

MANAGEMENT OF THE MALACCA/SINGAPORE STRAITS: SOME ISSUES, OPTIONS AND PROBABLE RESPONSES

ABU BAKAR JAAFAR
MARK J. VALENCIA

SINOPSIS

Kertas ini menyarankan bahawa Selat Melaka dan Selat Singapura adalah kawasan yang perlu diberi keutamaan bagi pengurusan sumber alam secara bersepadu di antara Indonesia, Malaysia dan Singapura. Terdapat banyak sebab mengapa saranan ini dikemukakan dan antaranya termasuklah perlombongan minyak dan timah, pencemaran samudera, perikanan, keselamatan pelayaran dan keselamatan negara. Kertas ini walau bagaimanapun, menarik perhatian bahawa sungguhpun ketiga-tiga negara Indonesia, Malaysia dan Singapura ini mempunyai sempadan bersama di Selat Melaka dan Selat Singapura dan ketiga-tiganya juga merupakan ahli ASEAN, mereka sebenarnya tidak mempunyai minat yang sama dalam hal pengurusan kedua-dua Selat tersebut. Kertas ini berpendapat bahawa kerjasama serantau dalam hal ini adalah perlu bagi menyelesaikan masalah bersama dan mengambil kesempatan terhadap peluang-peluang yang terdapat di Selat-selat tersebut hasil daripada kegiatan yang sedia ada ataupun kegiatan-kegiatan di masa depan.

SYNOPSIS

The paper argues that the Malacca/Singapore Straits is a priority area for a coordinated international approach to resource management by Indonesia, Malaysia and Singapore. There are many reasons for this which include petroleum exploitation, tin mining, marine pollution, fishing, navigational safety and national security. The paper, however, observes that despite having borders on the straits of Malacca and Singapore, and being members of ASEAN Indonesia, Malaysia and Singapore do not share the same interests in management of uses and users in the Straits. The authors, nevertheless, believe that regional cooperation is necessary to resolve differences and take advantage of opportunities arising from both the existing and potential activities in the Straits.

INTRODUCTION

The constricted, shallow Malacca/Singapore Straits is a priority area for a coordinated international approach to resource management by the principal bordering nations: Malaysia, Indonesia and Singapore (Figure 1). This area is a microcosm of the coastal activities and conflicts of the region (Valencia and Jaafar, in press). The Straits are a major transport route

for petroleum tankers; cross traffic interferes with through traffic. The Malaysian ports of Penang, Port Klang and Port Dickson, the Indonesian port of Dumai, and Singapore are situated on the Straits. Coastal depots and refineries are situated in Port Dickson, Sungei Pakning, Dumai, Singapore and Batam.

Coastal petroleum exploitation is ongoing off north and central Sumatra, with exploration off southwest Thailand and West Malaysia. Bottom tin mining is ongoing from Phuket northwards and exploration has been undertaken off the Malaysian states of Johor, Malacca, Negri Sembilan and Penang.

Terrestrial tin mining is scattered throughout the Thai isthmus and the Malay Peninsula and logging activity is significant on Sumatra, all generating sediment and contributing to coastal accretion. In addition to Singapore, the west coast of the Malay Peninsula is becoming urbanized and much of Malaysia's population and industrial/agricultural processing

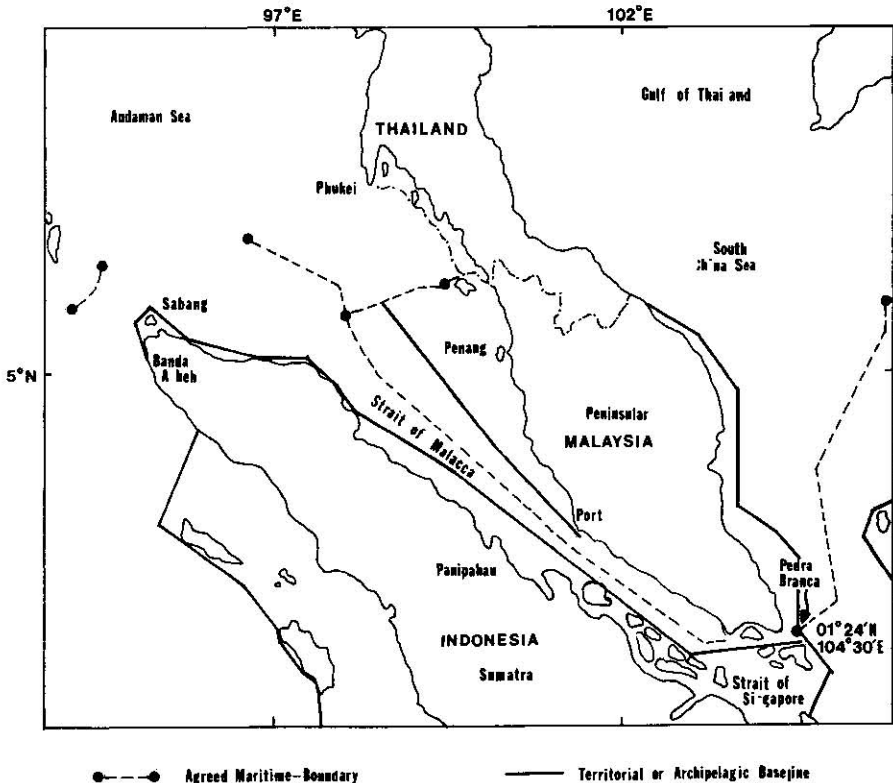


FIGURE 1. The Region: The Straits of Malacca and Singapore

activity is concentrated there, discharging wastes into the Straits, including pesticides from disease control. Much of the West Malaysian coastal plain above the high-tide mark is under cultivation, while mangrove harvesting is locally significant throughout the coastal area of the Straits.

Aquaculture is being expanded in north Sumatra and developed in suitable locations along peninsular Malaysia's west coast. Artisanal fishing including shellfish harvesting is widespread in the nearshore areas and significant offshore fishing is conducted in the northern Straits. Tourism/recreation centers bordering the Straits include Phuket, Langkawi, Penang, Pangkor and Sentosa; marine research stations are located at Phuket, Penang and Singapore.

The outputs of the region are clearly competitive in small areas. Logging and agro-industrial waste disposal damages fisheries and tourism; cross-traffic and fishing vessels may create hazards for transiting tankers and *vice versa*. Region-wide cooperation could yield a mutually beneficial distribution of activities, hence, optimal product mixes. Indeed, with the narrowness of the Straits and the transnationality of the ecosystems, resources and activities, effective management strategies may depend upon the close cooperation of the three coastal nations plus that of extraregional users. But the coastal states themselves have different perspectives, policies and legal systems. The spatial variability of legal regimes, products and services may mean national specializations and policy tradeoffs between nations.

With the conclusion of the Third United Nations Conference on the Law of the Sea (UNCLOS), the "region" has become the political and geographic unit for interaction and implementation of the many provisions of its Convention (United Nations, 1982). The three-state region bordering the Straits of Malacca and Singapore may serve as a model for regional implementation of UNCLOS provisions and international management of conflicting maritime uses. This region has good prospects for resolution of conflicting interests because all three states are members of ASEAN. Further, they have already worked out their differences regarding the status of the Straits in international law and the technical aspects of navigation in the Straits, and they have confronted together widely diverging and actively competing interests of both intra- and extra-regional origins. However, as multiple uses and users increase and interfere with each other, issues pertaining to management of these uses and users may arise. This paper postulates some of these issues, the options available to the littoral states, and their probable responses based on the commonalities or differences among them (Table 1).

