

REVIEW OF NATIONAL FISHERIES MANAGEMENT POLICY- IMPLICATION FOR THE MALAYSIAN FISHERIES SECTOR

by

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1. Introduction

1.1 The marine fisheries subsector plays an important role in the national economy and contributes significantly towards providing income, employment opportunities and foreign exchange gains to the rural population in the country. Fish constitutes 60-70% of the national animal protein intake with per capita consumption of about 39.5 kg per year. The rate of demand for fish as the main source of protein is expected to increase from an annual consumption of 630,000 metric tons to over 1,579,800 metric tons by the year 2010 (by an estimated population of 26,330,000 at per capita consumption of 60 kg/year). In 1994 the total marine fish landings was around 1,181,763 metric tons with a value of about RM2.99 million. The total revenue accounted for about 1.61% of the Gross Domestic Product (GDP). The marine fisheries subsector employs 1.3% of the total labour force in the country.

1.2 The development of the marine fisheries subsector has long been restricted to the territorial waters but after the proclamation of her Exclusive Economic Zone, the Department of Fisheries is not only given the opportunity to exercise resource management to ensure sustainable exploitation and equitable allocation of her natural marine resources within the area of extended jurisdiction but also to increase production and at the same time protecting the marine environment from pollution and degradation which will result in loss of aquatic habitats.

2. The Marine Capture Fisheries

2.1 The marine capture fisheries can be categorized into two main types namely

Coastal or Inshore Fisheries

Coastal or inshore fisheries, where the fishing vessels operate within 30 nautical miles from the coastline, is the most important subsector of the fisheries industry from the socio-economic point of view. These fishing vessels ranged from the traditional type to the commercial vessels of less than 70 Gross Registered Tonnage (GRT). The coastal fisheries have always been the main focus of the fishing activities and there is general consensus that the coastal fisheries resources are currently intensively exploited. Currently the inshore fisheries contribute about 87.3% towards the total marine fish landings of the country.

Deep Sea Fisheries

The deep sea fishing vessels operate beyond 30 nautical miles from the shore line. Presently, deep sea fisheries contribute about 12.7% of the total marine fish landings in the country. The fishing vessels in operation are fairly large, of 70 GRT and above. Basically commercial gears such as trawlers, purse seine and hooks and lines are operated. In 1994, a total of 31,403 fishing vessels were licensed, out of which 520 unit were deep sea fishing vessels.

2.2 The marine capture fisheries are characterized by various types of fishing gears that are being employed by the fishermen to harvest the large selection and diversity of fish species that are found in Malaysian waters. These fishing gears are classified into commercial fishing gear consisting of trawl, fish purse seine, drift/gill nets and the traditional fishing gear like the hook and lines, bagnets, trammel nets, lift nets and traps. However, the major fishing gears that contribute to the bulk of the landings are the trawl nets, purse seine nets and the drift/gill nets.

The Trawl Fishery

The otter bottom trawl net is the main fishing gear used to harvest the demersal finfish and penaeid prawn resources in the waters of Malaysia. The trawl fishery contributed 587,928 metric tones (55%) of the total marine landings in 1994, of which 540,392 metric tons (50.6%) were mainly finfish and cephalopods and the balance of 47,536 metric tons (4.4%) being penaeid prawns.

A large number of fish species are landed by the trawlers. While demersal finfish still remain as the dominant catch of the trawl nets, the development of “high opening” trawl nets have resulted in the ability of trawl nets to catch pelagic finfish, mainly the Indo-Pacific mackerel *Rastrelliger brachysoma*. This has resulted in the Indo-Pacific mackerel being caught mainly by these “high opening” trawl nets, particularly on the west coast of Peninsular Malaysia.

Penaeid prawn constitute an important component of the catches of trawlers operating in the inshore waters, particularly on the west coast of Peninsular Malaysia. Although the penaeid prawns landed by trawl nets contribute only 8% to the total marine fisheries landings in 1994, they are the mainstay of the trawl fishery by virtue of their high commercial value and market demand. The rapid development and concentration of the trawl fishery within the coastal waters has resulted in the current intensive exploitation of the coastal demersal finfish and penaeid prawn resource. While the total production from the coastal demersal finfish and penaeid prawn fisheries may appear to be sustained or even increased, the disappearance of certain species, notably that of *Lactarius lactarius* from the coastal waters of Peninsular Malaysia, indicates that over-exploitation of the resource exists. This is further evidenced by the relatively high catch of trash fish consisting of young immature juveniles of commercial fish landed by the coastal trawlers.

