

CHAPTER 1

INTRODUCTION



1.1 Origination and rationality

Mangrove is one of important productive habitats (other habitats such as marshes, mudflats, sea grass and coral reefs) in the coastal zone of Thailand. Mangrove is the interface of the terrestrial and marine ecosystem. It consists of diverse habitats and food sources for various aquatic lives. The primary food source of mangroves is detritus derived from the decomposition of mangrove litter, leaves, twigs and flowers. In addition, dissolved organic compounds such as amino acids for estuarine organisms also be found in mangrove (Aksornkoe, 1989).

The important roles of mangrove on aquatic animals, especially mangrove fish, are widely accepted. The ability of mangrove to support fish species is facilitated by the availability of food through decomposition of mangrove flora by fauna and microbes (Robertson and Duke, 1987). The fertile mangrove will provide proper biological, physical and chemical factor for the growth of fish. In Thailand, a total of 152 species from 51 families of fish were found in mangroves across the country (Japar et al., 1994). Economic mangrove fish of Thailand are fish in family of Mugilidae, Serranidae and Lutjanidae. Thus, the species diversity of fish can be used as the biological quality indicator of canals or waterways that run through the mangrove.

However, the effects of coastal economic development of Thailand in recent years, such as aquaculture, commercial and industry expansion, destroyed the functions of coastal ecosystem violently. Especially mangrove areas along the coastal zone of Thailand are now being threatened and destroyed by human activities by converting the mangroves into shrimp farms, urban and built up areas. These activities caused the negative impact on coastal environment such as the changes in biological and physical condition of coastal zone, the coastal erosion due to the destruction of mangroves and etc.

Lin (1992) stated the collapse of shrimp farming in province of Samut Songkhram, Samut Prakan and Samut Sakhorn (the upper Gulf of Thailand) was caused by water pollution which was a result from the over carrying capacity of coastal area. Sudara (1997) indicated that the negative effects of mangrove destruction in coastal areas were water pollution and sedimentation due to

discharge of effluent and solid material from shrimp ponds. He also pointed out that shrimp ponds caused the interruption of water flow regime and the introduction of disease-causing organism. The lost of natural shrimp and fish stocks due to increased pollutant and the product contamination due to indiscriminate use of chemicals were also occurred. Macnae (1968) confirmed that the coastal aquatic animals, affected by shrimp farming, are mangrove fish that use mangrove as the food source, nursery ground, residential and reproduction area and etc.

Improper and careless use of land caused the changes in surrounding environment that in turn affected upon species composition of fish in mangrove canals. However these effects are complicated and hardly received much interest. Therefore, the theme of this research is to compare the composition of fish found from three mangrove canals at Trat Bay, which run through the different types of coastal land use. Presumably, the environmental condition of those canals is different. The first mangrove canal runs through the natural recovery mangrove after forbidding of woodcutting about 10 years ago and now it is as the dumping site of domestic sewage from municipality of Trat province. The second canal is encroached by shrimp farms on both sides. The third canal passes through natural fertile mangrove but its inner part is blocked by water gate. The results of this research can be used as the supporting data for sustainable recovery and conservative management plan on coastal fish resource of Thailand.

1.2 Objectives

1. To study the species composition of fish in three mangrove canals
2. To study the effects of coastal land use on species composition of fish in three mangrove canals

1.3 Hypothesis

1. The different types of coastal land use cause the different environmental condition of three mangrove canals at Trat Bay
2. The different environmental condition of mangrove canals causes the different species composition of fish in these canals

1.4 Scope of the study

Two fishing gears, push net and drift gill net were used for fish collecting in three mangrove canals of Trat Bay, including Bangphra, Thaprik and Thaleuan Canal.

1.5 Anticipated benefits

1. Demonstrate that certain activity on coastal area will cause degradation on coastal environment
2. The results of this study can be used to develop a proper management plan on coastal fish resource conservation