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Source: *The American Journal of Economics and Sociology*, Apr., 1978, Vol. 37, No. 2 (Apr., 1978), pp. 129-144

Published by: American Journal of Economics and Sociology, Inc.

Stable URL: <https://www.jstor.org/stable/3486432>

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The Law of the Sea and Ocean Resources

By TOMOTAKA ISHIMINE

ABSTRACT. From time immemorial, the *ocean* has provided food, adventure, and inspiration to humanity. In recent years, the nations began to recognize the ocean as an important source of *resources*. The immense potential of the ocean in providing *food* and *nutrition*, particularly *protein*, began to be reexamined. However the ocean also contains a seed of conflict among nations since claims over ocean resources are overlapping. Attempts to establish *the law of the sea* have failed to reach an accord with regard to the definition of *territorial waters* and *economic zones*. At stake are the *freedom of navigation*, the *right of fishing*, and claims over *mining deep seabed resources*. It is imperative to examine the conflicting claims over ocean resources and to foresee the possible outcome of the law of the sea to avoid scrambles over the ocean resources among nations.

I

BACKGROUND

THE FIRST UNITED NATIONS DECADE of Economic Development ended with a mixed blessing. The average annual growth rate of less developed countries (LDCs) during the 1960s surpassed that of the 1950s and even that of developed countries (DCs) in the same decade. But the population growth was such that the growth rate in terms of per capita income for LDCs lagged behind that of DCs. As a result, the gap in the standard of living between LDCs and DCs was actually widened in the decade of the 1960s (1).

Disillusioned by the policy of import substitution in the 1950s and the early 1960s, many LDCs turned their attention to export efforts. For example, tariff preferences were sought from DCs on manufactured or semimanufactured products produced by LDCs. Although there has been some progress in this regard, the extent of preferences accorded by DCs has been much too small, and the pace of the preferences was much too slow to accommodate the LDC's need as they saw it. In addition, their dissatisfaction with the amount of foreign aid received, and the tendency towards a growing economic consciousness and nationalism, have led LDCs to look upon their natural resources as an effective economic and political weapon against the DCs.

Due to pressures by LDCs, the United Nations adopted a resolution in 1966 that allowed each nation sovereign rights over natural

American Journal of Economics and Sociology, Vol. 37, No. 2 (April, 1978).

0002-9246/78/0400-0129\$00.75/0

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resources within its domain (2). The pace of nationalization of natural resources quickened, and many nations, including Chile, Algeria, and Jamaica, nationalized resource industries by the early 1970s. The potential of natural resources as an economic and political weapon was effectively dramatized in the fall of 1973 when the Organization of Petroleum Exporting Countries (OPEC) quadrupled petroleum prices (3).

The waves of sovereignty over natural resources have finally reached the area of ocean resources. The oceans, which have largely been outside the domain of national sovereignty, contain vast amounts of marine and mineral resources, as well as water, energy, and space resources (4). Meanwhile, the growth in ocean technology, population, and economic and political awareness, coupled with such recent discoveries as the large manganese nodule deposits in the South Pacific, have led the LDCs to influence the United Nations' declaration in 1970 that the high seas and their resources belong to the "common heritage of mankind" (5). The declaration also stated that no nation can unilaterally develop the seabed and that the benefits reaped from the seabed must be "equitably" distributed among the nations (6).

LDCs' consciousness of the importance of the oceans as a source of natural resources is also reflected in their demand for enlarging the size of territorial waters and the setting up of an economic zone beyond territorial waters. To the present, the main interest of LDCs has been in marine resources, while that of DCs has encompassed consideration of the military, freedom of navigation, and mineral resources. Herein lies the source of potential conflict among interested nations since ocean resources and activities related to ocean resources are overlapping in many areas of the earth's three dimensional space (7). For example, mining oil from the ocean deposits in the continental shelf might interfere with the migration of fish in the sea and navigation of ships on the surface of the sea.

