



**THE FOURTH REGIONAL WORKSHOP ON SHARED STOCKS:
RESEARCH AND MANAGEMENT
IN THE SOUTH CHINA SEA**

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**COUNTRY STATUS REPORT
PENINSULAR MALAYSIA**

**THE PELAGIC FISHERY ON THE EAST COAST OF PENINSULAR
MALAYSIA**

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Abstract

This report gives an overview of the status of the pelagic fishery resources on the east coast of Peninsular Malaysia. These resources most probably consist of transboundary stocks since pelagic fish are characteristically migratory in nature. It has also been accepted that many of these stocks are shared by a few countries in the adjacent area. However after years of meetings and deliberations, problems in the actual assessment and management of these shared stocks still prevail. This report outlines some of the outstanding problems.

Introduction

The pelagic fishery on the east coast of Peninsular Malaysia recorded total landings of 104,554 tonnes in 1996 (Anon., 1996a). This represented 36% of the total marine landings on the east coast or 13% of the total marine production in Peninsular Malaysia. In terms of importance the east coast ranked after the west coast where pelagic fish contributed 16% of the total marine landings.

Status of the Pelagic Fishery on the East Coast of Peninsular Malaysia

On the east coast of Peninsular Malaysia, the pelagic fishery is supported by three major groups of fish, namely, the Indian mackerel (*Rastrelliger kanagurta*), scads (*Atule mate*, *Alepes*, *Selar* and *Selaroides leptolepis*) and roundscads (*Decapterus*). Small tuna (*Thunnus tonggol*, *Euthynnus affinis* and *Auxis thazard*) are also important and contribute to a substantial proportion of the pelagic fish landings (Fig 1). The fishery is supported by a mix of species but not dominated by *Rastrelliger* as seen on the west coast of Peninsular Malaysia. Most of the *Rastrelliger* caught off the east coast of Peninsular Malaysia are *R. kanagurta* mixed with small quantities of *R. faughni*. On the west coast of Peninsular Malaysia the dominant species caught is *Rastrelliger brachysoma*.

The fish purse seine is the major commercial gear for pelagic fish, and landed 72% of the total pelagic fish landings in 1996. The commercial trawl landed 9%. Other important traditional fishing gear like the hook and line, including trolls, landed 7%, followed by 6% for driftnets and 6% for liftnets and other gear (Anon., 1996a). Small tuna and some pelagics are mainly caught by troll lines. Driftnets are important for small pelagics and seasonally for small tunas.

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Problems Concerning Shared Stocks

Identification of the Shared Stock

Many hypotheses of the shared stocks in the region have been made. Since the early 1980's the Southeast Asian Fisheries Development Center, SEAFDEC (Anon., 1981; Anon., 1985; Anon., 1995, Anon., 1996b, Anon., 1998) as well as other agencies like the South China Sea Fisheries Development and Coordination Programme, SCSP (Anon., 1976), Bay of Bengal Programme, BOBP (Anon., 1987a) and Indo-Pacific Tuna Development and Management Programme, IPTP (Anon., 1987b) initiated regional projects for the assessment and management of shared stocks. These projects hypothesised the fish stocks that were possibly shared by adjacent countries in the Southeast Asian region. Limited tagging on selected pelagic fish like *Rastrelliger brachysoma* (Anon., 1987a) and small tuna (Raja Bidin, 1991) was conducted by Thailand and Malaysia but the results obtained could not define the shared stocks owing to the limited number of fish tagged and the poor and non-reporting of recovered fish. Thus tagging only provided preliminary results on the nature of the shared stocks.

To aid in the definition of shared stocks, currently available molecular techniques could be attempted on selected species on a regional basis. This should be conducted in parallel with morphometric studies, in which data analyses can now be performed using available computer software. Information gathered through these studies can then be pooled with existing information on the biology of the fish to define the stocks shared.

Stock Assessment

Fish stock assessment is being conducted nationally in Malaysia and in other countries in the region irrespective of whether the stocks are shared or not. This is inevitable because of the urgent need for management as these stocks contribute significantly to the economy of the nation.

In Malaysia fish stock assessment techniques currently used are still based on single species although limited attempts in the assessment of multi-species fish stocks have been made (Yong *et al.*, 1994). Because of insufficient data, simplistic models like the surplus production models based on catch and "standard fishing effort" are still being used. The use of other more sophisticated models still hinges on the difficulty in collecting series of data on the multi-species and multi-gear in the fisheries complicated further by the location of landing sites all along the coastline. There are only a few major fish landing complexes for the centralised landing of catches. A major difficulty is in the estimation of relative fishing effort contributed by a variety of fishing gear used to capture the same species e.g the catch of *Rastrelliger brachysoma* by the trawl, fish purseseine and the driftnet on the west coast of Peninsular Malaysia (Chee, 1999). The same goes for the penaeid shrimp fishery where different stages in the life cycle of *Penaeus merguensis* are caught by different fishing gear (Ahmad-Adnan and Lim, 1994).

