

Paper Number: 257

Corals of Narara Bet, Jamnagar District, Gujarat and its implication in Sea level Changes

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The corals present in the Narara Bet, Jamnagar District, Gujarat mainly belonging to the Scleractinia Group and are of Asteroid, Ceroid and Trochoid types. The corals in this area occur all along the Narara Bet and are almost parallel to the coast. In the study area there was an evidence of paleoshore lines which existed 2-3 km inland from the present coast line and as much higher levels than the present sea level, as evidence by coral reefs. Basaltic flows of the Deccan Trap suite [Figure 1] are the oldest unit exposed as small patches along low relief hillocks and in river and *nala* sections. Recent clays, mud overlying the Deccan traps occupy a considerable portion of the study area and are confined to the south of Narara area along the coast. Quaternary corals directly lie in the sand-clay-mud facies which overlies the basaltic flow of Deccan traps of Cretaceous to Palaeocene age [1]. The dead coral reef, Narara Bet area exposed and submerged during the low tide and high tide respectively. Geomorphologically the study area represents the linear drainage pattern with depositional as well as erosional features [2]. The corals present in this area are *Dendrophyllia minuscula*, *Favia fava*, *Cyphastrea sevrilia*, *Goniastrea pectinata*, *Favites complanata*, *F. chinensis*, *F. helicora*, *F. pentagona*, *Platygyra pini*, *Barabattoia amicorum*, *Leptastrea purpurea*, *Montipora angulata*, *M. capricornis*, *M. turgescens*, *Acropora aspera*, *A. humilis*, *Hydrophora exesa*, *Pocillopora damicornis*, *Porites lichen*, *P. lutea*, *P. compressa*, *Symphyllia radians*, *Acanthastrea hillae*, *Psammocora digitata* and *Echinophyllia aspera* etc. Most of them are developed in life form in the upper part of reef and along the reef slopes. *Porites lichen*, *P. lutea*, *P. compressa*, *Psammocora digitata*, *Symphyllia radians*, *Pocillopora damicornis*, *Hydrophora exesa* mainly developed at 15 to 36 m, 20 m, 23 m, 40 m and 25m, below sea level. The rest of the species developed in between 5-20m below sea level. The radiocarbon dating (C 14) of two coral specimens shows that the development age of *Acropora humilis* is of 10,665 to 10,935 years; and *Porites lichen* in the same area is of 8,167 to 8,297 years respectively.

The available data in the present study area clearly shows the shifting of sea-level relative to land that has occurred during the quaternary period.

These changes in sea level generally result from two principal causes i) Crustal movement at any particular coast and ii) Worldwide rise of sea level in relation to land [3]. In between the Weichselian (10,500-13,000) glacial age, Late Pleistocene epoch and Flandrian (6,000) Inter-glacial age, Holocene epoch, the corals are developed and formed as coral reef of Narara Bet. Here the shifting of sea level happened due to Inter-glacial period as well as neotectonic activity.

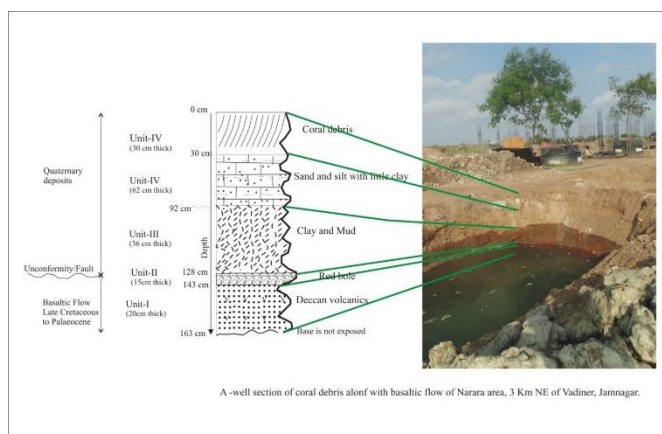


Figure 1: A well section of coral debris with Deccan volcanic at the base, Narara area.

Key Words: Paleoshore Lines, Tectonic Movement, Glacial Age, Inter-glacial Age, Neotectonic Activity and Sea Level Change

References:

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