The Swan-Canning river system

The Swan-Canning river system refers to all rivers, watercourses, drains and tidally affected waterbodies on the coastal plain around Perth. The coastal portion of the Swan-Canning river system catchment accounts for 2117 square kilometres out of a total catchment (including the Avon River basin), of approximately 125 000 square kilometres.

The Swan and Canning rivers flow through the heart of metropolitan Perth, a city of approximately 1.4 million people. The total estuarine portion of the Swan-Canning river system, which includes the tidal portions of the tributary rivers and estuarine basins, occupies an area of 55 square kilometres. The Swan-Canning system and the nearby coastal plain are an important historical, economic and recreational focus for Western Australia and have been since the establishment of the Swan River Colony in 1829.

The Swan River is a major system that consists of a river, some tributaries, an estuary and many creeks, which form a network connecting metropolitan and rural communities to the Swan River.

Tributaries

The Swan River and the Avon River are in fact the same river. There is no confluence. The two names simply represent an historical anomaly. The Avon River 'becomes' the Swan River where it meets Wooroloo Brook in Walyunga National Park, about 30 kilometres north of Perth. The major tributaries of the Avon River are the Dale River (between York and Beverley), the Mortlock River (below Northam Weir), Toodyay Brook and Brockman River, which flow into the river upstream from the coastal plain (near Bullsbrook, north-east of Perth). Ellen Brook, the Helena River and other smaller brooks, (Wooroloo, Susannah and Jane Brooks) feed into the Swan River on the coastal plain. A number of large drains which service extensive areas of the metropolitan region also flow year round into the Swan River.

The main tributaries of the Canning River are the Southern River, Bickley Brook and Yule Brook. There are 31 major subcatchments in the coastal portion of the Swan-Canning river system.

The Swan-Canning estuary is the large shallow body of water formed near the mouth of the Swan River where it broadens before reaching the sea. The river discharges into the sea at Fremantle through a long narrow inlet channel that passes Chidley Point golf course and Leeuwin Barracks.

The Swan-Canning river system has a Mediterranean-type climate characterised by wet winters and dry hot summers. Rivers flow with fresh water during the winter but dry out during the summer. Groundwater may discharge into the river channels throughout the year, but it is of substantially less quality than that of winter runoff. The Avon River provides most of the flow to the Swan River.

The Swan-Canning estuary

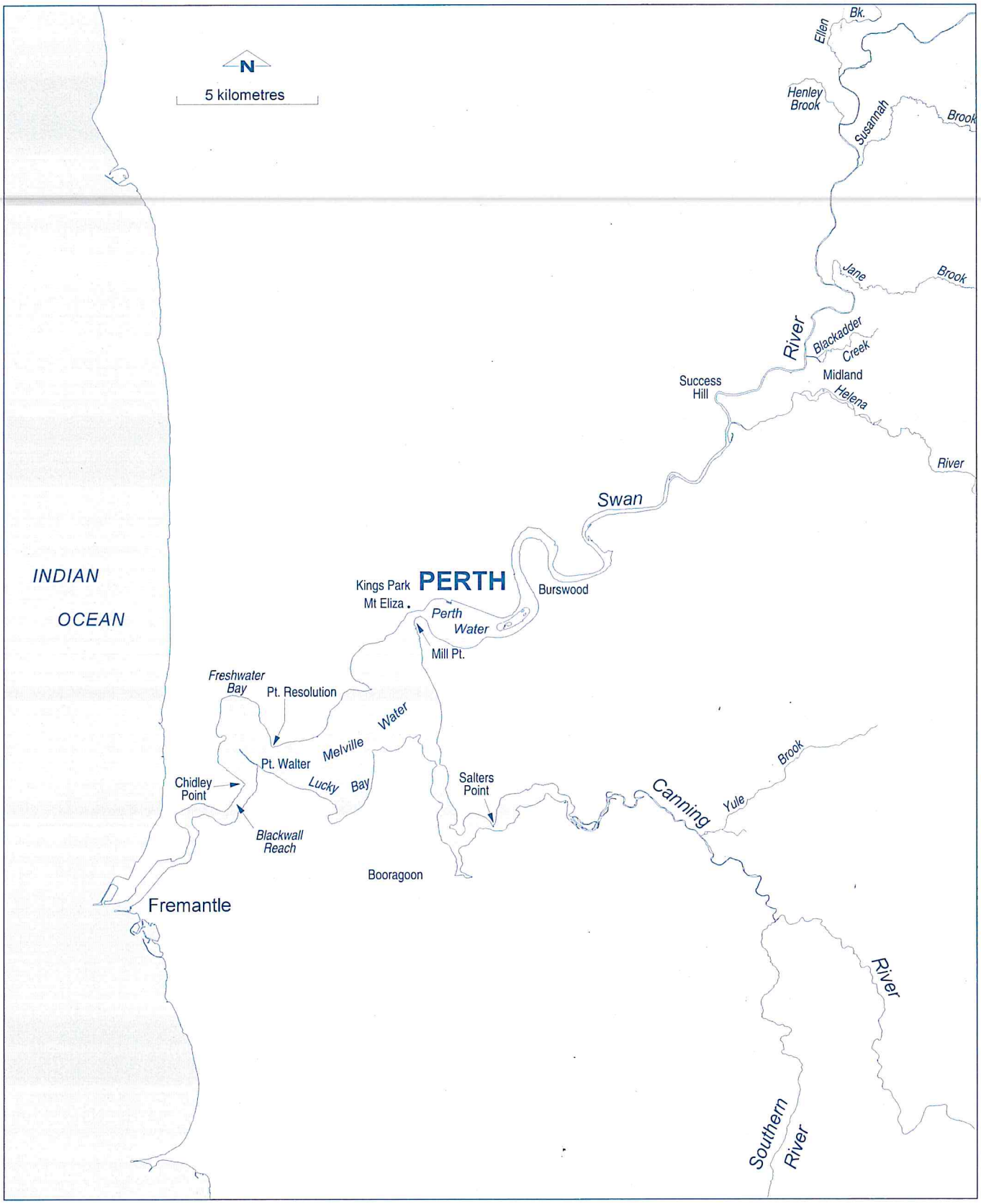
The lower reaches of the Swan-Canning system form an estuary created by geological conditions over 10 000 years ago. The estuary is part of the Swan-Canning river system.

Estuarine conditions extend inland to Ellen Brook (60 kilometres from the ocean) and to the Kent Street Weir on the Canning River.

Open, sunny, slow-moving, shallow river conditions and sandy soils with poor nutrient-binding properties create conditions ideal for algal growth and make the Swan-Canning river system naturally susceptible to blooms.

Cyclical changes in low-pressure and high-pressure systems affect the weather, tidal levels and wind patterns. Winds are dominated by south westerlies and north westerly storm fronts, which also influence wave patterns and shore erosion. Seasonal rainfall and weather patterns allow the ocean tide and salty marine water to enter the estuary (through the artificially widened mouth), when river flows start to decrease in spring.

Tides cause the Swan-Canning river system to vary between being fresh-to-brackish in winter and salty in summer. It takes up to two months of rainfall in the subcatchments in late autumn/early winter before



freshwater discharge is substantial enough to push the summer salt water downsteam to the middle-to-lower regions of the estuary. In spring, the catchment dries out and freshwater discharge decreases, causing salt water to move upstream.

Further reading: Managing our Rivers- a guide to the nature and management of the streams of south-west Western Australia (Chapter 2: How south-west catchments and river systems work) by Dr Luke Pen, Water and Rivers Commission, 1999.

SWAN RIVER TRUST

WATER AND RIVERS COMMISSION

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