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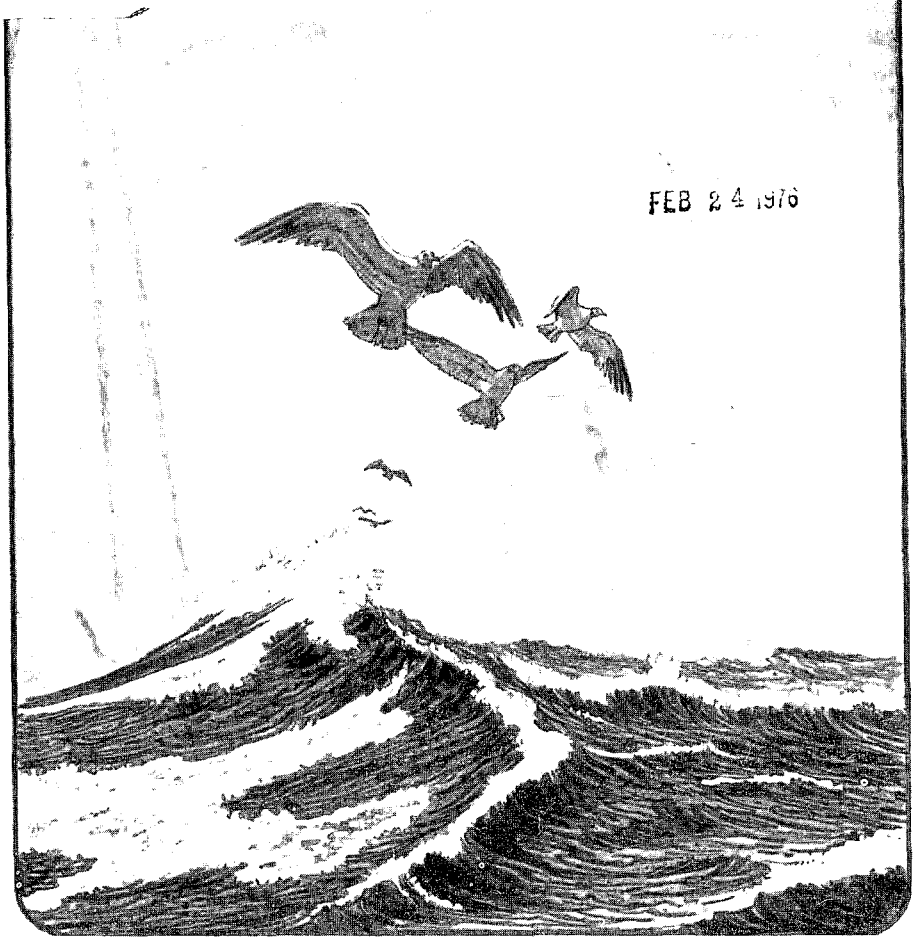

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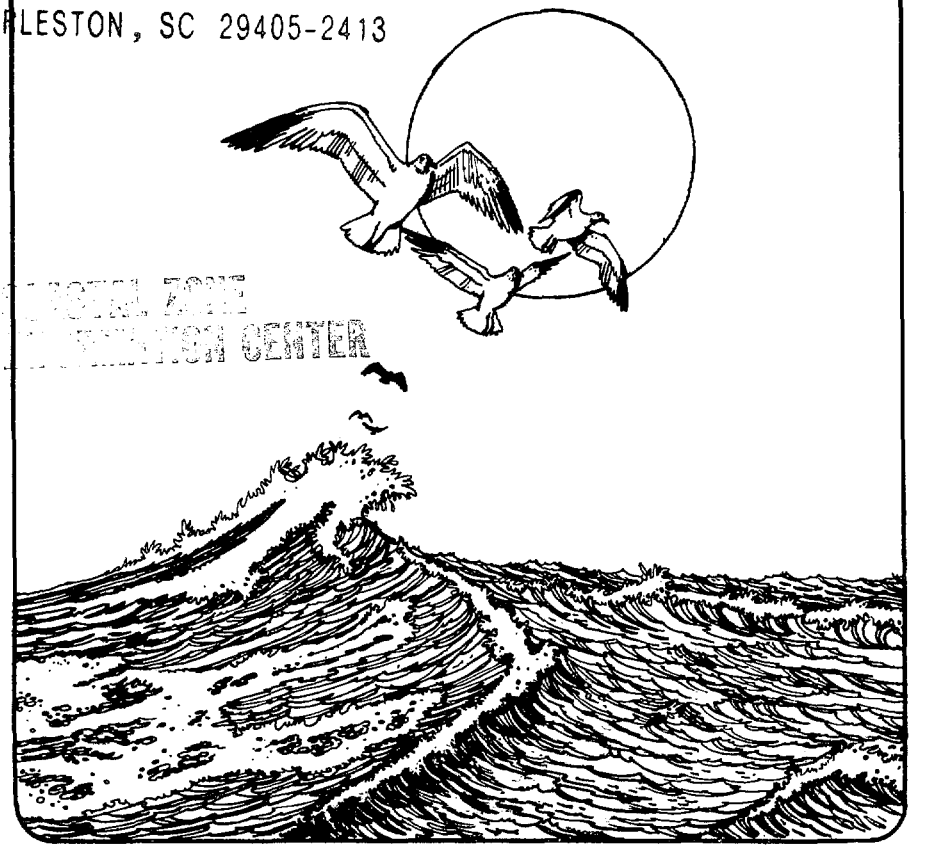

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Toward A National Ocean Policy: 1976 and Beyond

by Robert E. Osgood, Ann L. Hollick,
Charles S. Pearson, James C. Orr

Prepared for National Science Foundation
Research Applications Directorate
Under Grant No. GI 39643 by Ocean Policy Project
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New Era of Ocean Politics, by Ann L. Hollick and Robert E. Osgood, 1974.

Perspectives on Ocean Policy, Proceedings of the Conference on Conflict and Order in Ocean Relations, October 1974.

International Marine Environment Policy: The Economic Dimension, by Charles S. Pearson, 1975.

The Ocean Policy Project has also published numerous articles and Occasional Papers on various ocean-related issues. A complete listing is available upon request to the Project Office.

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Foreword

Few areas of contemporary concern demonstrate man's growing interdependence more clearly than the oceans—a fact recognized by the 141 nations currently involved in the Third United Nations Conference on the Law of the Sea (UNCLOS). Rapid scientific and technological advances have made possible the recovery of petroleum deposits from the continental margins and the harvesting of mineral resources from the deepest portions of the seabed. These and other capabilities have coincided with increases in world population and shortages of food and raw materials, resulting in new pressures on what were once imagined to be the "infinite" resources of the seas. The threatened extinction of certain species of fish and marine mammals, and the increasing levels of world-wide marine pollution are prime examples.

In 1972, in response to the growing concern with this long-neglected 70 percent of the earth's surface, the Johns Hopkins School of Advanced International Studies instituted its Ocean Policy Project, with initial funding from the National Science Foundation (currently under Grant No. GI 39643.) Since that time the Project has conducted research into the broad range of policy-relevant ocean issues and, through its graduate seminar, trained dozens of students from as many countries in the understanding and assessment of national and international ocean policies.

Because ocean policy encompasses such a diversity of issues—economic, political, legal, military, commercial, scientific and ecological—the Project has employed an interdisciplinary approach both in its organization and its activities. As Principal Investigator, Robert E. Osgood provides the foreign policy and military perspectives, as well as prior experience with ocean matters as a senior staff member of the National Security Council in 1969-70. Ann L. Hollick, currently an advisor to the U.S. delegation to the Law of the Sea Conference, combines her scholarship in international law and organization with a thorough grounding in the U.S. decisionmaking process and close observation of the international negotiations. Charles S. Pearson has coupled the ecologist's concern with that of an international economist in his approach to marine environmental problems. James C. Orr has focused on resource issues of the continental shelf and seabed. Richard C. Raymond, in addition to administrative responsibilities for the Project, has concentrated on dispute settlement proposals in the context of law of the sea. Barbara S. Bowersox collects and maintains the specialized holdings of the Project research library,

and edits Project publications. Throughout the existence of the Project, senior staff members have been ably assisted by a number of graduate research assistants, many of whom have gone on to careers in ocean related fields. Among these are Elliott Treby, Robert deBoer, James Zimmerman, Mitchell Kornblit, Alan Sielen, Peter Maynard, Linton Wells, Franklin Julian, Geir Haarde and Howard Simons. We acknowledge with gratitude the contributions of each.

Sincere appreciation is also extended to the National Science Foundation for its support, and in particular to Robert W. Lamson of the Office of Exploratory Research and Problem Assessment who, as project monitor, has followed our work from the beginning. His assistance in a number of areas has been invaluable, and we are grateful. In addition, the Project wishes to thank the Exxon Corporation and the Alcoa Foundation for supplemental funds which have enabled us to expand our program. It should be mentioned, however, that the veiws expressed in this study are those of the Ocean Policy Project and do not necessarily reflect those of its sponsors or contributors.

A word or two also about the scope of this particular effort—both as to content and intent. Because the UN Conference on Law of the Sea is of immediate concern to policymakers and ocean interest groups, the content of this study has been dictated largely by the major issues currently under debate in that forum, and the status of the negotiations as of this writing. Each chapter takes up a specific issue, analyzes its importance to the United States, discusses its evolution in the international negotiating process, and considers the various policy options in the context of the treaty-making exercise. The criteria for evaluating policy options are: (1) American national self-interest, enlightened by a due respect for international order, welfare, and equity; (2) effectiveness and flexibility of means to achieve ends related to this goal; (3) economic efficiency; (4) domestic and international political feasibility; and (5) the time frame for implementation.

The intent of this study, however, is somewhat broader. Despite the current nature of much of the subject matter, it is hoped that the reader will be equally attentive to the long range implications of the material presented here. One international conference does not a national ocean policy make. Regardless of the outcome of UNCLOS, the world ocean is destined to become an increasingly complex and critical arena in which a multiplicity of functions undreamed of by Grotius, Selden—or even Pardo—must be accommodated in an orderly fashion. It becomes essential, therefore, to look beyond the expedients of the current situation to a system of ocean management designed to deal with the continuing

technological innovations and changing national and international priorities that are certain to dictate future ocean relations. Only from this perspective can we move toward a national ocean policy—for 1976 *and* beyond.

Robert E. Osgood
Director, Ocean Policy Project
October 1975

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Executive Summary

CHAPTER 1

The Evolving International Ocean Regime

- The objectives of this report are to: (1) illuminate the nature of U.S. national interests in the oceans; and (2) suggest and evaluate alternative strategies to achieve these interests.
- The ocean regime, dictated to a large extent by naval and commercial policies, was remarkably stable until the mid-20th century. Since the end of World War II, however, the traditional ocean regime has been in increasing disarray due to (1) technological advances which led to an awareness of the exhaustibility of ocean resources and (2) the rising influence of developing countries on the use and allocation of earth's resources.
- Two prior Law of the Sea Conferences in 1958 and 1960 failed to solve ocean issues. The Third UN Law of the Sea Conference, which began in 1973, again began an attempt to establish a new ocean regime by working toward a comprehensive, detailed, and widely accepted ocean treaty. As history has borne out, participants in the law of the sea negotiations underestimated the difficulties of realizing that goal.
- Proponents of the comprehensive approach envisioned the creation of a treaty before "ocean grabs" got out of hand and before excessive national ambitions and rivalries hardened into fixed positions. U.S. acquiescence in this approach demonstrated an awareness that the issues were in many cases difficult to disentangle, and could perhaps best be dealt with as a "package."
- Yet this comprehensive, widely accepted, detailed treaty approach was likely to fail because of the difficulty of reaching agreement among so many different countries on so many different issues in a short span of time. It appears probable that any comprehensive treaty cannot be widely accepted and any widely accepted treaty cannot be detailed and comprehensive.
- The process of negotiation in the UN Law of the Sea Conference (UNCLOS), has benefited the international community by helping to identify, clarify and differentiate ocean interests. While a comprehensive treaty remains unlikely, the

negotiations have provided a basis for pursuing bilateral and multilateral agreements on limited clusters of issues and for the development of functional ocean organizations.

— In the absence of a detailed, comprehensive and widely accepted agreement, order in the oceans will, to a large extent, depend on a combination of tacit mutual restraints, *modus vivendi* short of formal agreements, enlightened national legislation, the gradual development of customary international law, unilateral claims, confrontations, the judicious use of force, and perhaps, occasionally, violent encounters.

CHAPTER 2

The Third UN Conference on the Law of the Sea

— Three sessions of the Third UN Law of the Sea Conference have failed to resolve the major issues on the 25 item agenda. This disappointing progress was only slightly relieved by the issuance of an "informal single negotiating text" at the Geneva session in 1975.

— The single negotiating text (SNT) was prepared by the chairmen of the three main committees and, as such, is not a product of negotiations. Factors which will determine its usefulness in future negotiations are: (1) its quality as a legal document; (2) its reflection of political compromise; and (3) the domestic and international response it elicits during the intersessional period.

— The Committee I text on seabed mining reflects, almost exclusively, the views of the developing country bloc and is not likely to be acceptable to developed states. The Committee II text, on jurisdictional limits, fisheries, and other law of the sea matters, attempts to strike a compromise between maritime and coastal states. Wide geographical disparities among states may, however, militate against agreement on a number of issue areas. The Committee III text, on marine pollution and scientific research, conflicts in some cases with related provisions in the Committee I and II texts. It remains to be seen how such discrepancies will be resolved.

— The arbitrary decision by the Conference president to entrust the drafting of the text to the three Committee chairmen reflects the procedural dilemma, in terms of the size of the

agenda and the number of participating nations, which has plagued the Law of the Sea Conference from the beginning. The efforts of small working groups to produce compromise positions on specific issues have been largely rejected with charges of unbalanced representation.

— On the evidence of the single negotiating text, it appears that universal agreement on the broad range of issues under consideration will not be achieved. Outcomes which appear more probable are (1) a treaty riddled with reservations, or (2) a treaty embodying little more than general principles. Neither outcome would satisfy basic U.S. interests in a stable and clearly defined ocean legal regime.

— An alternative strategy of pursuing limited treaties on issues on which a consensus is developing might enable negotiators to achieve more U.S. policy objectives than the current "comprehensive approach" and deserves evaluation by policymakers at this time. Such a strategy would have the advantage of limiting participation to those states having a direct interest in a given issue, thus helping to eliminate strictly political bargaining stances.

CHAPTER 3

National Security

— U.S. security interests in the ocean can be divided into two main categories: (1) the maintenance of military security and (2) the preservation of economic interests. The latter category is likely to be the more critical concern in the next ten years, if the United States maintains an adequate balance of military power in the strategic nuclear realm and if the constraints of detente continue to moderate Soviet behavior.

— In the political context, it must be assumed that there may be local wars, crises and other situations which may jeopardize friendly governments and the supply of vital resources, and in which U.S. armed forces may be critically involved.

— The world situations most likely to damage broad U.S. security interests may be those which the United States cannot affect by military means. These are situations in which American military mobility, bases, and access to oil may be damaged by actions of poorer countries in which the United States may be inhibited from using force.