There have been various attempts to coordinate the diverse interests of nations and to formulate international laws. The United Nations International Law Commission produced four basic laws in 1958 concerning oceans and ocean resources (8). These are: 1) The law on territorial waters, which recognized the coastal nations' jurisdiction over incidents occurring within their territorial waters and confirmed the principle of "innocent passage" of seagoing nations within the

territorial waters of other nations. However, the law failed to define the limit of territorial waters due to lack of consensus among the nations. 2) The law on high seas, which confirmed freedom of navigation on high seas and reaffirmed the traditional jurisdiction of the "nation of flag" (the nation of registry) for incidents involving ships of seagoing nations. 3) The law on marine resources, which set rules for preservation of marine resources in the international waters. 4) The law for the continental shelf, which recognized the right of coastal nations over mineral resources on the continental shelves extending to 200 miles. The first three of the laws represent, in a large part, a consolidation of customs and conventions that had existed for years regarding the use of the seas. Many LDCs considered these existing laws as accommodating the need and interest of DCs and as not necessarily reflecting the need and interest of LDCs. It is noteworthy that, within a little more than a decade, the need for reexamination and revision of the existing laws of the sea had become apparent (9). On the other hand, a greater number of nations are moving from the traditional 3-mile limit for territorial waters and demanding, in addition, recognition of an exclusive economic zone beyond territorial waters.

In 1960, another conference was convened by the International Law Commission to discuss the limit of territorial waters, but the nations again failed to reach a consensus (10).

A turning point came when Malta's ambassador to the United Nations, Arvid Pardo, spoke before the General Assembly in 1967 (11). He pointed to the recent development of ocean technology, which has uncovered vast deposits of resources in and on the seabed, including petroleum, natural gas, and other mineral resources and he warned of possible conflicts among nations over such deposits, as well as of disruption of the freedom of the sea, and of damages to the ocean environment.

Pardo proposed that the ocean resources in international waters be declared to be the common property of all mankind and that an international administrative agency be established to exploit the resources and to apportion them to all nations, especially to LDCs. His proposal was enthusiastically accepted by LDCs; and the United Nations declared in 1970 that international waters and their resources are the "common heritage of mankind" (12). The United Nations General Assembly also proposed a moratorium on the development of

seabed resources until an international organization was established to administer the mineral resources (13).

The interest in the ocean proliferated, however, beyond the mineral resources and culminated in the Third Conference on the Law of the Sea, held in Caracas, Venezuela, in May, 1974, and in Geneva in March, 1975, under the auspices of the United Commission for Peaceful Utilization of the Seabed (14). The Third Conference turned out to be the largest international conference, encompassing 156 nations, including nonmember nations of the United Nations. The 1973 United Nations General Assembly, which proposed the Third Conference, also requested that the new law of the sea should be a package law, unlike existing ones. Aside from its advantages, the attempt to produce a package law has resulted in intense bargaining, maneuvering, and even threatening among nations and blocs of nations in an effort to incorporate their own interest before the law was adopted by majority vote (15).

The 1974 and 1975 sessions of the Third Conference remained largely as bargaining sessions and no concrete result emerged (16). However, various subcommittees produced unofficial texts which participants brought back to their countries for further study. On the basis of these texts the 1976 conferences, i.e., the fourth and fifth sessions of the Third Conference, were convened in March and August, 1976 (17). The conferences again failed to come to an accord, mainly because of disagreement as to how the international agency, to be created to regulate ocean mining, was to function. There is a sense of urgency, both on the part of LDCs and DCs, and the feeling that, unless a new law is adopted, the nations will begin scrambling for ocean resources. It is, therefore, useful to survey the issues involved, and to explore their economic and noneconomic implications, in order to foresee the direction in which the matter will be moving.

II

TERRITORIAL WATERS AND SPACE RESOURCES

AS STATED EARLIER, there has been a tendency to drift away from the traditional 3-mile limit for territorial waters. The origin of the 3-mile limit itself is obscure (18). At any rate, the narrow definition of territorial waters has benefited traditional seagoing nations by according them the freedom of navigation. However, as of 1974, it is estimated that only 25 nations uphold the 3-mile limit. Another 14 nations are for a 4- to 10-mile limit; 55 nations are for a 12-mile

limit; and 21 nations are for up to a 200-mile limit (19). Through the Caracas Conference, a consensus for a 12-mile limit has developed. Nations that are inclined towards more than a 12-mile limit have made the acceptance of 12 miles conditional upon satisfactory solutions on other matters such as economic zones, passage of straits, and the question of archipelagos.