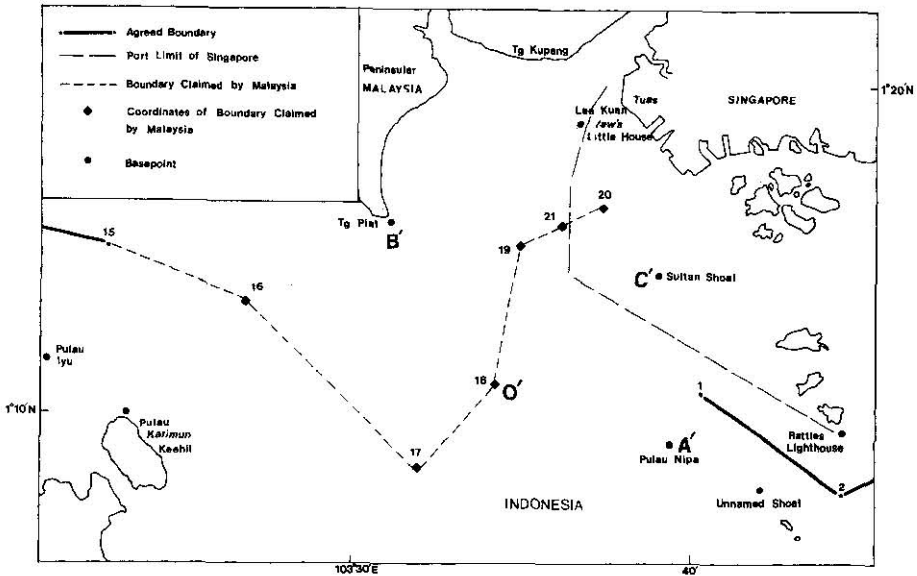


FIGURE 2. Unresolved boundaries: the Tanjung Sultan Shoal and Pulau Nipa Triangle

ISSUES, LIKELY OPTIONS, NATIONAL INTERESTS AND PROBABLE RESPONSES

BOUNDARY RESOLUTION:

Resolution of the following maritime boundaries is required:

- 1/ Indonesia (Pulau Nipa) — Malaysia (Tanjung Piai) — Singapore (Sultan Shoal) (Figure 2)
- 2/ Indonesia (Tanjung Babi) — Malaysia (Tanjung Setapa) — Singapore (Tanjung Bedok) (Figure 3)
- 3/ Malaysia — Singapore (Pedra Branca area including ownership of the island) (Figure 4).

LIKELY OPTION

The likely options for resolution of the boundaries include:

- 1/ Delineation of the boundaries according to principles of equidistance or of equity;
- 2/ Agreement to take the issue to the International Court of Justice; and
- 3/ Agreement on joint jurisdiction and management of the overlapping areas.

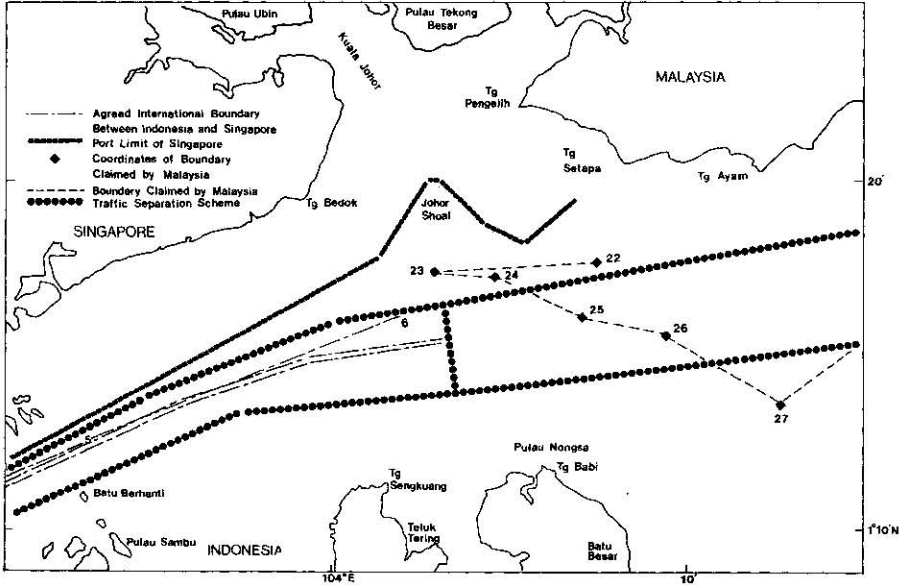


FIGURE 3. Unresolved Boundaries: Tanjung Babi, Tanjung Setapa and Tanjung Bedok Area

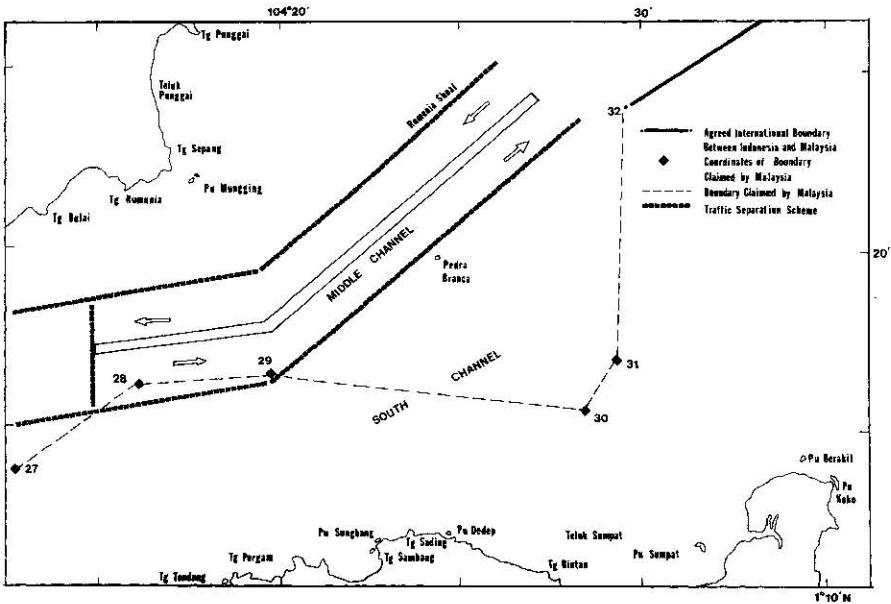


FIGURE 4. Unresolved Boundaries: Pedra Branca Area

TABLE 1. Activity/Issue Matrix for the Straits of Malacca and Singapore

Activity	Shipping	Fishing	Mining	Environmental Projection	Security	Boundary Resolution
Shipping	Cross-Channel vs. Transit Traffic	Traffic in Fishing Areas		Oil Spills Other Pollution from Vessels Regional Contingency Plan Regional SASRAT*	Smuggling Piracy Illegal Traffic/Discharges Regional Traffic Surveillance	
Fishing	Fishing in Traffic Lanes	Traditional Rights Access to Surplus Stocks Trawling vs. Traditional Fishing Regional Fish-Marketing		Resource Depletion	Poaching	

(Contd.)

TABLE 1. Activity/Issue Matrix for the Straits of Malacca and Singapore (Continued)

Mining	Interference or Obstruction	Displacement of Fisheries	Uncoordinated Development	Regional Contingency Plan for Blow-out Pollution	
Environmental Protection				Pollution from Land-Based Sources	
Security				Regional Surveillance and Enforcement	
Boundary Resolution	Port Development	Undefined Property Rights	Unregulated Vessel Discharges	Boundary Location/ Area Gained	

*Slop and Sludge Reception and Treatment Centre.

INTERESTS AND PROBABLE RESPONSES

On the basis of area gained, only Indonesia would favor a trilateral solution according to the principle of equidistant (Table 2). Malaysia and Singapore would prefer to negotiate a boundary with each other to the exclusion of Indonesia, while Indonesia would prefer to negotiate a boundary with Singapore and exclude Malaysia. Malaysia and Singapore are already pursuing a bilateral settlement to the disadvantage of Indonesia; both countries have already agreed to terminate the old Johore-Singapore Treaty of 1927.

