Geography of the Lower Fitzroy and navigation problems

A topographic map of the Fitzroy estuary readily indicates why the Fitzroy River has proved difficult for shipping to negotiate. The river meanders across a broad, flat floodplain and a delta of saltpans and mudflats before emptying into Keppel Bay. In the years before the late 1960s when construction of the Rockhampton barrage halved the distance of the tidal influence, the river had an almost imperceptible fall to the sea of only 1.5cm/km in the 100km from the previous limit at Yaamba.¹



Lower Fitzroy River, before the 1991 flood broke through the base of Pirate Point peninsula (Natmap Sheet 9050/1, 1983)





Aerial photograph of the delta, looking south-west, showing mangroves, mud-flats and saltpans with salt evaporators. Casuarina Crk (L), Inkerman Crk (C) and Raglan Crk (R).

(CCQC)

As the historical map below indicates, the Fitzroy also drains an enormous area—the second largest catchment in Australia. As still happens today, high run-off occurred during intermittent torrential summer rains and caused erosion throughout the river basin so that the river and its tributaries carried a heavy load of silt, sand and gravel. Periodic major flooding throughout the river system increased the amount of sediment carried downstream into the Fitzroy.²



Adapted from a map drawn by the General Manager, Queensland Railways Central Division, in Rhodes, *Port of Rockhampton*.

A combination of low gradient and heavy stream load meant the deposition of large amounts of alluvial material in the lower reaches of the river, particularly along one long straight stretch which followed an old fault line.³ In this reach, known as Upper Flats, the flow snaked back and forth across the bed between sand and mud banks. These shoals gradually moved downstream with flooding in the river, some of which had stabilised to form

small islands. Farther down at Sand Flats Reach, the river braided into shallow, shoaly streams separated by numerous mangrove-covered mud islands. Names in that vicinity like Archer's Crossing and Brown's Crossing reflect the fact that early graziers could easily ford the river there with their cattle. The Fitzroy then rounded the tortuous bends at Hawk and Pirate Points where alluvial deposits on the inside of meanders again narrowed the stream. At the former bend, deposits had stabilised at Central Island in mid-stream. Although the main channel took a straighter course through the north of the delta than did the major distributary of Casuarina Creek, it contained several mangrove islands, shifting shoals and sandbanks extending into Keppel Bay so that the river proper discharged into the ocean through three channels.

Compounding navigational difficulties posed by the twisting and shoaly river were the tidal fluctuations. At the mouth, the tidal range was up to 16 feet (4.8m) while at Rockhampton it was up to 10 ft (3m). Although the first survey of the Upper Flats in 1864 indicated a minimum depth of 4ft (1.2m) at low water (springs), river users complained that shoaling periodically reduced the depths to only one foot (30cm) in places. One early resident recalled anchoring in 18ft (5.4m) of water at night in 1859 and finding himself high and dry at dawn.⁴ Others recounted stories of having to carry dinghies across the flats at low tide.⁵ Shipping in the river had to await the tide at either Rocky Point or Central Island. Vessels drawing more than 12ft (3.6m) were forced to anchor below Central Island or, if large overseas ships, remained in Keppel Bay. Cargo and passengers were then transferred to smaller vessels called lighters for the trip up the river to Rockhampton when the tides were favourable. The voyage was two hours from Central Island and four from the bay.⁶



An early lithograph entitled 'Transshipping cargo at Keppel Bay' by J.R. Ashton. (Garran, 1886)

If Rockhampton could have been established closer to the mouth of the river, as in the case of Brisbane, and especially below the hairpin bend of Pirate Point, the possibilities for development would almost certainly have been greater. As the map of the estuary clearly indicates however, there was no such possible site for settlement due to almost all the riverside land downstream being prone to inundation during floods. As it was, the city's location left it vulnerable to isolation and even to periodic major incursions of floodwater into urban areas. The record events of 1991, 1954 and especially of 1918 were evidence of that. There were also stories of mega-floods in local Aboriginal memory.



Aerial photograph of river floodplain showing Pirate Point and Dunlop Island before (L) and during (R) a major flood, probably 1928. (*Queenslander*,1929)



Post-1991 photo-image of Fitzroy River showing the cut-through at the base of Pirate Point and accelerated sedimentation in Winding Reach. (Coastal CRC, 2002)

References:

- 1. The construction of the barrage(1969-71) was for water supply purposes, the previous supply being obtained from the river above the natural tidal limit at Yaamba.
- F. Jardine, 'The Physiography of the Lower Fitzroy Basin', *Queensland Geographical Journal*, vol. 38, no. 24, 1923, pp. 23-29; Run-off in the northern tributary of the Connors River has been calculated at 45%. Water Research Foundation of Australia, Queensland State Committee, *Water and Energy Resources of the Fitzroy Basin*, Rockhampton, 1980, p. 4.
- 3. Identified as the Parkhurst Fault. G. Dayton, 'C.Q. Landforms: Rockhampton District',
- http://www.ahs.cqu.edu.au/humanities/geography/52120/trial2/rockhamp.htm. Accessed 9 May 2002.
- 4. J.A. Macartney, 'Reminiscences of the Early Days', *Daily Record*, 4 June 1909.
- 5. 'Rockhampton: A Retrospect: Then and Now, *Morning Bulletin*, 8 May 1902.
- 6. A. Garran, Picturesque Atlas of Australasia, Ure Smith, Sydney, 1886, p. 355.