The present investigation was carried out from January 2000 to December 2001 to study the ecology, bio-chemical composition, microbial diseases, parasites and associates of *S. serrata* from the Gulf of Mannar of Tuticorin coastal waters - South East coast of India and the results are summarized below.

1. Studies on ecology revealed that atmospheric and water temperature varied during different seasons and the variation of surface water temperature was not found to limit the distribution of *S. serrata*.

2. Salinity showed seasonal fluctuations and this fluctuation was also seemed to be no hinderance to the distribution of *S. serrata*.

3. Dissolved oxygen content also showed seasonal fluctuation and this fluctuation was not found to be a limiting factor in the distribution of the test animals.

4. The variations in the proximate composition like carbohydrate, protein and lipid mainly dependent upon the breeding activity of *S. serrata* and also the infestation by the parasites. Anova also revealed a significant variation in the proximate composition between the healthy and infested individuals.
5. The total heterotrophic population revealed that the sediment sample was having a high bacterial count than the water sample of the study area. Gill, muscle tissue, digestive tract and the shell samples of infected individuals showed a high population density of THB than the healthy ones. *Vibrio* spp. were the dominant bacteria encountered in the present study.

6. Microbial count of digestive tract showed the highest bacterial count in the hind gut followed by the fore gut and mid gut.

7. Microbial diseases like shell disease, black gill disease and vibriosis were the most commonly encountered bacterial diseases in *S. serrata*.

8. *Vibrio* spp. and *Pseudomonas* sp. were seemed to be the causative agents of shell disease. Females of *S. serrata* showed a high prevalence of shell disease. High prevalence of this disease was noticed during post-monsoon season.

9. Black gill disease also showed the maximum prevalence in the post-monsoon period.

10. Vibriosis was observed significantly during the summer months.

11. The spores of parasite *Thelohania* sp. was found in the muscle tissue of *S. serrata*.

12. Infestation with the dinoflagellate *P. perniciosa* with a low prevalence in the muscles of *S. serrata* was found throughout the period of study.

13. Spores of *Hematodinium* sp. was also observed from the hemolymph of *S. serrata*. 
14. The peritrichous ciliates belonging to the genera Zoothamnium, Epistylis, Lagenophrys. Cysts of Apostome ciliates (Synophrya) were noticed in the gill filaments of S. serrata.

15. Gregarines (Cepahlolobus indicus) showed a high prevalence during pre-monsoon period.

16. Correlation coefficient between parasites, epibionts and environmental parameters showed insignificant relationship.

17. The females of S. serrata showed a high prevalence of infestation with parasites and epibionts than the males.

18. The present study shall give a clear picture on the candidate species, Scylla serrata for aquaculture in general and also throw more light on microbial diseases, parasites and epibionts which would likely to affect the quality of this commercially important exportable species. Prevention and control of these microbes, parasites/epibionts are the need of the hour.