At stake is the desire of many nations, especially smaller ones, to expand their jurisdictions to extended waters. At stake are exclusive rights to exploit marine and offshore mineral resources on the part of coastal nations. Also at stake is the desire for uninterrupted passage of merchant ships of seagoing nations and warships of naval powers. The traditional concept of innocent passage in territorial waters has conferred upon seagoing nations the freedom of navigation in the territorial water as long as the passage does not disturb the peace and security of coastal nations. But the concept has been subject to varying interpretations among countries. Thus seagoing nations are requested to provide advance notification for passage of warships, and submarines are allowed to travel only on the surface of the water. It is possible that overflights of high altitude aircraft and passage of giant tankers may be forbidden under the pretext of violation of innocent passage. The ability of nations to place disguised intelligence-gathering vessels near the coasts of other nations may also be seriously hampered. It is not a coincidence that both the United States and the Soviet Union initially opposed expansion of territorial waters beyond the 3-mile limit (20). The seagoing nations such as Japan and England also opposed expansion of territorial waters, for it will put serious limitations on fishing activities and passage of straits that may fall within the territorial limit (21). Indeed, it was mainly the passage of straits and its strategic and navigational implications that the naval powers and seagoing nations worried about most. When territorial waters are expanded to 12 miles, straits with a width of 24 miles would fall within the territorial waters of either one of the two nations. Such straits number 116, including such important straits as Malacca, Gibraltar, Dover, and Bering which are international waters at present (22).

Sensing strong demand by many nations, the naval powers and the seagoing nations began to moderate their stand. Most of these nations are now ready to admit a 12-mile limit on condition that an international sea lane must be set for free passage in the straits, and

that a guarantee of freedom of navigation is accorded to vessels traveling international waters. However, many nations are reluctant to accept an international lane that would allow unconditional passage of ships, which may include submarines, atomic-powered warships, nuclear-carrying vessels, and pollution-prone tankers (23). On the other hand, the majority of nations would not object to guaranteeing them the right of innocent passage that goes with the territorial waters (24). The question here is not one of freedom of passage or of no passage, but one of unconditional passage or conditional passage. However, the demand of seagoing nations is so strong that the other nations will perhaps have to accept the international lane in exchange for a recognition of the 12-mile limit, provided that safeguards against pollution and damages are set up. The provisions governing the passage of straits are likely to be different from the innocent passage within territorial waters, for sea lanes in the straits are international lanes and as such subject to international negotiations.

The limit for territorial waters is still more complicated for nations consisting of archipelagos such as the Philippines, Indonesia, and the Bahamas. They have put forward the idea of drawing lines for territorial waters connecting points 12 miles off the outer island of the archipelagos (25). An unofficial text distributed by the United Nations Seabed Committee, however, restricts the ratio of water to land to no more than nine to one, and states that the total length of the strait lines shall not exceed 80 miles, with some exceptions calling for 125 miles. All ships passing through the international waters of archipelago nations must go through designated passing lanes; if no lanes are designated, the customary lanes that have been used in the past will be used.

There are also provisions against pollution in the aforementioned unofficial text. The rules governing pollution must be internationally agreed upon and, in order to eliminate interference by a third country, only nations of flag or of destination are allowed to prosecute violating ships. According to the provisions, all nations have an obligation to enforce international rules on their own ships, and must prosecute violating ships. When requested in writing by a nation incurring damages from a violating ship, the nation of flag must investigate its own ship and bring owner and master to court when violation is evident. When a foreign ship that is suspected of a violation enters a port, the host country must investigate immediately and notify the

nation of the flag. When a foreign ship that is anchored in its own port emits polluting materials, or when a third nation claims that a foreign ship so anchored emitted polluting materials, the ship's owner and master can be prosecuted by the anchoring nation provided that no appropriate measure was taken by the nation of flag. These provisions represent a compromise between the demand of seagoing nations that only nations of flag have jurisdiction over their own ships, and the demand of coastal nations that wish to exercise sole jurisdiction over polluting ships near their waters. These regulations against ocean pollution are likely to be tied in with the existing international agreement against ocean disposal of harmful materials such as mercury and cadmium, and the agreement to regulate the disposal of lead, copper, and arsenic (26).

