

M.S.80. SUBHASH CHANDER—Studies on Ecophysiology of *Penaeus Indicus* H. Milne Edwards in the Grow-out System—1987—Dr. A.D. Diwan.

The present work was undertaken to understand the crustacean ecological niche, and its interactions with the animal's physiology.

In present study the main emphasis was to find out if seasonal variations of calcium, magnesium, phosphorus, copper and zinc in the water and sediment has any important role to play in altering the concentration of these elements in different tissues of prawn as evidenced by the seasonal studies in the grow-out as well as the sea ecosystem.

Two different ecosystems inhabited by *P. indicus* during its life i.e. a grow-out ecosystem comprising of 176 hectare estuarine impoundment located at Edvanakadu on Vypeen Island and connected to the estuarine complex of Cochin backwaters which remains marine dominated from November to May and a sea ecosystem located at about 30 m. depth isoline inshore area off Cochin where maturation and spawning process usually occur, more or less, for most part of the year.

The stress was on the study of seasonal dynamics of physicochemical characteristics of water and sediment and the influence of these dynamics on seasonal variations of metals in water and sediment in each ecosystem. Subsequently, the effect of seasonal variation of each metal in water and sediment on the seasonal metal dynamics in the prawn *P. indicus* was worked out in the respective ecosystem.

Three stations each, in the grow-out ecosystem as well as the sea ecosystem were selected. Samples of water, sediment and prawns (of maturing or mature stage) were collected every fortnight for a period of two years (i.e. from November, 1982 to October, 1984) from each station. It involved sampling of water, sediment and prawns from the sea ecosystem on board a research vessel of CMFRI as well as from the grow-out ecosystem on board a small boat.

The seasonal variation studies of different physicochemical parameters such as temperature, salinity, oxygen, hydrogen ion concentration, redox potential, nitrate, nitrite, ammonia, total phosphorus, primary productivity, calcium, magnesium, copper and zinc of water; and temperature, hydrogen ion concentration, redox potential, calcium, magnesium, total phosphorus, copper and zinc of sediment were carried out in each ecosystem. Simultaneously, seasonal variations of a few elements (i.e. calcium, magnesium, phosphorus, copper and zinc) in different tissues of *P. indicus* were worked out.