Submission to MDBA regarding the Basin Plan

Prepared by: Ken Jury
Senior Journalist
(Marine & Aquatic Ecology)

10/12/2010

In essence, we encourage the MDB Authority to recommend to the Federal Government, measures to only appropriate the best use of the limited fresh water to sustain ourselves during hard times, where land is not the limiting factor but where fresh water supply throughout the basin certainly is. At all times, we must continue with enhancing our own food production where freshwater and arable land is suitably sited. We must put a halt to wasting precious river water in areas of non-arable use, often lost due to extremely high evaporation, and look towards a truism in horticulture where plants can be grown with less water in a low salinity medium when using low salinity water.

Significantly within this submission, water levels in the Lower Lakes must never again become lower than that of sea level, as was the case in recent years. The risk of acidification, subsequent sulphuric acid mobilisation and damage to infrastructure is enormous when the surrounding lake beds are allowed to dry out. The Lower Lakes contain the largest known concentration of acid sulphate soils anywhere on earth. These must remain covered at all times.

The Miocene history of the lower half of the MDB and the saline nature of soils bordering the river(s), particularly in South Australia dictates that Murray River water will progressively become more saline as one moves downstream. Much of the lower MDB was inundated by the sea for thousands of years. This legacy remains today and we suggest for centuries to come.

It is alarmingly obvious that we will not continually receive adequate rains ‘year after year’ without fail throughout the MDB. On occasions we may have enough water in the catchments (Dec. 2010) to even fill the Lower Lakes for a short period. However, with massive evaporation from the lakes and with population growth, the demand for quality water increases while at the same time, we continually see governments (State and Federal) spending money on temporary solutions throughout the drainage. None of these will have permanency except perhaps within the bounds of theory. With water allocation purchases that partially evolve on paper in an ill-conceived endeavour to claw back 3,500GL of fresh water for the system. In all, to satisfy the environment and correctly the socio-economic aspects of an ailing river system.

Peering into the realms of Murray River freshwater security, very few people recognise that for each 100 GL’s sent down the river, only about 20 GL’s will make it to the Lower Lakes and once it reaches this destination, it is lost from the river forever!

But then, it also becomes lost to the Lower Lakes through evaporation and seepage, at volumes that can only be described as catastrophic. In recent drought years prior to the current minor river flood period, volumes of between 740GL/yr and 1000GL/yr of freshwater allowed to enter the Lower Lakes (840 sq km's surface area), disappeared through evaporation and seepage from what are basically shallow silt and acid sulphate soil based, basins. During one recent year when the evaporation loss from the lakes was recorded at 740GL, calculations showed this volume was indeed more than what the River Murray contained between Wellington on the lower end of the river, and the South Australia border. This huge volume of water would have been worth a whole lot more had it been contained in areas upstream where our important food is grown. The value of that volume of water back then(based on known buyback figures) was indeed amazing!

Furthermore, during the worst periods of the most recent drought, volumes lost to evaporation from the lakes in a single year were in the vicinity of a third of what the Federal Government is endeavouring to buy back to satisfy its policy for re-allocation elsewhere. During these same periods, the 200 km's of un-controlled river reaches downstream of Lock One at Blanchetown to Wellington, that contain some 80 wetlands and lagoons, could not be flooded and restored. Many became lost as viable wetlands and several became highly acidic while limited but precious fresh water was free to flow into the lakes.

There is an urgent need to build a permanent, regulatory lock (not a weir), somewhere within the Wellington to Swanport river region on known remnants of the Padthaway granite escarpment, as a required solid footing.

This will provide for appropriate management of the River Murray's last un-regulated freshwater pool between Blanchetown and Wellington. It is the only practical option for management of the lower section of the River Murray; to also assist with the maintenance of the Lower Lakes by manipulating a percentage of freshwater to mix with highly oxygenated Southern Ocean water to return the lakes back to an estuarine system. In times of river flooding, and with manipulation of the barrages, this would automatically be reversed to generally become a freshwater system again during periods of excess river water. This is not new to the area- it has been happening for thousands of years before the barrages were built!

Seriously, the Lower Lakes must be returned and maintained as an estuarine feature, and not used as a short term storage of precious water that otherwise could be better used with our food security within the mainstream River Murray system. We have river farmers leaving food growing properties adjacent to the river because of the lack of or drastically reduced water allocations yet we allow up to 1000GL/yr to be lost to evaporation and seepage from the lakes. This practice is grossly wrong!

The only changes today from a pre-barrage era are the barrages themselves. While these structures remain important today, they will require modifying and upgrading to enable the maintenance of an estuarine feature for the lakes. Previously, river flow manipulation occurred from the introduction of the river lock systems to benefit irrigation and river passage while the five barrages were built to enhance local irrigation and river trade. Today, they are also used as a means to reduce the risk of highly saline water from entering the intake pipes for Adelaide's water supplies.

Allowing tidal flow to enter the lakes as previously occurred naturally (flow rates dependent on river out-flow pressures and incoming tidal/wind pressure during pre-

barrage days), has many useful advantages. Areas denied tidal access by the barrages would again be inundated through barrage manipulation to clear channels of silt and sand from the vicinity of the mouth by careful manipulation of peak incoming and outgoing flood tides. Importantly, the biota would also return to satisfy Ramsar Convention with a healthy and productive estuarine system. This has wide support by some of Australia's top scientists!

While ocean flow and wave pressure calculations and wind velocity data for the Lower Lakes and Encounter Bay area are available, we also recommend researching the following possibilities. On returning the lakes to become an estuarine feature, should the level in the lakes fall only 10cm on a single outgoing tide, then this would represent about 80 GL of water that would flow out through the mouth during the same period. This volume is more than double the amount of freshwater (flood) currently flowing out through the barrages and out through the Murray Mouth.

In volume, that's equal to 80 sq km's x 1 metre deep of water movement in a single outgoing tidal period. Flows such as described herein will suffice to keep the mouth of the river clear while pressures from incoming tides, often supported by regular 'southerly busters' (off-ocean winds) during pre-barrage times, always provided enough momentum for the exchange of estuarine water throughout the lakes.

Entry and exchange of water through The Narrows from Lake Alexandrina into Lake Albert, were also reliant on wind pressures but this time from northerly and north-westerly winds.

Much of what is reported herein has researched data support.

We welcome any inquiries and consultation with representatives of the Murray Darling Basin Authority on the above matters.

Sincerely
Ken Jury
Senior Journalist ret (Marine & Aquatic Ecology-45 yrs)