

Changes in the Law of the Sea and Effects on Fisheries Management

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As part of a joint ICLARM-Resources for the Future, Inc. program, in June 1977 I undertook a 9-month study whose objectives were to examine changes taking place in the law of the sea, identify the likely effects, and stimulate further research and thinking about problems facing those who will be making decisions on fisheries management. Although the major areas of concern were Southeast Asia and the South Pacific, the study has general relevance to other regions of the world.

The study assumes that the general worldwide trend to adopt extended limits of jurisdiction over fisheries will also occur in the two regions of concern. As extension takes place, several problems and difficulties will emerge. In the South Pacific, these problems will relate primarily to the joint management of the highly migratory species, such as tuna, that cross the borders of numerous countries. In Southeast Asia the problems will be primarily those associated with the controls that coastal states will exercise over access by the vessels of foreign countries as well as with controls over their own fishermen. There will also be problems over the joint management of such migratory stocks as mackerels and scads.

Two approaches to the project were taken. With regard to the study, I made three trips to meet with people from the countries concerned to learn about the developments taking place, their views toward the problems that are emerging, and plans for dealing with the problems. The first trip included visits to Micronesia, Honolulu, Japan, South Korea, Taiwan, and Hong Kong; the second trip covered Thailand, Malaysia, Singapore,

and Indonesia; and the third trip covered Australia, New Zealand, Western Samoa, Fiji, New Caledonia, and Papua New Guinea. In each country meetings were held with people from fishery departments, foreign ministries, industry, and universities.

The second approach relates to the objective of stimulating further research and thinking on the problems of fisheries management. The first stage was to identify and meet with scholars of the concerned countries who are presently or potentially interested in the problems. Several fishery experts as well as a few economists, sociologists, and lawyers were interviewed. For the second stage, two workshops are being planned — one in the Southeast Asian region and the other in the South Pacific region — to bring these people together with government representatives. The Southeast Asian workshop will be co-sponsored by ICLARM and Institute of Southeast Asian Studies and held in Manila November 27-29, 1978. Participants in the workshops will be invited in their personal capacities.

My travels were completed November 30, 1977. Additional interviews were held in the Philippines with representatives from the fisheries sector, the Asian Development Bank, South China Sea Programme, SEAFDEC, and others. The first draft of the study and detailed plans for the workshops have now been completed.

With regard to the substance of the study, some initial impressions and tentative conclusions can be suggested. First, the drawing of boundaries in the South China Sea is a major source of conflict, particularly in the areas of the Spratley and Paracel Islands and the Gulf of Thailand. While it is not appropriate for the study to deal with territo-

rial disputes, there are certain implications for fisheries that must be recognized. One is that any international or multilateral regime that is not based on boundaries acceptable to all parties will be unstable. Another and related effect is that bilateral and multilateral agreements on fisheries management may be delayed for several years. Several countries are reluctant to open negotiations on fisheries beyond their present boundaries until they have reached agreements on their extended boundaries, and the problems of extended boundaries are being approached with great caution. In view of the increasing demand for fishery products and the concomitant increase in value of fishery rights, conflicts and waste are likely to become increasingly severe.

A second point is that many countries continue to give greater emphasis to the development of marine fisheries than to management, in spite of the growing evidence that there are limited opportunities for increasing the catches of several important demersal stocks. Problems of overfishing are particularly acute in the Gulf of Thailand and the Java Sea. In these areas, further development of small scale and artisanal fisheries will have detrimental effects for both the resources and the fishermen. While several of the countries are discussing management measures, few are taking effective action.

Also with regard to development, there appears to be strong interest in Thailand, Malaysia, and Indonesia in increasing their catches of certain pelagic species such as chub mackerel and scad. While information (as in all cases) is extremely sparse, there do appear to be opportunities for increased catches of these stocks. However, it is quite likely that these stocks migrate through the waters of these and other countries in the region and that the aggregate expectations of the individual countries may be greater than the maximum sustainable yields of the stocks. The race to harvest these stocks may, therefore, be mutually destructive in the long run.

