

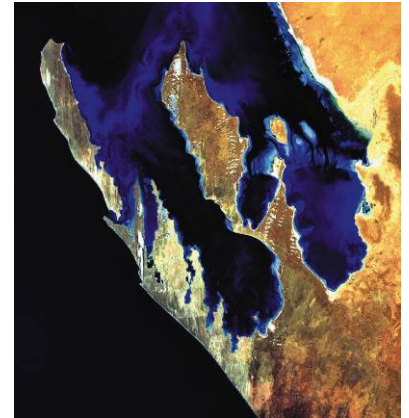
Geology of Shark Bay

How the peninsulas were created and the origin of Peron sandstone and Tamala limestone

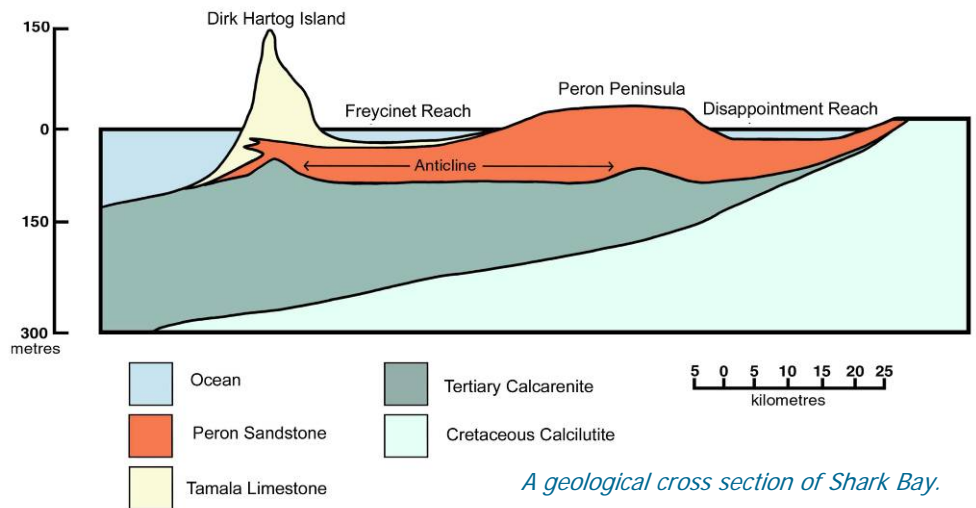
Travel two million years back through time, and position yourself 200 km northeast of Shark Bay atop the present day Kennedy Ranges, inland from Carnarvon. All around you, the sediments of an ancient long-dry seabed are eroding away, either shorn off plateau slopes by torrential rains and carried out to the sea by a lacework of tributaries and rivers, or blasted to the coast by strong easterly winds.

By the time they reach the end of their journey, at the location of present-day Shark Bay, these sediments are broken down into quartz sands. Over thousands of years, these sands accumulate against a series of long high ridges in the terrain called anticlines, where they are shaped into rolling dunes by strong winds.

Present day Peron Peninsula, is made up of the quartz sandstone that was deposited against the Peron anticline between about two million and 10 000 years ago. This wind blown deposit is known as Peron sandstone. The red colour that characterises this sandstone is courtesy of a thin iron oxide coating around the sand grains. Scientists do not fully understand the origin of this coating, but suspect it is somehow linked with hot dry climates, as red sands are found throughout Australia's hot desert areas. Peron sandstone underlies most of Shark Bay, but is only exposed on Peron Peninsula and Fauré Island.



A satellite photo showing Shark Bay's two peninsulas. The peninsula at left is made of Tamala limestone. The other is comprised mostly of Peron sandstone.



A geological cross section of Shark Bay.

The white sands that make up Edel Land Peninsula and Dirk Hartog, Berniér and Dorré Islands were deposited between one million and 10 000 years ago. Geologists call these white sands, Tamala limestone. They overlay Peron sandstone.

As with many limestones, Tamala limestone is of organic origin. It is made from broken-down shells, corals and skeletons of other marine organisms (hence the opaque, white colour of the sand grains). Tamala limestone has its origins in the seas west of present day Shark Bay. During the Pleistocene Ice Age (125 000 – 10 000 years ago), sea levels were many metres lower than they are today. Wide expanses of the continental shelf were high and dry, exposing shell and coral deposits.

Strong southerly winds eroded these shell and coral deposits into sand particles, which were blown into immense dunes. These dunes accumulated against and over a long ridge in the terrain (anticline). This ridge underlies present day Edel Land and Dirk Hartog, Berniér and Dorré Islands. In many places, particularly along the Zuytdorp Cliffs, the Tamala limestone sands have been lithified (cemented together) into solid limestone rock.

Zuytdorp Cliffs

One of the most recent major geological events in Shark Bay was the formation of the Zuytdorp Cliffs. Geologists believe the cliffs were formed when the Earth's crust shifted along a fault-line some 5 000 years ago. More than 200 km in length, the Zuytdorp Cliffs probably constitute the longest fault scarp in Australia.



The Zuytdorp Cliffs