- Because of dependence on oil and other resources, and the need of the military to pass through and over straits and in zones of economic jurisdiction, one of the primary security objectives of the United States may become the achievement of working relationships with coastal developing states.
- The U.S. Government maintains that the invulnerability of its nuclear missile submarines depends on their ability to pass through international straits submerged and unannounced.
- International agreement on a 12-mile territorial sea would place dozens of international straits under the "innocent passage" regime of the territorial sea unless the demands of maritime states for unimpeded passage are agreed upon. (The legal regime of "innocent passage" permits transit by all ships except those which threaten the peace, good order or security of the coastal state. The lack of a more precise definition has left coastal states in a position to determine for themselves what is or is not "innocent passage.")
- Five international straits have been identified as essential for passage by U.S. missile submarines: Gibraltar, Malacca, Lombok, Sunda and Ombai-Wetar. Two of these are too shallow for underwater passage, the other three are controlled by states with which the United States maintains good relations and working *modus vivendi*, and which have and probably will continue to permit passage for submerged U.S. submarines.
- Polaris/Poseidon carrying submarines can target the entire Soviet Union from the Atlantic and Pacific Oceans and the Arabian Sea. If and when Trident is developed, the extended range would virtually eliminate the dependence of the U.S. underwater nuclear force on passage through international straits.
- The navy has been concerned that the breadth of the continental shelf under national jurisdiction might limit the freedom of the United States to place listening devices off the shores of foreign countries.
- The crucial monitoring areas for listening devices are the Greenland-Iceland-United Kingdom gap, the Arctic, the North Pacific and the Caribbean—all areas where the United States would probably meet little resistance from allied states in its efforts to track foreign submarines. The Soviet Union would face a far more difficult situation in each of these areas.
- In addition to the questions of transit through straits and submarine tracking, a third strategic concern is that zones of

extended coastal state jurisdiction will curtail conventional naval operations. No matter how restrictive the regime, however, extended zones of national jurisdiction could not undermine America's strategic capability on the ocean.

- As technological developments and the political atmosphere turn in favor of coastal state restriction of the free commercial passage of maritime states, the local military balance has also turned to their advantage.
- In many cases, protection of U.S. military and economic interests will depend more on good relations with particular states than on a law of the sea treaty.
- If coastal state jurisdictional claims jeopardize U.S. security or economic interests in the Third World, the United States might not necessarily be deterred by immediate political costs from supporting its ocean interests with force.

The Geneva Text and U.S. Options

- The United States will probably not obtain a treaty that will protect free navigation through territorial seas and unimpeded passage through international straits unless it makes concessions in the "single negotiating text" (SNT) that emerged from the Geneva session. These concessions, however, do not seem directly incompatible with essential U.S. security interests.
- If a large number of states find the SNT formula unacceptable, this raises the question of whether the United States should seek a limited treaty defining the territorial sea, rights of navigation and passage in straits and territorial seas, and rights and duties in the economic zone.
- There remains no assurance that certain key strait states would sign any treaty, limited or comprehensive, that met U.S. requirements.
- If faced with a choice of a widely accepted treaty that fails to satisfy U.S. security interests in the economic zone or no treaty at all, the United States might decide to defer signing a treaty, partly out of confidence that essential security interests could be achieved through bilateral arrangements or limited multilateral agreements, by *modi vivendi,* and the slower development of customary international law, and partly out of hope that a better treaty could be achieved later.

CHAPTER 4

Commercial Navigation

- Traditional legal notions of freedom of the seas and flag state jurisdiction over vessels are increasingly under pressure from coastal state resource interests, as well as from the international community which shows increasing concern over the manner in which flag states administer their vessels.
- The Third UN Law of the Sea Conference has concentrated on resource issues to the neglect of the universal interest of all states in commercial navigation. Navigational questions have been dealt with indirectly as they bear on the new forms of national sovereignty over ocean resources.
- Navigation interests and interests in access to resources have come into conflict in three different areas: the exclusive economic zone which seems destined to be granted coastal states; straits used for international navigation; and archipelagic waters. The conflict has raised serious questions as to whether interests of coastal states can be balanced with those of transiting states.
- Viewed from an economic perspective, ocean space used for commercial navigation can be considered a resource. Historically, the supply of this resource has far exceeded demand. Recently, however, the size and number of ships has grown to the point where problems of shipping congestion exist in certain heavily travelled areas. The debate continues as to whether rights to control navigation ought best be vested in coastal states or the international community.
- A declining U.S. shipping industry has vigorously pursued legislation to revitalize America's commercial fleet through subsidy. In the UNCLOS negotiations, the petroleum industry has represented the shipping interest. The petroleum industry has supported rights of innocent passage in the twelve mile territorial sea, free passage in the 200-mile resource zone and the high seas beyond, and unimpeded passage through straits used for international navigation.
- With regard to protection of the marine environment, the shipping industry position, which has come to form the U.S. position at UNCLOS, supports international standards which would be jointly enforced by flag, port and coastal states.
- Despite the Conference's preoccupation with resource

questions, a growing number of developing states have publicly recognized their interests in avoiding undue restriction of navigation.

— In the five years in which the United States has been articulating policy in the Law of the Sea Conference, it has moved from a position in which navigational and high seas freedoms constituted a priority to a position in which resource rights are considered equal in importance.

The Geneva Text and U.S. Options

— From the U.S. perspective, the provisions of the single negotiating text (in the Committee II section) which deal with the economic zone have the potential of stretching into far reaching and restrictive coastal state territorial rights. This fact derives from the inability to define what constitutes an economic or resource-related activity, and from the fact that international concerns of shipping and scientific research necessarily affect coastal state resource interests.

— Single negotiating text provisions on transit passage through straits more closely approach official U.S. policy, as do provisions for vessel source pollution.

— Because of the global importance of placing no unnecessary restrictions on transit through the economic zone, the United States may choose to insist on a treaty which strongly reaffirms high seas rights beyond the territorial sea. If no treaty results from UNCLOS III, efforts could be made in a variety of areas to meet domestic goals, through means of unilateral, bilateral and multilateral agreements and limited treaties or regional solutions.

— Whatever the outcome of UNCLOS, the Intergovernmental Maritime Consultative Organization could be charged with greater responsibilities for the development of a future regime for commercial navigation. This regime could include navigation systems appropriate to different areas as well as improved safety standards and liability requirements.

CHAPTER 5

Marine Environment

— The roots of the environmental deterioration of the ocean have

their base in economic activity. Raw material exploitation, transport, processing, and consumption all produce wastes which find their way into the ocean. The laws of gravity, the lack of restrictive laws nationally and internationally, and the incorrect belief that the assimilative capacity of the oceans is inexhaustible, have contributed to the problem of ocean pollution.

— Because the ocean environment lacks a well-defined domestic constituency and a sense of drama and urgency, it has suffered in comparison with issues of higher priority. When pollution is considered in a national and international context, unwarranted attention is often accorded to acute pollution incidents like the Torrey Canyon oil spill and too little attention to low level, chronic abuses.

— The UN Law of the Sea Conference is only one part of the process through which marine environmental policies are developed and implemented. UNCLOS is most concerned with jurisdiction, and not management questions. Whatever its outcome, critical management problems will remain. These management problems include the need to establish desirable levels of pollution abatement and to select instruments to attain abatement objectives.

— Several of the specific management questions include: how clean is clean enough; how to prevent diversion of pollutants from one location or medium to another; whether to allow less stringent standards for developing countries; how to control land-based sources; and how environmental regulations should be enforced.

The Geneva Text and U.S. Options

— An International Environmental Agency with broad powers to deal with all major sources and types of ocean pollutants would have been a desirable outcome on economic and ecological grounds. The Geneva text does not contemplate such a regime and it is not likely to come about.

— The text, as currently written, does not necessarily damage the U.S. position on the marine environment. The provisions are sufficiently broad to allow the United States to initiate and support a wide range of marine environment agreements. However, the current text does reduce the chances for long term rationally calculated environmental policies. The reason is that jurisdiction over the environmentally sensitive area, the

economic zone, would go to coastal states without effective safeguards by the international community.

- The environmental provisions of the text could be improved. Two specific areas are: tighter controls over coastal state activities in the economic zone (particularly oil production), and some controls over refining activities on the high seas.
- The option of no treaty, combined with unilateral extensions of coastal state jurisdiction, would require the activation of a wide range of other negotiating modes.
- Regional agreements for semi-enclosed areas appear particularly promising.
- The United States may want to consider greater assistance to developing countries in their efforts to preserve the marine environment.
- Some unilateral actions by the United States, such as the phaseout of DDT, will have beneficial effects on the marine environment.

CHAPTER 6

Fisheries

- Among fishing nations, the United States ranks fifth in volume of fish harvested and fourth in terms of value. Sixty percent of its commercial marine catch is taken within twelve miles of shore. U.S. fishermen harvest less than 25 percent of the fish caught off U.S. shores, the remainder going to foreign fishermen.
- In economic terms, fishing is relatively inconsequential when compared to other U.S. ocean interests such as outer continental shelf petroleum; but politically, the fishing interest is powerful. With some exceptions, U.S. fishing fleets have lagged behind the Soviets and Japanese in modernizing their fishing vessels.
- From the perspective of a law of the sea treaty, there are several important divisions within the commercial fishing industry: coastal fishermen, distant water fishermen, and those who fish migratory and anadromous species. The official U.S. position on fisheries has evolved as a product of competition among these interests.
- The United States first adopted a "species approach" in 1971.

In response to strong domestic and international pressure for the adoption of a 200-mile resource zone, the United States subsequently adapted the species approach to a zonal approach. By the Caracas session of UNCLOS in 1974, the United States agreed to accept a 200-mile coastal state economic resource zone with special provisions for highly migratory and anadromous species and stipulating that coastal fisheries be fully utilized.

— During the 1975 Geneva session, a wide consensus on a 200-mile zone of coastal state jurisdiction emerged, but there remains considerable difference of opinion as to the legal content of that zone. Some South American states continue to press for a 200-mile territorial sea or its functional equivalent. Maritime states favor only resource jurisdiction with strong international rights and regulations to apply to other activities.

The Geneva Text and U.S. Options

— The Geneva text does not protect U.S. distant water fishing interests. With regard to coastal species and anadromous species, however, the U.S. position has been substantially realized in the text.

— Under the terms of the single negotiating text, the coastal state is the rule maker, enforcer and arbiter when it comes to fishing activites in its 200-mile zone. In further negotiations, the United States should insist that these rights be modified by clearly specified international responsibilities.

— If no treaty results from UNCLOS III, the United States will have to consider carefully its national, unilateral, regional, or international fisheries policies in terms of (1) their effect on other nations and (2) the difficulty of enforcement. Unilateral action requires great care in order to serve as a model for other states to emulate. Insofar as possible, the United States may find it advantageous to proceed multilaterally. Regional and other multilateral efforts would have the greatest role in establishing rational management of fisheries in the absence of a treaty.

— With pressure mounting for domestic legislation to create a 200-mile fishing zone, it is not unlikely that such legislation could be passed before the next (March 1976) UNCLOS session. U.S. legislation in this regard could appear as a move to destroy the Conference and is likely to engender a strong negative response internationally. It might further lead to quite

different unilateral responses which would jeopardize U.S. distant water fishing interests.

- The Geneva text could be improved by establishing provisions which would facilitate management of entire stocks or ecological systems of fish, and pursue goals of economic efficiency as well as biologically based conservation goals.

CHAPTER 7

Mineral Resources

I. Oil Interests

- One of the clearest U.S. goals in the oceans is to gain access to and jurisdiction over ocean minerals—specifically the hydrocarbon resources of the continental shelf and the manganese nodule deposits of the deep seabed.
- Petroleum companies were early and active participants in the law of the sea debate and have always favored extended coastal state jurisdiction rather than international control. Hence, they have welcomed and perhaps helped prompt the transition in the U.S. position from a narrow zone of national jurisdiction to a broad one.
- While most oil off U.S. shores seems destined to fall under a domestic regime of exploitation, a number of other interests of the petroleum companies remain under negotiation—unhampered oil shipping through straits and coastal zones, avoidance of arbitrary pollution standards and guarantees of the security of investments.

The Geneva Text and U.S. Options

- The single negotiating text (SNT) provides for coastal state jurisdiction over resources within the 200-mile economic zone. The only salient restriction to total coastal state control over its shelf hydrocarbon resources is the obligation to pay an as yet unspecified portion of the value of production from the shelf in the area beyond 200 miles where the shelf exceeds that distance. This will affect between 6 and 22 percent of "U.S. oil."
- Oil company desires to have assurances of security of investment have failed to capture the concern of many delegations outside of the developed world and no such provisions on this were included in the SNT. Oil companies

retain the right to deny capital and technology to "risky" areas and may consider other forms of foreign investment less prone to nationalization or expropriation.

— The Federal Government might also consider investment insurance along the lines of the current Overseas Private Investment Corporation (OPIC) program to insure potential investors in foreign offshore oil operations against arbitrary host country action.

II. The Seabed Regime

— The debate over the structure and the degree of control to be granted to the international authority which will oversee the development of the seabed beyond national jurisdiction has proven to be the most politically charged and intractable issue at UNCLOS.

— Opinions have split along a developed-developing country axis. The states with the technology and capital to exploit the seabeds for manganese nodules have sought a regime to enable their corporate entities to exploit the seabed with a minimum of restrictions. The developing countries, on the other hand, have favored an international authority with broad powers to exploit the seabed directly, to oversee its development, and to distribute revenues among the world's poorer countries.

— Negotiations within Committee I (charged with the seabed mining issue) face added pressure from the threat of unilateral U.S. action to enable U.S. ocean miners to begin seabed production prior to the establishment of a seabed regime. The "Moratorium Resolution" passed by the UN General Assembly over the objections of the United States and others confers—in the eyes of the majority of the Conference—a moral responsibility not to engage in seabed mining until a treaty is agreed.

— The most difficult question facing the seabed discussions at UNCLOS is the decisionmaking structure of the "international authority." The United States and like-minded states fear that Third World control would lead to a monopoly enterprise that would restrict production and deny ocean mining firms access to the seabed.

— While it is impossible to predict magnitudes, unregulated seabed production would likely lead to a decrease in revenues for a group of half a dozen developing country producers of nodule minerals. Contrary to its economic self interest, the rest of the developing bloc has accorded political solidarity a high value, and has sought to place decisionmaking power in the

assembly of the authority to ensure that developing country producers are not injured, and that developed countries are not the sole beneficiaries of a seabed regime.

The Geneva Text and U.S. Options

- The Committee I text is not representative of the state of the negotiations and is drawn almost entirely from the Group of 77 developing country bloc position with few concessions to developed countries. It cannot be considered to be the basis for negotiations. Under the text's provisions, control of the proposed authority will lie in the hands of the developing country majority.
- The United States retains three broad options in relation to the seabed question. It could continue with the negotiations with the hope that UNCLOS will eventually result in an acceptable treaty; it could act in the interim to give U.S. miners access; or it could delay action and wait until seabed mining becomes sufficiently attractive to warrant mining without legislated assurances.
- U.S. action along the lines of the Metcalf bill to authorize interim seabed mining by U.S. firms seems likely to engender opposition to other U.S. interests and considerable ill will against the United States, and, in the absence of persuasive arguments that time is a factor, seems to be a risky approach.
- To turn the negotiations more toward the U.S. position, policymakers could consider two different actions. (1) In concert with other potential mining states, the United States could form a unified *developed country* position which could be negotiated at a future session of UNCLOS along side the present text. (2) The United States could enact legislation expressing the *intent* to begin seabed mining at some future date if an acceptable treaty were not signed. Unpopular as such a move might be among the Group of 77, it would serve notice that the United States will not wait forever for an acceptable seabed arrangement.