The Purse-Seine Fishery

The purse-seine net is the major fishing gear used to exploit the pelagic fish resources. Two main types of purse-seine nets are being employed by the fishermen to harvest the pelagics resources, namely fish purse-seine which is used to catch small pelagic, and the anchovy purse-seine which is employed to fish for anchovies in the coastal waters.

Fish Purse-Seine

The fish purse-seine nets which are operated with or without fish aggregating devices (FADs) contributed 156,246 tons (14.7%) towards the total marine fish landings in 1994. The catching efficiency of this fishing gear has been increased through the years with the development of new techniques like the use of spotlights as FADs and fish sonars to locate fish schools. These new fishing techniques have contributed substantially to the increase in fishing pressure on the small pelagic fish stocks. The purse-seine using spotlights as FADs catches more fish per haul of operation compared to the purse-seine which employ "tuas" (coconut frond lures) as FADs, and also catches more species of fish relative to the "tuas" and the night free-school scouting purse-seines. The fish purse-seine fishery has been mainly supported by catches of the small mackerels *Rastrelliger*, which remain the dominant catch of the fishing gear.

Anchovy Purse-Seine

The anchovy purse-seine nets are operated in very coastal waters, targeting mainly on anchovies of the genus *Stolephorus*. In 1994 the landing of anchovies by purse-seines amounted to 19,599 tons. Although anchovies contribute only 1.8% to the total marine landings, the anchovy purse-seine fishery is an important and valuable fishery, particularly on the west coast of Peninsular Malaysia, where the fishery is well developed on the northern part of the coast at Pulau Pangkor, Tanjung Dawai/Sungai Batu in Kedah and Pulau Langkawi.

The Drift/Gill Net Fishery

The drift/gill nets are another group of important fishing gear that are being employed by the fishermen to harvest the coastal fisheries resources. In 1994, the drift/gill nets contributed 145,657 tons to the total marine fish landings of the country. These fishing gear are selective and are operated in the coastal waters, and hence account for 13.7% of the coastal marine fish production in 1994. Two main types are being employed by the coastal fishermen; one targeting at finfish and the other, penaeid prawns.

The finfish drift/gill nets mainly target the higher-valued commercial pelagic fish species. However, the set gill nets that are also used by the coastal fishermen mainly catch demersal fish species like marine catfish and Jewfish. The prawn drift/gill nets are actually trammel nets which are employed to catch the more valuable species of prawns like *P. merguensis*.

In Sarawak, the gill net fishery also target the *Tenualosa* (locally known as “ikan terubok”). The fish is being exploited primarily for its roe, and the spawning adult is the target, which has resulted in the fishery being threatened by over-exploitation. The landing of this species has also been declining for the past few years.

Other Traditional Fisheries

The other traditional fishing gears which are employed by the coastal fishermen include hook and lines, bagnets, lift nets, seine nets, traps, barrier nets and scoop nets. Together they contributed 132,051 tons (12.4%) to the total marine fish landings in 1994. These are very passive fishing gears which are operated by the smaller fishing crafts in the coastal waters and harvest a large number of demersal as well as pelagic fish species, prawns and cephalopods. In Sarawak, a number of traditional fishing activities are also being conducted in the mangrove areas of Kuching, Sarikei and Lawas.

