

Shoalhaven watershed: a retrospective of breached mouth periods through LandSat images, aerial photogrammetry and LiDAR data

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Abstract: The Shoalhaven watershed, located in the wave-dominated south coast of Eastern Australia, has the 6th biggest catchment area (7,151 km²) that debouches in NSW waters. Although the river mouth is breached during floods, most of the time the normal flow is diverted through an artificially dug canal and only reaches the ocean at Crookhaven Heads. A search throughout LandSat archives and aerial photographs dated back from 1949 has shown not only that the river mouth was opened in 1949, 1961, 1974-1980 and 1988-1994, but also revealed that dune vegetation is developing as increasing sand closes the river mouth. Nowadays, a 200-m wide by 5.4 m maximum (minimum of 2.1 m) height above Australian Height Datum sand deposit seals the river outlet. Historical comparison of LiDAR data also demonstrated the widening of Berry's canal as erosion takes place on its flanks. These findings provide useful evidence for a sediment budget approach to coastal management to be developed in this coastal compartment.

Keywords: Remote sensing, sediment budget, sand deposition