CHAPTER 8

Scientific Research

- Marine scientific research can be divided according to its immediate application into three categories: commercial,

intelligence and academic research. Unfettered access to the world oceans has facilitated the acquisition and use of scientific knowledge, as well as use of ocean resources.

- Private researchers from academic institutions have not developed special offices for the conduct of relations with foreign governments as have multinational commercial interests. Academic institutions have generally relied on the Department of State to obtain necessary clearances when operating in coastal areas.
- The academic and intelligence communities share a desire for freedom of access to near shore areas, but only the academic researcher is willing to support open publication of research results. Commercial and intelligence research are not publication-oriented.
- In UNCLOS negotiations, the United States has stressed the importance of marine science research in the production of knowledge beneficial to all mankind. The U.S. position recognizes that, in areas of coastal state jurisdiction, scientific research should be conducted in a manner that does not conflict with the legitimate economic interests of the coastal state.
- The U.S. position recognizes seven obligations on the part of researchers: (1) advance notification of the proposed research including a detailed description; (2) the right of coastal state participation; (3) sharing all data and samples with the coastal state; (4) assistance in interpreting research results; (5) open publication of results; (6) compliance with all applicable international environmental standards; (7) flag state certification that the research will be conducted in accordance with the treaty by a qualified institution with a view to purely scientific research.
- The United States has stressed that if the obligations above are fulfilled, the coastal state cannot forbid research related to exploration or exploitation of resources beyond the territorial sea.
- The United States is in a small, albeit growing, minority on the issue of scientific research. It is alone in having a major ocean going academic research fleet.
- In the negotiations, developing countries have taken issue with the prevalent Western view that scientific knowledge constitutes a public good which benefits all. They feel that technologically advanced nations are better able to use the results of their research and that benefits, therefore, accrue

unevenly. Developing countries fear that research of a military or commercial nature will be used against their best interests.

- The Committee III portion of the single negotiating text deals with scientific research. It reflects an effort to strike a compromise between the interests of the wealthier states who conduct the bulk of research and those of coastal developing states. The text distinguishes between scientific research of a fundamental nature and research relating to living and nonliving resources; explicit coastal state consent being required only for the latter. A series of obligations for both fundamental and resource-related types of research are set forth as well as a provision for use of dispute settlement machinery when disagreements occur.
- Only U.S. commercial interests are fully accommodated to the prospect of consent regimes in offshore areas. Intelligence activities can look forward to an acceptable regime or the deliberate or surreptitious continuation of activities in these areas. The academic researcher will need official support and will either cease research or develop some bilateral accommodations with coastal states.
- A coordinating body for academic research will be useful in certifying and policing research programs whether or not a treaty is signed. The University National Oceanographic Laboratory System (UNOLS) could be easily expanded to handle these functions. Procedures in the Department of State would also benefit from streamlining.
- Bilateral, regional and unilateral approaches take on increased importance in the absence of a comprehensive law of the sea treaty, as do the roles of international organizations such as the Intergovernmental Oceanographic Commission, the Food and Agriculture Organization, UNESCO, and others.

PART I

THE LAW OF THE SEA: AN OVERVIEW

CHAPTER 1.

THE EVOLVING INTERNATIONAL OCEAN REGIME

The objectives of this report are to: (1) illuminate the nature of U.S. national interests in ocean space; and (2) suggest alternative strategies and options for supporting these interests. To achieve these objectives we must: (3) take account of the nature of the total international environment—especially, the political environment—as it affects the pursuit of these interests and options within the evolving international ocean regime.

U.S. interests and policies have changed and will continue to change as the rudiments of a new ocean regime emerge in a changing international environment. Therefore, it is important to understand how the crucial elements of ocean policy have interacted in the past in order to understand the present situation and speculate about the future.

The New Era of Ocean Politics

It is no exaggeration to characterize the international relations pertaining to the use of ocean space since 1945 as the New Era of Ocean Politics. Yet the politics of this era are so complex and so rapidly changing that they are difficult to grasp. The modern era of ocean politics before World War II was relatively simple in its basic components, and it developed gradually. The ocean relations of states in this era developed around the use of the sea for commerce, the projection of armed force, and fishing. The geopolitics of seapower was an integral part of world politics, and world politics could be described largely in terms of the military-diplomatic relations of the great states. The structure of commercial and naval power among these states underlay the era of imperial expansion and conflict in the 18th and 19th centuries. This structure was an integral part of the system of alliances and balances of power that emerged in the last quarter of the 19th century, broke down in

World War I, and briefly but tenuously revived after World War I, until the revolution in world power that erupted in World War II created an essentially bipolar confrontation and equilibrium between the United States and the Soviet Union. The structure of commercial and naval power was shaped by changes in naval technology, the economics of industrialization, shifting patterns of conflict and alignment among the major powers, and, above all, by wars. The resulting ocean politics, although complicated in detail, were not difficult to comprehend in essence as an integral element of the prevailing *Realpolitik*, shaped by a clash and accommodation of fairly coherent national interests among a few states. The numerous disputes over fishing, smuggling, and piracy were occasionally of major importance to one state or another; but in the total drama of international politics they were only a sideshow.

Along with the relatively simple and gradually changing nature of modern ocean politics went a remarkably simple and stable ocean regime—that is, a set of norms, laws, and institutions governing the relations of states in their use of the ocean. At the center of this regime and its customary laws was the principle of freedom of the high seas beyond a 3-mile territorial sea boundary. Underlying the regime were the assumptions that there were more than enough resources in the sea for everyone and that therefore no one need seek exclusive control of its resources in any area beyond national sovereignty. Almost universally accepted in peacetime, the regime was enforced by the great maritime powers—particularly by Great Britain—who by virtue of their naval preponderance freely conducted their overseas commerce while limiting coastal state jurisdicational claims for fishing. Only during wars among major naval powers did the classical regime temporarily break down, but even then only with respect to shipping.

Since 1945, ocean politics have grown far more complicated and dynamic. The ocean regime has become highly unstable or has broken down altogether. President Truman's unilateral U.S. extension of jurisdiction for economic purposes over the continental shelf, followed by Latin American assertion of a 200-mile jurisdictional zone, which soon expanded to a claim of territorial sovereignty, marked the beginning of this process. The erosion of the classical regime took place at a mounting pace and scope after the effort of 88 participants to stabilize and recodify it in the Geneva Conference of 1958. Despite subsequent attempts to reconstruct a coherent and comprehensive ocean regime by international agreement, the determining trend has been the division of ocean space into functional jurisdictions for fishing,

mining, navigation, environment, and so forth.

At the root of this breakdown of the classical ocean regime was (a) an explosion of technological developments in exploiting fish, petroleum, and minerals in ocean space and (b) the rising influence of developing countries on issues concerning the use and allocation of the earth's resources. Together, these two developments tended to pit the major maritime and naval states, emphasizing maximum freedom of navigation and scientific research, against developing states, emphasizing maximum access by them to ocean resources and their benefits, and control and regulation of offshore waters and straits. This conflict and alignment of interests, in time, grew more complicated; but it quickly destroyed the structure of power and interests underlying the old regime without creating the structure of a new regime.

By 1967 it was widely foreseen that rising expectations concerning the exploitation of continental shelves for petroleum and of the deep seabeds for manganese nodules, together with growing competition to exploit ever scarcer fisheries, would stimulate the increasing assertion and extension of jurisdictional claims by coastal states. The widespread trend toward assertion of at least a 12-mile territorial sea boundary foretold the obsolescence of the classical 3-mile boundary and, as one particularly important consequence for maritime states, the overlapping of terrritorial boundaries in most of the key international straits of the world. Consequently, those maritime countries who had most to lose from the collapse of the old ocean regime viewed with alarm the chaotic prospect of conflicting jurisdictional claims and sharpening clashes between maritime and coastal state interests, which, some thought, might rival the disputes over territorial boundaries in an earlier period of history. Mounting apprehension over the deterioration of the political environment affecting the use of ocean space was sharpened by fears of the U.S. (and most notably, the Soviet) military that naval transit would be impeded off foreign coasts and through international straits. The threat of oil spills, dumping on the high seas, and other sources of ocean pollution in a period of growing ecological concern, added still another source of expanded jurisdictional claims by coastal states.

The Quest for Universal Agreement

It was in this foreboding atmosphere that the U.S. Government, in little over a year of intensive effort, formulated a Draft Seabeds

Treaty for presentation to the UN Seabed Committee in August 1970, in the hope that the subsequent Law of the Sea Conference would produce a treaty that all nations would sign before long. The effort to create a new international ocean regime by treaty was a lawmaking venture of unprecedented scope, complexity, and rapidity. The conditions for succeding in this venture, especially when compared to the way the traditional regime of modern times had emerged and thrived, were anything but auspicious.

Here was an effort to formulate rules to govern the behavior of virtually all of a vastly increased number of states with respect to multiple new as well as old uses of the ocean and its resources. Moreover, the rapid rate of technological development in the exploitation of ocean resources, in shipping, and in the military use of ocean space meant that the ocean interests of many states would be, to an important extent, unknown or at least inchoate and untested by experience over time. For fundamental political reasons, too, the international structure of ocean interests lacked the stability and consensus that sustained the traditional ocean regime, for the interests of the powerful and rich states are now regularly contested by the claims of the less privileged in numerous forums of international transaction and discourse. At the same time, in the face of these claims the militarily strong are inhibited as never before from supporting their interests with force, with the unprecendented consequence that the creation and enforcement of a new ocean regime would have to depend on an extraordinary degree of voluntary accommodation and cooperation.

Recognition of the need for international cooperation in resolving ocean issues is not accompanied by commensurate disposition to undertake such cooperation. The novel inhibitions of the strong in using force to support commercial, economic, and even military interests against the weak have reinforced the spreading recognition that purely national measures are inadequate for dealing with many practical problems, and this recognition has resulted in much multilateral negotiation in numerous international agencies and institutions. On the other hand, the disposition to pursue national interests through international cooperation is accompanied—particularly in the so-called Third World, where governments find an enhanced role in international organizations—by a new wave of intensified national feeling, overlaid with regional, ethnic, and deep sociopolitical divisions. Furthermore, international cooperation between developed and less developed countries is impeded by a widespread feeling among the latter group, enforced by the success of the Organization of Petroleum Exporting Countries (OPEC), that they must and can overcome their exploitation by the

former through a basic redistribution of wealth and power, without which there can be no just international order. The resulting national and socioeconomic antipathies and suspicions are bound to obstruct the creation, let alone the effective operation, of laws and institutions for accommodating conflicting ocean interests.

Moreover, it is now obvious from the experience of the Third UN Law of the Sea Conference, that however necessary it may be to try to create a new ocean regime by international treaty, the negotiating format itself greatly complicates the problem of reaching detailed working agreements by loading the agenda and linking a number of issues in complicated bargaining strategies. It may simply be impractical for over 140 governments with so many different conceptions of their interests on so many different issues to reach a consensus on a detailed, comprehensive treaty.

All these difficulties in ocean lawmaking are related to a fundamental problem of international order. Every regime among states must be supported by some structure of power that commands the consent or at least acquiescence of the participants in the system. In the new ocean politics there is neither a stable structure of interests nor a commanding structure of power to support a prevailing set of interests. Ocean politics seems to be largely insulated from the realm of high military and diplomatic politics at the center of the familiar postwar international system. The structure of power that has brought a modicum of order and equilibrium to the relations of the U.S., the U.S.S.R., and their major allies and spheres of influence is not nearly as relevant to the task of order-making in ocean relations. If the *Realpolitik* of the Cold War is largely irrelevant to establishing an international ocean regime, the alignment of countries according to a "North-South" or "rich-poor" orientation, is not yet, and probably never will be, sufficiently clear and compelling to be the basis of a new international order. From the U.S. standpoint, therefore, the task of defining the national interest and of promoting a congenial international structure of power is much more complicated in the politics of ocean relations than in the politics of national security in the Cold War.

A Reappraisal of the Comprehensive Approach

The inherent difficulties of achieving a comprehensive, detailed, and widely accepted new law of the sea treaty under these conditions were, perhaps, underestimated in 1970. But, no matter

what the difficulties might be, there seemed to be compelling reasons to make the effort. In light of subsequent experience it is time to reappraise some of these reasons.

One reason for pursuing the huge task of lawmaking by means of a comprehensive, universal treaty was a general, if somewhat abstract, recognition on the part of those taking the early lead in the development of ocean law that the beneficial, orderly, safe, and ecologically sound use of the ocean is a problem that cannot be safely left to purely national management. Rather, it would require an extraordinary degree of international cooperation. In practice, this insight has not prevented governments from pursuing special national interests in a competitive spirit, but it may have reinforced the disposition of the materially powerful and economically advantaged states to pursue their interests, not by an exercise of hegemony, but rather by a process of negotiation designed to elicit the cooperation of the less advantaged. So American officials did not approach the task of creating a new ocean regime as they had approached the task of creating a new international economic system after World War II. That is, they did not approach the task as a responsibility on the part of a few states who had the power to establish world order for the rest but rather as a problem of establishing a new regime in which the protection of U.S. interests would depend on eliciting the consent and collaboration of all nations.

This approach came to terms with the fact that the UN was from the beginning the decisive forum for formulating and negotiating a new ocean regime. The UN process of ocean lawmaking began in 1949 when the UN International Law Commission started preparing draft conventions on various law of the sea (LOS) issues, which laid the foundation for the Law of the Sea Conferences in Geneva in 1958 and 1960. Since the UN and the international LOS conferences were regarded as the decisive forum for resolving ocean issues, the process of lawmaking had to gain the agreement of as many states as possible to laws covering all the issues that UN members might consider important.

In the UN and LOS conference context it was inevitable that participating countries would see advantages to linking ocean issues over which they had more influence to those over which they had less in order to enhance their bargaining power. The process of linkage assured the comprehensiveness of the treaty effort while complicating the process of negotiation.

After Ambassador Pardo's famous speech to the UN General Assembly in 1967 dramatized the promise of reaping a vast

treasure of minerals from the deep seabeds, the number of states interested in participating in the bargaining more than doubled. The growing number of less developed countries, who now perceived that they would withhold jurisdictional favors sought by the developed maritime states, were determined to link the issues of fishing, limits of national jurisdiction, and passage through straits to their claim for a piece of the "common heritage" of the deep seabeds, which only two or three of the technologically advanced maritime countries had a propsect of exploiting in the foreseeable future. By 1970, developments in the bargaining situation in the UN Seabed Committee, together with the process of seeking a consensus in the U.S. Government among agencies with different interests and perspectives, had brought U.S. ocean officials to the reluctant realization that the United States too had most to gain from linking some major issues in "manageable packages" rather than seeking separate agreements on fisheries, straits, or seabeds. In the next year or two the United States became a staunch advocate of a "comprehensive" treaty.

