

Chapter 11

Marine Technology Transfer and the Law of the Sea*

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On 10 December 1982, the signing ceremony was held for the United Nations Convention on the Law of the Sea (UNCLOS) in Montego Bay, Jamaica. The comprehensive Law of the Sea Treaty was signed by delegates from 117 countries, and the document represented over nine years of difficult negotiations conducted by nearly 3,000 delegates. The Treaty is a comprehensive effort to regulate the world's oceans, and includes provisions on a wide range of issues, including: territorial seas, the continental shelf, the high seas, marine scientific research, exploitation of the deep seabed, straits passage (for commercial shipping and warships), fishing rights, and technology transfer. The United States refused to sign the Treaty, along with 22 other countries. In describing U.S. objections to the document, chief delegate Thomas Clingan said, "no nation should be asked to sacrifice fundamental national interests."¹ One primary area of concern for the United States is that portion of the Treaty that creates an International Seabed Authority (ISA or the "Authority") to regulate the mining of strategic minerals from the deep seabed—the floor of the ocean under the high seas.² Within the deep seabed mining sections of the Treaty, one particular issue of fundamental concern to U.S. negotiators is the mandatory transfer of marine technology. Of special concern and sensitivity is the closely held technology that would be required to mine the floor of the deep ocean for the rich lodes of nickel, copper, cobalt, and manganese, found in the "manganese nodules" throughout the ocean floor.³

The associated technology (which would involve the prospecting, collecting, surfacing, transporting, and processing of the manganese nodules) covers a wide range of equipments and techniques in the marine environment. In addition to the deep seabed mining technology, which would be available for mandatory transfer, the Treaty further establishes regional centers to encourage other forms of technology transfer. The issue of marine technology transfer in the context of the Law of the Sea Treaty is an emotional one. It is colored by: overtones of the entire North-South debate, questions of the free market and competitive

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development of technology, and the issue of the deep seabed as the “common heritage of all mankind,” versus the principle of freedom of the high seas.

Technology transfer as a process is a straightforward matter. It is the concept of passing scientific knowledge and technology from one State or organization to another. In the Law of the Sea Treaty, the heart of the matter is contained in Article 144, *Transfer of Technology*. The article states:⁴

1. The Authority (the international organization established to regulate the deep seabed) shall take measures in accordance with this Convention (the Treaty):
 - (a) to acquire technology and scientific knowledge relating to activities in the Area (the deep seabed); and
 - (b) to promote and encourage the transfer to developing States of such technology and scientific knowledge so that all States Parties benefit therefrom.

The broad principles of Article 144 are specified in Annex III to the Treaty, which deals with basic conditions of prospecting, exploring and exploiting the deep seabed. In Article 5 of Annex III, also entitled *Transfer of Technology*, very detailed instructions are listed dealing with mandatory transfer of marine technology. Article 5 specifies that:⁵

- Applicants (Private corporations or state-run companies) will provide the Authority with a general description of equipment and methods pertaining to their specific mining project.
- Applicants and operators will inform the Authority whenever “substantial technological change or innovation” is introduced.
- Operators will make technology available to the Enterprise (the mining arm of the Authority) “on fair and reasonable commercial terms and conditions.”
- Such technology could be transferred to the developing States by the Enterprise/Authority in cases where the developing State had applied for the right to participate in the deep seabed mining operation.
- Technology transfer provisions would be in force for the first 10 years after the Enterprise begins commercial production of minerals from the resources of the deep seabed.
- Technology is defined very broadly, to include specialized equipment and technical know-how, including manuals, designs, operating instructions, training, and technical advice and assistance necessary to assemble, maintain, and operate a viable system and the legal right to use these items for that purpose on a nonexclusive basis.

