THE RELATION BETWEEN SEA SURFACE TEMPERATURE AND SELECTED PELAGIC FISH CATCH IN THE SOUTH CHINA SEA

KU HASSIM BIN KU YAACOB

MASTER OF SCIENCE

KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA

2005

THE RELATION BETWEEN SEA SURFACE TEMPERATURE AND SELECTED PELAGIC FISH CATCH IN THE SOUTH CHINA SEA

KU KASSIM BIN KU YAACOB

Thesis submitted in Fulfilment of the Requirement for the
Degree of Master of Science in the Institute of Oceanography
Kolej Universiti Sains dan Teknologi Malaysia

July 2005

DEDICATION

Allah the Almighty....
The Prophet Muhammad, His Massenger and Slave (p.b.u.h.)

To my loving wife Mazliza, and children Ku Nur Alya, Ku Muhammad Izzat and Ku Muhammad Arif... You are my inspirations...

Abstract of thesis presented to the Senate of Kolej Universiti Sains dan Teknologi Malaysia in fulfilment of the requirement for the degree of Master of Science

THE RELATION BETWEEN SEA SURFACE TEMPERATURE AND SELECTED PELAGIC FISH CATCH IN THE SOUTH CHINA SEA

KU KASSIM BIN KU YAACOB

July 2005

Chairperson: **Professor Mohd Lokman Husain, Ph.D.**

Members: **Associate Professor Sulong Ibrahim, M.Sc.**
Maged Mahmoud Marghany, Ph.D.
Professor Hiroshi Kawamura, Ph.D.

Faculty: **Institute of Oceanography**

The relationships between sea surface temperature (SST) and the catch of selected pelagic species were studied in the waters of the East Coast of Peninsular Malaysia (ECPM), from 1992 to 1999. The fishing data for 12 fish species collected from the logbooks of the purse seine vessels were converted to monthly catch per unit effort (CPUE, tonnes/trip/month). The monthly mean satellite-derived SST datasets, gathered from the Advanced Higher Resolution Sea Surface Temperature (A-HIGHERS) and the Pathfinder programmes, and corrected for their accuracy, were used in the analysis. The results showed that each species had its specific interactions with SST, depending on season. During the northeast (NE) monsoon season, higher CPUEs of major species such as *selayang*, *lolong*, and *aya hitam* were from the low SST areas (25.8-27.4°C). The species such as *kembung* was mostly caught from the warm areas (26.4-28.6°C). *Selayang* was mostly caught towards the lower SST range (28.4-29.8°C) during the southwest (SW) season, while *aya* was mostly caught in the

SST range of 28.9-30.4°C. The upwelling event detected along the coastal area of the ECPM during the SW season contributed to higher catches of *selayang*, *cencaru* and *selar kuning*. This may indicate the importance of upwelling event in the ECPM in increasing the catch of fish. The El Nino period from 1997-1998 indicated by positively high and constant SST anomalies coincided with reduced catches for *selayang*, *lolong* and *lecek* but increased in catches for *aya*, *aya hitam* and *selar kuning*. In general, the SST follows the same trend every year with the highest SST in May (transition period, 30.6°C in average), and lowest in January (NE monsoon season, 27.1°C in average). During the SW monsoon (July-August) the mean SST was 30.5°C ranging from 28.8-32.0°C.