Malaysia has several objectives in resolving the common boundary with Singapore. First, it expects the incipient port at Kukup to benefit from the spillover of business from Singapore's congested port. Second, it hopes to obtain free access by sea between east and west Johore which has long been cut off by the causeway across the Strait of Johore. Third, the maritime authorities of Malaysia would be able to deal with flag of convenience vessels that seek refuge or immunity within the unresolved triangular area outside the port limits of Singapore. Malaysia might accept Singapore's new baselines if it obtains traffic corridors in Singapore's territorial waters, particularly for traffic in and out of the Port of Johor at Pasir Gudang.

TABLE 2. Trilateral Versus Bilateral Equidistant Boundary Settlement

Arrangement	Area Gained nm ² (Percent of Total)			Total Area Being Resolved
	Indonesia	Malaysia	Singapore	Region
Trilateral	4.88 (44%)	3.45 (31%)	2.70 (25%)	11.03 (100%)
Bilateral				
Indonesia-Malaysia	+ 34%	+ 30%	—	
Malaysia-Singapore	—	+ 85%	+ 72%	
Singapore-Indonesia	+ 46%	—	+ 28%	

Singapore wishes to resolve the boundary because it intends to extend its port limits. This is reflected by its current reorganization exercise in which the once independent Marine Department is being absorbed by the Port of Singapore Authority (PSA). This reorganization would be necessary once the port limits are extended to the outer limits of Singapore's territorial seas. Singapore's proposed action seems justified under the new Convention on the Law of the Sea by Article 12: "[r]oadsteads which are normally used for the loading, unloading, and anchoring of ships, and which

would otherwise be situated wholly or partly outside the outer limit of the territorial sea, are included in the territorial sea" (United Nations, 1982, p. 6).

The principle of equity is linked to issues other than jurisdictional claims and juridical rights and thus difficult to assess. Joint development or joint authority may help resolve two of the three areas in dispute but not that involving the ownership of Pedra Branca. However, all three may oppose this option. Singapore urgently needs to extend its port areas beyond the existing port limits which will only be possible if it obtains a defined share of the disputed area. Malaysia would not want Singapore to obtain more port area. Indonesia may also oppose settlement because it prefers the port development of its neighbours to be delayed to avoid competition with its redeveloped Batam Port.

FISHERIES

Transnational fishery sector issues include trawling vs. traditional fishing, traditional rights in fishing, access to "surplus stocks" in exclusive economic zones, and regional fish marketing.

As background, fisheries are an extremely important sector in the region, partly because of continued reliance on marine products as major source of animal protein essential in the diet of the coastal populace, and partly because a significant proportion of the region's labor force is engaged in this sector of the economy. The estimated availability of fish per capita in 1980 for Malaysia was 43 kg (FAO-INFOFISH, 1983), and 47.3 kg (projected) for Singapore (FAO-SCS, 1973). A total of 335,865 tons of fresh fish was landed at various ports of the region in 1980, with an estimated value of US\$1.7 billion. However, the landing of fish on both sides of the Straits has been declining, particularly for Malaysia (Figure 5), with a decline of 12.4 percent per year since 1977. Malaysian catches of demersal stocks have exceeded the maximum sustainable yield of 160,000 tons (FAO, 1977, p. 4) by as much as 12.5 percent since 1977. A rapid decline of Malaysian catch per unit effort (CPUE) (Figure 6) further indicates the depletion of fish resources in the Straits. According to one estimate, the catch reached its peak in 1967 at the rate of 90 tons per trawler per year (Pathansali in Khoo, 1976). The present rate of production is only 20 tons per trawler per year (Figure 6).

In 1980, there were about 75,000 persons fishing in the Straits; 70 percent were Indonesians, 27 percent Malaysians, and 3 percent Singaporeans. But the proportions of modern vessels and equipment among the three countries were almost the reverse; 64 percent of Singapore's fishermen used inboard-powered vessels, compared to 61 percent in Malaysia, and 19 percent in Indonesia.

Indonesia banned the use of trawlers in 1978 (Minister of Agriculture, 1982), despite an apparent need to accelerate the modernization of its fisheries. Indonesia explained this action as a response to the need for con-

