

## **Reconstructing hydrologic change: Messages from the Murray Basin**

**Jim Bowler**

School of Earth Sciences,  
University of Melbourne  
[jbowler@unimelb.edu.au](mailto:jbowler@unimelb.edu.au)

Wind and Water: the two competing but major formative processes in sculpturing Murray Basin landscapes. How do we uncouple those processes in environmental analysis?

Evidence of progressive reduction in the availability of surface water from Pliocene through Quaternary presents an enigmatic problem for climatic change understanding. What were the synoptic conditions when Australia was awash as during the last interglacial about 120ka?

The long established use of lake basins as palaeo-rain gauges, while providing tantalizing clues, has its own limitations. Wet dunes (foreshore and stream-bordering dunes), dry dunes (clay and gypseous lunettes, linear dunes) take us a fair distance but only in the younger, drier part of the climatic story. Construction of a lake level-dune history from the Willandra system spanning the last 120ka links climate change with people.

Events of the last glacial maximum (LGM) are particularly instructive. With temperatures lower than today by some 7-9°C, Mallee dunefield advances together with expansive salinisation were synchronous with dust blasting from dozens of dry basins and stretching as a red blanket across the Tasman.

Who would want to live through it? The Mungo people did. Some of them continued fishing!

**Notes**