

CHAPTER 12 Mesozoic basins

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MESOZOIC BASINS SUMMARY

Age

Early Triassic to Late Cretaceous.

Prospective commodities

Coal, hydrocarbons, precious opal, celestite, clay minerals, placer gold and diamonds.

Geology

Triassic sedimentation in South Australia is restricted to the northeastern corner of the state (Cooper and Simpson Basins) and to small intramontane basins in the Flinders Ranges (Telford, Copley, North Field, Springfield and Boolcunda Basins).

In the Jurassic and Cretaceous, deposition was much more widespread, and occurred in two distinct tectonic settings. Epicratonic sediments were laid down over much of inland South Australia (Eromanga Basin) with a former extension in the Riverland area (Berri Basin). Similar sediments underlie the Nullarbor Plain region (onshore Bight Basin).

Further south, crustal extension and rifting between the Australian and Antarctic plates led to the formation of elongate, narrow and deep rift basins (Otway, Duntroon, Polda and offshore Bight Basins; Krieg, 1995; Fig. 12.1).

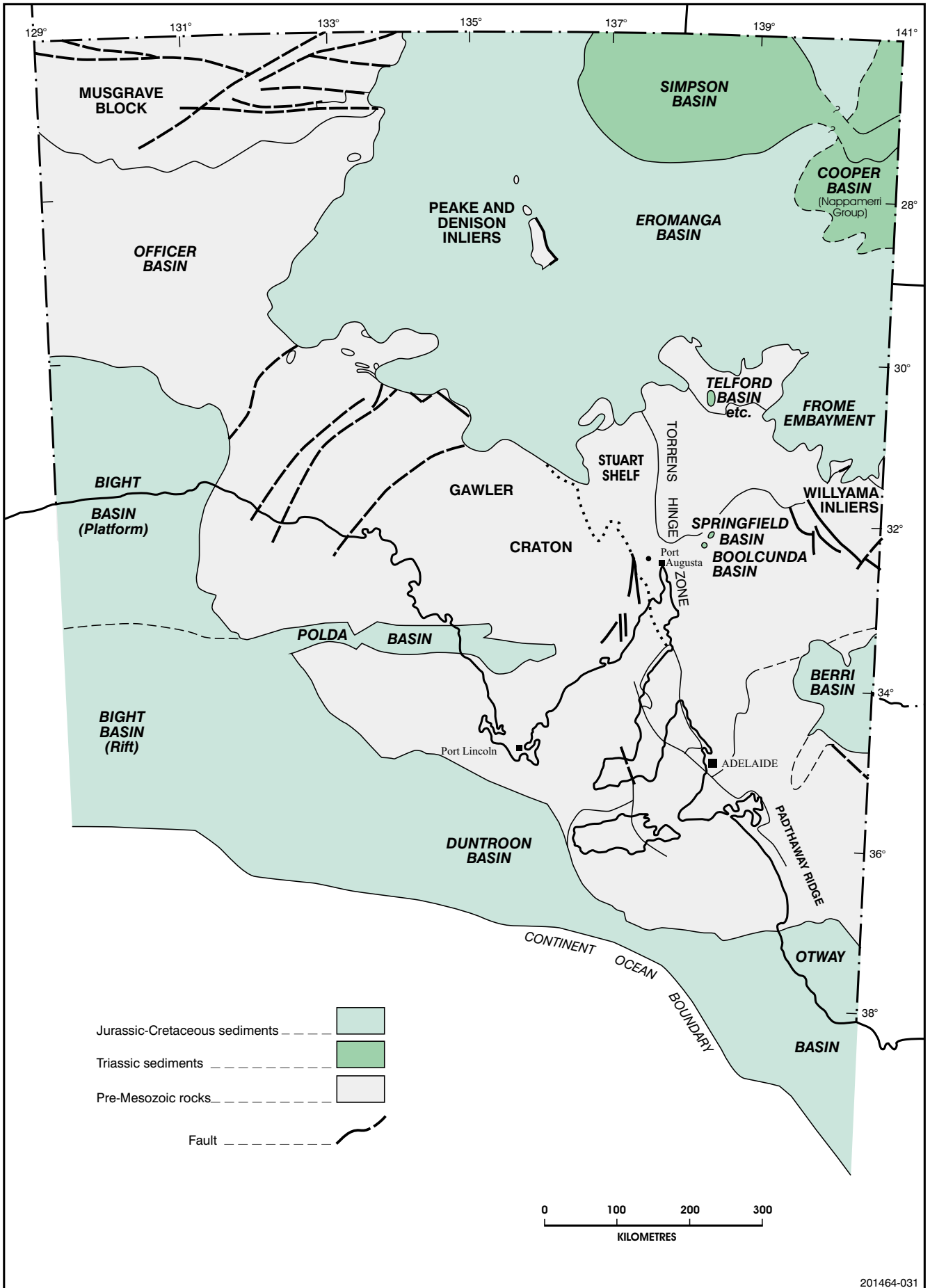
Large reserves of groundwater and hydrocarbons occur in the Eromanga Basin (see below). In addition, there are important coal resources in the Triassic Telford Basin near **Leigh Creek** and in the Polda Basin (see Ch. 17, Coal). There are commercial gas resources (including CO₂) and some oil in the Otway Basin (Morton and Drexel, 1995).

EROMANGA BASIN

Geological summary

The Eromanga Basin covers approximately 1 000 000 km² of the interior of eastern Australia, ~360 000 km² of which lie in South Australia (Fig. 12.2). The Eromanga Basin, along with the Carpentaria and Surat Basins, forms part of the Great Australian Basin.

In South Australia, the Eromanga Basin overlies Neoproterozoic to late Palaeozoic sedimentary basins, and Precambrian basement. It is overlain by Cainozoic Lake Eyre Basin sediments.



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Distribution of Mesozoic basins in SA (from Krieg, 1995).