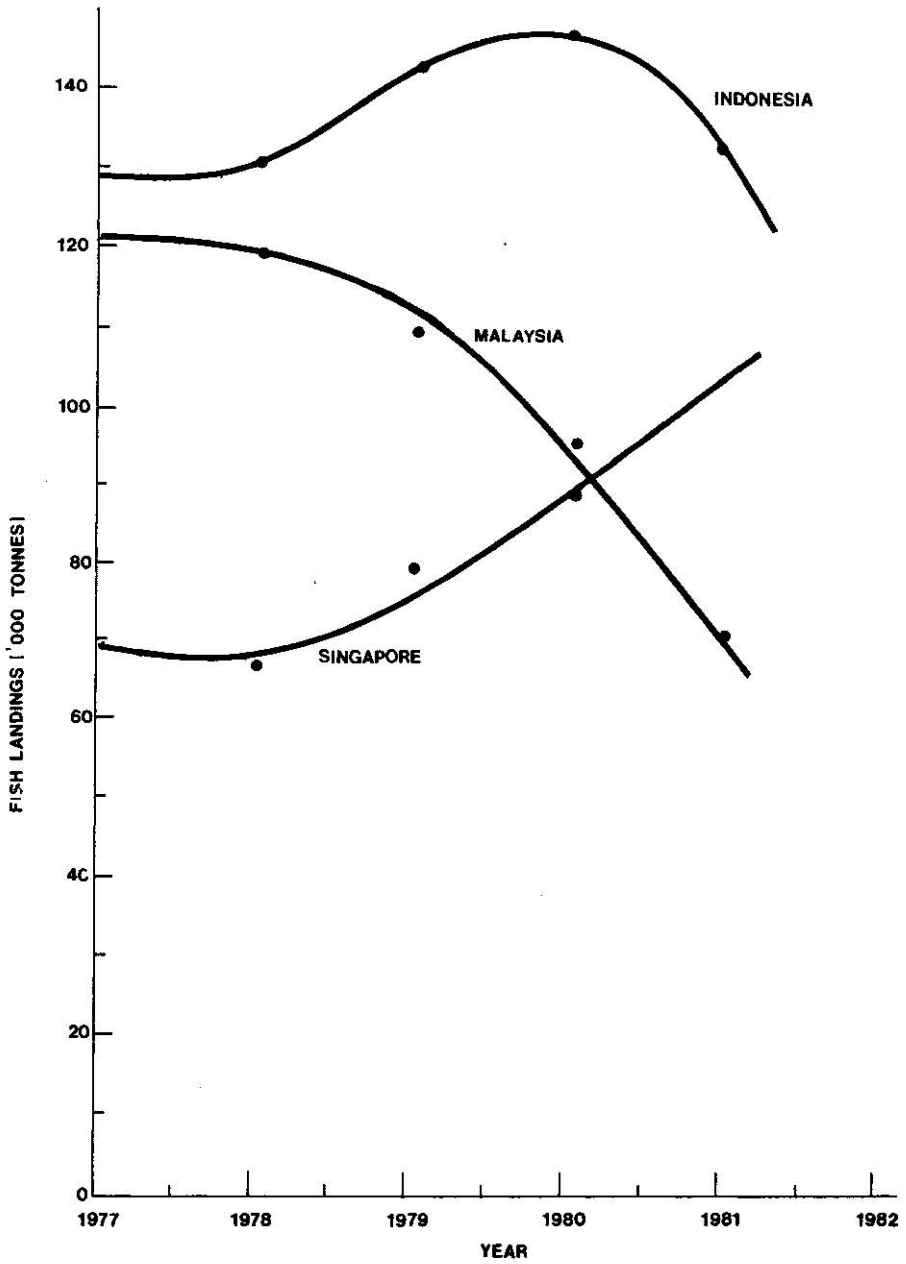


FIGURE 5. Fish Landings in the Region, 1977 - 1981

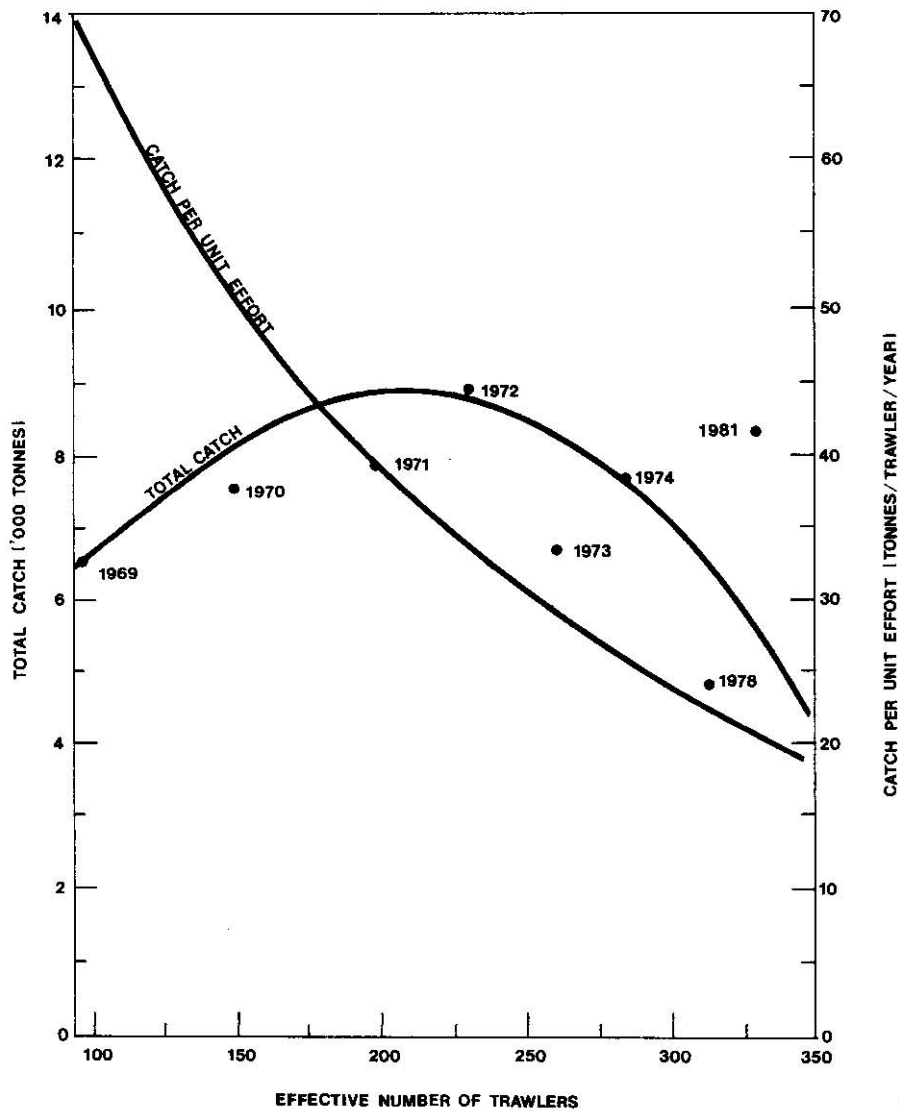


FIGURE 6. Fish Production and Catch Per Unit Trawler in West Johor, Melaka, and Negeri Sembilan, 1969 - 1981

servation of a threatened resource, although the policy was motivated more by political pressure from *pribumis* ("sons of the soil") whose traditional fishing methods were threatened by non-*pribumis* with their efficient trawlers (*Asiaweek*, 1980). The effect of this policy on the resource itself will not be known for some time as its recovery rate is expected to be rather slow (Saeger, 1981). In the meantime, the decline in output per unit effort is expected to continue for several years.

Indonesian's ban on trawling should help these resources to recover, but full recovery can not occur unless Malaysia also implements a ban or at least limits further trawling. Despite the evidence of resource depletion due to overfishing and/or pollution, Malaysia continues its policy of encouraging the use of trawlers, and over the late seventies maintained a stable trawling fleet (Fredericks and Wells, 1980). Malaysia is not likely to ban trawlers, which are overwhelming Chinese-owned and operated because such a ban could be construed as favoring the Malays. Further, Malaysian government policy encourages "Bumiputras" (sons of the soil) to enter the formal sector of the economy and more trawling licenses are thus being issued than withdrawn. Singapore is not so much concerned with the declining fish resource of the Straits as with the fish supply for its 2.4 million people. But fish landings at its highly capitalized fishing ports of Jurong and Kangkar have increased at a rate of 9.0 percent per year since 1977 to 1981, and supply is presently more than nutritional needs (Singapore, Primary Production Department, *Annual Reports*).

Another pressing problem for Malaysia concerns the numbers and frequency of subjects arrested for fishing on the Indonesian side of the Strait. Because there is no harmonization of policies or clear communication between Indonesia and Malaysia on fishing in the Strait, Malaysian fishermen who have traditionally been fishing in the middle of the Strait are apprehensive of overreactive enforcement by Indonesian authorities. To be caught fishing in Indonesian waters entails the risk of losing boats, gear, the day's catch, or even life itself. In 1981, 16 fishing vessels from Malaysia were confiscated by the Indonesian authorities (Kardarman, 1982). Malaysian fishermen either unknowingly cross the invisible boundary between Malaysian and Indonesian waters or occasionally are dragged across by "over-enthusiastic" Indonesian enforcement agents. Compounding the problem, Singapore's trawlers do not violate Singapore law by fishing in neighbouring waters now under the jurisdiction of Malaysia or Indonesia.

Solutions include mutual recognition of the traditional rights of these fishermen in neighboring waters, or in the establishment of rights of access to surplus stocks in neighbor's EEZs. However, Malaysia and Singapore have so far failed to work out access agreements with Indonesia, which has insisted on joint ventures rather than unconditional access based on normal licensing systems. Joint ventures were not acceptable to Malaysia and Singapore because the fishermen desiring access are in the informal sector and fish with traditional gear and low-powered motor boats. Singapore

is less likely than Malaysia to gain access to the traditional grounds for its fishermen because Singapore boats have been involved more in buying and collecting fish caught by Indonesian fishermen than in actual fishing;

