

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

1. Fish community in coral reef of Nai - Wog Bay, Ko Pha-Ngan was characterized with high species richness which might be because of the good coral condition and also influenced by the adjacent seagrass bed. The target species is dominated by the snappers, Lutjanidae, which composed of the spanish flag *Lutjanus carponotatus* followed by the moose *L. russelli*. The indicator species found to be eight-band butterflyfish *Chaetodon octofasciatus* and the major families consisted of damselfishes, Pomacentridae, wrasse, Labridae, parrotfishes, Scaridae, cardinalfishes, Apogonidae and rabbitfishes, Siganidae. Fish diversity, species richness and abundance found to be low in January and higher in April. This variation might be from the strong wind and wave actions in the previous monsoon (southwest monsoon) in August and October which might caused decreased in standing stock. However, the fish species composition recorded from January and April did not show any differences (similarity index = 0.84).

2. Fish community in the seagrass bed could be classified according to their residing period in the seagrass bed into 3 categories: 1) permanent residents; 2) seasonal residents; 3) transients. Permanent resident fishes, residing all year round, composed of small and cryptic species, with less commercial value such as *Pelates quadrilineatus*, *Acreichthyes tomentosus*, *Monocanthus chinensis*, and *Petroscirtes lupus*. Seasonal resident fishes, residing only for a season or certain part of life history, composed of species of large fish with high commercial value such as *Lethrinus lentjan*, *Lutjanus carponotatus* and *L. russelli*, etc. The transients which found in the seagrass bed in the course of foraging

by diel cycle composed of the species of large fish such as *Sargocentron rubrum*, *Apogon guamensis*, *Halichoeres chloropterus* and *Pomacentrus tripunctatus*, which some of them are high commercial value such as *Lutjanus carponotatus*, *L. russelli* and *Lethrinus lentjan*.

3. The night trawled samples found to have more organisms than day trawled samples. The collection showed the difference in species composition of fishes due to the diurnal and nocturnal behaviors together with the emmigration and immigration of the transient species. The seasonal variation of seagrass fish community showed that the abundance of fishes increased in January to April than in August to October. These variations caused by the effects of habitats and food availability, wind and wave actions, and salinity and temperature which influenced on the seasonal resident fishes.

4. Migrations of fishes between coral reef and seagrass bed could be categorized into life history migration and periodic migration. Juvenile of several species of reef fishes, such as Redspot emperor *Lethrinus lentjan*, Spanishflag snapper *Lutjanus carponotatus* and Moses snapper *L. russelli*, etc., moved to the seagrass bed to use as nursery ground. ~~When they grew up, they would move to the adjacent coral reefs~~ and form the resting school during the day. These fishes together with other nocturnal reef fishes such as Redcoat squirrelfish *Sargocentron rubrum*, Guam cardinalfish *Apogon guamensis*, etc., would move to feed over the seagrass bed at night. The day active reef fishes, such as Pastel green wrasse *Halichoeres chloropterus* Three spot damselfish *Pomacentrus tripunctatus*, rabbitfishes *Siganus* spp. and Long fin grouper *Epinephelus gouyanus*, etc., moved to feed over the seagrass bed by day.

5. Stomach content analysis of 40 species from 27 families of fishes were examined. Three types of feeding habits, herbivores,

carnivores and omnivores were found in the diurnal migrating fishes. All of the nocturnal migrating fishes found to be the carnivores.

6. Small crustaceans such as amphipods, mysids and isopods were found to be the most important food of fishes. The herbivorous and omnivorous fishes were found to feed directly on the seagrasses itself as well. Successive changeover of food habits of fishes due to the seasonal variation of the availability of the prey could be observed in several fishes species.

7. The similarity of fish species composition of the fishes in the coral reef and seagrass bed and migrations of fishes between habitats demonstrated the interrelationships of fish communities between these two types of habitats and showed the biological determinant of the interconnection between coral reef and seagrass ecosystems.

RECOMMENDATIONS

1. The monitoring study of the fish communities in coral reef and seagrass bed should be carried out in monthly or seasonal and the environmental factors such as the amount of the coverage of coral and seagrasses should also be recognized.
2. It is recommended that the fish larvae and recruitment in coral reef and seagrass bed should be studied for further understanding of the function of the coral reef and seagrass bed and the sampling methodology should also be developed.
3. Along the sharp boundaries between habitats, e.g. mangrove/seagrass/coral, it is recommended that some net such as gillnets be used parallel to the boundaries to sample movements of fishes and/or prawns between habitats. The study should be undertaken on a diel and tidal cycle basis.