

# INTRODUCTION TO THE PHUKET MARINE BIOLOGICAL CENTER RESEARCH PROJECTS

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Phuket Marine Biological Center (PMBC), Department of Fisheries, Ministry of Agriculture and Cooperatives was established under bilateral agreement between Thai and Danish governments after the 5th Thai-Danish Expedition operation along the Andaman Sea coast of Thailand in 1966. The PMBC (8.4 hectares) locates at the south-east of Phuket Island, Laem Panwa, Muang District, and Phuket Province.

The objectives of the Center are to carry out research in the field of marine science, including fishery biology, of the coastal waters of Thailand to such an extent that the knowledge will be useful for the development and conservation of living resources in these waters to the benefit of future generations and to promote training and education of students and scientists both Thai and foreigners in the field of marine biology.

The center is presently organized into 8 units which are:

1. Administration Unit
2. Marine Biological Productivity Unit
3. Marine Ecology Unit
4. Fishery Oceanography Unit
5. Marine Biodiversity Research Unit
6. Phuket Aquarium Unit
7. Marine Endangered Species Unit
8. Scientific Information Service Unit

The total number of staffs is 61 persons, of which, 29 are scientists, 1 librarian and 32 supporting staffs.

## MARINE BIOLOGICAL PRODUCTIVITY UNIT

The major aims are to investigate marine biological productivity and its environmental biology, including relationship within pelagic food chains in order to establish accurate and essential description of how biological production is responding to short and long term changes in environment variables. Studies to date deal with seasonal and spatial variations in plankton production and food chain structure of the pelagic Andaman Sea as well as environmental factors determining the distribution, abundance and succession of plankton with special emphasis on commercial species. Findings are crucial not only to improve our knowledge about the potential fisheries exploitation of the natural resources but also to the management of these marine resources so as to provide substantial fishery ground.

## MARINE ECOLOGY UNIT

Research on marine ecology will bring to better understanding of the important ecological systems, e.g. estuary, seagrass bed and coral reef ecosystems in terms of food sources, spawning and nursery grounds of living resources. The ecological findings are well recognized by both government and private agencies at national and international levels. The results of the studies have provided the tool in conservation and wise utilization of coral reefs and mangroves as well as general coastal zone planning.

## **FISHERY OCEANOGRAPHY UNIT**

Fishery Oceanography Unit undertakes environmental researches on physical, chemical, biological parameters and the problem of marine pollution. The area of studies are coastal belt, estuary and offshore of the Andaman Sea of Thailand. Monitoring of coastal waters as well as bioassay on effect of pollutants are conducted. Results of the studies have been used in coastal zone planning and management of Phuket and adjacent areas. Fishery oceanography of important pelagic resources in the Andaman Sea is also under investigations.

## **MARINE BIODIVERSITY RESEARCH UNIT**

Marine Biodiversity Research Unit (MBRU) studies biodiversity and evolution of marine flora and fauna in the Andaman Sea from various habitats such as mangrove, seagrass bed, coral reef and benthic communities by following systematic, taxonomic, genetic, phylogenetic studies. Specimens are catalogued and registered in computer database in the Reference Collection for scientific purpose and to be used as the Center for Marine Biodiversity Information in the region.

At present, MBRU maintain about 4,000 identified species and 60 type specimens. More than 200,000 individuals have been collected and stored, waiting for scientific treatment in the year to come. The collection is much used by the foreign and local researchers and it is one of the well recognized collections of marine flora and fauna in Southeast Asia

## **PHUKET AQUARIUM UNIT**

Phuket Aquarium Unit undertakes life history and behavioral researches on fresh water and marine ornamental aquatic plants, fish and animals. The research aims to fulfill the fundamental knowledge of aquatic life for support aquaculture and public awareness on environmental issues. The Phuket Aquarium Building was established in 1983 for public education on local freshwater/marine fauna and flora as well as wise utilization and conservation of these resources. The Aquarium also becomes as a tourist attraction where tourist and locals alike can observe colorful fishes and other aquatic organisms.

The Aquarium also serves as place where as the results from studies conducted at PMBC are popularized and communicated to public by exhibition at the aquarium.

## **MARINE ENDANGERED SPECIES UNIT**

The objective is to study on distribution, biology and population characteristics of the marine endangered and threatened species such as, sea turtles, dugong and whales in the Andaman Sea. The unit also contributes new knowledge and information that increases the public awareness of the need for conservation and a long-term sustainable exploitation of some species to the benefit of the local fishermen.

## **SCIENTIFIC INFORMATION SERVICE UNIT**

Scientific information service unit offers service to all institute units, collaborates and communicates with national and international institutes, Thai and foreigner scientists, arranges training and educational course for graduate and undergraduate students, arranges meeting, workshop, and conference, provide local area network computer (LAN) service and publishes proceedings and Phuket Marine Biological Center Research Bulletin.

## **PUBLICATION**

Phuket Marine Biological Center Research Bulletin is the publication of the Center which contains the results of the studies conducted by the staff as well as visiting scientists. It has been widely distributed and used for exchange with publications from other 79 national and 201 international institutes. The results of the works are also published in various national and international journals as miscellaneous.

## **NATIONAL AND INTERNATIONAL COOPERATION**

As one of the few marine laboratories in Southeast Asia, the Center serves as a laboratory where visiting scientists can conduct their research in collaboration with the staff of the Center. The center also cooperates with other national and international institutes in conduction research and to provide information needed in planning of coastal development.

In addition, PMBC is an institution carrying out research programmes in marine science under the ASEAN network and receives some assistance from various international agencies in carrying out research projects as well as organizing.

## **THE SOUTHEAST ASIA SEA TURTLE COOPERATIVE RESEARCH (SEASTAR2000)**

SEASTAR2000 is the one of existing international cooperative research project of the PMBC. The cooperative project on sea turtle research and conservation between Thailand and Japan was conducted since 1999, organizing by Kyoto University and the Marine Endangered Species Unit of the PMBC. The cooperative project was extended to Asian cooperation in 2000 it was called "Southeast Asia Sea Turtle Cooperative Research (SEASTAR 2000). The member countries include Thailand, Malaysia, Vietnam, Cambodia and Japan. The objectives of the cooperative researches are;

1. Migration paths of adult female green turtles in the Gulf of Thailand and the Andaman sea, using satellite tracking system.
2. Monitoring of sand temperature using temperature recording data loggers in the nesting ground to estimate sex ratio of new-hatched individuals.
3. Genetic analyses of the local population structures of the sea turtle.
4. Correlation between fishing effort of trawling and the number of sea turtle by-catch.
5. Development of a scientific strategy for the conservation.

The cooperative project is funded by Kyoto University and A Grant-in-Aid of Ministry of Education, Culture, Sport, Science and Technology, Japan mainly support the budget during 2001FY to 2003FY.