The popularization and politicization of ocean issues following Pardo's *demarche* provided further impetus toward the pursuit of a comprehensive, universal LOS treaty by convincing U.S. ocean officials of the urgency of achieving such a treaty before the lure of ocean wealth would impel coastal states to stake out extreme jurisdictional claims which they would not relinquish in a treaty. The extension of such claims in the spring of 1970 by Brazil and, on antipollution grounds, by Canada seemed to confirm these fears. Therefore, in some quarters—notably the Defense and State Departments—there arose the specter of a rapid expansion of territorial and jurisdictional claims that would seriously impinge on American interests in two ways: directly, by restricting freedom of navigation for American naval and merchant shipping and requiring submarines to surface in straits overlapped by 12-mile territorial sea boundaries; indirectly, by creating a competitive environment of conflicting claims that would be politically inhospitable to the global operations of a maritime power like the United States as well as to its general interests in international peace and harmony.

It followed, according to this view, that it was imperative to establish new laws and institutions to control the use of ocean space before the rush for "ocean grabs" got out of hand, thereby precluding the opportunity to establish a new regime to replace the obsolete regime. In effect, therefore, it was urgent to establish the new rules of the game before states had the time to play it—before they played out that process of discovering, defining, and asserting

national interests in the kind of competition and conflict with other states on the basis of which customary law had traditionally become established.

It may also be worth noting that the urgent task of creating a comprehensive new international order through legal and institutional invention was one peculiarly congenial to the Wilsonian disposition of Americans. One does not have to ascribe any special significance to the fact that lawyers dominated the process of ocean lawmaking in order to appreciate the basic American preference for pursuing national interests in terms of international rules and organizations that are presumed uniquely to serve mankind.

Along with these basic reasons for seeking a comprehensive, universal LOS treaty, there were domestic conditions that made the task seem less formidable in 1970 than it would later become. For one thing, in the definition of American interests defense considerations were assigned a clear priority (if only, perhaps, for tactical reasons), and in the Department of Defense (DOD) those interests happened to be defined in terms of the maximum restriction of coastal sovereignty and a rather ambitious extent of international authority and international sharing of resources. Thus DOD's policy coincided with the "internationalist" policy of those in State and elsewhere who, for more general reasons, wanted a regime which, in American eyes, ought to have appealed to the interests of the less developed countries.

In 1970, too, the pattern of bureaucratic influence on ocean issues in the U.S. Government was relatively simple and the number of active agency participants relatively few. Partly for this reason, as well as because of the priority of defense concerns, ocean issues were readily resolved in the White House. Because it was easier to get a consensus on ocean policy in the U.S. Government, it also seemed easier to pursue the ambitious strategy of quickly achieving a widely accepted treaty that would establish laws and institutions for the use of the ocean before the chance to create a new international order for the ocean were lost in an anarchy of competing nationalist claims.

In retrospect, the reasons for committing U.S. ocean policy to the comprehensive treaty solution can be appraised from two quite different perspectives which are equally valid. On the one hand, one can conclude that the American approach was extraordinarily farsighted. Subsequent experience confirms the supposition that a great number of ocean issues would come to be entangled with each other. It confirms the apprehension that conflicting nationalist claims would tend to proliferate in the absence of a treaty dealing

with these issues. It confirms the conviction that it was urgent to get wide agreement to such a treaty before excessive national ambitions and rivalries hardened into fixed positions. On the other hand, one can conclude that the effort to commit so many countries with such different interests so quickly to such a comprehensive treaty was almost bound to fail, and that the very process of negotiating the treaty aggravated the inherent difficulties of achieving it. What seems to be a far more dubious conclusion is that the comprehensive treaty formula is still the best and only strategy for achieving the still quite valid objectives for which it was designed. For the evidence of three LOS conferences strongly suggests that any comprehensive, detailed treaty will not be widely accepted and any widely accepted treaty will not be comprehensive and detailed. If this conclusion is correct, the continued dependence on LOS conferences to achieve formal agreements may at some point impede rather than promote the establishment of a new ocean regime.

This would not mean that the LOS conferences had been useless. They have provided the forum within which the ocean interests of states have been identified, clarified, and differentiated. In some respects, this process has opened the way to the conjunction and compromise of conflicting interests—for example, of coastal state jurisdiction over a broad economic zone and maritime state rights of navigation and research—which may result in formal or informal accommodations outside a comprehensive international treaty. In other respects, the process has disaggregated alignments of interest, with possibly the same effect. Thus, what seemed initially to be an opposing alignment between the developed maritime states and the less developed coastal states became significantly qualified by the discovery on the part of a number of land-locked and shelf-locked states that, despite their alignment with other less developed countries in the Group of 77, they have interests in gaining access to ocean resources and their benefits which are not necessarily served by the policies of less developed coastal states. And other developing coastal countries—for example some oil producing states in the Gulf—discovered that they have shipping interests that set them somewhat apart from coastal states that are concerned primarily with the regulation of foreign shipping through adjacent waters and straits. Although this disaggregation of interests does not facilitate the formulation of a detailed consensus on the whole range of issues before the UN, it may provide the basis for bilateral and multilateral agreements on more limited clusters of issues and for the development of rules and regulations in functional organizations like the Intergovernmental

Maritime Consultative Organization (IMCO).

In the absence of a detailed, comprehensive and widely accepted agreement, however, a modicum of international order in the use of ocean space will have to depend, to a large extent, upon tacit and mutual restraints and *modus vivendi* short of formal agreements, upon national legislation consistent with the enlightened management and conservation of resources, and upon the gradual and often painful and uneven development of customary law, punctuated by conflicting unilateral claims, confrontations, and occasional violent encounters. Here, too, the LOS conferences will have left a beneficent legacy if they have established certain habits of resolving ocean issues by negotiation that takes into account the interdependence of nations' interests instead of by unilateral action and coercion that ignores this interdependence.

CHAPTER 2.

THE THIRD UN CONFERENCE ON THE LAW OF THE SEA

Following nearly six years of discussions and preparations, first within the UN General Assembly and then in the specially designated Seabed Committee, the Third UN Conference on the Law of the Sea (UNCLOS III) convened in New York in December 1973. Some 25 agenda items, embracing numerous issues and sub-issues, constituted the formidable challenge that faced the delegates to this largest international forum every assembled. While the opening session was largely procedural, subsequent working sessions of the Conference in Caracas (1974) and Geneva (1975) have proven inconclusive. A fourth session is scheduled for New York in March 1976. Given the magnitude of its mandate and the limited progress of the negotiations thus far, legitimate doubts can now be raised as to the possibility of reaching international consensus on more than a few items.

The State of the Negotiations

The disappointing progress of UNCLOS III was only slightly relieved by the issuance at the Geneva session of an "informal single negotiating text."[1] The text is in no sense a result of negotiations and in the case of the sections dealing with one of the more critical issues, seabed mining, does not even reflect the state of the negotiations. The three part single negotiating text (SNT) was prepared by the chairmen of the three main committees of the Conference[2] and reflects their assessment of possible compromise positions on the various issues with which their respective committees are charged. Conference President H. S. Amerasinghe (Sri Lanka), while assuring the delegates that the text is in no way binding, has expressed the hope that it would serve as a basis for future negotiations.

Whether or not the Geneva text will prove to be a useful starting point for future negotiations depends upon a number of factors. The quality of the text itself—both as a legal document and an approximation of political compromise—will of course determine its value as a negotiating document. More importantly, even with a single negotiating text, the Conference may well be confronted with an unmanageable task—in terms of the range of issues it must address and the number of participating nations whose interests must be met. Finally, the domestic and international response to the text during the 10 month intersessional period will affect the potential for future negotiations. The political will to reach an international law of the sea agreement may either crystallize or disappear in the face of this concrete document.

While specific issue areas of the SNT will be considered in detail in subsequent chapters, a few general observations are relevant to this overview of the treaty-making process.

The Single Negotiating Text

The most obvious fact of the single negotiating text is its uneven quality. It is uneven both as a legal draft and as an equitable compromise between diverse and in some cases directly opposed ocean interests. Such criticism is not to overlook the fact that on some issues there may simply be no middle ground. Where that situation exists, however, and a position must lean to one side or the other, a genuine compromise requires the inclusion of safeguards for the interests of the opposing view. This requirement has not been consistently met in the SNT.

Committee I (Deep Seabed Regime): The Committee I text elaborates general principles and operating machinery for an international regime of the deep seabed, as well as the basic conditions to govern seabed exploration and exploitation. Within the context of the conference, the principal political division over deep sea mining has been between the "Group of 77" (comprised of over 100 developing nations) and developed nations with the capability to mine deep sea nodules. Due to behind-the-scenes pulling and hauling, the text that was drafted by the chairman (Sri Lanka) of the Committee I Working Group and amended in places by the chairman (Cameroon) of the full Committee leans notably toward the position of the developing bloc or Group of 77. It is unlikely that developed countries will be willing to conduct negotiations on a text that vests all deep seabed resource rights in an international organization that conducts its own mining and that is governed by one-state, one-vote majority rule. Strong pressures already exist in the United States to promulgate mining

legislation unilaterally, and the orientation of this text will fuel those pressures. The only inducement for awaiting the outcome of a further session is the provision that 10 mining sites will be reserved for joint ventures if and when the convention comes into force.

Committee II (Jurisdictional Limits, Fisheries, and Other Law of the Sea Matters): The Committee II text deals with diverse issues including the territorial sea, the continental shelf, an exclusive economic zone, fisheries, and transit through international straits. Due to the geographic cast of most items on the Committee II agenda, no clear-cut split has developed along developed-developing country lines. Instead, interest groups of varying membership have coalesced around different issues. The land-locked states have been particularly active as have states with little to gain from extending offshore jurisdiction. Equally intent upon pursuing their respective interests have been island states, archipelagic states, broad margin states, states bordering international straits, and states with abundant offshore resources.

In the face of this political complexity, Committee II's chairman (El Salvador) has tried to strike a compromise that would satisfy the major groups needed to make a treaty viable—the maritime states and the coastal states. The "package deal" includes a 12-mile territorial sea, a 200-mile economic zone, and unimpeded transit through international straits overlapped by 12-mile territorial seas. To satisfy the appetites of expansionists, the text would establish extensive straight baselines for islands and reefs from which offshore jurisdiction will be measured. The text would accord sovereign rights to the resources of the continental margin where it extends beyond 200 miles. Not every state could be given its maximum demands and it remains to be seen whether this package will be viable. While from an overall perspective the tradeoffs may appear balanced, from the viewpoint of individual and, in some cases, crucial states they may not. Coastal and maritime states, for example, may support and even vote for unimpeded transit through international straits, but to little purpose if the straits states do not themselves adhere to such a regime. Land-locked and geographically disadvantages states may, for their part, resist a treaty which grants vast offshore areas to islands and coastal states in exchange for only vague land-locked states' rights of transit to the sea and access to its resources. In the law of the sea forum, these states can easily muster a blocking third.

Even states that have reason to be happy with some aspects of the Committee II text may strongly oppose a few of its provisions. As both a maritime and a coastal nation, the United States is in exactly

such a situation. The United States supports the concept of a 200-mile economic zone to ensure coastal state control over living and nonliving resources. The Committee II text, however, goes much further in granting the coastal state jurisdiction over the marine environment, the conduct of scientific research and the construction and use of artificial installations and structures in the zone. Such provisions directly affect U.S. global interests in commercial navigation, marine science and military security.

On the other hand, U.S. coastal interests should be pleased with the text's provisions for offshore oil and fisheries. The only limits on coastal state jurisdiction over its offshore oil is the provision for revenue sharing (payments or contributions in kind based on an unspecified percent of value or volume of production) where the continental margin extends beyond the 200-mile economic zone. Only a small portion of the U.S. margin extends to such distances and the combination of depth and distance from shore makes it of remote interest to the oil industry. The provision favored by the oil industry for security of investment in the economic zone did not find its way into the text, but in any event was unlikely to receive support given the present international climate.

Similarly, the U.S. coastal and sports fishing interests will probably be satisfied with the Committee II text's provisions for coastal state control of fishing in the 200-mile zone of economic jurisdiction. The coastal state would not only determine the total allowable catch for each species in this zone but may also reserve a portion of that catch for its nationals according to its capacity to harvest. If the coastal state cannot harvest the entire allowable catch, it would grant other states access to the surplus. Separate provisions of the single negotiating text cover other segments of the fishing industry. The salmon fishermen will probably be satisfied with provisions for anadromous species but the tuna industry will probably oppose the nonbinding provisions for regional cooperation on highly migratory species. Within the fishing industry as well as between fishing and other U.S. interests, opinion as to the merits of the text will be divided.

Committee III (Marine Environment, Scientific Research and Transfer of Technology): The text emanating from Committee III deals with marine pollution, marine science research and transfer of technology. On each of these subjects, there is some overlap with the texts produced by the other two Committees, and indeed in some cases, discrepancies. Unlike Committee II provisions, the Committee III articles dealing with marine pollution do not accord the coastal state jurisdiction with regard to the marine environ-

ment in a 200-mile zone. Instead they provide a more complex system of international standard setting with enforcement by flag, port and coastal states within an unspecified distance from shore. An even more marked contrast exists between Committee III's provisions on scientific research and those of the other Committees. The Committee I text implies control of scientific research by the international authority beyond national jurisdiction. The Committee II text gives the coastal state exclusive jurisdiction over scientific research in the economic zone whereby a marine scientist must obtain the consent of the coastal state for research within 200 miles of shore. The Committee III text on scientific research is far more complex. Indeed it is based on a compromise text drafted by the Mexican and Irish delegates in the course of negotiations in that Committee. The provisions on scientific research call for a distinction between fundamental research and research related to the resources of the economic zone and shelf. Only in the case of resource-related research would coastal state consent for scientific research be required.

The Strategy Behind the Single Negotiating Text

The discrepancy between the approaches to marine pollution and scientific research reflected in the three Committee texts illustrates the tenuous quality of the Geneva text and the extent to which its articles convey the views of a few individuals rather than an emerging or potential consensus. The decision to entrust the drafting to the three Committee chairmen admittedly was a choice of last resort. The Conference President proposed, on several occasions, the creation of formal negotiating machinery to undertake the task of negotiating a single text from the alternative treaty articles before the Conference. On each occasion, a substantial portion of the Conference membership rejected the creation of a smaller, representative negotiating group—primarily because each delegation was unwilling to entrust representation of its interests or position to other states. By giving the job to the Committee chairmen, at least it would be apparent that their text could not represent and therefore not bind the other members of the Conference.

This situation highlights the general procedural dilemma which faces the Law of the Sea Conference, namely too many issues and too many participants. A group of 141 nations cannot act effectively as a negotiating group. The numerous agenda items before the Conference, however, are of such concrete importance to most of its membership (albeit in varying scales of priority) that no nation is willing to subscribe to the product of a representative

negotiating group of which it is not a member. The work of the "group of juridical experts", or the "Evensen group" as it was generally called, is a case in point. Comprised of heads of delegations from fewer than 40 nations, the Evensen group met prior to and during the Geneva session to negotiate compromise articles on Committee II and III issues. When the work of this group came before the full Conference, however, it was rejected by nonparticipants as the work of an elitist body that did not have a balanced representation.

Issues Yet To Be Resolved

While the mechanical problem of negotiating a 25-item agenda among 141 nations is possibly insuperable, the substantive obstacles to a comprehensive and widely accepted treaty may be even more decisive. As noted elsewhere, it is difficult to see room for compromise on certain types of issues where divergent positions are in direct conflict and are perceived as matters of vital national interest. Among Latin American nations, for instance, Ecuador, Peru and Brazil have sold the concept of a 200-mile territorial sea to their domestic populations as a symbol of national pride and identity. For domestic reasons, these governments now find it difficult to retreat from this claim and accept the 200-mile exclusive economic zone which is favored by the majority of coastal states. Yet on the other side, maritime nations as well as the landlocked and geographically disadvantaged cannot accept claims of absolute sovereignty, perceiving it as a serious threat to their national security and commercial interests. The question of residual rights in the zone (i.e., all rights not specifically mentioned in a treaty) will simply not lend itself to compromise. Such rights are either vested in the coastal state or they are not.