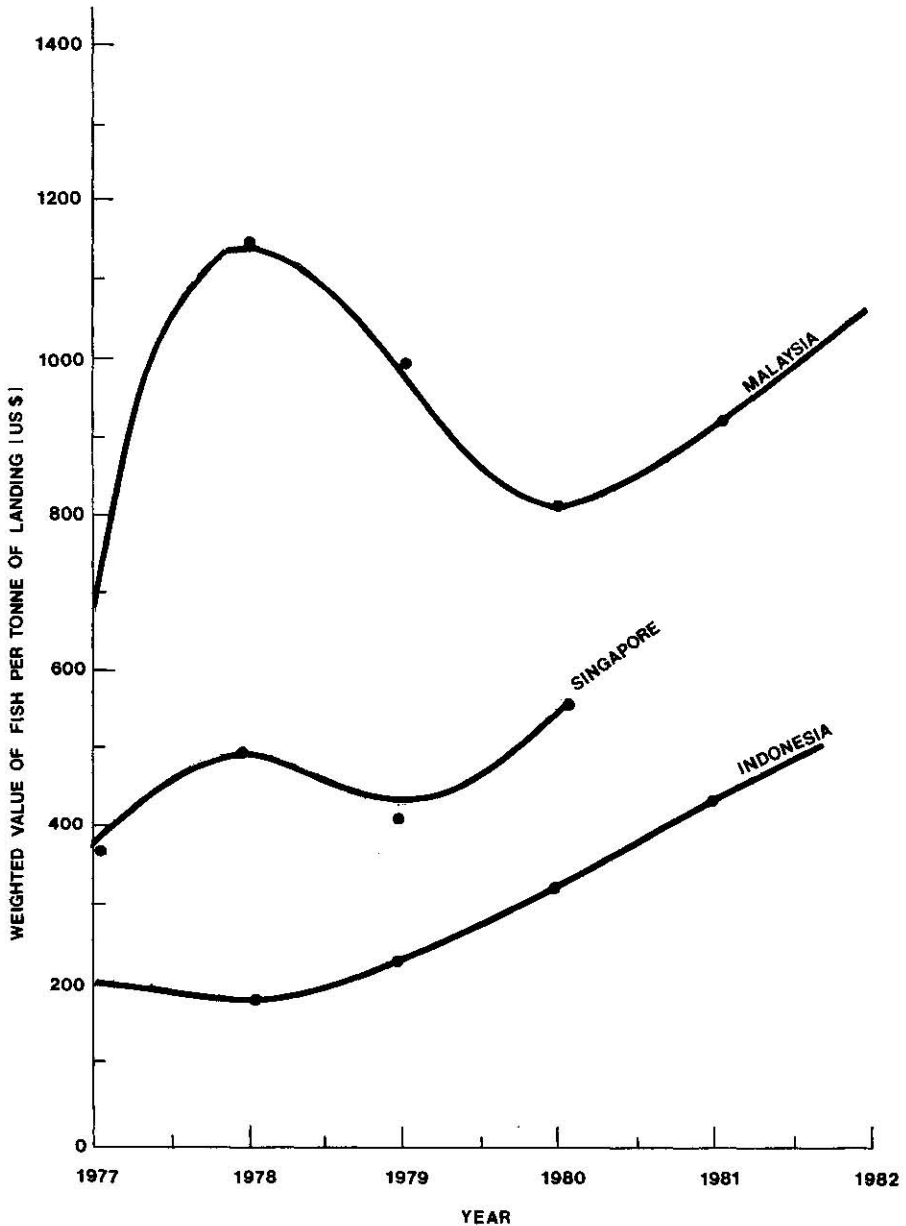


FIGURE 7. Fish Price Differentials in the Region, 1977 - 1981

fish landings are thus increasing in Singapore while they fall in Malaysia and Indonesia.

Fish-marketing is another area for cooperation, but neither Indonesia nor Malaysia has the necessary capital infrastructure, and free ports to cooperate with Singapore in marketing on a regional basis. Although fish prices are lower in Singapore than in Malaysia (Figure 7), the capital links and infrastructure draw more fish to Singapore (Yeo, 1982). A uniformity of fish prices throughout the region would help assure a fair return to fishermen and avoid overcapitalization and over-exploitation of an already depleted resource. It would also help current efforts toward resource conservation and thus sustained production. In order to achieve price uniformity, the marketing function of the fishery sector of the region must be restructured. Attempts by both Indonesia and Malaysia have been made at national levels, but so far they have been unsuccessful.

NAVIGATIONAL SAFETY

The regional rules for navigation in the Straits are unenforced, even though one-quarter of the tankers using the Straits still fail to observe the minimum under-keel clearance. None of the maritime authorities in the region monitors vessel compliance other than through the voluntary reporting to the Directorate of Sea Communications for Region II in Dumai. No provision for cross-channel traffic has been agreed. The three states' political and technical perspectives on navigational safety needs are different. As general traffic and tanker densities rise, the three states could cooperate in improving navigational safety.

Regional cooperation in port development has been deferred by Malaysia ever since its Johor Port developed in 1974. In 1975, Indonesia and Singapore did enter into a bilateral agreement on shipping and other maritime matters, without Malaysian participation. As a result, ports on either side of the Malacca Strait have few cross-Strait contacts. Malaysia wishes to enlarge its Johor Port at Pasir Gudang while Indonesia continues to develop Pulau Batam as a deep-water facility. Thus, Indonesia and Malaysia will probably compete with Singapore as port states rather than cooperate further on navigational safety.

Nevertheless, there is some incentive for Malaysia to cooperate with Singapore. The Strait of Malacca is now less important to Malaysia for shipping, since an increasingly larger proportion of its exports to and via Singapore is by road and rail rather than by ship. This trend has persisted despite decade-long attempts by Malaysia toward greater utilization of its ports on the Peninsula. Even the secluded Johor Port, which largely handles exports originating from the Johor-Melaka region that would otherwise be bound for Singapore, is increasingly being served by Singapore's ships. By continuing its policy of developing Johor Port in the face of these trends, Malaysia will incur high development costs and still have high freight bills.

It is also not likely that the three States will cooperate in regulating cross-channel traffic. The density of cross-channel traffic is still minimal compared to transit traffic, and consists largely of fish carriers and tongkangs loaded with magrove poles and charcoal. Singapore continues to object to the long-proposed cross-lanes in and near its waters on the grounds that transit traffic and thus its business could be diminished.

