RIVER LAKES COORONG ACTION GROUP

Fact Sheet No.2:
KEEPING THE COORONG ALIVE

(Prepared by: River Lakes & Coorong Action Group)
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The Coorong is a spectacular, 140 km long coastal lagoon system separated from the Southern Ocean by the sweeping sand dunes of the Younghusband Peninsula. It is a place of profound cultural significance to the Ngarrindjeri people and a internationally recognized Ramsar wetland of international significance (see **Figure.1)**. Characterized by serene saltwater lagoons, vast mudflats, and vibrant birdlife, it serves as a critical sanctuary for migratory waders. It is a hauntingly beautiful wilderness where the Murray River meets the sea, offering a breathtaking landscape of ecological diversity, tranquil waters, and immense coastal solitude.

Due to evaporation the waters of the Coorong become increasingly saline without mixing of freshwater from the River Murray. This freshwater from the River Murray must pass through the North Lagoon to the South Lagoon and hence there is higher salinity in the South Lagoon than the North Lagoon (see **Figures 2**). This salinity gradient has always existed based on past records and First Nations knowledge. This strongly suggests that the River Murray has always been the main source of freshwater to both the North and South Lagoons of the Coorong but due to upstream extraction, the freshwater flows to the Coorong have decreased significantly and hence the salinity of the Coorong has increased significantly.

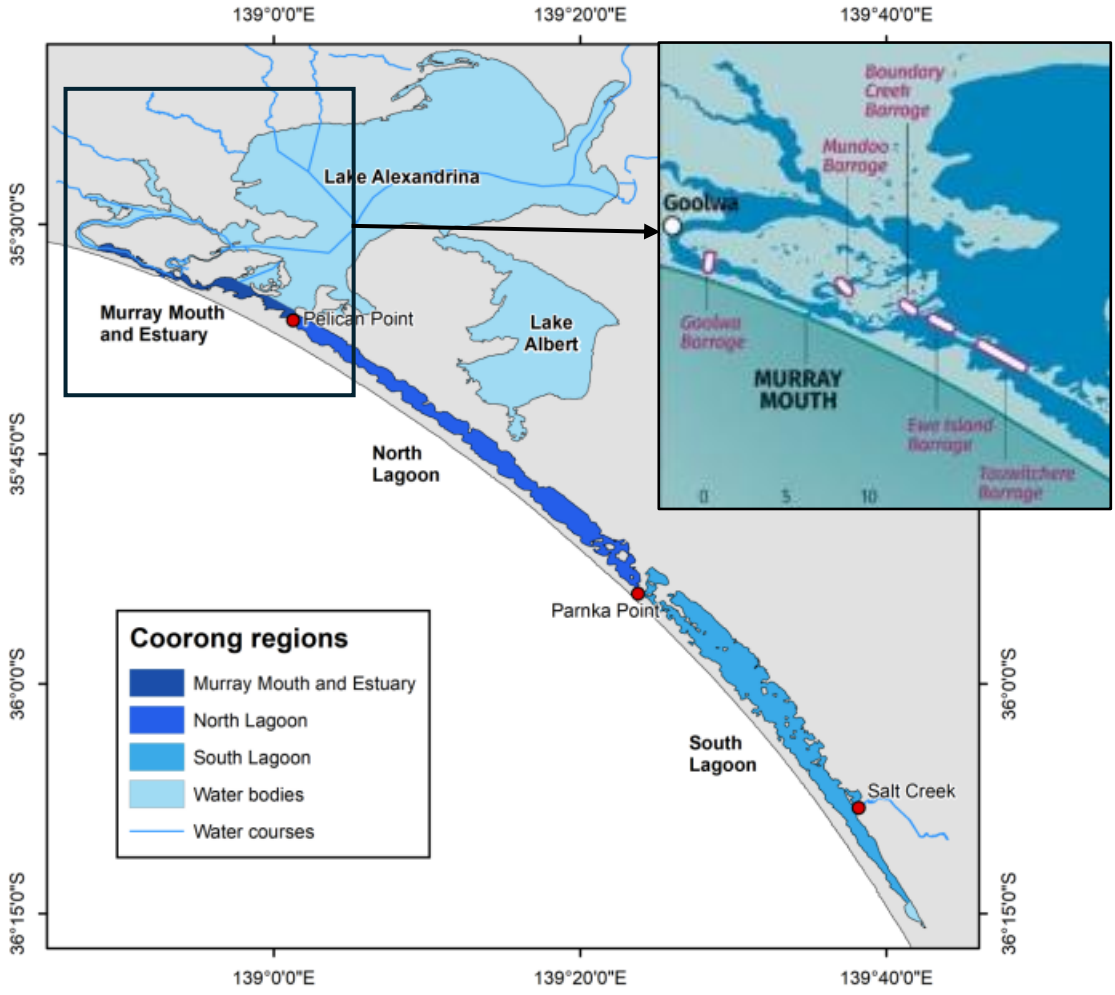

Figure 1 – The Main Features of the Coorong, Lower Lakes and Murray Mouth (CLLMM)