Similarly, it is difficult to see the ground for compromise on the very important issue of unimpeded transit through international straits overlapped by 12-mile territorial seas. Maritime states, led by the United States and the Soviet Union, have been adamant in their insistence upon the right of unimpeded transit through and over straits, while straits states have been equally adamant that in their territorial seas, the right of innocent passage shall prevail. Once again, the issue comes down to a matter of a direct conflict between perceived national sovereignty of some nations and national security interests of others.

The Negotiators' Dilemma

While predictions are risky before UNCLOS III completes its work, the prospects of achieving the nominal goal of the Conference—a comprehensive, detailed and widely accepted treaty—must be accorded a low probability. Although most delegations continue officially to espouse that goal, one of two alternative outcomes now seems more likely, neither of which promises to provide for successful resolution of ocean issues. The first is a treaty riddled with reservations; the second, a treaty which includes little more than general principles.

Eight years of discussions, in addition to identifying and clarifying specific national interests in the oceans, have also hastened the awareness of wide disparities among those interests from one country to the next. The high level of politicization that individual issues have thus come to attain, together with the procedural complexities already discussed, suggest that any treaty sufficiently detailed to resolve major ocean problems could not now be widely accepted. Rather than appear recalcitrant in the eyes of the international community, however, states may choose to sign such a treaty, placing reservations against those provisions they cannot accept. If negotiations continue along present lines, a rash of reservations might be expected. A reservation-riddled treaty will not establish order in the oceans, or even a widely accepted *modus vivendi*.

Conversely, the only conceivable treaty that could be widely accepted could not be very detailed. Such a treaty, expressing only general obligations and admonitions for signatories, is, in fact, the type of agreement emerging in the single negotiating texts from the Geneva session of UNCLOS III. The theoretical option of concluding a widely accepted detailed treaty has not materialized in practice. Negotiators have come to realize that provisions which go much beyond very general rules in areas of controversy will alienate one or more contending groups and could serve as the basis for rejecting the treaty as a whole. Issues which could potentially spark this sort of controversy are not limited to the highly politicized issues, such as the seabed regime. Surrounding virtually every issue there remain some delegations prepared to reject any treaty embodying an opposing view. A treaty without teeth but designed to win the maximum number of signatories holds no better promise of resolving ocean issues than the reservation-riddled treaty.

Neither potential UNCLOS outcome would satisfy basic U.S.

interests in a stable and clearly defined ocean legal regime. It is particularly important to keep this in mind as the U.S. Government increasingly comes to rely on the Committee II and III portions of the single negotiating text as an "acceptable basis for future negotiations." The SNT is, except in a few areas, too general to resolve ocean issues. And where it is detailed, as on the straits issue, for instance, those states most directly concerned may well reject unacceptable provisions in part or in whole. The inability to conclude simultaneously a widely accepted and a detailed treaty, and the realization that the United States is unlikely to gain all of its objectives in a single comprehensive treaty should encourage U.S. policymakers to consider other options.

A Reevaluation of the U.S. Perspective

The history of international negotiations might have forwarned that the United States would be unlikely to gain all of its objectives in a comprehensive treaty. The U.S. Government has had a broader range of interests than virtually any other state at UNCLOS III. In addition to the interests shared by most countries—global interests such as reasonable pollution standards, and the establishment of widely recognized boundaries for territorial seas, for example—the U.S. Government has, in the past, identified eight major interests it hoped UNCLOS would sanction.:

1. a regime of guaranteed passage through and over straits used for international navigation;
2. a regime of unhampered transit through zones of coastal state jurisdiction qualified only by internationally recognized coastal state rights to manage resources;
3. access to seabed resources on reasonable terms;
4. access to other states' coastal zones for scientific research;
5. reservation of coastal species off the United States for American fishermen;
6. access to coastal species off foreign shores which the coastal state is unable to exploit fully;
7. reservation of anadromous species for host states; and
8. internationally regulated access to migratory species throughout their migratory range.

The list of bargaining chips that the United States has to offer is noticeably shorter:

1. seabed mining, and other, technology and capital

2. recognition of expansionary claims of other states.

To this list must be added a host of "negative incentives" which the United States could apply toward its law of the sea objectives if it chose. These negative incentives could include forms of economic, political, or military coercion not directly linked to marine policy. Negative incentives have been ruled out for the most part by policy makers in the law of the sea, however.

In part because of its lack of bargaining leverage, the United States has tied its acceptance of some treaty provisions to the adoption of others. Officially, U.S. support for the 200-mile zone remains contingent upon Conference acceptance of a 12-mile territorial sea, unimpeded passage through and over straits, and a satisfactory balance of rights and responsibilities in the coastal economic zone. Yet this U.S. policy of tying acceptance of some provisions to the acceptance of others lacks credibility internationally. Other states find it hard to believe that the United States would not acquiesce in a 200-mile zone whether or not its three conditions were met. The United States after all will be the greatest beneficiary of the expanded zone of resource jurisdiction in terms of ocean territory. Moreover, the Congress seems ready to assert that interest in the form of legislation to adopt a 200-mile exclusive fisheries zone that would anticipate UNCLOS action. To have its coastal species and access to other states' species too, U.S. negotiators devised the full utilization concept—a complex formula the implementation of which will prove difficult at best. Actual negotiations have proven that the United States is not likely to gain something for nothing. In the areas of distant water fishing and scientific research, where American chips are few or less compelling, the United States is unlikely to "win" as evidenced by the Geneva text.

It has been argued that the United States, more than any other participant, would benefit from abandoning the treaty process and enjoying the implicit rights and absence of responsibilities of the status quo regime. There are two fallacies in this argument.

The United States also stands to lose the most if attempts to settle ocean issues are abandoned. While the United States could expand its jurisdiction on the shelf, and grant itself access to seabed resources under the prevailing *res nullius* doctrine, maintaining interests which required foreign acquiescence would not be possible short of the resort to force, which seems to have been implicitly ruled out by U.S. policymakers. Rights of passage through straits and access to and passage through other states' zones could not be assured, even if supported by the use of force.

A return to the pre-UNCLOS III status quo is no longer possible. The current *modus vivendi*, which closely resembles the pre-UNCLOS legal regime, would give way to future unilateral coastal state extensions of jurisdiction in the absence of ongoing efforts to write an international agreement. The result would likely be a confusing series of contradictory and overlapping regimes that would seriously hamper shipping, existing fishing arrangements and perhaps naval mobility.

Since abandonment of the treaty process is not an agreeable option for the United States, other courses need to be considered within the UNCLOS framework. As a first step, U.S. and foreign law of the sea neogitators may come to recognize that no treaty can be reached which is simultaneously *detailed, comprehensive,* and *widely accepted,* and may be forced to choose a second best strategy embodying this recognition.

Of these three criteria, the most crucial in terms of the need to settle ocean issues is the requirement for *detail.* Without sufficient detail, conflicts will arise over interpretations of states' rights, and loopholes will be found to avoid state responsibilities. Adjudication of these differences will place an unmanageable burden on any dispute settlement procedures eventually agreed upon. The need for *wide acceptance* of any ocean agreement is also clear. Aside from the dictates of sovereign equality which allow no state's views to outrank those of another, there is the need to achieve wide acceptance to establish a basis for customary international law. This permits application of treaty provisions in cases beyond those involving original signatories of the treaty.

The need for a *comprehensive* treaty is less clear, however. The decision to seek a comprehensive treaty seems premised more on political choice than on any belief that ocean issues can most effectively be dealt with in a comprehensive package. Indeed, the comprehensive approach requires that all issues be considered together, making tradeoffs from one issue to the next theoretically possible. At the same time, however, it gives each state access to additional political leverage by the threat of support withheld on other issues. This (the classic log-rolling phenomenon) can skew the distribution of votes such that policies and interests that might otherwise be satisfied are not adequately reflected in the outcome.

An Alternative Strategy: Limited Treaties

If, however, the requirement for a comprehensive treaty is relaxed, a new series of options in the form of limited treaties becomes viable. A change in emphasis from a comprehensive treaty

to a series of limited treaties could be the result of a conscious political decision, or it may evolve from the present situation as the need to resolve particular issues becomes pressing. As a policy option, it has recognizable advantages over the current policy. Depending on the grouping of the issues, a policy of seeking limited treaties could solve the timing problem. As a consensus is reached on a particular issue or group of issues, it could be broken off from UNCLOS discussions and embodied in a limited treaty. Meanwhile, discussions on issues which require more time to reach a consensus, such as the Committee I discussions on the seabed regime, could continue. Among those issues that seem ripe for codification are the Committee II issues of a 12-mile territorial sea, 200-mile economic resource zone, and some form of guaranteed passage through straits. Aside from the seabed issues, the Committee III discussions on pollution, and various fisheries issues would benefit from further efforts to achieve compromise and consensus. When considered separately, discussions on various issues would take on a new aura of independent importance which has been lacking to date at UNCLOS. The pollution issue in particular would benefit from being considered separately from the other issues which have proven far more salient to most delegations.

The greatest advantage of a limited treaty approach would be the possibility of combining relatively wide acceptance with sufficient detail to ensure ecologically and economically efficient management of the ocean and its resources. The attempt to placate all interests on each issue under the comprehensive approach—the factor which more than any other has led to the inability to incorporate sufficient detail in the Geneva texts—could be abandoned in favor of including in limited, detailed treaties primarily the interests of those states most vitally concerned with the issue at hand. It would be unrealistic to expect to have as many signatories on each of a series of detailed treaties as on the sort of general treaty that UNCLOS delegates have sought, but relatively wide agreement would seem possible on many of the current issues. Again, it must be stressed that even universal acceptance of a treaty without teeth would have little long range value beyond the symbolic one.

UNCLOS participants may prove hesitant to abandon the comprehensive treaty approach in favor of a series of more limited and detailed treaties. There will continue to be some states and some individual participants who want UNCLOS to fail, and other states who will continue to provoke ideological confrontation. It is at least possible, however, that a majority of participants may

welcome a change in tactics, once it is generally recognized that the comprehensive treaty approach will not resolve many issues.

If the break from the goal of a comprehensive treaty became open, states which gathered to consider specific issues would tend to be primarily those who shared important interests in the specific discussions. Negotiations should be less hamstrung by states playing spoilers' roles by attempting to win leverage on unrelated issues. The smaller number of reservations to be expected with a limited treaty should present less danger of weakening the specific agreement than a myriad of objections to a more comprehensive package.

From the U.S. perspective the pertinent question is whether or not the strategy of pursuing limited treaties will enable negotiators to reach more U.S. policy objectives than the current strategy. Since limited treaties on some issues of concern to the United States could probably be concluded, such a strategy would seem to be a more favorable one than continuing a seemingly fruitless search for a comprehensive treaty. The United States, unlike some states, would not face serious additional bargaining constraints from its inability to make tradeoffs from one package to another. In those areas in which U.S. negotiators find themselves short of bargaining chips the merit of the U.S. position may well speak for itself. Despite the heated exchanges that have taken place in Committee I and elsewhere, the United States is normally credited with maintaining a global, relatively unselfish negotiating stance. Its views on distant water fishing, access to foreign zones for purely scientific research, and internationally supervised systems of access to migratory species may yet prevail over the more parochial provisions of the single negotiating text.

NOTES

[1] UN, Third Conference on the Law of the Sea, A/CONF.62/WP.8. Parts I, II, III, 7 May 1975.

[2] A fourth part of the Informal Single Negotiating Text was presented by the Conference President after the close of the Geneva session. Part IV offers a text on dispute settlement, "since the subject is not the exclusive concern of any of the main committees." UN, Third Conference on the Law of the Sea, A/CONF.62/WP.9, 21 July 1975.

PART II

U.S OCEAN POLICY: ISSUES AND OPTIONS

CHAPTER 3.

NATIONAL SECURITY

Introduction

U.S. security interests in the use of ocean space can be divided into the maintenance of military security (including the protection of allies and American citizens) and the preservation of vital economic interests. If the United States maintains an adequate balance of military power in the strategic nuclear realm, at key points locally, and at sea, and if the constraints of detente moderate Soviet behavior, economic security may be the more critical concern in the next ten years. This section deals with economic security only as it depends on the use of sealanes to ship vital goods and resources and only insofar as it may be jeopardized by restrictions imposed by other states and by an environment of anarchy and violence.[1]

U.S. military security interests, broadly conceived, lie in the effective use of four zones of ocean space—the seabed, subsurface, surface, and the air above—in order to

- maintain an adequate strategic nuclear capability,
- maintain an adequate capacity to project American forces overseas in local wars,
- protect U.S. citizens, commerce, and access to vital resources in peacetime,
- maintain adequate intelligence and military surveillance capabilities, and
- protect the sealanes, project forces abroad, maintain combat capabilities, and perform other naval functions in a more-than-local war.

What kind of ocean regime—that is, what set of norms, laws, and institutions governing the relations of states in the use of the ocean—should the United States try to achieve in order to attain these security objectives through the use of the four zones of ocean space? (Since it can be assumed that the nature of this regime would make no difference in a more-than-local war, only the first four objectives are regarded as relevant to the question posed.)

The Political Context

Evidently, the U.S. Government is determined to achieve its ocean security objectives in the context of a foreign policy that can be characterized as selective retrenchment (i.e., the reduction of the extent of U.S. foreign support and involvement) without political disengagements (i.e., the abandonment of existing commitments) in which the first concern is the orchestration of a global *modus vivendi* with the Soviet Union, undergirded by overall strategic parity. While reaffirming its pledge to shield allies and other friendly states from direct aggression by nuclear states, the United States has virtually ruled out direct participation in insurgent wars.

Assuming a modicum of success in achieving these objectives over the next five or ten years—though this is an assumption bound to be challenged by surprises—we must nonetheless assume that there may be local wars and crises and various situations jeopardizing the security of friendly regimes and the unhindered supply of petroleum and possibly other resources in which American armed force may directly or indirectly make the critical differences between the destruction or protection of vital interests. And even if the actual employment of U.S. armed forces remains only a latent and ambiguous possibility, the U.S. Government wants to maintain the credibility of American military power and to manifest that power through military demonstrations and maneuvers. It requires little imagination to apply this generalization to the Middle East.[2] Only a lack of foresight prevents us from anticipating its relevance to other areas in a period in which nationalism, conflict, and warfare trouble so much of the developing world.

The world situations most likely to damage the United States' broad security interests, however, may be those which the United States cannot affect by military means, directly or indirectly, and over which it has little or no control by any means. These are situations in which American military mobility, military bases, access to oil, and less tangible security interests are damaged by the actions of the weaker and poorer countries, actions which the United States is inhibited from countering by force. Or they may be situations in which the conflicts among other states accidently impinge on American interests. This latter type of situation was demonstrated in the "cod war" between Britain and Iceland, which threatened to lead to expulsion of the NATO base from Iceland.