Recently oil pollution has become a serious problem as the size of tankers has increased so much that 200 thousand- to 300 thousand-ton tankers have become common. Aside from leakage of oil due to collision, stranding, and seepage, tankers during return trips, are required to fill empty tanks with water in order to maintain balance. As the tankers take on some cargoes in intermediate ports, proportionate amounts of water are drained into the ocean. Occasionally the emptied tanks are cleaned during the return trip, and the water is dumped into the sea. It is understandable that affected nations want to regulate ships that are pollution prone, while the existing international law only permits prosecution of such ships by the nation of flag. Since the aforementioned provisions attempt to exclude involvement of a third country with a passing (but polluting) ship, the coastal nations are likely to resist the provisions that limit jurisdiction only to the nation of flag and the visiting nation.

III

ECONOMIC ZONE AND MARINE RESOURCES

THE NEXT QUESTION of importance is the economic zone. According to established customs, the ocean beyond the territorial water, except for continental shelves, is theoretically free to all nations for passing, fishing, and mining. But as LDCs see it, freedom is open only to those advanced seagoing nations that have the technology and means of transportation (27). These nations are capable of sending their fishing fleets into the offshore waters of other nations, where they are able to deplete LDCs' fish resources with their efficient fishing techniques. LDCs were strongly tempted to make a unilateral declara-

tion announcing an expansion of territorial water claims to a vast area. However, the cost of enforcing such a unilateral declaration and of watching violators in a vast area would have far exceeded the benefit of an exclusive fish catch, the volume of which would be limited by the state of their fishing technology (28).

With a growing awareness of the importance of oceans as a source of food and protein on the one hand, and with the gap in the fishing technology of DCs and LDCs on the other, an increasing number of the LDCs began to demand the "economic zone" (29). Subsequently, the idea of a 200-mile economic zone has been gaining momentum not only among LDCs but among some DCs as well.

Originally the 200-mile economic zone was proposed by Kenya in 1972 as a compromise to the claim of some countries such as Chile, Ecuador, and Peru for 200-mile territorial waters (31). Fishing nations such as Japan and England also have opposed the territorial proposal, as it would seriously restrict their fishing activities (32).

Most nations in favor of the 200-mile economic zone (188 miles beyond the territorial waters of 12 miles) want to have an exclusive right not only to fish but also to exploit mineral resources as well. At the present time the countries which initially opposed the economic zone are largely resigned to the idea. For unless the economic zone is set, there is a prospect that impatient countries may resort to unilateral actions, and lawlessness in the sea may prevail. And it has gradually become clear that establishment of the economic zone may not necessarily exclude fishing nations that have traditionally operated in the area. Nevertheless, coastal nations will have the right to set limits on fish catch, method of catching, catching seasons, antipollution provisions, and so forth; and as a result, the activities of fishing nations will be constrained. Some countries may make it conditional for fishing nations to provide them with fishing technology and to set up processing plants or research facilities on their shores. At any rate, after some advanced countries, such as Canada, Australia, and New Zealand, as well as Iceland, joined this group, the trend for the 200-mile economic zone became a well-established one.

It is ironic that the United States, which had strenuously opposed creation of the economic zone, gave impetus to the idea by unilaterally declaring, in the 1945 Truman proclamation, exclusive rights to mineral resources on the continental shelf (33). In 1953, Congress enacted the Outer Continental Shelf Land Act and implemented the

proclamation. Other countries followed with similar acts. In 1958, an international treaty for mineral resources on the continental shelf was signed under the auspices of the United Nations International Law Commission. Some countries, such as Iceland, find it arbitrary that mineral resources on the continental shelf are under sovereignty while marine resources are not (34). In the light that a few countries demand extension of territorial waters to 200 miles, and that countries endowed with continental shelves already have the right to mineral resources, setting 200 miles as an economic zone, rather than as territorial waters, seems to be a practical compromise. At any rate, the limit of economic zones is likely to be either 200 miles or the extent of the continental shelf, whichever is larger.

