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HEAVY TAR BALL DEPOSITION ALONG VERAVAL COAST IN JULY, 1985*

Tar balls first seen in 1970 and increasing to 3–5 times since 1971, are becoming a common sight on the beaches of Veraval, particularly during the monsoon months. During late June, 1985, tar balls were seen washed ashore and in the first week of July, after the spring tide, the entire coast line of Veraval was strewn with large quantity of tar balls (Fig. 1). The average density of tar balls, as measured from the five distant sites along the beach was found to be 2.511 kg/m² which is far more than the density of 0.165 kg/m² recorded earlier by Dwivedi *et al.* (*Mahasagar*, **7** (1 & 2): 91-94, 1974) at Veraval but comparable with 2.375 kg/m² at Ghosabara, near Porbundar. However, their observations were subsequent to an oil tanker disaster which

Fig. 1. Tar balls washed at Veraval beach.

occurred near Porbundar, spilling 18,000 tonnes of oil in June, 1973. No such large scale accident or spillage has been reported during the past few years near Veraval.

Most of the tar balls were 2–20 mm in diameter but some were large sized lumps measuring 100–120 mm in diameter. These large sized lumps were found with dense growth of epizoic goose barnacle *Lepas* sp. (60–135 *Lepas*/tar balls) ranging from 2 to 14.5 mm suggesting that these tar balls have been around long enough to become a substratum. Interestingly, associated with the tar balls were white, soft, disc shaped circular beads of plastic like material. Similar material was also found by Dwivedi *et al.* (but the chemical nature and probable origin of them are, however, unknown).

Although the tar balls are the nonvolatile residual part of the oil, and generally nontoxic, as seen by the profuse growth of the goose barnacles, their presence in the sea water affected the fishing activity at Veraval.

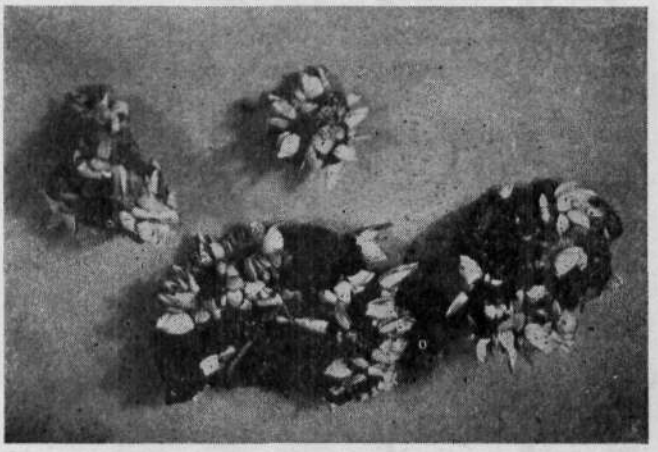

Fig. 2. Tar balls with goose barnacle *Lepas* sp.

During monsoon months the only fishing activity at Veraval is occasional gill-net fishing in the near shore waters during the day time but due to delayed monsoon during 1985 quite a few fishermen were regularly operating gill nets particularly for pomfrets. While fishing,

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the floating tar balls got entangled in the surface gill-nets and when the nets were hauled up they were found blackened and unserviceable due to sticky melting tar. This caused considerable nuisance to the fishermen and most of them suspended fishing until the floating tar balls disappeared from the sea. The tar balls, spread on the beach also caused discomfort to the people visiting the sea shore.

Since no tanker accidents were reported along Gujarat coast and the quantity of tar balls is too large to account for any intertidal discharges or natural seepages, it is probable that these tar balls had arisen as a consequence of increased tanker traffic which passes from the Persian Gulf across the Arabian Sea and thus causing an environmental concern to the people associated with the marine activities at Veraval.