Marine Technology

The stakes involved in the issue are enormous. The strategic importance of the technology is immense, particularly since it represents the ability to assure a nation a stable, virtually inexhaustible supply of cobalt (jet engines and other

high-tech applications), manganese (steel production), copper, and nickel. The United States currently imports over 97 percent of its cobalt and manganese, as well as 70 percent of its nickel. The land-based producers of U.S. cobalt and manganese are not politically stable (Zaire and South Africa, for example), and the prices of the minerals have been extremely volatile. The deep seabed mining technology that could be transferred under the mandatory portions of the Law of the Sea Treaty could include the machinery and technology necessary to: prospect (undersea vehicles, surface ship navigation and positioning systems, sonic searchers), harvest the manganese nodules (mining vehicles capable of operating at the 14,000–18,000-foot depths of the deep seabed), lift (conveyors, pneumatic lift devices), transport (ships, loading systems), and process (artificial islands and ports, chemical processing equipment, refining, mineral/metal transport). Many of the technologies involved in deep seabed mining are extremely sensitive, representing proprietary knowledge developed by private corporations. In addition to the innate value of the innovative technology, the value of the deep seabed mining technologies must be measured against the opportunity it affords for exploiting the vast hoard of minerals on the deep seabed. Clearly, the value of the technology is enormous. Some analysts place its worth in the billions of dollars.⁶

The Treaty allows for *mandatory* transfer of deep seabed mining technology. It also strongly encourages the transfer of other marine technologies, although it does not provide for any other mandated transfers. The value of the other marine technologies is also considerable. One of the strongest sections of the Treaty encourages the exchange and transfer of information and technology involved with fishing. Many new techniques have been developed over the past decades, yet virtually all of the world's fishing is still done with primitive methods. "Major innovations include nylon nets, new devices and techniques for fish location, sonars, echo sounders, long distance processing factory ships, and sophisticated trawling."⁷ The development of sea farming and aquaculture are also being explored.

Other interesting advances are being made in the technology of artificial islands. This involves recovering land areas from the ocean and using them in a variety of high technology and agricultural ways, including nuclear power sites, defense installations, toxic waste processing, storage, refining, and other factory uses. The technology involved here could also lead to great improvements in harbor capabilities. The artificial islands technology could be liable for mandatory transfer if such stations were used specifically for the processing of the deep seabed mining minerals, which is a good possibility because of environmental and ecological considerations.⁸

Offshore hydrocarbon installations are a part of marine technology that is constantly improving. There are more than 700 active rigs operating in the world today, and more are being constructed, using extremely advanced technology at

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costs in excess of \$1 billion per rig. Many experts believe that the source for over 50 percent of the world's hydrocarbons (oil and natural gas) will be the oceans by 1990. The developing countries are naturally desirous of obtaining this complex technology for exploitation around their own shores.⁹

Other advances associated with marine technology include the areas of shipbuilding, tidal/current power production, ocean thermal energy projects, and the extraction of minerals and chemicals from seawater, muds, polymetallic sulfides, etc. The precedent of the deep seabed as the "common heritage of all mankind" could conceivably be applied in many other areas. The Treaty already provides a framework for the systematic transfer of marine technology from the industrial world to the developing countries, although it is *mandatory* only in the area of deep seabed mining at the present. However, it is important to bear in mind the wide range of marine technologies that are subsumed in the category of "seabed mining."

Overall, it is clear that marine technology will have an increasingly important impact on the standard of living and the economic welfare of many countries. The issue of the transfer of such technology will continue to be a key concern in the North-South dialogue in general and in the Law of the Sea Treaty in particular.

Industrial Countries

By far the majority of the marine technology in the world today is held by the industrial countries, including primarily the United States, Western Europe, and Japan. The position of the Western nations on the issue of technology transfer in the Law of the Sea context is not unified. The United States, particularly under the highly free-enterprise oriented Reagan administration, is strongly opposed to the mandatory transfer of any marine technology. On 29 January 1982, President Reagan released a statement announcing that the United States would return to the Law of the Sea negotiations after a hiatus of nearly a year. He voiced six key areas of concern with the Treaty, most of which were involved in one way or another with the deep seabed mining portion of the accord. He said, "... the Convention should not contain provisions for the mandatory transfer of private technology."¹⁰ Ambassador James Malone, the Special Representative of the President for the Law of the Sea negotiations, echoed the same thought in testimony before the House Merchant Marine and Fisheries Committee on 23 February 1982: "There is a deeply held view in our Congress that one of America's greatest assets is its capacity for innovation and invention and its ability to produce advanced technology. It is therefore understandable, that a Treaty would be unacceptable to many Americans if it required the United States, or more particularly private companies, to transfer that asset in a forced sale."¹¹ Other Western nations are not so vocal in their opposition to the technology

