Development of fouling organisms on pearl oyster *Pinctada fucata* during a period of 2 months

M. Santhana Ramasamy & A. Murugan

Ramasamy, M. S. & A. Murugan. 2001. Development of fouling organisms on pearl oyster *Pinctada fucata* during a period of 2 months . - Phuket Marine Biological Center Special Publication 25(1): 57-58.

Pinctada fucata is heavily fouled in Tuticorin waters. A two months experimental study showed that common fouling organisms were diatoms, coelenterates, bryozoans, crustaceans, tunicates, and polychaetes. The fouling pattern from the primary layer has been studied in detail and is discussed.

M. Santhana Ramasamy & A. Murugan. Suganthi Devadason Marine Research Institute, 44 Beach Road, Tuticorin 628 001, India.
E-mail: sdmari@md4.vsnl.net.in.

INTRODUCTION

Marine fouling is a term used to describe the assemblages of plants and animals capable of colonising submerged surfaces in the marine environment. Seen from the interests of human beings, the effects of fouling organisms may range from harmless to harmful, *i.e.*, capable of destruction of materials. Thus the problem of marine fouling and its prevention is a subject of very great economical importance to all maritime nations of the world.

Tropical waters favours the settlement, reproduction, and growth of biofoulers and thus it is essential to know the intensity, seasonal occurrence, growth rate and reproductive cycle of these organisms. The first event in the sequence of fouling is formation of primary film, which mainly comprises bacteria and diatoms.

A primary film is important for development of a fouling community and serves as food for other organisms, which may grow to a thickness of 1 cm. The larger fouling organisms prefer settlement on a surface where a primary film is already growing. Thus microbial films constitute the early development of invertebrate macrofouling communities. The pioneering bacterial community is preceded by the sorption of a conditioning film of polymers from the sea (Nagabushanam & Thompson 1997).

MATERIALS AND METHODS

The present study was carried out from 21 June to 21 August 2000 in shallow coastal water (3.5 m) near the harbour of Tuticorin (Lat. 8º45'N, Long. 78º10'E).

Formation of the primary film and secondary foulers were studied on pearl oysters suspended from rafts, which were placed at a distance of 500 m from the sandy shore of Tuticorin. Fouling organisms present on 60 pearl oysters were removed by scrubbing. Next the oysters were carefully swabbed with spirit and reintroduced into net frames suspended at a depth of 2.5 m. Samples were collected at 5 days intervals and brought to the laboratory in sterile polyethylene bags.

Sterilized cotton was used to swab the oysters, and the cotton was put into 9 ml sterile sea water. Serial dilutions of 10^{-2}, 10^{-3}, 10^{-4}, and 10^{-5} were made using 9 ml of sea water blanks. One ml aliquot appropriate dilutions were pipetted onto 4 Petri plates. Pour-plate technique was employed using Zobell's 2216e marine agar medium to enumerate the total viable aerobic heterotrophic bacterial forms. The isolates were purified by streaking and