If the frustrations and resentments of the developing countries

should be channeled toward harassment and pressure against the developed countries—whether for purposes of revenue, political influence, or just nationalist self-assertion—the United States might find its security threatened by a new kind of cold war. The dependence of the United States and its allies on oil and other natural resources and on straits, seas, and the rights of overflight controlled by developing countries, makes American commercial and military mobility particularly vulnerable. Thus, one of the primary U.S. security imperatives may become the achievement of mutually advantageous and acceptable working relationships with coastal developing states. This achievement depends, more broadly, on assuring developing countries that the ocean interests of the great maritime states are not inconsistent with their own newfound pride and independence in a period in which the resource-rich countries of what we used to call the Third World (now enlarged to include the Fourth World of resource-poor countries) are launched upon a determined effort to redress the balance of wealth and power between them and the powerful resource-dependents.

Strategic Nuclear Interests

Among the specific ocean security interests that the United States will try to maintain in the international political environment of the next five or ten years, the most important, though not necessarily the most threatened, is preservation of an adequate strategic nuclear balance. Here, the chief objective must be to maintain the effectiveness of U.S. nuclear missile submarines (SSBNs)—currently the Polaris/Poseidon fleet—because: (1) the installation of many indepedently guided warheads on missiles (MIRVs) and improvements in missile accuracy increase the importance of concealing missiles under the ocean and (2) the case for free transit of international straits has rested heavily on the security requirements of the U.S. underwater fleet.

The U.S. Government maintains that the invulnerability of SSBNs and hence their indispensable role in an adequate second-strike force depends on their right to pass through international straits submerged and unannounced—a right initially called "free" transit but more recently called "unimpeded" transit as a concession to legitimate regulations to protect littoral states from the hazards of congested straits. Under existing law only "innocent

passage," which requires surfacing of all submarines, would be legal in straits that fall within territorial boundaries. This distinction is considered very important since under a 12-mile territorial sea boundary perhaps more than a dozen straits of strategic significance would be overlapped by foreign territorial waters.[3]

But if we think of military necessity, not just convenience, which of the world's dozens of international straits that would be overlapped by 12-mile territorial sea boundaries are really important for the mobility of the U.S. Polaris and Poseidon fleet from the standpoint of reaching target areas in the Soviet Union? If one assumes that such overlapped straits inside the territory of military allies would be accessible to U.S. SSBNs, only Gibraltar and four Southeast Asian straits (Malacca, Lombok, Sunda, and Ombai-Wetar) among international straits 24-miles wide or less would be essential for the passage of SSBNs to patrol stations and launching areas from which enemy targets could be reached. Soviet SSBNs, on the other hand, would have to be able to pass through not only these overlapped straits but a number of others within the territory of U.S. allies in order to reach targets in the United States.

From this list, however, at least Malacca and perhaps Sunda straits should be eliminated as too shallow and congested to be safe for underwater passage. The two Indonesian straits, Lombok and Ombai-Wetar, might be closed to unannounced underwater passage of U.S. SSBNs in any case because according to Indonesia's interpretation of the archipelago principle of enclosed waters, they are considered internal rather than international waters.[4] On the other hand, the United States seems to have a working arrangement with Indonesia for passage of SSBNs through its straits. Although the Indonesian government has argued that the archipelago principle does not infringe on innocent passage, it requires prior notification of transit by foreign warships and has raised questions about the innocence of supertanker passage because of the danger of pollution. In spite of Indonesian jurisdictional claims, the United States maintains that the Indonesian straits are international. According to press accounts and Indonesian sources, however, the United States routinely provides prior notification of transit by surface ships and presumably (if only as a practical convenience) relies on some special bilateral navy-to-navy arrangement for submerged passage, consistent with the requirements of concealing the details of SSBN passage from foreign intelligence.[5] Although this *modus vivendi* is rather contingent, it satisfies America's needs as long as an Indonesian government as friendly as that of Suharto is in power.

Gibraltar presents a more complicated situation. Although the strait is only 11.5-miles wide and Spain claims a 6-mile territorial sea, its international character has been preserved by historic tradition and by the treaties of 1904 and 1912 among Britain, France, and Spain to secure free passage. In March 1971, however, foreign rights of transit became more restrictive when Spain and Morocco agreed to cooperate to "promote the creation of Mediterranean awareness" and to consult on all matters of peace and security in the Mediterranean, particularly in the strait. In June 1972, the Spanish government announced at the UN that the freezing of naval forces and subsequent progressive reductions in the Mediterranean should be considered. At the same time, it indicated the necessity for some compromise between free transit and the rights of coastal states, such compromise to be achieved by a redefinition of the right of innocent passage.

Thus Spain may have prepared the way for asserting a unilateral right to force submarines passing through the Strait of Gibraltar to surface. The effect of such a claim on U.S. SSBNs, however, will depend primarily on the political relations between the United States and Spain. As long as U.S. submarines are based at Rota, submerged transit of U.S. submarines will be permitted through Gibraltar. Moreover, even the closure of Gibraltar to unannounced submerged U.S. submarine passage would not be disastrous to America's strategic capability. After all, the Polaris/Poseidon system can target the entire Soviet Union from the Atlantic and Pacific Oceans and the Arabian Sea. Although there has apparently been no need for SSBN patrols in the Indian Ocean, an Indian Ocean base—say, Diego Garcia—would obviate the need to use Gibraltar or the Indonesian straits altogether.

Even if Gibraltar, Sunda, and the two Indonesian straits might be closed to unannounced underwater transit of U.S. SSBNs under existing interpretations of "innocent passage," would surface transit seriously impair the security of SSBNs? Undoubtedly, underwater transit makes SSBNs far more difficult to detect and identify. But it would still be extremely difficult to track submerged submarines after they passed through straits. And it is unlikely that detected passage through straits would enable the Soviet Union to impair significantly the U.S. second-strike capability, since that would presuppose a Soviet capacity to locate and destroy simultaneously most of the 20 to 25 U.S. SSBNs on station all over the world.

Furthermore, the projected deployment in the 1980's of the Trident SSBN system, in which each submarine would carry 24 MIRVed missiles with a range of 4500-6500 nautical miles, would

virtually eliminate the dependence of the U.S. underwater nuclear force on passage through international straits.

To be sure, there are operational disadvantages—quite apart from the problem of detection—to surface transit, in that this makes SSBNs vulnerable to collision in high-density traffic. But this disadvantage could be avoided, of course, if the United States would give advance notification of underwater passage. So it is not the safety but the necessity of secrecy of underwater passage that is ultimately in question.

In declaring the necessity for unimpeded transit of straits, U.S. officials have referred not only to the security of secret passage and to the safety of submerged passage but also to the prospect that, without an international treaty prescribing unimpeded transit, straits states might resort to "subjective" (that is, politically inspired) interpretations of innocent passage to restrict the passage of U.S. warships. Thus John R. Stevenson, speaking as chief of the U.S. delegation to the Law of the Sea Conference, testified before Congress that "We would not contemplate notifying [littoral states of intention to transit straits] because if such a requirement is introduced, there is of course ultimately risk of this leading to control of transit through straits."[6] This risk, Stevenson said, lies mostly in the future, and he cited no case in which the requirement of advance notification had been used to restrict naval transit.

The risk of restrictive interpretations of innocent passage, however, applies largely to commercial vessels on grounds of navigational safety and antipollution. Safety and antipollution would seem to be objectively important grounds for controlling the passage of ships. But if there is a real danger that littoral states will interpret innocent passage and the requirement of advance notification in order to deny transit of straits to American warships for purely political reasons, it is hard to see why these states would sign a treaty prescribing unimpeded passage or be deterred by such a treaty.

Aside from SSBNs, there are other components of the U.S. strategic capability that deserve attention. In the controversy over unimpeded transit through straits, the issue of overflight has been virtually ignored in public statements, although the U.S. position on the law of the sea treaty, presumably for strategic reasons, prescribes unimpeded transit over straits for military aircraft. (International law does not recognize innocent passage for overflight.) According to the prevailing official Triad nuclear deterrent system, the U.S. strategic nuclear capability requires manned aircraft as well as SSBNs and land-based missiles. The

U.S. strategic bombing force is still a significant weapons system, with some distinct advantage of mobility and of control responsive to political guidance. One might suppose that effective denial of military overflight over key straits would seriously impair the utility of the U.S. strategic bombing force as a deterrent. In practice, however, the right to fly over 24-mile straits has not proved critical to the U.S. strategic bomber force (as distinguished from the U.S. military airlift capability). Overflight of straits is only a small part of the pattern of overflight, managed by special arrangements, where necessary, and physically infeasible for most states to deny in any case.[7] In any event, as in the case of submarines, local restrictions on strategic overflight are relevant to routine maneuvers and deployments and perhaps to military demonstrations. They would not be an obstacle to acts of war.

The emphasis in American policy on unimpeded transit under, through or over international straits has somewhat overshadowed another official concern: that the U.S. strategic capability may be hampered by territorial or continental shelf jurisdictions claimed or established by coastal states.

Some contend that the breadth of the continental shelf under national jurisdiction would adversely affect the freedom of the United States to place passive ASW listening devices (Sound Surveillance Systems, or SOSUS) on the shelf, particularly off the shores of foreign countries.[8] Apparently, these devices are most effective beyond the 200-meter depth and part way down the slope of the shelf,[9] although their effectiveness also depends on the peculiar acoustic properties of the ocean at various temperatures, depths, and salinity and particularly on the depth of the sound channel that focuses sound energy in deep water. Presumably, the United States would hesitate to place SOSUS on shelf areas restricted by existing international law or protected by a new international treaty. Therefore, if SOSUS is vital to America's strategic capability, any ocean regime that extended territorial sovereignty over the whole continental margin might adversely affect U.S. military security.

Whatever the military importance of ASW,[10] hydrophone arrays on the ocean botton are (and will remain for the next five to ten years) critically important to the U.S. ASW capability. These acoustic devices may be physically susceptible to Soviet interference, but it is safe to assume that the Soviets are installing many of the same kind of devices and therefore have a vested interest in not interfering with those of the United States. Most developing countries do not have the capability to locate and destroy the arrays. In any case, the United States denies that it has

placed them off their shores without their consent.

These facts notwithstanding, it seems unlikely that the utility of SOSUS would be critically impaired even by the broadest boundary of coastal-state sovereignty on the continental shelf. The crucial monitoring areas where SOSUS needs to be emplaced—one would assume from those submarine passageways where the devices are most useful—are the Greenland-Iceland-United Kingdom gap, the Arctic, the North Pacific, and the Caribbean. With the possible exception of Iceland, enough of the Northern European countries are concerned about the Soviet SSBN force to permit U.S. listening devices in the area. Considering the extent of the shelf off Alaska and Canada, the emplacement of hydrophone arrays in the Arctic would not be severely restricted by a shelf convention. By its possession of Guam, Midway, Hawaii, Alaska, and the Aleutians, the United States owns a significant amount of underwater real estate on which to emplace listening devices in the North Pacific. Whatever gaps may exist in this coverage would not seem to be much affected one way or another by extended claims to the continental shelf. Only in the Caribbean and the Gulf of Mexico would a broad national shelf be likely to restrict U.S. coverage. U.S. coverage in these areas is limited anyway, since Cuba blocks it from the continental United States while the Dominican Republic lies in the way of coverage from Puerto Rico.

In any case, as noted above, since hydrophones have to be connected to shore stations (or, at great expense, to surface ships), the United States generally needs the permission of coastal states to emplace SOSUS on their continental shelves, whether within or beyond the territorial boundaries claimed by these states. It should also be noted that an extension of national claims to the shelf edge probably would do more damage to Soviet than to American acoustic installations. It probably would be difficult to find a government beyond the Norwegian Sea that would consent to Soviet devices on its shelf—not to mention objections by Canada and Japan (although the effect of this fact is limited by Soviet ownership of the Kuriles). The implications for SOSUS are the same even if national regimes encompass the continental margin. However, the bottom topography near Iceland makes it difficult to determine the precise limits of the shelf, margin, rise, etc.

There is yet a third possibility if no satisfactory new international regime is agreed upon. The 1958 Convention on the Continental Shelf states in part that "the term 'continental shelf' is used as referring. . .to the seabed and subsoil of the submarine areas adjacent to the coast to where the depth of the superjacent water admits of exploitation of the natural resources of said areas."

Since the technology for exploiting all but the deepest trenches soon will be available, this could eventually lead to a delimitation of the seabed on the basis of median lines drawn equidistant from states sharing a common ocean. In this event, the United States would own most of the North Pacific seabed (although it probably would not be useful for more listening stations); the United States, Canada, and the U.S.S.R. would divide the Arctic; the situation in the Caribbean would not be greatly altered; and Norway would own much of the seabed beneath the entrance to the North Atlantic.

Finally, in estimating the impact of alternative ocean regimes on America's military strategic capability, one must take into account the effects of extended territorial sea boundaries and other kinds of offshore zones. These effects, of course, depend in part upon what sort of restrictions coastal states choose to claim and are able to secure by consent or force. Added to the proliferation of extensive offshore territorial claims, coastal states are looking increasingly to antipollution, security, and other functional zones to restrict foreign navigation, both military and civilian. Moreover, in the absence of a comprehensive and widely accepted law of the sea treaty defining rights of offshore navigation, coastal states might resort to regional or local treaties—on the model of the Montreux Convention or a version of the Soviet doctrine of "closed seas"—that will severely restrict the numbers, types, and transit methods of warships belonging to nonsignatories. Assuming, then, for the sake of analysis, that more and more coastal states will be trying to apply more and more restrictions on foreign military passage within 200-mile offshore zones, what are the implications for America's strategic capability?

If one were to select a 200-mile region to impede American naval passage and have the greatest effect on America's strategic capability, it would be the Arctic, given the premise presented here that the Mediterranean is not indispensable to America's strategic nuclear capability. But even with 200-mile sea boundaries, access to the Arctic would be possible through the Eastern Bering Strait and the Kennedy-Robeson Channels (given Canadian compliance). In the Atlantic, patrols could still go far north within the 200-mile boundary around the Shetlands. In Indonesian waters, a 200-mile boundary would not be much more restrictive than a 12-mile boundary, since Indonesia defines its boundary according to a broad archipelagic doctrine. In any case, Poseidon missiles could still target all the USSR from points 200 miles off Bangladesh and Japan and in the southern Norwegian Sea.

More important than the impact of restrictive territorial zones and special seas on SSBNs may be their impact on the integrated

operation of fleets—such as the Sixth Fleet in the Mediterranean—which have strategic functions beyond providing launching platforms for missiles. It should be noted, however, that the strategic function of surface ships, apart from their political and psychological uses, has been drastically eroded by technological advances in attack submarines, surface ships, and aircraft.

Moreover, it is worth noting that coastal state restrictions would have a much more adverse impact on Soviet than on American strategic mobility. If, for example, the restrictions applied to the current narrow sea boundaries were applied to 200-mile boundaries, Soviet SSBNs would be restricted to half of the Arctic and to operations from Petropavlovsk. Submerged passage to the Atlantic would be prohibited. The Caribbean and the southern exits from the Sea of Japan would be closed. Soviet fleet maneuvers would be correspondingly more impeded than American by the proliferation of extensive restricted seas, antipollution zones, and the like.