transfer provisions of the Treaty, but many are sympathetic to the U.S. position, especially Great Britain and West Germany, neither of whom have signed the Treaty to date. On the other hand, some of the Western countries with advanced marine technology seem willing to let the mandatory technology provisions stand, notably France and Japan, both of whom signed the agreement.¹² It is also important to note that *within* the industrialized countries, a wide diversity of opinion exists on the concept of mandatory transfer of technology, ranging from the strong opposition of most corporations to support from many journalists and academics. Overall, the industrial countries accept the concept that *some* technology transfer is an acceptable political and philosophical idea, but they are unwilling to see the technology transferred via mandatory controls of the Authority. The preference is for joint ventures, with the industrial corporations holding the technology for some specified period of time and gradually transferring it to the developing countries. While some of the industrial countries are willing to accept the mandatory technology transfer provisions of the Treaty, the influence and attitude of the United States toward the document remains a significant block to the emerging ocean regime in general and marine technology transfer in particular.¹³

Developing Countries

The developing countries see the issue of technology transfer as one of the key ingredients of the New International Economic Order (NIEO), with the Law of the Sea Treaty and its provisions for mandatory transfer as being on the cutting edge of that movement. From a philosophical standpoint, the developing countries are strongly in favor of increasing the flow of technology, via mandatory regulation if necessary, to their economies; and they are also avid supporters of the concept of the deep seabed as the "common heritage of all mankind."¹⁴ They see the mandatory technology transfer provisions as part of their opportunity to share in the wealth, prosperity, and property that has accrued to the West.

The developing countries perceive the distribution of the world's wealth as unequal, and they seek to correct it via a political process, of which marine technology transfer is part of the current agenda. From a pragmatic standpoint, on the other hand, most developing countries are not yet ready for a large and sudden influx of advanced marine technology. They have neither the trained personnel nor the capital or infrastructure to effectively utilize it. The Law of the Sea Treaty does establish a principle or precedent for mandatory transfer, and it is therefore considered of critical importance by much of the developing world. Specifically, the developing countries are calling for:¹⁵

- Mandatory transfer of marine technology
- More information from the multinational corporations operating in the developing countries and on the high seas

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- Better training for users of the technology (in the developing world)
- An equal chance to exploit the seabed (“the common heritage principle”)

The developing countries are quick to point out that they do not claim any right to technology that is used *only* in the industrial countries and not on the high seas or deep seabed. They admit that such equipment and knowledge is clearly “private property.” Their concern is directed toward technology that is used to exploit the ocean, “the common heritage of all mankind.” They argue that since the marine technology is used in what is, in effect, a global common, the returns should be shared with the entire global community. They see mandatory technology transfer as one keystone of this program. Finally, the developing countries believe that they were the victims of exploitation by the Western powers throughout the colonial period. Implicit in many of their declarations and proposals is the idea that they are “due” their share in global mineral wealth and advanced technology in return for decades of exploitation.

Corporations

Most of the marine technology that is held by Western countries is in the hands of a collection of large corporations. As a rule, the Western companies are opposed to the mandatory transfer of marine technology. The U.S. Chamber of Commerce, which represents 187,000 firms and individuals in business, is particularly opposed to the concept.¹⁶ In a position paper of 5 August 1981, the Chamber’s spokesperson commented, “Privately owned technology in this country is not the ‘common heritage of mankind.’”¹⁷ The position paper points out that the technology in the United States has been developed because of the “American economic system,” which “encourages and protects the development of technology.” The paper goes on to comment that lack of full protection, i.e., technology transfer as outlined in the Law of the Sea Treaty, will only act as a major obstacle to the development and utilization of important minerals and hydrocarbon recovery technology. This, again according to the Chamber, will ultimately be detrimental to the companies, the developing countries, and the industrial nations alike.¹⁸

The basic attitude of most corporations is that technology transfer is a fine idea, but it must be profitable for both the transferor *and* the transferee. If the incentives inherent in the United States and other Western patent systems are altered by the Authority, less and less new technology will be developed. George W. Whitney, President of the American Patent Law Association, commented before the Committee on Foreign Relations of the U.S. Senate:¹⁹

“High technology products, machines, and processes are assets acquired at high costs and considerable risks. Their development requires long term expenditures of money and manpower. To efficiently mine the sea, not only will existing technology and experience have to be greatly advanced, but whole

new technologies will have to be developed. We cannot conceive that any American industry will undertake this major endeavor, knowing that what it invents and brings into being will immediately be transferred to its competitors. We as their advisors could not in good faith recommend such action.”

