

## BEACH AND NEARSHORE PLACER DEPOSITS - A CASE STUDY FROM S-W COASTAL AREAS

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The occurrence of heavy minerals commonly known as 'Black Sand' in the south-west coast of Sri Lanka has been known since the beginning of the century. Beach sand concentrations occur as placer at places such as the mouth of Kalu Ganga, Beruwela, Kaikawella, Kaduwella, Weligama and Dondra.

This paper deals with studies carried out by the National Aquatic Resources Agency in the Kalutara - Kosgoda coastal area. Monthly monitoring of beaches have indicated that heavy minerals containing monazite are found to be concentrating only at the Kalu Ganga river mouth, Beruwela Bay, Kaikawela and Kosgoda Bay. At Kaikawela, the deposit of heavy minerals was found on the beach at a depth of one meter. Radiometric surveys carried out in the Kalu Ganga and small streamlets debouching in the area strongly suggests that the source of radioactive monazite is itself localized and heavy mineral concentrations are formed only when the immediate hinterland adjacent to the beach is rich in the said mineral.

Although the Bentota river transports a large load of sediments to the ocean, no concentrations of heavy minerals were observed at its outlet. Radiometric surveys of the Bentota Ganga have shown that almost all the heavy minerals in the sediments are deposited in the lakes and marshy areas that lie along the rivers.

The fact that coastal areas between Kalutara and Beruwela are served by two major and several minor rivers with large sediment discharges and that the beach placers are seasonal led to the assumption that there could be considerable off-shore reserves of heavy minerals throughout the area.

Detailed investigations carried out in off-shore areas have indicated the occurrence of heavy minerals in nearshore zones of silty sand and sandy silt.

Bottom sediments of the nearshore areas have heavy minerals suites similar to those found in beach placers and the heavy mineral assemblages. Their grain size parameter and distribution are apparently controlled by (a) the metamorphic and intrusive rocks exposed in the adjacent hinterland (b) the distance from the source rocks and the surface currents operating in the area. Distribution of heavy minerals in the nearshore sediments shows that a major part of the minerals found nearshore are supplied by the Kalu ganga.

Another source of the nearshore heavy minerals was noted to be beach placers which are redistributed during monsoonal periods by the action of strong waves and currents.