



## CHAPTER V

### CONCLUSION AND RECOMMENDATIONS

From the study on the fishery biology of mud crab, *Scylla serrata* (Forskäl), in Klong Ngao mangrove forest, Ranong province, lead to the following results;

1. From the catch data revealed that most of the mud crabs entered the Ranong fishery in their first year.

2. The relationship between carapace width - weight in male and female *Scylla serrata* were all allometric. The relationships were expressed as;

$$W = 0.097131 (CW)^{3.369941},$$

and the linearized form;

$$\log W = 3.369941 \log CW - 1.012642 \quad \text{in male } S. \text{ serrata, and}$$

$$W = 0.559879(CW)^{2.559879},$$

the linearized form;

$$\log W = 2.559879 \log CW - 0.318198 \quad \text{in female } S. \text{ serrata}$$

3. The relationship between carapace width(CW) - abdominal width(AW) of both sexes were expressed as;

$$CW = 1.3127 + 3.4183AW \text{ in male } S. serrata$$

$$CW = 4.9306 + 1.1865AW \text{ in female } S. serrata$$

4. Longevity of male *S. serrata* was estimated 3.3 years while the female *S. serrata* was 5 years.

5. The growth parameters of the von Bertalanffy growth model estimated from the carapace width frequency data using the Compleat ELEFAN program were estimated asymptotic length;  $L_{\infty} = 17.5$  cm., with growth constant;  $K = 0.9$  in male *S. serrata* and  $L_{\infty} = 17.7$  cm., with growth constant;  $K = 0.6$  in female *S. serrata* respectively.

6. Total mortality (Z) of *Scylla serrata* was estimated by Compleat ELEFAN program to be 6.374 in male, and 1.481 in female. Fishing mortality (F) = 4.436 in male and 3.639 in female *S. serrata*.

7. Recruitment pattern in male *Scylla serrata* occurred throughout the year with 96.45% of recruitment. The main pulse of recruitment pattern covered about six months from May to October. Recruitment pattern in female *S. serrata* also occurred throughout the year but consist of two distinct peaks. The first one was in February which

the recruitment pulse covered about four month with the percentage of 25.72% and the other one was in May with pulse covering with the percentage of 67.98%.

8. Maturation and spawning of *Scylla serrata* in Klong Ngao mangrove forest occurred and continued throughout the year with the major spawning season in September - December. Female crab size at first sexual maturity is 9.94 cm.

#### Recommendations

1. It is evidenced from this study that the mud crabs in the Klong Ngao mangrove forest entered the Ranong fishery in their first year and that at least 50% of the total catch did not get a chance to spawn. These fishing efforts were detrimental to the mud crab population. Legal size of mud crabs in the catch and closed season for crab fishery must be considered. The major spawning season of mud crabs in Klong Ngao mangrove forest was in between September - December with the peak in September. It is recommended the crab fishing should not be carried out in September. The legal size of female crabs should be approximately 10 cm. This will enhance the recruitment in this area.

2. Several incidents indicated the spawning migration of female *Scylla serrata* offshore. The migration route should be further studied as

well as the recruitment of crab larvae in the mangrove area. Identification of the mud crab spawning area is necessary for the measures in order to ensure the mud crab population continuity. This could be carried out through tagging and marking studies.

3. Mangrove forests play a vital role in maintaining the fishery resources as evidenced from this study on mud crab population. It is important that this ecosystem must be conserved and protected.

4. Public awareness especially the villagers on the importance of mangrove forests as related to fishery resources should be encouraged.



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