The influence of powerful lobbying groups such as the Chamber of Commerce and large individual corporations is immense. In particular, four major consortia of large, multinational corporations have already staked a claim in the deep seabed as “pioneer investors.” These include:²⁰

Kennecott Consortium: Sohio, Rio Tinto-Zinc, BP, Noranda Mines, Mitsubishi, Kennecott.

Ocean Mining Associates: US Steel, Union Minere, Sun Chemicals, Ente Nazionale Idrocarburi.

Ocean Management, Inc.: INCO, Metallgesellschaft, Preussag, Salzgitter, SEDCO, Deep Ocean Mining.

Ocean Minerals Co.: Standard Oil, Lockheed, Billiton (Shell) BKW Ocean Minerals.

Such large, multinational groups have brought considerable pressure to bear in the various Western countries opposed to the marine technology transfer provisions of the Law of the Sea Treaty. They will continue to oppose the process even if their individual governments sign the Treaty.

Problem

The problem with instituting marine technology transfer via the Law of the Sea Treaty is obvious—the Western countries and multinational corporations that currently hold the technology have little desire to share it with the developing countries, at least as part of a mandated transfer. On the other hand, the industrial countries and the companies do want the formal, legal protection offered under the aegis of a widely supported Law of the Sea Treaty. Additionally, the West is very interested in other parts of the Treaty that guarantee vessel (commercial and warship) passage rights, define coastal boundaries, establish exclusive economic zones, and ensure overflight above strategic straits. Finally, from a philosophical standpoint, the West is in favor of technology transfer in order to promote general global advancement and raise the standard of living in many developing countries, so long as the transfer of technology is accomplished by an “orderly and efficient” means. The developing countries are strongly in favor of the transfer process as outlined in the Law of the Sea Treaty since they are the prime beneficiaries of the system. Both sides agree that the fundamental question of technology transfer is a key element in North-South relations, and most of the countries involved believe that the United Nations is an acceptable forum for working toward a solution.

Proposed Solution

The problem of marine technology transfer is not the only stumbling block to universal acceptance of the United Nations Law of the Sea Treaty. Most of the industrial countries have additional grievances with the deep seabed mining-Authority system. Negotiations broke down completely between the major contending blocs at the eleventh and final meeting of the Convention in New York in March-April 1982 over several other issues, and the gulf between the countries willing to sign the Treaty and those who refuse seems wide today.²¹ "We have been the whipping boys here," commented Thomas Clingan, the U.S. delegate to the Jamaican signing ceremony.²² There are rumblings of retaliation, protectionism, nationalization of overseas assets, and the like from disgruntled developing countries. Paul B. Engo of Cameroon said at the ceremony that the United States "cannot now afford the discomforts of isolation," and Ambassador Clingan acknowledged that the U.S. position was "bound to harden North-South feelings."²³ Although the problems with the Law of the Sea Treaty will not be quickly solved, it seems that on the issue of marine technology transfer at least, there is room for maneuver. The following proposals are designed only to mention a few ideas that might provide a starting point if further negotiations are undertaken. The proposals can easily be criticized from both sides, but some compromise by both the industrial countries and the developing countries will be necessary if an agreement on international marine technology transfer is to ever attain global importance and acceptance. As an opening agenda for discussion, the following points are suggested:

- Continue using the United Nations as a forum for discussion. While criticized by many in the industrialized countries for its highly politicized atmosphere, the United Nations still remains the only organization that brings together delegates from virtually every country in the world in some semblance of orderly debate on a regular basis. It is clearly the right organization for establishing a system for marine technology transfer.

- Using a separately established commission of U.N. delegates from key industrial and developing countries, work toward modifications in procedure or additional agreements that could make the technology transfer process, as so outlined in the treaty, acceptable to the industrial countries. Specifically, work for an agreement on a patent system for marine technology as outlined below.

- Develop a patent system that would apply directly to marine technology and that would be eligible for transfer under the terms of the Law of the Sea Treaty. Some period of patent protection could be established. This could be a fairly short period, something less than the amount of time allowed under most Western patent systems, but still long enough to provide the inventor with an incentive to develop the technology through some equitable recapture of investment costs. A period of around 5 years might be acceptable to the

corporations, the industrial countries, and the developing countries. The exact length of time could be tailored to the specific technology by a board composed of representatives from business, the home country government, and a mixed group from the industrial and the developing countries. During the period of time the patent is in force, an extra tax could be levied by the Authority, the funds from which could be used to sponsor educational benefits for the developing country students in Western educational institutions.

