

Office of the Chief Executive

Ref: EC20-000289

Ms Shelley Scoullar
Chair
Speak Up Campaign Inc.
Via Email: speakup4water@gmail.com

Dear Ms Scoullar

Thank you for your letter dated 31 May 2020 regarding the volume of water required to keep the Murray Mouth open to the sea.

I do agree, the Murray-Darling Basin and its terminal lakes system are a unique and internationally recognised environment, which makes it difficult to compare the Coorong and Lower Lakes with other catchments.

When developing the Basin Plan, the MDBA undertook analysis published in the [2012 Hydrologic Modelling to inform the proposed Basin Plan report](#) to determine estimates of the volume of water flowing from the Murray to the sea under different scenarios. The following scenarios show the long-term average volume that would have flowed to the sea under natural conditions (without development), pre-Basin Plan based on 2009 levels of development (Baseline conditions) and with a fully implemented Basin Plan with 2,800 GL of water recovered for the environment (BP-2800):

- Without development – 12,377 gigalitres (GL)/year
- Baseline conditions – 5,088 GL/year
- BP-2800 – 7,156 GL/year

Earlier analysis undertaken by the Murray-Darling Basin Commission published in the 2002 report [Options for Reducing the Risk of Closure of the River Murray Mouth](#), highlighted that there was negligible risk of Murray Mouth closure under natural (without development) conditions, and that 31% of years were at risk of Mouth closure under the level of development at that time.

Further to this, the outcomes of the recent [Lower Lakes Independent Science Review](#) conducted by the CSIRO determined that;


- The weight of scientific evidence points to the main body of the Lower Lakes being largely fresh prior to European settlement.
- The pre-development long-term average annual inflow from the Murray River to the Lower Lakes would be enough to fill the lakes on average more than eight times a year.

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- Upstream development has reduced the river inflow by about half, which without the Barrages in place, would result in more frequent incursion of seawater into the Lower Lakes than what would have occurred naturally.

Extraction of water to support communities, towns, irrigation and other industries has resulted in a significant decrease in average and median end of system flow for the Murray-Darling system. This has had significant impact on the build-up of sand in the Murray Mouth as waves and long shore currents continually deposit sand in the outlet. This is evident during the low flow period in the 1980s when the Murray Mouth closed for the first time in recorded history and again when dredging was commenced in the Millennium Drought.

A steady flow of around 2,000 ML/day over the Barrages has been shown to reduce the rate at which sand is deposited, however periods of much higher flow in the order of 75,000ML/day for a longer period of time is needed to scour significant volumes of sand. Due to river regulation, flows of this magnitude can currently only occur during flood events such as those in 2010-11 and 2016.

To offset the increase in diversions, water recovery under the Basin Plan has enabled some reinstatement of flows over the Barrages. However, relaxation of constraints to environmental water delivery are required to allow periods of higher flow to be reinstated to assist with scouring sand from the Mouth. Without sufficient periods of flow over the barrages as envisaged by the Basin Plan, dredging may continue to be required to maintain connectivity with the sea.

Conditions at the Mouth are continually monitored to assess the degree to which water moves between the Coorong and the sea. Keeping the Murray Mouth open is important to ensure there is an exchange of water between the Coorong and the Southern Ocean on the change of tides. Without this, water in the Coorong would become progressively more saline as salt is concentrated by evaporation. During warmer periods dissolved oxygen levels in the Coorong would also drop causing significant impacts to this unique Ramsar listed ecosystem. Ensuring the Coorong is replenished with cooler, oxygenated water from the sea is critical in maintaining its health and the health of the broader Murray-Darling system.

Yours sincerely



Phillip Glyde

17 June 2020

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