3. Mission, Vision and Objective of the Department of Fisheries

It is the mission of the Department of Fisheries Malaysia to bring about changes in the country’s fishery sector in order that it will evolve into a commercial, modern and progressive sector, and to ensure the sustainability of the fisheries resources for the needs of the nation. With Vision 2020 in focus, the fishing industry will be developed into a modern, efficient and highly commercial industry. Coastal fisheries will be rationally managed to sustain optimum production while deep sea fishing will be fully developed to exploit the resources in international waters. Aquaculture development will also be given greater emphasis. Malaysia will also be exporting fish and its by-products and at the same time increasing the standard of living of the fishing community. To fulfill its mission, the Department of Fisheries Malaysia has identified five (5) main objectives that need to be achieved, namely:

- to increase the national fish production
 - to rationally manage fishing resources
 - to develop the deep sea fishing industry
 - to speed up the growth of the aquaculture industry
- to maximize the income of the fishing industry

4. Management of the Fisheries

In order to achieve its mission, vision and objectives, the Department of Fisheries Malaysia has established an appropriate legal framework as well as formulated and implemented various strategies for the sustainable development and management of the fisheries.

4.1 Legal Framework

4.1.1 The 'Fisheries Ordinance 1909' was the only ordinance used to regulate the fishing industry in the early 1900's. This Ordinance was subsequently amended in 1912, 1924, 1926 and was finally repealed in 1951. The Fisheries Rules of 1951 was then enforced on 10 August 1951. During this time there were also 7 Fisheries Ordinances/Enactments enforced by the various states. The fishing industry at that time was mostly traditional fisheries and regulation of the industry then was minimal.

4.1.2 However, in the 1960's and 1970's the introduction of trawling in the coastal waters created much conflict among the traditional fishermen and the trawlers. This led to the formulation of Fisheries Act 1963 which provided a more comprehensive legal framework to manage the fisheries in Malaysian waters. This Act was formulated to integrate and strengthen the legal framework relating to marine and inland fisheries; to protect the natural living resources; to protect the interest of the fishermen; to ensure equitable allocation of fisheries resources; and to strengthen administrative activities to reduce conflict among the fishing communities. This Act was subsequently repealed and replaced by the Fisheries Act 1985.

4.2 Management Measures

The Department of Fisheries has formulated a number of management measures which has been implemented through its legal and institutional framework. The measures implemented include :

Director Limitation of Fishing Effort

A moratorium has been placed on the issuance of new or addition fishing licenses for vessels to fish in the coastal waters. This is to ensure that the current high fishing pressure on the limited coastal fisheries resources will not be increased, to prevent over exploitation.

Closed Fishing Areas

Commercial fishing vessels like the trawlers and the fish purse seiners are prohibited from fishing in waters less than 5 nautical miles from the shore. The waters less than 5 nautical miles from the shore is the nursery ground of juveniles of

prawns and fish. This will reduce fishing pressure from the trawlers and fish purse seiners.

Management Zones

Four fishing zones have been established through a licensing scheme whereby zones were designated for specific fishing gears, class of vessels and ownership. The four management zones were aimed at providing equitable allocation of resources and to reduce conflict between the traditional and commercial fishermen. Basically the 4 zones were:

- Zone A less than 5 nautical miles from shore, reserved solely for small scale fishermen using traditional fishing gears and owner-operated vessels.
- Zone B beyond 5 nautical miles where owner-operated commercial fishing vessels of less than 40 GRT using trawl nets and purse seine nets are allowed to operate.
- Zone C beyond 12 nautical miles where commercial fishing vessels which are more than 40 GRT using trawl nets and purse seine nets are allowed to operate.
- Zone C₂ beyond 30 nautical miles where deep sea fishing vessels of 70 GRT and above are allowed to operate.

Conservation of Resources

Conservation of marine resources has always been the primary concern of the Department. Marine Parks and Marine Reserves as well as fisheries protected areas have been established under the Fisheries Act 1985 as one of the Department's management measures. This is to protect, conserve and manage in perpetuity the marine environment in order that it remains undamaged for future generation. Public awareness on the need to protect the corals and other marine flora and fauna in the waters surrounding the islands off the coast is being promoted to ensure their conservation. At present 4 Marine Parks which group the waters of 35 islands off the west and east coasts of Peninsular Malaysia have been gazette. The waters of three (3) islands off Labuan have also been gazettes. In Sabah itself, 3 Marine Parks have been established consisting of about 10 islands. The waters around five (5) islands in Terengganu and Sarawak namely Pulau Nyireh, Pulau Tenggol, Pulau Talang-Talang Besar, Pulau Talang-Taland Kecil and Pulau Satang have also been gazetted as fisheries protected areas where by collocation of marine fauna and flora is prohibited. Fishing in the fisheries protected areas is also prohibited unless licensed to do so.

