For the successful rearing of larvae of marine fishes and crustaceans in hatcheries where intensive aquaculture is practised the availability of suitable food is an essential pre-requisite. The cyst of the brine shrimp, Artemia forms one of the most important sources of food for the larvae. The demand for good quality Artemia cyst is far more than the present production level and the insufficient cyst supply sometimes is the major bottle-neck in the proper functioning of hatcheries the world over.

Artemia occurs in the natural salt lakes as well as in man-made salt pans. Efforts are being made to identify new natural habitats of brine shrimp, besides augmenting the production through extensive and intensive culture operations to meet the demands of the expanding aquaculture industries. Despite the availability of voluminous literature on Artemia in general, information on population biology and ecology of brine shrimp in natural environment, particularly from India, is extremely poor. Hence the present study was designed to collect information on the population biology and ecology of Artemia from salinas of south east coast of India.

This thesis deals with the population characteristics of Artemia and the effect of different environmental parameters on the different stages of Artemia in a salina at Tuticorin, south east coast of India.

The present investigation was carried out from 1985 to 1987. The study was initiated by undertaking a survey to find out suitable
Artemia habitats along the south east coast of India and a perennial salina with an area of 0.25 ha was selected at Karapad (Tuticorin). Weekly samplings were made for two full calender years (1986-87) to collect the different stages of Artemia population as well as the different environmental parameters.

The thesis comprises of the following sections: Introduction, materials and methods, systematics, biology and distribution of Artemia, results and discussion, summary and bibliography. The section on results and discussion gives the characteristics of Artemia population in the salina, the seasonal variations of different environmental parameters in the salina and their effects on different stages of Artemia population. Description of an experiment conducted to show the sudden changes of salinity on different stages of Artemia is also given as a separate section.

Introduction explains the importance of aquaculture, origin of aquaculture, hatchery production of fish and shellfish seeds, the role of live food organisms and artificial diets in the dietary regime of cultivable fishes and shellfishes, the importance and advantages of Artemia as a live food in hatcheries, the details of the relevant studies carried out by other workers in different parts of the world including India and the need for taking up the present work.

Materials and methods gives a detailed description of the methods and techniques adopted for sampling the Artemia population and different environmental parameters. The method used for statistical analysis is also given.
The section on systematics, biology and distribution of Artemia gives an idea of the taxonomic position of Artemia, its biology and life cycle, types of Artemia habitats, distribution mechanisms, the places in Asia where Artemia occur and Artemia find-spots in India.

The first part of results and discussion section deals with the population characteristics of Artemia, the occurrence and relative abundance of different stages of Artemia such as nauplii, juveniles, preadults, cyst bearing adults and nauplii bearing adults and their variations during the pre-summer, summer and post-summer seasons. Analysis of variance (ANOVA) was conducted to find out the statistical significance.

The second part of the results and discussion section deals with the seasonal variations of different environmental factors like hydrographic (temperature, pH, salinity and dissolved oxygen); nutrients, (ammonia-nitrogen, nitrite-nitrogen, nitrate-nitrogen, inorganic phosphate and silicate); biological (gross primary productivity, number of algal cells and number of predatory insects) and meteorological parameters (rainfall, wind velocity and sunshine) in the salina and their influence on the different stages of Artemia. Correlation matrix was constructed to see the influence of the above mentioned parameters on different stages of Artemia.

The third part of the result is regarding an experiment conducted in the laboratory and describes the impact of sudden changes in salinity on different stages of Artemia population. ANOVA was conducted to find out the statistical significance of the actual observation.
The summary gives the contents of research work and the bibliography forms the last part of the thesis.

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