- Recognize and utilize the value of Western educational institutions in the technology transfer process. It seems that many of the negotiators are overly concerned with the hardware side of the technology transfer process. It is easy to overlook the fact that thousands of college and graduate students are intimately and constantly involved in very fundamental technology transfer every day in Western universities and colleges. No hardware is useful for a developing country without the personal expertise to make it work. In the United States, for example, some major universities have a foreign student contingent as high as 17 percent. There are currently in excess of 175,000 foreign students enrolled in the United States alone. As the "baby boom" generation moves out of college age, many educational institutions are scrambling for students. It seems that it would be possible to use some of the profits from the advanced marine exploitation to sponsor students of the developing world at American and other Western universities. This would take the place of outright mandatory transfer of technology. The industrial countries would enrich their university systems, spread their cultural influence, and satisfy developing world demands. The developing countries would gain needed background technical skill to handle the technology that would eventually be available in their countries.

- Utilize joint ventures to effect the gradual transfer of marine technology. Rather than instituting a program that would mandate technology transfer to the developing countries, it seems more effective in the long run to encourage joint ventures on the part of the industrial corporations and the developing countries. This would ensure a mutually profitable flow of technology to the developing world, while still providing some protection to proprietary technology holders. While Deep seabed mining will be beyond the capability of developing countries for some time to come, joint ventures in fishing, artificial island construction, ocean energy projects, and the like, seem plausible and mutually profitable.

- Allow strict government prohibition of all security-sensitive marine technology transfers. Much discussion has taken place over the possibility of security leaks as a result of the technology transfer process. These worries seem overdrawn in the area of marine technology, particularly since the Treaty specifically allows any government to shield sensitive technology for security purposes. However, this protection must be respected if the industrial nations will agree to the concept of marine technology transfer in the future.

Conclusions

The issue of marine technology transfer in the Law of the Sea context is an issue with a relatively low profile. The general public is unaware of the problem, and “public opinion” on the issue, such as it exists today, is manufactured by a small handful of lobbyists for business interests, competing segments of the U.S. government, journalists, academics, and publicists. Yet it is important to remember that the Law of the Sea Treaty in general and, marine technology transfer in particular, represent the cutting edge of what will be the great conflict of the 21st century—the competition for the allocation of dwindling resources among a growing world population. This is a competition that may not be a centerpiece in East-West ideological debate, but will rather be concerned with issues of survival, wealth, and poverty, as they apply to mankind as a whole. Access to strategic minerals at the bottom of the ocean is one early manifestation of this conflict, and it will come to include the exploitation of protein, hydrocarbons, energy (thermal, current, tidal, and salinity gradient), fresh water, and other resources from the sea. It will be paralleled by conflict over the two other “global commons,” Antarctica and space. In the final analysis, the issue of mandatory transfer of marine technology is at the forefront of the much larger issue of deciding what truly is the common heritage of all mankind. The question becomes one of drawing complex lines across emotional issues that impact on national survival, a delicate process indeed. All mankind does have a stake in the exploitation of the open ocean and the deep seabed but it must be undertaken carefully and with due concern for all parties, including the corporations of the West (and their millions of stockholders) as well as the rights of the developing countries. The objective of a lasting global accord on the management of the world’s oceans is a good one; but in order to achieve a legitimate universal consensus, further discussion and negotiation will be required. The current Law of the Sea Treaty is a beginning, but additional modification on technology transfer, and other issues, will be required before the United States and other Western countries will enter into the agreement. This analysis has been offered as a contribution toward that process of negotiation, and it is hoped that the suggestions contained in this brief paper will offer a point of departure in the search for compromise.

Lieutenant Commander Stavridis was attending The Fletcher School of Law and Diplomacy of Tufts University when this article was first published.

Notes

1. *117 Nations Sign Sea Treaty, U.S. Refuses*, The Boston Globe, 11 December 1982, p. 4. The Treaty will come into effect one year from the date of deposit of an instrument of ratification by the 60th country,

which means sometime in 1984, according to most observers. [The treaty actually entered into force on 16 November 1994.]