The use of acoustic techniques is the most direct method for assessing pelagic fish stocks. In the waters of Malaysia few acoustic surveys had been conducted (Aglen *et al.*, 1981; Edi-Muljadi *et al.*, 1984). In this respect, SEAFDEC had been successful in implementing regional pelagic fish resource surveys off the east coast of Peninsular

Malaysia, Thailand, Philippines and Vietnam. However estimates provided by these surveys should be further refined through the use of better fishing techniques to sample fish.

To enable assessments of shared stocks, a regional database should be established. This database should be maintained up-to-date, particularly the landing statistics for the national production since these data are needed to support assessment. These data should be made available to an active regional technical working group which should be formed to conduct assessments regularly so that results obtained could be used as a basis for the proper management of shared stocks. This working group with sufficient expertise, should be committed, sufficiently funded and should meet regularly.

Sufficient funds and personnel should be made available to support a continuous monitoring programme nationally and regionally to collect and document data both from experimental fishing e.g. fish resource surveys, as well as from the commercial fisheries.

Other Problems

The above problems are technical problems concerning the nature and assessment of shared stocks. As outlined by Purwito (1998), the management of shared stocks also require coordinated regulation, surveillance and enforcement. Fisheries management is also constrained not only by biological aspects of fish stocks but by social and economic aspects of fishers and fishing communities. This is particularly true in the Southeast Asian region where fisheries management has to be viewed in the context of rural development (Marr, 1982).

Management of Pelagic Fish Resources

Fisheries management measures in Malaysia are incorporated in the legal framework of the Fisheries Act 1985.

In 1981, a licensing policy which demarcated specific fishing areas to fisheries using different fishing gear and operated different sizes of fishing vessels as well as codification and colour identification schemes for fishing vessels were introduced. Current fishery management measures which mainly control entry into the fishery include licensing of fishing gear and vessel as well as registration of fishermen. In the area of Monitoring, Control and Surveillance (MCS), the Department of Fisheries Malaysia has established a good network and works in close cooperation with the Royal Navy and Marine Police.

The construction of artificial reefs in the waters off the Malaysian coast, is an important fisheries management tool adopted. The main objective is to rehabilitate declining fisheries and marine aquatic resources in coastal areas. Marine Parks and Marine Protected Areas have also been gazetted for conservation.

Recently Malaysia placed great emphasis on stakeholder participation in fisheries management through the initiation of consultations and discussions with fishers, the fishing industry and non-governmental organisations. Community based fisheries management approaches have been recommended for the management of inshore fisheries in areas up to 12 nautical miles from shore (Raja Mohammad Noordin, 1999). The formulation of fisheries management plans involving the participation of the Department of Fisheries Malaysia,

representatives of fishermen and the fishing industry as well as non-governmental organisations and local universities was initiated through a workshop held with the support of FAO (Anon., 1999).

National Fish Resource Surveys and Other Scientific Studies

Most of the experimental fish resource surveys conducted in Malaysia are demersal surveys because of the availability of suitable research vessels (Abu Talib and Alias, 1997). Pelagic fish surveys using the acoustic technique have been conducted but not on a regular basis. In Malaysian waters acoustic surveys had been conducted by the DR. FRIDTJOF NANSEN (Aglen, 1981), K.K. AYA (Edi-Muljadi *et al.*, 1984) and lately by M.V. SEAFDEC. Malaysia conducted a comprehensive demersal and pelagic fish resource survey in her Malaysian Exclusive Economic Zone (EEZ) waters in 1985 – 1987 using the chartered vessel R.V. RASTRELLIGER (Anon., 1987c). Another survey for demersal and pelagic fish in the Malaysian EEZ was conducted in 1997 – 1999.

Besides these surveys, monitoring of landings at specific landing sites had been conducted. Catch and composition data by fishing gear as well as biological data on selected fish were gathered. However these activities had been constrained by funding especially over the last few years.

Conclusion

Regional programmes have been recommended for the proper assessment and management of shared stocks. This is accepted as necessary but effort towards achieving this could not be sustained. Under the umbrella of regional programmes like BOBP and IPTP, many projects were initiated but these activities folded up upon the termination of these projects. It is hoped that SEAFDEC can now initiate, facilitate and sustain regional projects to achieve the goal of regional collaborative fisheries management.

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Fig. 1: Landings of Pelagic Fish on the East Coast of Peninsular Malaysia