The United States has conflicting interests in recognizing the 200-mile economic zone. Both the Department of Defense and the State Department have opposed it because of adverse military and political implications. The fishermen of southwestern United States who net tuna and shrimp off the west coast of South America oppose the 200-mile economic zone (35). The fishermen of the northeastern states, on the other hand, have pressed for just such a law to exclude or limit fishing by other nations off the coast of New England (36). Foreseeing the eventuality and pressing for an early international agreement, Congress passed a bill which establishes the 200-mile economic zone for the United States. The President signed the bill on April 13, 1976; it has become a law effective March 1, 1977 (37). The new law provides the United States with 2.5 million square miles of exclusive fishing zone, which is equal to approximately 70 percent of its land area; other nations wishing to engage in fishing in this zone are subject to licensing regulations of the United States.

Beyond control of fish and mineral resources in the economic zone, there are still a number of conflicts among the nations as to what more "rights" coastal nations may acquire (38). They include the right to control ocean pollution, scientific exploration, underwater cables and pipelines, as well as the traditional freedom of navigation and air passage. DCs are against any restriction beyond mineral and marine rights. One question yet to be solved concerns what privileges should be extended to inland or land-locked nations, and nations that have traditionally engaged in fishing in the distant waters which are now to become economic zones (39).

The so-called Evensen Proposal of the Second Subcommittee, dealing with territorial waters and economic zones, is indicative of the likely outcome (40). According to the proposal, the coastal nations are obligated to preserve marine resources and to strive for "optimum utilization" of marine resources. The amount of permissible fish catch within the economic zone is to be regulated by the coastal nations. However, when the coastal nations do not have the capacity to utilize the permissible catch, they must permit fishing to other nations. In doing so, consideration must be made for minimizing economic disruption of the countries that have customarily engaged in fishing in the economic zone. The optimum utilization of migratory fish that travel in and out of an economic zone (*e.g.*, tuna, mackerel, anchovy) must jointly be determined by the coastal nations and fishing nations. The preservation of ocean fish that spawn in fresh water (*e.g.*, salmon and trout) is to be determined by the nations where spawning waters originate; but consideration must also be given to minimizing economic disruption of the activities of nations which have traditionally caught these fish in the high seas. The inland nations will have the right to participate in fishing within the economic zone of the adjacent coastal nations. The coastal nations will have the right to check, search, arrest, and bring to court those who violate the laws in the economic zone. However, the arrested ships and their crews must be released on bail and cannot be detained in the prosecuting country.

IV

INTERNATIONAL WATERS AND MINERAL RESOURCES

INTERNATIONAL WATERS that are beyond the 200-mile economic zone are common property of all nations and as such free for all nations to navigate and catch fish in as they have been for centuries, although the size of international waters will be vastly decreased. A problem exists, however, in the matter of mineral resources in the deep seabed. At a time of ever-increasing need for resources on one hand and their depletion on the other, the potential of the oceans as a source of mineral products has stirred intense interest. In the 1950s, a United States Navy exploration team discovered an immense deposit of manganese nodules on the seabed of the South Pacific near Tahiti (41). Manganese nodules contain minerals such as manganese, nickel, copper, and cobalt. They are potato-shaped nuggets that lie on the surface of the deep seabed (42). Since no ground mining is required,

the main technological problem involves dredging the nodules, bringing them to the surface, and processing them efficiently. Three methods of dredging have been devised and are known as continuous-path dredging (a giant vacuum cleaner), fixed-area dredging (movable arms with carriages), and continuous-line-bucket dredging (43). Experiments have already been attempted by some firms, including Deepsea Ventures (a subsidiary of Tenneco), Summa Corporation (the late Howard Hughes), Kennecott Ocean Resources (California-based), and International Nickel (Canadian-based) (44). However, the technology of efficient processing requires substantial capital investment and is still at the stage of development.

Although knowledge of manganese nodules has existed for over 100 years, it has only been in the 1950s and 1960s that large deposits of nodules have been located. According to one estimate, the Pacific Ocean alone contains as much as 1.6 trillion tons of nodules with concentration of up to 5,000 tons per square mile. Two factors are crucial for successful commercialization of the nodules: increases in the world market prices of the metals contained in nodules and development of more efficient technology for dredging, surfacing, and processing them. When sufficiently processed and marketed, the metals from the seabed in turn are likely to affect the existing price structure of these metals and their substitutes (45). In fact some DCs see a hidden utilitarian motivation behind the pressure exerted by LDCs to declare the seabed resources as a common heritage of mankind. It is apparent that LDCs would like to establish an international agency to control development of the seabed resources, since some of these countries are themselves producers of these minerals (Chile, Peru, Zaire, Zambia).