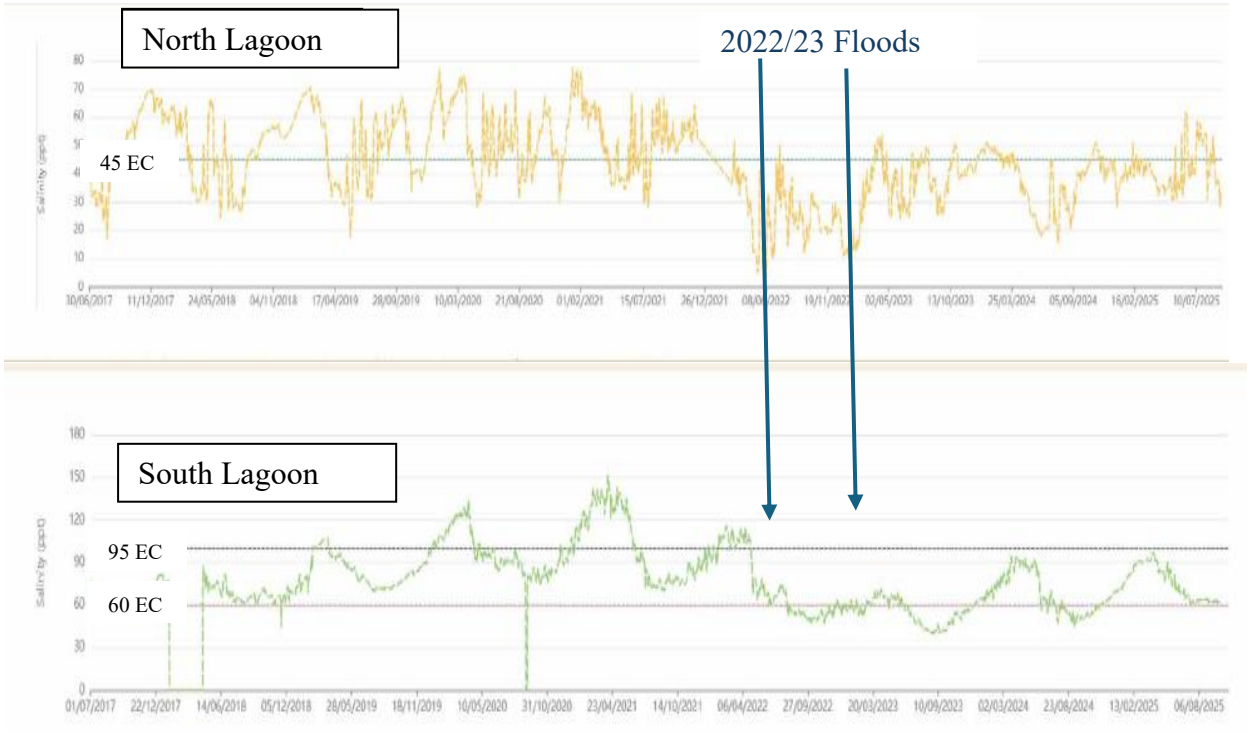

Figure. 2 – Salinity in Coorong North and South Lagoons since 2017 (CET, 2026)

In recent years, the South Lagoon normally stays under 100 g/L (i.e. approx. 150 EC or mS/cm) which is nearly 3 times higher than seawater (35 g/L or 55 EC) but during the Millenium Drought it went as high as 200 g/L (or 250 EC). Once the salinity is higher than 120 g/L, it exceeded the tolerance of most native species including *Ruppia tuberosa*, smallmouth hardyhead fish and insect larvae, causing severe food shortages for international migratory waterbirds.

Historically, surface water in South Australia's Southeast pooled in broad wetlands that overflowed via south-to-north flow paths toward the Coorong. Artificial cross-catchment drainage (beginning in 1863) modified these paths and now discharge an annual average of 110 GL/y directly to the ocean through constructed drainage canals south of Cape Jaffa. This would be a maximum that may have historically flowed to the Coorong at Salt Creek, given the amount of evapotranspiration that would have occurred in this vast wetland area and is small compared to the average flow through the barrages of 4,800 GL/y. It should be noted that these flows from the Southeast and the River Murray are highly variable and the average annual flows can be misleading due to the occasional very high wet weather flows.

Increased eutrophication of the Coorong's estuarine systems is linked to a lack of flushing as well as external nutrient sources, and warming temperatures due to climate change. The fate of water from the SE Wetlands, as well as how this drives export of dissolved and suspended material from the South to North Lagoon, is unknown at present. This is a critical question that needs answering to manage SE Weland flows in order to influence nutrient levels and cycles, as well as salinity and water levels.

It has been demonstrated (Glen Hill, 2026) how freshwater releases through the barrages can be most effective in lowering the salinity in the South Lagoon if these releases are through Tauwitchere Barrage when water levels in the South Lagoon are low (due to tides, winds, evaporation or a combination of these) and strong winds start to blow from the northwest.

In most years the water that passes through the barrages to the Coorong is mainly returned Environmental Water that has already served its environmental purpose upstream and has continued to provide benefits all the way downstream from its original target and continues to provide benefits to the Basin by flushing salinity out of the Basin, assisting in keeping the mouth of the River Murray open, as well as providing essential contribution to the Coorong environment including many threatened fish and bird species.

The SA Government's Healthy Coorong Healthy Basin Project has been investigating infrastructure options since 2019 to reinstate target ecological processes and functions in the Coorong. Options being investigated include long-term infrastructure and ecological restoration actions.