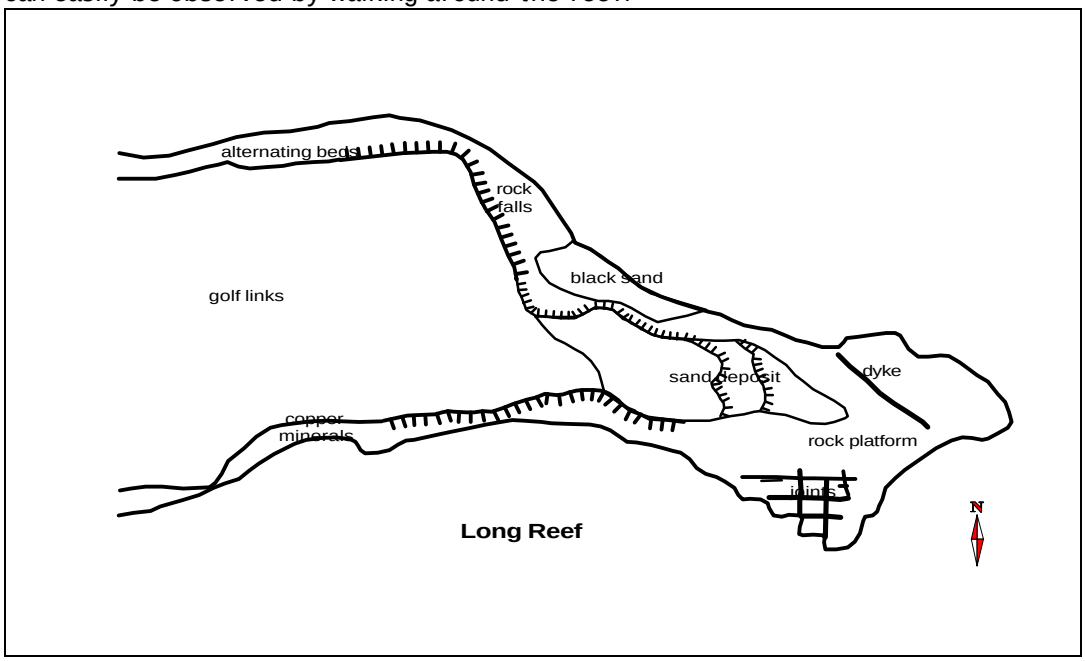
Discover Long Reef – Local Geology Fact sheet

Beach – Bush – Birds

The geology of Long Reef consists of interbedded claystones, sandstones and shales which form a well developed rock platform. A number of interesting geological features can easily be observed by walking around the reef.



Alternating beds of claystone, sandstones and shales are exposed along the north cliff face. The sandstones are called lithic rocks because they contain a high percentage of rock fragments mixed with quartz. The rock platform is cut from well-jointed purple claystone (so called "chocolate shales") that are originally of volcanic origin.

Cliff face – Long Reef beach

Rocks above black sand beach

Extensive rock-falls of grey claystone can be found below the cliff face. These claystone often contain plant fossils, the commonest being the horsetail *Phyllotheca*. Occasionally specimens of a shrub-like seed fern (*Dicroidium*) may be found.

Black sand can be found in layers along the beach and in the intertidal zone. The common mineral constituents that give this sand their black colour are rutile, ilmenite and monazite, which are said to have been derived from very old rocks in the Broken Hill region. These black sands occur naturally and can be found along other parts of The eastern Australian coastline.

A large **sand deposit** containing shells has been found at Long Reef, and it is raised Above sea level. The accumulation of these broken shells suggests that the site may have once been used as an aboriginal camp or midden.

A volcanic dyke can be found intruding along the claystone rock platform along a SE-NW joint. This dyke is made of dolerite (a volcanic rock) and is about a metre wide and raised slightly above the rock platform. A close inspection of the dyke shows differences in grainsize from fine at the edges to course in the centre. These differences in grainsize are caused by varying cooling rates (between the edge and centre) when the lava has cooled. Adjacent to the dyke and parallel to it are close-spaced joints formed by pressure from the intruding lava, which then contracted slightly on cooling.

Prospecting for copper minerals was carried out at Long Reef along the claystone formations. These copper minerals are not extensive at Long Reef and are confined to a defined zone between red-brown oxidised and grey-green reduced siltstone. A small tunnel was driven into the purple claystone many years ago to explore for copper.

Long Reef Point – rock platform

Writen by: Peter Hanington - Reference: Branagan.D.F. Packham G.H. (2000) *Field Geology of N.S.W.* Dept of Mineral Resources.1.