Although it was agreed upon by DCs and LDCs that the seabed resources are a common property of mankind, the question unanswered is who is to develop these resources (46). There is a consensus among nations for the need of an international authority to regulate development of the seabed resources. However, opinions vary as to how development is actually to take place. LDCs want the international authority to retain control of all phases of development, *i.e.*, exploration, production, refining, transportation, marketing, and price determination. Private firms play only a passive role through "participation," that is, by acting as agents of the controlling authority. DCs, on the other hand, want a system in which private

firms play active roles in the aforementioned activities through contracts with the international authority. However, LDCs are fully aware that there can be no development without capital and technology supplied by DCs, and for this reason, probably, the outcome will greatly reflect the demands of DCs. In the United States, the American Mining Congress went so far as to introduce in 1971 a bill on behalf of the industry through Representative Thomas Downing of Virginia and Senator Lee Metcalf of Montana (47). The bill would grant the United States government the authority to stake out mining blocks in international waters, lease them to private mining firms, and compensate their losses if the succeeding international authority takes over on unfavorable terms. The bill has alarmed many countries, and the United States government itself opposed it. The bill has since been shelved (48).

Another problem associated with the establishment of an international authority is the method of contract with private firms. After mining blocks are staked out, each block can be auctioned off to the highest bidder with clear transfer of property rights. It is argued that this method of allocating licenses ensures efficiency from an economic point of view. Other methods such as a first-come, first-serve basis where ownership rights are not transferred, it is claimed, may lead to inefficient allocation (49). However, the problems of ownership and their effect on economic efficiency are far from settled; and they involve noneconomic judgments as well.

However, there is a consensus among the nations that no matter what authority the international agency assumes and regardless of what method of licensing is adopted, royalties must be paid to the international authority which in turn would distribute them to all nations, including land-locked nations. The heart of the matter ultimately lies in the "equitable" distribution of the income realized (50).

V

SUMMARY

THE CONCEPT of freedom of navigation, in the traditional sense, is undergoing a complete transformation. As a result, it will be a constrained freedom with certain obligations attached to the navigating ships. Territorial waters will be extended to 12 miles and the economic zone will be set up as running for 200 miles off coastal nations. Nations customarily engaged in fishing in the 200-mile zone will have to pay license fees and will be subject to various restrictions

imposed by the coastal nations. These restrictions include amount, kind, method, and seasons of catch, as well as pollution controls and provision for maintenance of the tranquility of the coastal nations. Mineral resources within the 200-mile zone will be administered by the coastal nations and in remaining international waters by some procedure involving an international agency. In short, all ocean resources will be divided into two categories, one controlled by coastal nations, the other through some international body.

Considerations explained above also emphasize the importance of the matter of sovereignty in future economic analyses, especially in the field of natural resources, multinational corporations, and economic development of LDCs. Consideration and integration of national sovereignty in economic analyses have been grossly neglected in the past. Nations endowed with raw materials, through exercise of sovereignty and control of resources, will press for commodity agreements to stabilize supply and prices, and will use resources as political and economic leverage for economic development. DCs, despite their reluctance, will be increasingly compelled to accept commodity agreements as a price to be paid for access to the supply of vital resources.

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9. This statement applies to the United States as well. See Louis Henkin, *Law for the Sea's Mineral Resources*, Institute for the Study of Science in Human Affairs, Mono. No. 1 (New York: Columbia Univ. Press, 1968), pp. 32-36.

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12. United Nations General Assembly Resolution 2750 (1970), UN Doc. A/8028, GAOR 25 Sess., suppl. no. 28.

13. *Ibid.*

14. Ann L. Hollick and Robert E. Osgood, *New Era of Ocean Politics*, Studies in International Affairs No. 22 (Baltimore: Johns Hopkins Univ. Press, 1974), pp. 41-44. Before the 1974 Caracas and 1975 Geneva Sessions, a preparatory session was held in New York in 1973.

15. *Ibid.*

16. For extensive evaluations and discussions of various topics of the Law of the Sea and of the 1974 Caracas session, see *The Law of the Sea Institute, Caracas and Beyond: Proceedings*, Francis T. Christy, ed. (Kingston: Univ. of Rhode Island Press, 1975).