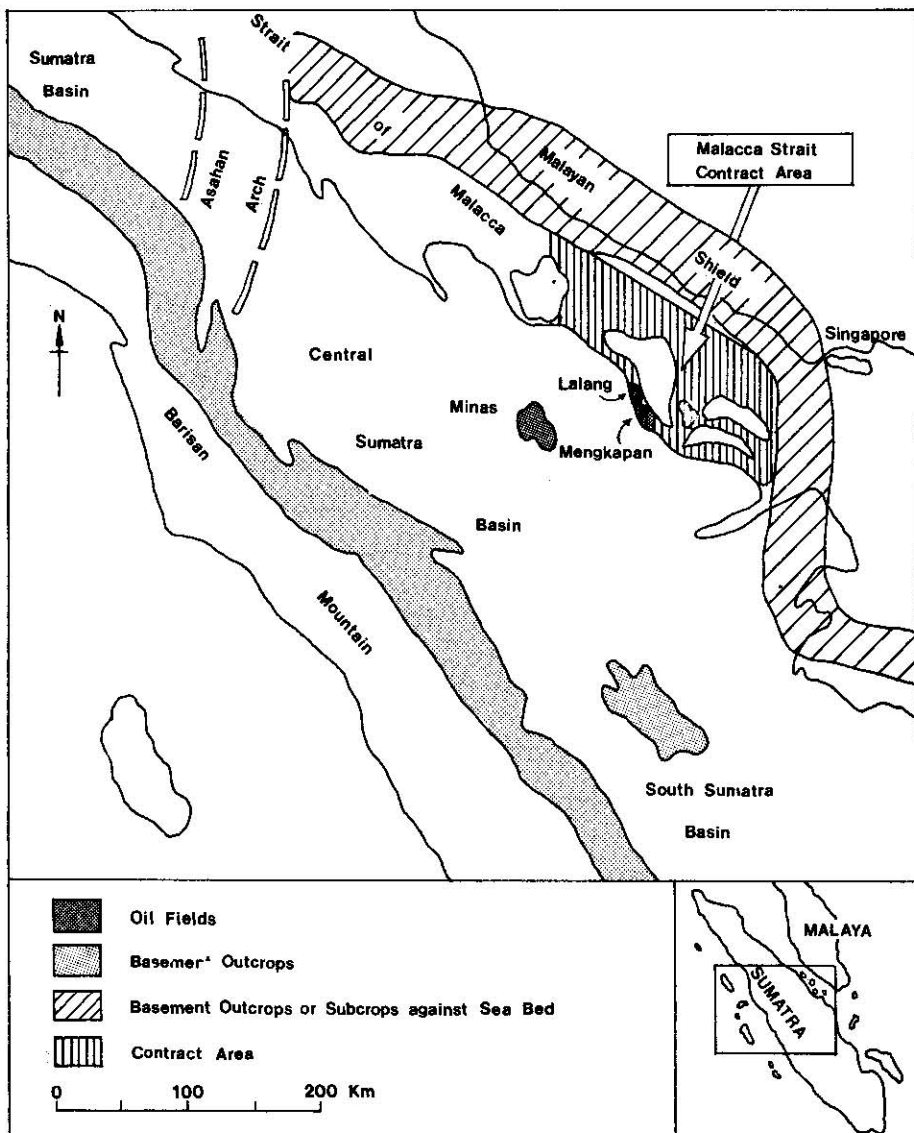
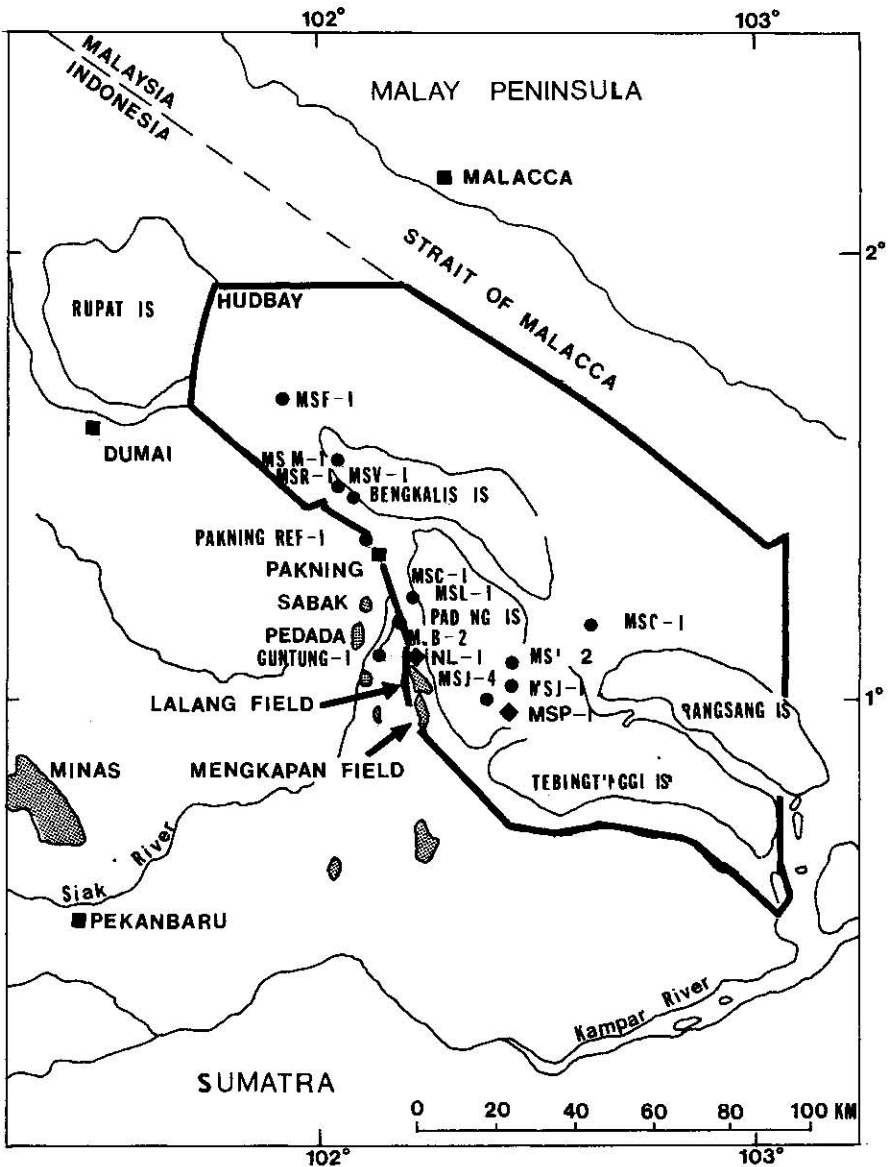


FIGURE 8. Geological Setting of the Malacca Strait and Areas Contracted for Hydrocarbon Exploration and Development (After Crostella, 1981)



- Contract Area
- Oil Field
- Dry Hole
- Wells being drilled

FIGURE 9. Malacca Strait: Oil and Gas Exploration

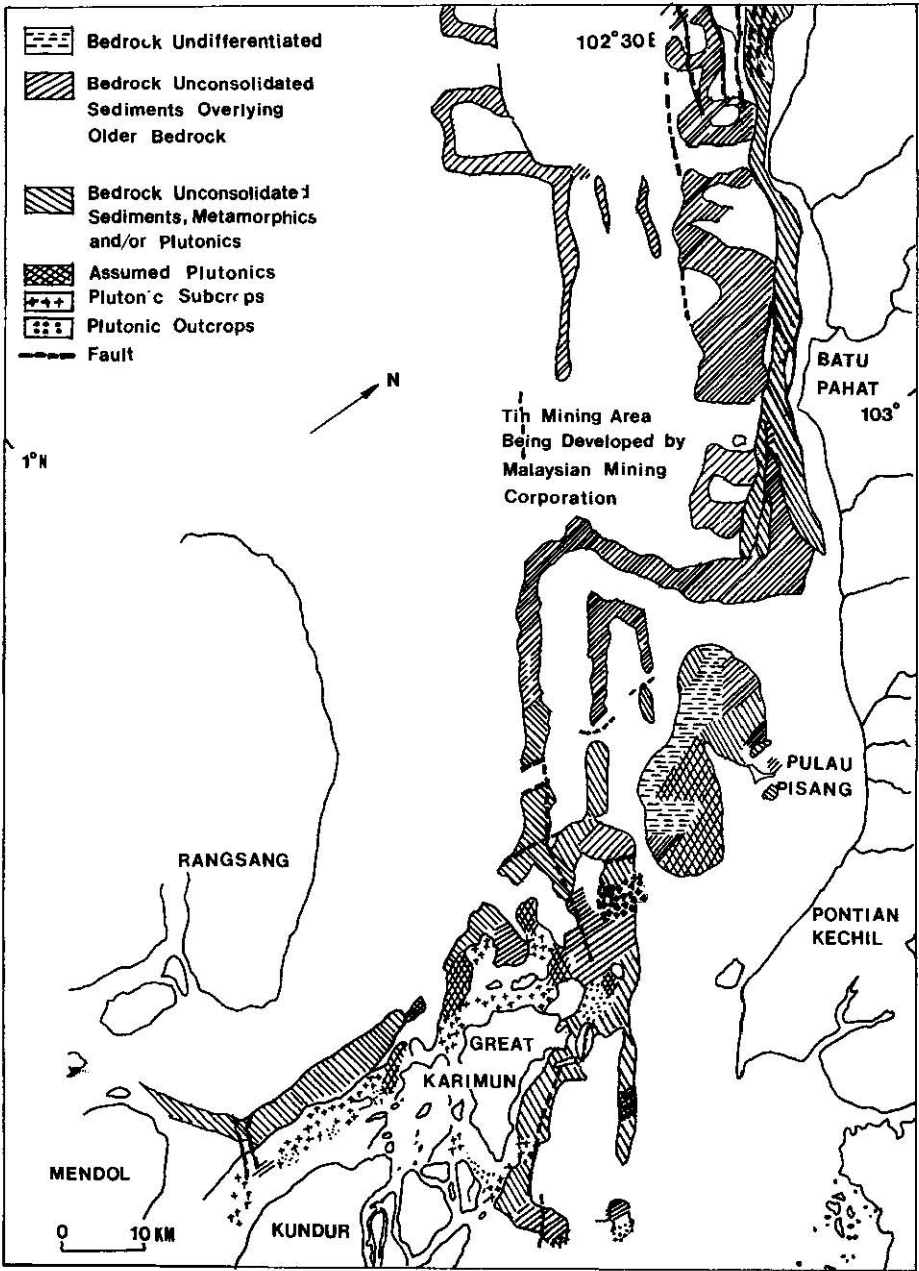


FIGURE 10. Malacca Strait: Tin-bearing Granitic Rocks Between Pulau Kundur, Indonesia and Batu Pahat, Malaysia (After CCOP 1977; Jaafar Ahmad, 1982)

MINING

A geological discontinuity, following the long axis of the Malacca Strait divides the Tertiary tin-bearing granite terrain exposed on the Malay Peninsula and underlying Malaysian waters, from the Tertiary back-arc sedimentary basins evident in east Sumatra and under Indonesian waters. Hydrocarbon exploration and development is ongoing and tin mining is a possibility (Figures 8 – 10). These activities may physically interfere with shipping, and fishing, and through pollution, damage the living and aesthetic resources of the Strait.