Rehabilitation of Resources

Artificial reefs have been established in Malaysian fisheries waters as a marine resource enhancement as well as one of the steps to alleviate the problem of

depleting fish resources in the coastal waters. They are used as a possible tool for fisheries management in maximizing exploitation, resource conservation, habitat rehabilitation and mitigating the effects of overfishing. A total of 54 artificial tyre reefs, 10 boat reefs and 10 concrete reefs have been constructed. An experimental reef using PVC pipes has also been set up to study the effect of the artificial reef.

Monitoring, Control and Surveillance (MCS) Programme For Fisheries Management

Foreign fishing in the Malaysian Exclusive Economic Zone has always been a problem especially in the waters off the East Coast of Peninsular Malaysia, and off the coast of Sabah and Sarawak. Illegal fishing activity can result in economic losses to the country in the long run, negative impact on the socio-economic status of the local fisherfolks, and is also a threat to the security of the nation. The introduction of a Monitoring, Control and Surveillance programme for the management of fisheries is another measure taken up by the Department of Fisheries to overcome the problem of illegal foreign fishing in the Malaysian waters. This programme provides for effective and efficient scientific data acquisition for resource evaluation. It also provides for the design of effective monitoring and control of fisheries enforcement activities to ensure that only authorized fishing vessels conduct their fishing activities within designated areas in the Malaysian fisheries waters.

5. Implications for the Fishing Industry

5.1 Rational fisheries management strategies will help to reduce conflict between the traditional and commercial fishermen. They will also ensure the sustainable exploitation of the fisheries resources and at the same time, increase the productivity of the fishermen.

5.2 In the case of the inshore fisheries, the main strategy will be geared towards a reduction in the fishing effort in inshore waters. This will address the need to reduce over-capitalization in the coastal fishing industry which is one of the current problems faced by the world fishing industry. In this respect, fishermen will be given the opportunity to leave the fishing industry and participate in other economic sectors of the country. Participation of the fishermen in the down stream activities of the fishing industry (fish food processing) and also the opportunity to participate in development projects related to the aquaculture subsector will also be given more emphasis in the future. This will help to sustain fish production in the inshore waters as well as maximize the income of the industry.

5.3 Fishermen with advanced training conducted by the Department's Fisheries Training Institute in Terengganu will be encouraged to venture into deep sea fisheries. currently the Department is giving emphasis to the development of the deep sea fisheries to increase production from the offshore areas especially in the waters off Sarawak and Sabah, as well as in the Indian Ocean.

5.4 The establishment of Marine Parks and Marine Reserves is also being given emphasis as one of the conservation measures to ensure sustainability of the fish stocks in the coastal waters. Marine Parks also contribute towards the conservation of biodiversity of the marine ecosystem.

5.5 Apart from the current implementation of the various management strategies and measures, the Department's Fisheries management policy will also include the following in the near future:

5.5.1 Strengthening and intensification of research into the biology and assessment of fisheries resources, and fishing gear design and selectivity in line with the growing global concern on sustainable development and degradation of the environment.

It is recognized that limited access through licensing alone does not effectively control the fishing effort. With mechanization, greater use of sophisticated fishing aids and more efficient fishing gears, the fishing effort has actually increased with time. The increase in landings of trash fish, especially the juvenile of commercial fishes, is of great concern to the Department, and research in the design and use of selective gears will be conducted to address this issue. although necessary research on the biology, population ecology and resource assessment has been implemented, it will be intensified under the Seventh Malaysia Plan to provide comprehensive data and information for the formulation of management plans for the different types of fisheries and fishing gears. This will also include research on selective and environmentally friendly gears which will contribute towards a reduction in by-catch. Such efforts will be further supplemented by a research monitoring programme whereby the state of the fisheries resources will be monitored to support the various management plans. Such research monitoring programme will be conducted by research vessels as well as by an observer programme where observers are placed on board deep sea fishing vessels.