17. *Wall Street Journal*, September 20, 1976.

18. Sayre A. Swartztrauber, *The Three-Mile Limit of Territorial Seas* (Annapolis: Naval Institute Press, 1972), pp. 53-56.

19. The tabulation is as follows. For a three mile limit: Australia, Bahrain, Barbados, Belgium, Cuba, Denmark, Fiji, East Germany, West Germany, Guyana, Ireland, Japan, Jordan, Maldives, Monaco, Netherlands, New Zealand, Qatar, Singapore, Taiwan, United Arab Emirates, United Kingdom, United States, Vietnam (South), Western Samoa. For a four to ten mile limit: Dominica, Finland, Greece, Iceland, Israel, Italy, Ivory Coast, Malta, Norway, Poland, South Africa, Spain, Sweden, Yugoslavia. For a twelve mile limit: Albania, Algeria, Bangladesh, Bulgaria, Burma, Canada, China, Colombia, Congo, Costa Rica, Cyprus, Dahomey, Egypt, Equatorial Guinea, Ethiopia, France, Guatemala, Haiti, Honduras, India, Indonesia, Iran, Iraq, Jamaica, Kenya, Khmer, Korea (North), Kuwait, Liberia, Lybia, Malaysia, Mauritius, Mexico, Nauru, Oman, Pakistan, Portugal, Romania, Saudi Arabia, Senegal, Soviet Union, Sri Lanka, Sudan, Syria, Thailand, Togo, Tonga, Trinidad and Tobago, Tunisia, Turkey, Venezuela, Vietnam (North), Yemen (Aden), Yemen (San'a), Zaire. For an 18 to 130-mile limit: Cameroun (18 mi.), Gabon (100 mi.), Gambia (50 mi.), Ghana (30 mi.), Guinea (130 mi.), Madagascar (50 mi.), Mauritania (30 mi.), Morocco (70 mi.), Nigeria (30 mi.), Tanzania (50 mi.). For a 200-mile limit Argentina, Brazil, Chile, Ecuador, El Salvador, South Korea (20-200 mi.), Panama, Peru, Sierra Leone, Somalia, Uruguay. Unknown: Lebanon, Nicaragua, Philippines. Adopted from John R. V. Prescott, *The Political Geography of the Oceans* (Baltimore: Halsted Press, 1975), pp. 226-28.

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23. Ann L. Hollick and Robert E. Osgood, *New Era of Ocean Politics*, Studies in International Affairs No. 22 (Baltimore: Johns Hopkins Univ. Press, 1974), pp. 75-131.
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U.S. Loses Top Ranking in Engineers' Salaries

THE UNITED STATES, long the industrial world's leader in salary levels for engineers, lost its top ranking during the first half of this decade, according to a Conference Board report released in 1977. A salary survey covering beginning engineers in 12 nations finds the U.S. trailing in dollar salaries. Engineers were selected because their compensation is often used as a benchmark for other salaries and because job content is similar in all countries.

Denmark vaulted to the top in salaries in 1975—with new engineers averaging \$20,400. Besides Denmark, four other countries—West Germany, Switzerland, Norway and Belgium—ranked ahead of the United States in 1975. Denmark's salaries were 37 percent higher than those of the U.S. and 192 percent above those in the United Kingdom, the last place country. In 1971, the U.S. held a comfortable salary lead.

But in perhaps an even more significant category—number of hours of work required to buy major consumer goods and services—the U.S. advanced from seventh place in 1971 to fourth place in 1975.

An analysis of worktime required to buy 115 widely-purchased goods and services shows Denmark topping this category in 1975. In Denmark, only 877 hours of work a year were needed to buy the 115 items. Following Denmark were Norway (1180 hours), West Germany (1187 hours) and the U.S. (1234 hours).

The major shift involved Sweden, the leader in this category in 1971. Hours of work required to buy major consumer items jumped 20 percent (to 1255 hours) in Sweden between 1971 and 1975. Sweden was the only surveyed country to post an increase in this category. Behind this development: a 37 percent leap in consumer prices while salaries in kroner rose only 23 percent between 1971 and 1975.

[From JOSEPH L. NARR for the Conference Board.]