An additional, and perhaps even more critical, problem is that of adopting and implementing satisfactory enforce-

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ment measures. It makes no sense to adopt management controls and regulations if they cannot be enforced effectively. And it is clear that few countries in the region have the ability to control either their own fishermen or the fishermen of other countries fishing within their waters. Conflicts between small scale coastal fishermen and fishermen with mini-trawlers are pervasive and becoming increasingly severe throughout the region. While several countries have laws restricting the activities of the mini-trawlers, these are often flagrantly violated. Furthermore, within the waters of some of the states there is considerable evidence of illegal fishing by foreign vessels as well as evidence that some foreign vessels fishing legally are being harassed by domestic fishermen and patrol vessels.

Enforcement costs are very high. But unless means can be found to effectively enforce management measures and bilateral or multilateral agreements, there is no chance of preventing a rapid decline in the benefits that can be made available from fishery resources. Techniques for achieving effective enforcement within the present institutional contexts are being explored. One possibility is to improve property rights in fisheries to increase the incentive of the fishermen to adopt and implement rational measures. For example, fishermen's associations or cooperatives (which currently exist in many areas) might be given exclusive rights or access to demersal stocks off their shores. With such exclusive rights they can afford to adopt the necessary conservation measures because they can be assured of receiving adequate returns in the future. Japan has had a long experience with such a technique. It should be emphasized that this is purely a tentative suggestion which requires more careful examination with regard to the nature of the resources, the characteristics of the cooperatives or associations, the kinds of pressures for violations that exist, and other factors. However, the suggestion reflects my view that it is important to adopt plans that can be gradually implemented within the framework of the existing cultures and institutions.

Declaration of EEZ's Temporarily Squeezes Japan's Fish Supply

As increasing numbers of nations declare a 200-mile exclusive economic zone, previously accessible fishing grounds have abruptly been partially or completely closed, and the world's foremost seafaring nation, Japan, acutely feels the pinch.

Deriving almost 50% of their daily protein intake from fish, the Japanese are now faced with the choice of increasing productivity in their coastal waters and accelerating development of aquaculture, or importing costly fishery products to make up the difference between supply and demand. And indeed a difference exists: Japan's fish quota within Soviet waters declined by 36% between 1975 and 1976 and by 11% in U.S. waters between 1976 and 1977. Ocean catches have fallen off 25% in the past 3 years. Demand, at the same time, has grown.

Consequently, imports have been stepped up and joint ventures arranged

abroad as a stopgap measure for increasing supplies, while efforts in coastal improvement and aquaculture move full speed ahead. As of March 1976, Japanese interests had established 173 joint ventures overseas at a cost of \$78.9 million, mostly in the U.S., Asia, and Oceania, to catch and process fish.

To improve coastal fishing grounds, \$740 million has been invested in constructing artificial spawning and feeding beds and beaches. Aquaculture development has similarly received a large boost in the form of plans for 17 additional fishfarming centers by 1980, bringing the total to 27 (excluding salmon hatcheries). Salmon husbandry, deemed the most promising of all aquaculture ventures for Japan, will receive special attention. The present 216 hatcheries currently produce 1.4 billion eggs/year, but under a 5-year program that began last year, this number is expected to rise to nearly 2 billion by 1980. The number of young fish released is predicted to rise from 1.2 to 1.6 billion, with about 2% of these returning to their natal streams to spawn.

Tug-of-War Over Islands' Ownership

The People's Republic of China has reaffirmed its sovereignty over several archipelagos in the South China Sea which are also claimed by the Philippines, Taiwan, and Vietnam. The major lands in the dispute include the Spratley islands in the south, the Paracel islands in the west, and Macclesfield Bank in the center.

Reporting on a recent cruise of a research vessel from the South China Sea Oceanographic Institute, the New China News Agency referred to all of these lands as Chinese territory, also claiming sovereignty over the Pratas off Hong Kong and Scarborough Reef west of Manila. The People's Republic of China has occupied the Paracels since 1974 when it seized the Vietnam-claimed

islands by force. The Spratleys are militarily occupied, some by Taiwan, some by the Philippines, and others by Vietnam.

Why all the fuss over a few square kilometers of land? First, they harbor potentially large oil reserves offshore; most of the countries involved in the disputes have conducted offshore drilling, notably around the Paracels and Spratleys. Secondly, all the archipelagos will become valuable to laying claims to fishery and other resources if and when Southeast Asian nations declare a 200-mile exclusive economic zone. The Spratleys are desirable possessions for yet another reason: they command a strategic position at the entrance from the West Pacific into the Indian Ocean.

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