5.5.2 Provisions of more efficient and effective extension services to educate the target group on fisheries management needs and benefits derived from such management strategies will be implemented. It is necessary for the fishermen to be fully conversant with the concept, need and benefits that would accrue to them, their families and community in order that they fully support and participate in the management strategies.

5.5.3 The Department has also proposed to resettle surplus fishing labour under the Seventh Malaysian Plan (RM7). Under the 4th Malaysian Plan (1981-1985) a 'buy-back scheme' was implemented to reduce the number of fishermen in the fishing industry. However, the 'buy-back scheme' was not successful at that time due to the unsuitable economic condition of the country which was affected by the global economic recession. However, with the last eight years of high economic growth and projected growth in the

future, it is envisaged that the 'buy-back scheme' to be implemented under the 7th Malaysia Plan will be an attractive incentive for the fishermen, especially those from the over-capitalized inshore fisheries to leave the fishing industry. This scheme will be undertaken together with the provision where possible, for the fishermen to participate in aquaculture development projects as an added incentive.

5.5.4 In the international arena, the Agreement to Promote Compliance with International Conservation and Management Measures by fishing vessels on the high seas was finalized and approved at the 27th Session of the Food and Aquaculture Organization of the United Nations Conference, Rome in 24th November 1993. This Agreement will be enforced upon the 25th instrument of acceptance and as of May 1995, 6 countries (Georgia, Myanmar, Sweden, Madagascar, Canada, St. Kitts and Nevis) have agreed to be a party to this Agreement. This Agreement calls on all states that fish in the High Seas to be responsible to their own vessels and shall practice international conservation and management measures to conserve and manage the living resources and ensure that their fishing vessels do not engage in any activity that undermine the effectiveness of such international conservation and management measures. Records have to be kept and there shall be freedom of information exchange through international cooperation. Settlement of disputes is also provided for in this Agreement.

In addition of the above Agreement, the Agreement for the implementation of the provisions of the United Nation's Convention on the Law of the Sea (UNCLOS) of 10 December 1982 relating to the conservation and management of straddling fish stocks and highly migratory fish stocks will probably be open for signature in December 1995. The Agreement also deals with conservation and management of highly migratory and straddling fish stocks, mechanisms for international cooperation, duties of flag states, compliance and enforcement by flag states, dispute settlement and also requirements of developing states. With these two Agreements, there are opportunities for Malaysia's fishing industry to expand and develop further to fish in the high seas, as well as in the Indian Ocean.

However, there are implications in relation to the legal framework as well as to the marine fishing industry of Malaysia. It is envisaged that, if Malaysia wants to develop her own distant water fishing fleet, additional/supplementary national fisheries legislation will be required to manage this distant water fishing fleet in accordance with the two international Agreements. In addition, to safeguard Malaysia's participatory rights to tuna resources in the Indian Ocean, Malaysia should endeavour to be a founder member of relevant regional fisheries management organization such as the Indian Ocean Tuna Commission (IOTC) that will be established for the conservation and management of these resources.

6. Conclusion

The fisheries resources in the coastal areas are not only being intensively exploited by the fishermen but also threatened by pollution which degrades the aquatic environment and destroys the aquatic habitat. Currently various management strategies and measures have been applied to ensure the sustainability of the inshore fisheries production. Efforts to further enhance the fisheries resources have also been implemented. Measures such as better management of coastal habitat through the formulation of sound management models, coastal zone management plan, rehabilitation of resources through the establishment of artificial reefs and also through restocking programme, will help in ensuring fishery resources are exploited rationally and managed effectively to ensure that the resources are exploited at a maximum sustainable level. Such management measures will also ensure the increase in productivity of the fishermen in line with the mission and vision of the Department of Fisheries; Malaysia. With the implementation of the international agreements relating to high seas fisheries and management of the straddling fish stocks and highly migratory fish stocks, our fishermen could be encouraged to exploit the fisheries resources in the high seas especially in the Indian Ocean, IMT-GT and the BIMP-EAGA growth development areas as Malaysia has the financial, and technological capability.