The three states could cooperate in the management of exploration and exploitation of hydrocarbons and minerals in the Straits so as to protect the Straits' living and aesthetic resources from pollution and ensure non-interference with transit traffic. Past cooperation in tin exploration was made possible by the external financial and technical support of the Federal Republic of Germany in collaboration with UN/CCOP. However there is little need for such cross-Strait cooperation since there is more potential for hydrocarbons on the Indonesian side and for tin on the Malaysian side. Singapore concentrates its efforts on downstream activities, and might cooperate in either exploration effort to ensure supply for smelting, refining and reexporting.

SMUGGLING

Thailand, Malaysia and Indonesia lose millions of dollars in tax revenues from tin ore smuggled from their countries to smelters in Singapore. The three states could cooperate in the prevention of smuggling of tin ore, consumer products and narcotic drugs. However, Singapore will probably not cooperate with the others because it does not consider smuggling a crime and has no regulations concerning trade in tin ore.

PIRACY

Piracy of fishermen and even large tankers is increasing. The States' could cooperate in its prevention. However, Malaysia is not likely to press for regional cooperation in overcoming this problem as it may embarrass Indonesia whose territory is the origin and haven of many of the pirates. Indonesia does not seem to recognize piracy as a serious problem that warrants regional action, and Indonesian enforcement forces may be directly or indirectly involved in this activity. Despite constant pressure by its shipping community to take the lead in regional action, Singapore's lone effort has been ineffective partly because the victims do not report incidents nor cooperate in detailed investigations.

MARINE POLLUTION

The marine environment continues to deteriorate, producing real and imagined costs to the three littoral states. The three countries could cooperate

in the setting and enforcement of pollution standards. However, cooperation in the setting and enforcement of environmental regulations is unlikely (Valencia and Abu Bakar, in press). Malaysia, despite its perception of the Strait as its front yard, has done little to curb pollution from vessels. Indonesia is far from having adequate environmental laws and regulations, should it have to harmonize its rules and standards with those of Singapore and Malaysia. Singapore, after having done its best to control pollution from all sources in the area under its jurisdiction would probably not see the rationale for participating in regional cooperation.

SECURITY

All three states need to maintain security in the Straits and they could cooperate in doing so. However, the navies of Indonesia and Malaysia are so thinly spread that they are in danger of leaving the important and strategic Straits unprotected (Morgan, 1982). Singapore has a potent navy but may need the cooperation (and permission) of its two neighbours to monitor the entire length of the Strait. One response might be to assign Singapore the responsibility of keeping the narrow and shallow portion of the Straits open, leaving the remainder to its neighbours. Unfortunately, none of the countries trusts another sufficiently to have effective cooperation because their modern navies have been increasingly deployed for law enforcement rather than classical defense. Indonesia patrols the Straits to curb illegal fishing or poaching, particularly by fishermen from Malaysia and Singapore. Singapore does not regard smuggling as illegal, engendering suspicion on the part of Malaysia and Indonesia. Both Indonesia and Malaysia are also suspicious of Singapore's deployment of four U.S.-supplied Hawkeye planes with capabilities of long-range detection. Malaysia is also suspicious of Singapore's current plan to replace its civilian lighthouse keeper with naval personnel. At One-Fathom Bank, Malaysia wants to install its own radar and other surveillance units. Indonesia is suspicious of Malaysia's stepped-up surveillance which could be used to gain intelligence on Indonesian activities. Nevertheless, bilateral naval exercises are common among the three and in the event of a war against a common enemy, the three would cooperate.

COOPERATION IN MANAGEMENT OF THE STRAITS

Despite having borders on the Straits of Malacca and Singapore, and being members of ASEAN, Indonesia, Malaysia, and Singapore do not share the same interests in management of uses and users in the Straits. However, they are likely to cooperate if there is an extra-regional incentive or if they all have to face a common enemy. Nevertheless, such cooperation usually lasts only as long as the external stimulus. More permanent cooperation must evolve from within and the countries of the region must bear the costs incurred in reaping the benefits of their cooperation.

Regional cooperation is necessary to resolve individual differences and seize opportunities arising from both the existing and potential activities in the Straits. The chronic problems of piracy and smuggling illustrate the futility of national efforts without the benefits of regional cooperation. The growing problems of poaching and pollution suggest the transnationality of the ocean; national jurisdictions do not necessarily coincide with the distribution of living resources and risks to them. It is often beyond the jurisdiction and competency of a nation-State to address these problems without securing the cooperation of neighbouring States. The complex jurisdictional issues of unresolved boundaries are becoming increasingly sensitive and may force the three friendly countries into conflict.

These issues may not be settled permanently by any two countries without the participation of the third. Without regional coordination, it would be difficult both for Indonesia to explore for and exploit oil and Malaysia to mine offshore tin in areas near borders in the Malacca Strait. Without concerted efforts in resource conservation and in environmental protection, it would be difficult for any country to maintain the environmental quality within its own jurisdiction, since its effort might be easily negated by the inaction of the neighbouring States.

REGIONAL TRADEOFFS

Regional cooperation in the management of uses of the Malacca and Singapore Straits cannot be successful for a single issue. However, a per-Straits package may be possible. Table 3 may be used to hypothesize various tradeoffs.

For example, in the fishing sector there are seven issues. Probable national responses to these issues range from regional action favoured (+) to regional action not favoured (-), to indecisive or ambivalent (0). If a package were contemplated for the fisheries sector alone, Indonesia and Singapore might either favour or oppose regional action more favourable to regional action because there are more advantages than disadvantages (Table 3). On balance, the prospects for regional cooperation in fisheries are good since the package may be acceptable to one country and not opposed by the others. By agreeing to the regional control of piracy, Indonesia could benefit from improved fish-marketing arrangements in the region. In return for preventing their fishermen from poaching in Indonesia's waters, Malaysia and Singapore could regain access to their traditional fishing grounds in Indonesian waters.

In another possible package, Singapore, by regulating the import of tin ore, could be assured of business participation in the Strait tin and oil interests of Malaysia and Indonesia. Singapore's regulation of tin ore im-

TABLE 3. Probable National Responses to Maritime Issues Requiring a Regional Solution

Issues by Sector	Expected Responses by Country		
	INDONESIA	MALAYSIA	SINGAPORE
FISHING			
Poaching	+	0	-
Resource-Depletion	+	0	-
Piracy	-	+	-
Marketing	+	+	-
Surveillance	0	+	0
Access to Surplus	-	0	+
Access to Traditional Area	-	+	+
SHIPPING			
Traffic Hazards	0	0	+
Piracy	-	0	+
Pollution	0	+	0
Cross-Channel	+	+	-
Traffic Watch	0	0	+
Regionalization of SASRAT	0	0	+
Contingency Plan	0	+	-
MINING			
Interference	0	0	+
Pollution	-	0	-
Joint Venture	-	-	+
Contingency Plan	-	+	0
ENVIRONMENTAL PROTECTION			
Pollution of Land-Source	-	0	0
SECURITY			
Smuggling	+	+	-
Unresolved Boundary	0	+	+
Joint Surveillance	-	-	+
Package Arrangement	-	+	+
Key			
+ Regional Action favoured			
0 Ambivalent			
- Regional action not favoured			

ports would help both Indonesia and Malaysia combat smuggling of this commodity. By using of Singapore's and Indonesia's Slop and Sludge Reception and Treatment facilities, Malaysia would not have to build similar facilities. In turn, Malaysia could make its oil spill combat vessels available for responding to a regional emergency. On security, Singapore could prefer to have the limited responsibility of keeping the sea lanes open while the naval forces of Indonesia and Malaysia could be deployed elsewhere in their extended jurisdictional areas.

