COASTAL AQUACULTURE AND SEA FARMING IN THAILAND

By Siri Tookwinas
Coastal Aquaculture and Sea Farming Division
Department of Fisheries, Thailand

INTRODUCTION

Thailand has a total coastline, both in the Gulf of Thailand and in the Andaman Sea, of approximately 2,600 km. The coastal area has been explored for sites suitable for aquaculture which has expanded quite rapidly in Thailand.

Sea farming is one kind of aquaculture which is undertaken in the coastal sublittoral zone. Different marine organisms such as molluscs, estuarine fish and sea weed are cultured along the coast of Thailand.

MOLLUSC FARMING

Mollusc culture has been practiced in Thailand for more than 100 years. At first, fishermen cultured molluscs by collecting spat from natural grounds. At that time, culture practices were traditional, developed by people living along coastal areas suitable for mollusc farming. Mussel and oyster culture originated from gathering spats from abundant stakes of fixed fish traps, and subsequently, bamboo poles and palm trunks were used as collectors. Bottom culture of cockles and, to some extent, mussels was also practiced. Rock culture of oysters, using cement blocks and natural rocks, is now practiced. Numerous improvements have since been introduced aimed at increasing production.

BLOOD COCKLE

The blood cockles farmed in Thailand and Malaysia belong to the genus Anadara (A. granosa and A. nodifera), family Arcidea, and generally inhabit fine muddy bottoms near the shoreline.

Suitable areas for cockle culture are generally located around estuarine areas and along the coastline with muddy bottoms and with sea water salinity of about 13 ppt. They should be in a wind-sheltered bay with a river or canal to bring in food supply. A suitable area should have a bottom slope not exceeding 15 degrees to prevent cockles from being moved by wind and waves. Water depth should preferably be between 0.5 and 1.0 m (below mean sea level) and the exposure period should not exceed 2-3 hours a day. In addition the culture area should have a small population of predators.

OYSTERS

Oysters are widely distributed along the coast of Thailand. There are four species, among which Saccostrea commercialis, Crassostrea lugubris and Crassostrea belcheri are commercially cultured.

Oysters require a hard substratum for attachment and can thrive on wood, stone or rock substrata. Three principal methods of oyster culture are used: the stick, stone or concrete block, and the hanging (raft and longline) methods. Saccostrea commercialis are cultured by the sowing method on hard, sandy and rocky bottoms.

Most suitable areas for oyster culture are located near river mouths which are protected by natural or artificial barriers against strong wind and wave action.

The salinity level should not drop below 9.5 ppt for long periods and the water must contain adequate nourishment for plankton...
production. Water depth can be between 1.0-2.0 m (below mean sea level), and the exposure period should not be more than 2-3 hours a day during spring tides.

GREEN MUSSEL

The cultivation of green mussels *Perna viridis* in Thailand follows the traditional system of collecting on stationary fishing gear, or on bamboo poles. There are three basic methods for green mussel culture, which are similar to the method practiced in oyster farming.

Green mussel are distributed all along the coastline of Thailand and are particularly abundant near river mouths. Suitable areas for green mussel culture should have salinity levels of around 15-32 ppt. Water depth should be between 1.0-4.0 m below mean sea level. Phytoplankton productivity should be optimum, both with regard to species composition and abundance, in order to sustain a high productivity.

HORSE MUSSEL

Horse mussel (*Modiolus senhusia*) is another bivalve species widely distributed along the coastline of Thailand. It requires hard bottom with a good mixture of silt, sand and mud in order to thrive. They inhabit shallow waters with depths usually less than 2 m which sometimes may be exposed for short (<1 hour a day) periods during low tides.

This species of mussel requires different habitat from the green mussel and, like cockles, they usually grow on the bottom of intertidal zones.

At present, horse mussel is cultured only in Chonburi Province (inner Gulf of Thailand) in an area of 240 ha. No specific survey has been done on horse mussel culture: however, it is assumed that this species requires an aquatic environment similar to cockles, except for the texture of the bottom substrata.

CULTURES AREAS AND PRODUCTION

Mollusc culture areas in Thailand 1989 covered a total of 2,252 ha. The total culture area is separated into green mussel (351 ha.) horse mussel (86 ha.) blood cockles (1,198 ha.) and oyster (617 ha.). Mollusc production from the 4 species, mussel, oyster, cockle and horse mussel were about 44,237 mt, 1,858 mt, 4,652 mt and 652 mt, respectively. They were from both farming and natural grounds.