What, then, are the implications of all these considerations for the protection of American strategic interests under alternative ocean regimes? Unquestionably, America's strategic capability with respect to the Soviet Union would be better off under an effective, universally applicable law of the sea treaty that provided unimpeded transit through international straits, established a narrow continental shelf boundary, limited territorial sea boundaries to 12 miles, and explicitly protected military passage through antipollution and other zones, than under the more restrictive regimes we have postulated. But even the *most* restrictive of these regimes would not undermine America's strategic capability on the ocean, regardless of whether the Trident system were in operation. Moreover, the adverse impact of restrictive regimes on Soviet ocean-based strategic capabilities would be far more severe than on American capabilities, although with America's greater strategic dependence on the sea, U.S. naval leaders cannot be expected to gain much consolation from this comparison. Finally, it should be noted that the most important military strategic problem—maintaining the security of U.S. SSBNs—arises critically with respect to only three or four international straits, where *modi vivendi* now resolve the problem in practice and where there is little reason to suppose that the key states would provide more protection for unimpeded underwater passage by accepting legal guarantees.

Other Security Interests

If these assumptions about the political context of American security interests are correct, the United States must be prepared for an indefinite period to maintain a global overseas military capability to respond quickly to a variety of possible crises and local conflicts in the Third World. This kind of capability presupposes great military mobility in ocean space. Therefore, we must be concerned about the impact of the changing technological, political, and legal environment of ocean space on naval navigation and overflight.

If a local crisis or conflict were sufficiently serious to involve the deployment or threatened deployment of American naval and air forces, would either the claims of sovereignty and control imposed by coastal and straits states or the United States' willingness to respect such claims be affected critically by the legal status of territorial boundaries and straits? Presumably, the answer depends on the seriousness of the crisis, the strength of the adversary, and the total political context. One can readily imagine local contingencies in which the United States was not prepared to take major risks of war and would feel compelled to honor proscriptions against passage of U.S. warships and aircraft applied by nonbelligerents. The denial of American overflight by a number of friendly nonbelligerents during the Middle East War of 1973 makes the point, although denial of staging bases was in that instance even more critical. If cold war tensions remain abated and the sources of local conflict in the Middle East and elsewhere continue to remain active, the United States must be prepared for a number of local crises in which it may wish to deploy force but in which it cannot count on the cooperation of allies and may be deterred by the opposition of small states. Indeed, even outside the context of a local crisis, a coastal state may harass U.S. naval vessels, as the case of the *Pueblo* demonstrates. If coastal states come to think of a 200-mile economic zone as virtually an extension of their territory, the United States might not be able to rely on them to respect the sovereign immunity of warships in a very extensive part of the ocean.

Nevertheless, it is probably farfetched to suppose that the possibilities of coastal state impedence of U.S. naval passage depend centrally on the legal balance between maritime states' rights of navigation and coastal states' rights to protect themselves from pollution, shipping congestion, and the like. Obstructing the passage of a naval vessel is an act of major diplomatic significance.

If a foreign state is willing to run the risk of taking such an act against the known opposition of the United States, the resulting encounter will hardly be a conflict of law; nor will international agreements on ocean law prevent such an encounter.

Similarly, impedence of U.S. military overflight, whatever the law may be, is a highly political act. Whether or not the United States acquiesces in denial of overflight for its military airlift would be determined, essentially, by a political calculation, not a legal interpretation, although the government might be emboldened to make such a calculation if it were acting in accord with a widely accepted international treaty sanctioning unimpeded flight over international straits.

The impedence of commercial navigation, on the other hand, can be more readily undertaken in the name of legal rights to protect the security and environment of coastal states without creating a state-to-the-state incident. Six or seven of the world's international straits of major economic significance could be affected by states that might impose costly, inconvenient, and perhaps politically-inspired restrictions on the passage of goods and resources valuable to the United States.[11] Moreover, there are practical incentives for states to impose such restrictions.

As some of the developing states become significant local and regional military powers (with the indispensable help of arms sales from the developed countries), they are likely to become more concerned with the security of their territorial waters, especially if these waters are rich in scarce resources. In any case, the lure of new sources of wealth in the oceans is leading to wider jurisdictional claims and more conflicts over the allocation of ocean resources. Some of these conflicts—Greek and Turkish differences over the Dodecanese, disputes between India and Sri Lanka, actions like China's occupation of the Paracel group or Iran's occupation of Abu Musa—could result in violence. Even if such claims and conflicts do not directly impinge on U.S. naval mobility and vital commercial shipping, they could create a turbulent political environment in which coastal states would be disposed to restrict military and commercial navigation unilaterally.

The unilateral extension of zones of protection at sea will be further reinforced by the concern of countries to police and regulate their coastal areas not only for security reasons (e.g., to prevent shipment of arms to dissidents or to counter offshore intelligence operations) but also in order to protect offshore economic activities, prevent pollution, and limit the hazards of shipping congestion. In this era of supertankers and expanding oil shipping,

one does not need to assume special political or nationalistic motives to explain this concern. The expansion of offshore oil and gas extraction will provide an additional reason to police and regulate waters that used to be considered areas of free navigation. Thus the United Kingdom has established a 500-meter safety zone around its North Sea oil rigs, in accordance with Article 5 of the 1958 Geneva Convention on the Continental Shelf. In the future we can expect the pressure of population growth, industrial land use and onshore pollution to increase incentives to move urban and industrial activities to sea. Already, fertilizer plants, waste disposal facilities, airports, and oil storage tanks are being constructed offshore. With the expansion of offshore facilities will go the creation of extensive zones of protection.

If supertankers and offshore petroleum and other installations should become targets for terrorists—and in this period of history one must assume that this is not unlikely—coastal states (the United States included) will have another reason to maintain order in offshore jurisdictions, and other states will have additional cause to object to coastal state restrictions and regulations.

Then, too, in future local wars—which in the Third World may well increase in number and perhaps in intensity—there may be assertions of blockade (as in the Indo-Pakistani war of 1971) and other restrictions on neutral shipping, including sabotage and terrorism.

As technological developments and the political atmosphere are turning in favor of coastal state restrictions against free commercial passage by the United States and other major maritime states, the local military balance has also turned to their advantage. In the last decade the acquisition of many types of surface or submarine-launched anti-ship missiles (SSMs) by more than 40 navies—added to mines, torpedoes, small submarines, shore batteries, and other weapons—has made even the most powerful surface warships vulnerable to small craft in narrow seas.[12] The law of the sea is unlikely to deter small states from using this local naval capability to back restrictions against U.S. commercial passage. But if the legal regime, whether by custom or treaty, favors coastal state regulation to the exclusion of rights of navigation, this would encourage harmful restrictions and either discourage resistance to them or make confrontation more likely.

Clearly, these trends could impair the shipment of oil and other vital resources. They could pose massive inconvenience and serious cost to U.S. commercial shipping, and they could become a chronic source of conflict with coastal states. Whether they would

ever impair commercial shipping to the point of jeopardizing American economic security one may doubt. If coastal states should have a sufficiently compelling incentive to impede ocean commerce of vital interest to the United States, one would expect them to resort to more drastic and effective measures, like an embargo. Nevertheless, if only to raise and clarify the threshold of restrictions that would impinge on American economic security, the United States needs new international laws and regulations, responsive to the legitimate interests of coastal states, that will enable it to conduct essential commercial activity on the ocean without getting into political conflicts and physical encounters. Perhaps the principal contribution of a widely-accepted LOS agreement would be to mitigate the danger that clashes of interest between the developed maritime states and developing coastal states might so embitter the climate of their relations as to make more likely the kinds of confrontations that would impinge on U.S. military and economic security.

Modi Vivendi

Considering the difficulty of establishing international agreements to regulate all the expanding uses of the sea, it is fortunate that formal agreements do not exhaust the remedies for protecting U.S. ocean security interests in the uncongenial environment postulated here. There are, for example, more informal *modi vivendi*.

Some kinds of arrangements that accommodate U.S. and coastal or straits states' interests may be more readily reached if they are not made the subject of international legal agreements at this stage of the development of a new ocean regime. For example, there now seems to be a *modus vivendi* between the United States and Indonesia that works fairly well although (and perhaps because) jurisdictional differences are not formally resolved. The cumulative effect of Indonesia's determination to become the dominant Southeast Asian power, its uneasiness about expanding Soviet Naval activity and Soviet alignments with India, its latent fear of Japan, and its dependence on an American presence in Southeast Asia (reinforced by American economic and military assistance) is likely to be of paramount importance. Judging from this case, such basic political factors will have more of an effect on U.S. and Indonesian ocean interests than any law of the sea treaty.

Similarly, the protection of American naval and economic

interests in the Persian Gulf seems far more dependent on good relations with Iran than on a new law of the sea treaty. Iran's drive for control of shipping in the Gulf, through which two-thirds of the non-Communist world's oil imports pass, tends to conflict with the U.S. proposal for unimpeded passage. Thus in March 1973, Iran was reported to be exploring an agreement with Oman to inspect all ships passing through the Straits of Hormuz at the entrance of the Gulf.[13] Observers of Gulf politics regard Iran's announced concern about the threat of pollution as secondary to its concern about Arab governments supplying arms to Iranian rebels. Iran's inclination to seek control of shipping in the Gulf may run counter to an ideal law of the sea treaty, but, considering the billions in arms the United States has provided Iran to bolster its supremacy in the Gulf, Iran's policy must be viewed as consistent with the official definition of American security interests in the Gulf. Indeed, if the United States relies on Iran as a surrogate for U.S. naval power in the area, Iranian control of the Gulf may be a prerequisite for protecting American interests in the Gulf.

Similarly, the problem of securing military overflight may depend as much on informal *modi vivendi* as on treaties. As in the case of surface navigation, it would be a great asset to secure unimpeded passage over straits. In practice, however, the problem of securing essential mobility of overflight is politically and geographically confined, principally to gaining passage over the Strait of Gibraltar. Resolving this kind of problem will depend primarily on political relations with a few key states. If these states do not favor unimpeded transit over straits, they are not likely to sign such a provision because of bargaining at a law of the sea treaty conference. If they are not unreservedly opposed to unimpeded transit, the United States might have a better chance to arrange a satisfactory *modus vivendi* outside an international conference than through either a multilateral or bilateral treaty.

Unilateral Force

In the absence of adequate protection for ocean security interests by a universal law of the sea treaty sanctioning the kind of free navigation and unimpeded passage the U.S. Government seeks, the United States faces the troublesome prospect of protecting American ocean security interests through *ad hoc* bilateral and regional arrangements. Understandably, U.S. ocean policy makers prefer to base the protection of American ocean interests on treaty-

made laws that apply as generally and unambiguously as possible rather than on less binding arrangements based on fragile political alignments and customary law. Lacking such laws, they fear, the United States must either acquiesce to claims by coastal states of jurisdictional rights that constrict American ocean mobility or forcibly contest such assertions. At the least, the United States must operate in an uncongenial environment of confrontations and wars among other states.

This fear is overdrawn insofar as it envisions a maritime analogue of terrestrial wars over boundaries and dynastic jurisdiction in earlier periods of history, but it is not unrealistic in foreseeing the possibility of mounting crises and armed encounters at sea. There have already been dozens of such encounters since 1945.[14] Even the great powers' well-known constraint in enforcing their interests against the less developed countries does not preclude limited naval encounters. After all, this constraint depends on a calculus of material and political gains and losses that may change with changing conditions. Thus, the political costs of the United States forcibly protecting American tuna fishers against the claims of sovereignty by Peru have always seemed excessive compared to what could be gained by such drastic measures and what would be lost without them. But it would be a mistake to infer from this situation that the United States would be equally passive in the face of some threat to a more serious economic interest or to a military security interest. Likewise, British resistance to Iceland's exclusive fishing zone claim, which has led to a number of clashes between Icelandic coast guard ships and British escorts, demonstrates considerable British self-restraint but also shows that a maritime state will not necessarily passively accept the assertions by a small state of a conflicting ocean regime when important economic interests are at stake and cannot be secured by other means.

Where military security, rather than fishing rights, is involved, the maritime states have been bolder in backing their interests. The most frequent examples of this have occurred in intelligence gathering. Despite North Vietnam's claim to a 12-mile boundary, the United States acknowledged that the U.S. destroyer *Maddox* was only 11 miles off North Vietnam shortly before the first Gulf of Tonkin incident. In other cases, the United States has not always been reluctant to fly aerial intelligence missions that contravene jurisdictional claims over coastal state waters.

In the past decade, there have been several cases (excluding fishing rights interventions and cold war crises) in which maritime powers have exercised their naval superiority to support their

definition of freedom of the seas. In July 1951, when an Egyptian Corvette intercepted and damaged a British merchantman in the Gulf of Aqaba during an attempted blockade of Israel, a British destroyer flotilla was deployed to the Red Sea. Two weeks later Britain and Egypt reached an agreement on procedures for British shipping in the Gulf. In February 1957, American destroyers patrolled the Straits of Tiran and the Gulf of Aqaba to prevent Egyptian interference with American merchant shipping en route to Israel. On December 13, 1957, President Sukarno's government enunciated Indonesia's archipelgo doctrine. Less than a month later, Destroyer Division 31 passed through the Lombok and Makassar Straits to reaffirm the U.S. right of innocent passage. On July 21, 1961, following a bombardment by French naval aircraft, a French cruiser-destroyer group forced the entrance to the Lake of Bizerta, thereby lifting a Tunisian blockade of the naval base and reestablishing French control. Following Egyptian closing of the Straits of Tiran in May 1967, the U.S. Sixth Fleet concentrated in the Eastern Mediterranean while the British admiralty announced that the carrier H.M.S. *Victorious* and other units were being kept in the Mediterranean "in readiness against any eventuality," although the threat was not carried further. In May 1975, the United States marines forcefully recovered the merchantship *Mayaguez* and her crew from capture by the Khmer Rouge on the high seas, although within the territorial waters of an island claimed by Cambodia.

On other occasions, maritime powers have simply ignored or rejected coastal state claims against their activities. The People's Republic of China routinely challenges U.S. vessels in the Lema Channel en route to Hong Kong, and the U.S. vessels routinely disregard these challenges. Despite protests from other nations, France enforces restricted zones around its nuclear testing site at Mururoa atoll. During the Algerian War, she undertook visit and search of the flagships of more than a dozen nations, on some occasions as far away as the English Channel.

There are also numerous examples of armed coercion at sea that have not involved a major maritime power, for example, the Chinese occupation of the Paracel group, the Iranian occupation of Abu Musa, India's imposition of a blockade during the 1971 Indo-Pakistani war. There are a number of situations in African, Asian, and Latin American waters from which similar confrontations and even limited wars at sea might arise. Some might directly or indirectly impinge upon America's shipping and other maritime interests.

One must conclude that if jurisdictional claims of coastal states

should jeopardize American economic or security interests in the Third World, the United States would not necessarily be deterred by immediate political costs from supporting its ocean interests with force. This would be true especially if the clash occurred out of the context of U.S.-Soviet competition, something increasingly likely to be the case. Nevertheless, the resort to force at sea is probably more likely to occur among weaker countries than between the powerful and the weak, considering the greater prospects for jurisdictional, territorial, and political disputes among such weaker states; the relative importance of such disputes to smaller states; and the relative lack of alternative means that less developed countries have for coping with such disputes.