Disputed areas, once resolved through a regional approach, would enhance the expansion of Singapore's port. Malaysia would also be able to proceed with its plan to develop Kukup into a commercial port. Indonesia's proposal of a cross-traffic scheme could be reconsidered and made acceptable to all, and Malaysia could help revive Indonesia's pioneering effort in ferry services across the Malacca Strait.

A REGIONAL MANAGEMENT ORGANIZATION?

(Valencia and Jaafar, in press)

The three States might form an organization to manage the activities and uses of the Straits (a Malacca and Singapore Straits Management Authority — MASSMA). The organization might take various forms; existing organizations, a regional organ, a joint commission, or a joint authority. Indeed this range of organizational types could be considered as an evolutionary sequence.

EXISTING ORGANIZATIONS

ASEAN has Committees on Trade and Communication (COTAC), Science and Technology (COST), Food, Agriculture and Forestry (COFAF), and Energy and Minerals (COIME), and under COTAC, the Expert Group on Marine Pollution, under COST, the Expert Group on the Environment, under COFAF, the Expert Group on Fisheries, and under COIME, the ASEAN Council on Petroleum. All these bodies could include an element of the management of the Malacca and Singapore Straits in their deliberations and activities.

These committees and groups are already formally established, recognized, and supported politically and financially by the ASEAN member countries. They have an administrative structure, experience, and a system of international communication, and their use could avoid the stress of a new organization with its delicate questions of management responsibility.

However, the coastal states view the problems of the Malacca/Singapore Straits as their responsibility, not that of ASEAN. Further, these committees and groups are not integrated and can only recommend action to the national government. Their terms of reference and members

include all of ASEAN and thus Malacca/Singapore Straits matters would have to compete with other regional matters for attention and resources. Further, under the ASEAN style, there is no international technical support for these bodies which are mostly comprised of politicians or administrators.

Other options among existing organizations are the Council on Safety of Navigation and Control of Marine Pollution in the Straits of Malacca/Singapore formed in 1971 and the Tripartite Committee. The Tripartite Committee has been successfully used in the past by the three countries to negotiate with Japan on Straits safety and to provide technical support for these negotiations. These organizations have been relatively inactive but could be reactivated. They do exist on paper, and unlike the ASEAN bodies, they focus specifically on the Straits and they involve only the three littoral countries. However, they deal only with tanker shipping and were initially formed with a political objective in mind, not specifically to manage all activities in the Straits.

REGIONAL ORGANS

This option would be structured similar to United Nations organizations, i.e., it would have a governing council of policy makers and a secretariat for technical support. The secretariat might be divided sectorally into *shipping* (which might include the existing Council and the Tripartite Committee), *fisheries*, *non-living resources*, *pollution/environment*, and *security*. Management of the environment of the Straits could be the common theme. The organization would centralize policy and provide some stability and predictability to management of use of the Straits. It could also have linkages with other international organizations. But its recommendations — UN style — would not be binding on its members and individual government approval would be necessary for policies affecting them. Then there would also be issues of budget, cost, and its allocation.

JOINT COMMISSION

A joint commission would be given a legal mandate by the three governments to research and recommend options for action. But it would be more independent than a regional organ having its own arbitration machinery to settle differences and would include representatives of the general citizenry and industry as well as government. Technical support would be *ad hoc*. The individual governments would, however, set the agenda for the body. However, governments would probably be reluctant to surrender their control over the process and pace of policy recommendations affecting their interests.

JOINT AUTHORITY

The most idealistic option would be a joint authority modeled after the existing Thai-Malaysia Joint Development Authority. It would have a

ministerial-rank, intergovernmental, policy-making assembly and an executive branch with five organs beginning first with: (1) environment and spawning in order, (2) shipping, (3) fisheries, (4) non-living resources, and (5) security. The decisions or findings of the assembly would be binding upon the member governments. Indeed, the formation of a Ministerial Council was discussed at Tripartite Meetings but has never materialized.

How would it work in practice? For example, development of hydrocarbon resources in the Straits could interfere with other uses such as fisheries and shipping. Such development may eventually either be constrained by the protests of neighbours or engender use and user conflict, thus reducing the total benefits of the Straits available to all three states. So the country with jurisdiction over the hydrocarbon resources would pay the authority to manage the development, enhancing conflict avoidance.

Of course, for this system to work, governments would have to yield management control over activities in the Straits. Also the authority, without checks and balances, could become very powerful, even more powerful than the individual states. Certainly its start-up would take enormous political will and advance subsidies. On the other hand, the governments would draw both the short-term and long-term extra revenues and other benefits of orderly development and conflict management without the responsibility of management. Further, since the authority would combine the political power of three States it would be a formidable negotiator with extraregional users of the Straits. The most likely scenario, however is for international cooperation in management of the Straits to proceed *ad hoc* -- issue by issue as they arise and sufficient common concern is generated. Eventually this plethora of issues and *ad hoc* responses may form a web-like framework upon which can be constructed a broader, multisectoral management institution.

REFERENCES

- Asiaweek*, (3 Oktober, 1980), Economy and Business: fishing, two steps backward in Indonesia, p. 42.
- Committee for the Co-ordination of Joint Prospecting for Mineral Resources in Asian Offshore Area (CCOP) (1977), 'Malacca Straits Survey Report', *CCOP Newsletter*, Vol. 4, pp. 1 - 27.
- Crostella, Angelo (1981), 'Malacca Strait wrench fault controlled Lalang and Mengkapun oil fields,' *Proceedings of the Offshore South East Asia Conference*, Singapore, 9 - 12 February.
- Food and Agricultural Organization of the United Nations (FAO) (1977), Workshop on Management of Resources of the Sunda Shelf, Malacca Strait and Related Areas (Manila).
- FAO-INFOFISH (1983), Unpublished mimeograph (Kuala Lumpur).
- FAO-South China Sea Fisheries Development and Co-ordinating Programme (SCS) (1973), *The South China Sea Demersal Resources* (Rome).

Fredericks, Leo J. and Raymond J.G. Wells (1980), 'Marine fisheries policy planning in West Malaysia', *The Journal of Developing Areas*, Vol. 15, pp. 3 - 20.

Hudbay Oil (Malacca Strait) LTD.

Jaafar, Ahmad (1982), Malaysian Mining Corporation, Kuala Lumpur, 10 October, oral communication.

Kardarman, R. (1982), Justice Department, Pekanbaru, Riau, 6 December kjoral communication.

Morgan, Joseph R. (1982), 'ASEAN navies: new missions and old problems,' *Marine Policy*, July, pp. 236 - 238.

Khoo Khay Huat (1976). 'Optimal utilization and management of fishery resources', *Kajian Ekonomi Malaysia*, Vol. 13, pp. 40 - 50.

Saeger, Juergen (1981). Do trawling bans work in tropical waters,' *ICLARM Newsletter*, Vol. 4, pp. 3 - 5.

Singapore Primary Production Department (1969 to 1982), *Annual Reports*.

United Nations (1982), Convention on the Law of the Sea. A/CONF. 62/122 7 October (Jamaica).

Valencia, Mark J. and Abu Bakar Jaafar, in press, 'Environmental management of the Malacca/Singapore Straits: legal and institutional issues', *Natural Resources Journal*.

Valencia, Mark J. and Abu Bakar Jaafar (in press), 'Marine environmental protection: the transnational issues' in George Kent and Mark J. Valencia, eds., *Marine Policy in Southeast Asia* (Berkeley).

Yeo Chai Lye (1982), auctioneer, Pontian Kechil, Johor, 6 November, oral communication.

