

## **PHYSICAL FEATURES OF THE HUNTER RIVER ESTUARY**

*Ref: Journeys: The making of the Hunter Region (2000) P. McManus et al Allen & Unwin, St Leonards, NSW*

### **ATMOSPHERE**

The Hunter region lies in a transition zone, between sub-tropical climates of northern New South Wales and southern Queensland and the mid-latitude, climates of Victoria and Tasmania.

The region's climate tends to be dominated in summer by sub-tropical influences and in winter by the mid-latitude influences. Overlaying these trends is year to year variation.

**Temperatures:** the average temperature ranges from 18 to 27° C in summer, and 7 to 17° C in winter.

**Rainfall:** the average rainfall is about 1100mm per year, with more falling in the summer, often as extreme rainfall events, and less rain in winter.

**Wind:** dominant winds are affected by the topography with prevailing winds in winter from the north-west. In summer, the prevailing winds are from east to south-east, followed by north-east breezes in the afternoon. Wind speeds are generally light to moderate.

**Humidity:** the presence of the ocean ensures humidity is high in the lower Hunter with average humidity ranging from 65% in summer to 58% in winter, though it can get to 100% during storms and heavy rain.

**Air quality:** the presence of major industry in the 1950s and 60s led to concerns about air pollution. Air quality greatly improved during the 1990s. Main air pollutants are: total suspended particulate matter, NO<sub>2</sub>, CO, SO<sub>2</sub>, O<sub>3</sub>, Pb and HF – where it ends up is determined by wind and rain.

### **LITHOSPHERE – the structure of the landscape, rocks and soil**

Hunter Valley – geology is made up of sediment trapped during the Permian (~250 million years ago – coal, conglomerate shales, fluvial sandstones – can be seen near Nobby's) and Triassic periods (~200 million – shales, sandstones) – turn to rock. QUATERNARY – 1.8 million to present – sands/fluvial, barrier and beach deposits. Ice Age – glaciers trapping the earth's water – sea level falls so the coast was 20 km further out to sea than it is today.

130,000-120,000 years ago – sea was ~4m higher than today, coast around broad sand deposit ran from Hexham to Port Stephens.

Next 100,000 years sea level fell to about 120 metres below the level it is today. The coast was about 25 km further out to sea than it is today.

The soils in the estuary have resulted from a combination of sediments being washed down the river meeting sands being bulldozed up from the sea. The estuary has sandy soils of low fertility and poor structure. The Hunter estuary is a barrier estuary.

**HYDROSPHERE** - includes surface water, groundwater (below the surface) (Tomago sandbeds – filters the water)

Water Cycle

Water quality –

Tides –