2. Bernard D. Nossiter, *Soviet and the U.S. Clash on Sea Law*, The New York Times, 10 December 1982, p. A10.
3. Ronald Reagan, *Presidential Statement*, issued in Washington, D.C., 8 July 1982. Also mentioned in this statement as U.S. problems with the Law of the Sea Treaty were deep seabed mining provisions in general, the treaty's decision-making process, and the application procedure for deep seabed miners.
4. *Convention on the Law of the Sea and Resolutions I-IV*, Third UN Conference on the Law of the Sea, reproduced by the Office of Ocean Law and Policy, Department of State, Washington, D.C., June 1982, Article 144, at 64.
5. *Id.*, Annex III, Article 5, at 162-164.
6. MOORE, JANE'S OCEAN TECHNOLOGY 1981/82 750-755 (1981).
7. Boczek, *The Transfer of Marine Technology to Developing Nations in International Law*. Paper presented at the 22nd Annual Convention of International Studies Association, Philadelphia, 18-20 March 1981, at 32-33.
8. A. Slingerland and P. Wilmot, ed., *Technology Assessment and the Ocean*, Proceedings of the International Conference on Technology Assessment, Naval War College Library, Newport, R.I., at 20-30, based on conference held in Monaco, October 1975.
9. EARNEY, PETROLEUM & HARD MINERALS FROM THE SEA 36 (1980). For cost of construction, see recent issues of *Offshore Magazine* or the *Oil & Gas Journal*.
10. Ronald Reagan, *Presidential Statement*, issued in Washington, D.C., 20 January 1982, at 1.
11. James Malone, *Statement before the House Merchant Marine and Fisheries Committee* (Washington, D.C., 23 February 1982), at 1.
12. *Supra* n. 1.
13. See for example, interview with Marne Dubs, director of corporate technology at Kennecott Corporation, *Deep Seabed Mining: Where Do We Go From Here?*, E&MJ Magazine, September 1981, at 125, for representative corporate reaction to the mandatory transfer process. The Boston Globe and The New York Times, on the other hand, have favored signing the treaty in editorials in 1982.
14. *Convention on the Law of the Sea and Resolution I-IV*, Article 136, p. 61. The concept of "the common heritage" also appears in many U.N. documents and resolutions, including *U.N. General Assembly Resolution 2749 (XXVI)*, 1970, "Declaration of Principles Governing the Sea-Bed and the Ocean Floor, and the Subsoil Thereof, beyond the Limits of National Jurisdiction," 25 G.A.O.R. Supp. 28 (A/8028), 17 December 1970, at 24.
15. These demands are voiced in a wide variety of fora and discussion, including General Assembly resolutions; statements from meetings of other world organizations like the OAS, OAU, or OPEC; conferences such as the law of the sea meetings or north-south summits, etc. A good summary from the broad position of the third world can be found in Grubel, *The Case Against the New International Order, THE CONTEMPORARY INTERNATIONAL ECONOMY: A READER* 484-490 (Adams ed. 1979).
16. *Position Paper on Technology Transfer*, Technology Transfer Task Force, Chamber of Commerce of the United States of America, Washington, D.C., 5 August 1981, at 1-8.
17. *Id.* at 1.
18. *Id.* at 1-8.
19. *Id.* at 5-6.
20. *Sea Law—A Rendezvous with History*, U.N. Chronicle 14 (June 1982).
21. In fact, the United States was one of only four countries to vote against the current draft of the Law of the Sea Treaty. The entire course of the often stormy eleventh session of the UN Conference, March-April 1982, is well documented in many articles. See especially the series of articles by Bernard Nossiter in The New York Times, the U.N. press releases (issued daily) on the entire session, or *supra* n. 20.
22. Bernard Nossiter, *U.S. Is Said to Be Isolated in Its Opposition to Sea-Law Treaty*, The New York Times, 9 December 1982, at A11.
23. *Id.*

In addition to the sources mentioned above, two government documents that present the entire Law of the Sea issue, especially in regard to the U.S. position are:

Hearings before the Subcommittee and the Committee on Merchant Marine and Fisheries, *House of Representatives*, 97th Congress, on The Law of the Sea, 22 October 1981, 23 February, 20, 27 July 1982, Serial Number 97-29.

Hearings before the Committee on Foreign Affairs, *House of Representatives*, 97th Congress, Second Session, 17 June, 12 August, and 16 September 1982, U.S. Foreign Policy and the Law of the Sea.