In the absence of a widely accepted LOS treaty, therefore, one may expect a new ocean regime to emerge from the gradual and uneven development of customary law, through unilateral actions punctuated by small wars and test encounters over decades. But even if many of the jurisdictional causes of armed encounters are settled in an international treaty, the United States, like other states great and small, can be expected to resort occasionally to the unilateral use of force at sea in order to enforce its view of legal rights and vital security interests. This situation, however, need not result in widespread anarchy and violence. A growing number of states realize their practical stake in avoiding disorder and confrontation. Coastal states and maritime powers have important common interests in preserving the flow of commerce, and neither group is yet united or fixed in opposition to the other. As the oil producing countries of the Third World begin shipping petroleum in their own tankers, they are discovering a common interest with the developed maritime states in unimpeded passage. The question, therefore, is not just how to create a new ocean regime by a comprehensive treaty but how to achieve new rules and regulations for the use of ocean space by treaties, *modi vivendi*, national legislation and pronouncements, and unilateral action with the least degree of confrontation and the greatest degree of international consent.

UNCLOS III and the Single Negotiating Text

Before considering alternative approaches toward achieving a new ocean regime compatible with U.S. ocean security interests, we need to take into account the most recent effort to achieve a treaty at the Geneva session of the Law of the Sea Conference in the

Spring of 1975. Not that this Conference enables us to predict precisely what kind of treaty, if any, may sooner or later emerge; but it does highlight some trends that indicate the international negotiating environment within which the United States must pursue its ocean interests by treaties or other means.

In the draft articles of the "single negotiating text" (SNT) that emerged from Committee I (seabed mining) there is nothing that indicates trends directly incompatible with U.S. security interests. Activities in the area of the seabed beyond national jurisdiction shall be reserved exclusively for "peaceful purposes" (Article 8, paragraph 1), but this does not restrict the prevailing interpretation that passive ASW devices can be placed on the seabed beyond national jurisdiction without consent of the coastal state.

Nor do the draft articles of Committee III (environment and scientific research) indicate trends adversely affecting U.S. ocean security interests. Rather they indicate some progress toward specifying and refining the rights of coastal states in setting pollution standards in their territorial seas, in accordance with international regulations, while explicitly stating that such standards may not limit innocent passage (Article 20, paragraph 3, under the environment section of part 3) or affect warships (Article 42). Since 1972, the United States has moved far in its LOS position to qualify rights of navigation with such resource rights of coastal states.

The draft articles of Committee II (limits of national jurisdiction), on the other hand, confirm a trend toward restricting navigation in the proposed 200-mile exclusive economic zone that might impinge upon American security interests. Article 48 gives coastal states the exclusive right to regulate the construction, operation, and use of artificial islands and installations (it does not qualify "installations" with "economic" or any other adjective) which might interfere with the rights of the coastal state in this zone. A restrained interpretation of this provision might not interfere with U.S. security interests. The provision need not jeopardize the U.S. ASW capability if U.S. underwater surveillance technology is now sufficiently advanced to monitor effectively beyond 200 miles of nonallied coasts, or if—as argued above—the United States has plenty of its own and allied underwater real estate on which it can emplace listening devices to monitor the crucial submarine channels. Nevertheless, Article 48 does indicate a trend toward increasing coastal state restrictions in a broad economic zone, restrictions which could become tantamount to those in a territorial zone. Somehow the United States will have to come to terms with this trend or be prepared to ignore it or resist it.

So far, however, coastal states have resisted the radical disposition to make a special point of prohibiting military facilities and naval passage; and they have even gone out of their way to affirm the sovereign immunity of warships—perhaps because of the prominence of developing country military representatives, who are concerned about their own freedom of military activity. In this climate of North-South relations the prospect of a mutual accommodation of foreign military and coastal state interests in the economic zone is fairly good.

Committee II also produced draft articles that seem to codify restrictions on passage through territorial waters and straits which the United States once found unacceptable. Article 16 defines innocent passage through territorial seas to exclude a number of specific acts, such as "collecting information to the prejudice of the defence or security of the coastal state;" the launching, landing, or taking on board of any aircraft or military device; and conducting research or survey activities of any kind. Under Articles 40 and 124, passage through straits and archipelagos within territorial waters can be confined to sealanes or traffic separation schemes determined by a straits state in accordance with international regulations. In Article 44 innocent passage (rather than the less restrictive "transit passage") applies to straits connecting one area of the high seas or economic zone and the territorial sea of a state, such as Tiran and Messina.

These provisions signify a trend toward codifying coastal and straits state restrictions on navigation for security, safety, and protection against pollution; and this is a trend that may pose some danger to U.S. security interests insofar as it is sustained by unilateral claims and actions. But embodied in an international agreement, such provisions might at least stabilize the limits of coastal state regulation and make undefined and perhaps politically inspired restrictions less likely. The United States has accepted the principle that transiting ships should comply with international regulations for safety and against pollution while conceding that bordering states should enforce these regulations against violations.[15] In any case, these particular provisions do not, in themselves, undermine American ocean security interests if the foregoing analysis of what these interests require in terms of SSBN passage, ASW emplacements, and naval and commercial navigation is correct. Moreover, the SNT does recognize a right of unimpeded "transit passage" through and over straits between two areas of the high seas or between two economic zones for "the purpose of continuous and expeditious transit." This provision meets the essential military security needs of the United States.

And the provisions on transit and innocent passage go far to protect U.S. economic security interests, insofar as international law can protect unimpeded commercial passage. Underlying this favorable development is the convergence of U.S. interests with the recently discovered shipping interests of the Arab oil producting states and Nigeria.

On the other hand, there is no indication that some key straits states—e.g., Indonesia, Malaysia, Spain, Morocco, Yemen and Oman—will accept the straits provisions. The SNT provisions coming out of Committee II represent only a consensus of moderate views, with very little concession to the more radical demands for regulating straits and economic zones.

It is fairly clear that the United States is not going to get a treaty—whether bilateral, multilateral, or comprehsnive and widely accepted—that will protect free navigation through territorial seas and unimpeded passage through international straits without concessions to coastal state regulation similar to the provisions in the SNT that emerged in the session at Geneva in 1975. These concessions are not incompatible with essential U.S. security interests. It seems unlikely, however, that further concessions of this kind will gain the adherence of some key straits states to the text's provisions for "transit passage," since these states are not champions of coastal state regulations in the economic zone.

The SNT also shows some progress with respect to the closely related issue of defining unimpeded passage through archipelagos, but the bargaining situation on this issue (including a conflict between continental and island archipelago states) is so uncertain and the provisions themselves are so complicated and subject to revision that the United States cannot count on a satisfactory resolution in a treaty.

On the whole, the SNT is favorable to U.S. ocean security interests. At least it provides a favorable basis for further negotiation. One cannot predict, however, that the relevant provisions will be embodied in a widely accepted treaty, whether comprehensive or limited. For one thing, the linkages of these provisions to provisions dealing with other aspects of ocean use may produce an unacceptable package. Thus, the articles coming out of Committee II may be unacceptable to many developing states without concessions that are unacceptable to the developed maritime states with respect to the composition of the controlling group proposed for deep seabed mining in Committee I.

Therefore, one should assess the results of the Geneva session

not only in terms of the prospect of a comprehensive, detailed, and widely accepted treaty but also in terms of the environment of international ocean politics within which the United States will continue to pursue its security interests by bilateral and regional agreements, *modus vivendi*, unilateral legislation and action, and the variety of measures from which customary law develops. From this standpoint the SNT is an auspicious event. It shows that international ocean politics are not polarized in a North-South or coastal-maritime division but rather that they manifest a process of change and differentiation of national ocean interests. And it also shows that this process of change and differentiation creates convergences of U.S. and foreign interests that are congenial to the eventual widespread acceptance of a new ocean regime compatible with U.S. security.

U.S. Options

The foregoing analysis indicates that concessions to increased regulation of territorial waters and straits for the sake of security, safety, and freedom from pollution would not undermine or even seriously interfere with American ocean security interests, with the possible exception of the envisaged exclusion of unqualified foreign installations and activities in the economic zone. Indeed, such concessions might be the basis for defining the outer limit of coastal and straits state rights of regulation and thereby help stabilize ocean relations between the United States and coastal states. Such concessions might take the emotional fire out of "North-South" ocean issues and further encourage some developing states with maritime and shipping interests to identify convergences of interest with the United States and other developed maritime countries.

On this ground, therefore, it can be argued that the United States would benefit from a widely accepted international treaty with provisions for navigation and overflight similar to those in the SNT. These provisions represent a reasonably favorable balance of power and interests in the world, given the inhibitions against the great states enforcing a broader view of their vital ocean interests against coastal and straits states. Therefore, fixing this balance in law would, at the least, be better than no treaty at all. Such reasoning would be based on the assumption that America's vital ocean interests depend centrally upon accommodating minimum and legitimate coastal and straits state concerns so as to avoid a

kind of cold war with developing states that would damage American security far more than the legal concessions in question. It is also based on the assumption that the chances of getting an advantageous treaty are diminishing, not increasing, with the passage of time.

If a large number of coastal and straits states find such treaty provisions acceptable, should the United States pursue a treaty limited to defining the territorial sea, rights of navigation and passage in straits and territorial seas, and rights and jurisdiction in the exclusive economic zone; or should it try to achieve such provisions as part of a more comprehensive treaty? An outsider is in no position to prescribe the linkages of issues that will enhance bargaining power and the likelihood of agreement. It does seem from experience, however, that America's bargaining power to achieve acceptable navigation and transit agreements will not be enhanced by linking such provisions to the whole array of provisions heretofore sought in a comprehensive treaty. So far, it would seem, the linkage has been used effectively only by the Latin American coastal states to gain acceptance of the exclusive economic zone. Therefore, if and when it becomes clear that the formula for protecting American security interests in a comprehensive treaty is not going to produce a widely accepted agreement, the United States could shift to seeking the widest acceptance of a limited agreement. By the same reasoning, if a treaty acceptable from the standpoint of American security interests but unacceptable in other respects were widely accepted, the United States might agree to sign but submit reservations to the unacceptable parts. But reservations of this scope, as opposed to the wording of a few otherwise acceptable articles, would invite similar reservations by other states and thereby defeat the compromises and trade-offs essential to any treaty worth signing.

On the other hand, the United States may find that there is no prospect of gaining acceptance of the provisions of a limited treaty without making unacceptable concessions on the management of seabed resources. Or it may decide that any treaty, limited or comprehensive, that embodies the SNT's provisions with respect to the economic zone would set the stage for the virtual conversion of resource-related coastal state rights in the economic zone to the status of property rights in sovereign territory. Since the provisions for the economic zone may be contrary to U.S. interests in commercial shipping, scientific research, or fishing, such unacceptability is possible. The unacceptability of the economic zone provisions would confront the United States with two options: (1) sign a widely accepted treaty with reservations to the

economic zone provisions or (2) resolve to get along with no treaty at all. Regardless of American wishes, the latter option might be the more likely if the LOS bargaining situation has inextricably linked the extension of coastal state rights in the economic zone to the acceptance by coastal states of the territorial and straits provisions.

In any case, even if American security interests were satisfied by a widely accepted limited or comprehensive treaty, there is no assurance that the few key straits states would sign it. These states are not likely to be induced to modify their positions by any number of signatories to a treaty which they would oppose for special national reasons. With the few key straits states, then, the United States would simply have to reach the most favorable informal working arrangements possible. Experience with Spain and Indonesia thus far shows that this may be a feasible task.

If faced with the choice of a widely accepted treaty that fails to satisfy U.S. security interests in the economic zone or no treaty at all, the United States might decide to defer signing a treaty, partly out of confidence that essential security needs can be met by limited bilateral and multilateral agreements, by *modus vivendi*, and the slower development of customary law and partly out of hope that a better treaty can be achieved later. According to this strategy, the United States would ignore or defy unilateral coastal state restrictions in the economic zone and wait for the proper balance between maritime and coastal interests in that zone to develop through international regulations in the Intergovernmental Maritime Consultative Organization (IMCO) and other functional organizations and through the interplay of unilateral legislation, policy statements, and actions among states. Meanwhile, it would look for opportunities to sign limited agreements with as many states as possible on straits and passage through territorial waters, while coordinating its unilateral statements and legislation on these matters with likeminded states.

As a long-term option, this strategy assumes that the basic bargaining power of the United States and other major maritime states will improve as the developing states and especially the coastal and straits states among them learn that they need the cooperation of the maritime powers that have the technology to develop ocean resources and the armed might to back it up more than these powers need the cooperation of the developing states. This option is based on the calculation that the oil and resource rich developing states have a different set of vital interests than the other developing states and that therefore the former cannot indefinitely command the allegiance of the latter. Similarly, this

option assumes that some developing states, such as the oil producing countries with shipping interests or the countries without coasts or coastal shelves, will align themselves on selected issues of rights and jurisdiction with the United States rather than in accordance with a North-South orientation.

The validity of the strategy of deferring a treaty, therefore, depends significantly upon the general political and psychological environment of relations among the maritime powers and developing states, and upon how American actions can affect this environment. Perhaps the most prudent estimate of these imponderables would be based on the assumption that at this delicate stage of North-South relations at least some limited agreements that accommodate the interests of maritime and coastal states are needed in order to preserve a favorable environment for *modus vivendi*, for the development of customary law, and for simple non-agreement on a set of other issues where such mutual accommodation is not feasible. In this view, rather than place an all or nothing bet on a comprehensive, widely accepted treaty, or defer a limited agreement on navigation, transit, or overflight until more advantageous terms are available, the United States should proceed in a piecemeal fashion to secure reasonably satisfactory international agreements as soon as possible. It should do this, in part, to counteract the political effects of relying on unilateral actions and the sometimes disruptive development of customary law with respect to an array of other ocean issues which may not be subject to satisfactory international agreements.[16]

One of the important achievements of the LOS conferences over the past decade or so has been to establish a widespread habit and expectation of bargaining and negotiating national differences on matters of common and interlocking interests which, in an earlier period of history, might have led to chronic conflict and anarchy. To maintain this mode of conflict resolution in the next decade and after, it will not be sufficient to rely on the perpetuation of UNCLOS, even if a comprehensive treaty were achieved. In the absence of a widely accepted comprehensive treaty, the peaceful resolution of differences will depend all the more on limited international agreements, precisely because there will be many issues that are not subject to any agreement.

NOTES

[1] For a full analysis of the implications of the law of the sea (LOS) for U.S. commercial shipping, see Chapter 4.

[2] Imagination received a widely-publicized prod in the first week of January 1975,

with Secretary of State Kissinger's carefully phrased interview with *Business Week* in which, while rejecting the use of armed force against OPEC countries to bring down the price of oil, he conspicuously refrained from rejecting the use of force in case of "some actual strangulation of the industrialized world," and Secretary of Defense Schlesinger followed by stating that military action in the Middle East to prevent strangulation would be feasible. Subsequent assurances that the conditions under which the use of force might have to be contemplated were "absolutely hypothetical" and quite unlikely to exist did not offset the public impression that, at the least, drastic and overt actions, such as an embargo, could provoke U.S. armed action.

[3] According to Article 6 of the 1958 Convention, submarines passing through international straits "are required to navigate on the surface, and to show their flag." But the official U.S. interpretation of innocent passage (in line with the International Court of Justice's report in the 1949 Corfu Channel case that "States in time of peace have a right to send their warships through straits used for international navigation between two parts of the high seas without the previous authorization of a coastal State, provided that passage is innocent"), does not concede that advance notice of passage through territorial waters is required. Advance notice of transit through straits, the U.S. holds, would run the risk of leading to coastal state control of transit. In practice, however, the United States evidently provides advance notice of surface ships but not submarines (except, perhaps, where secret bilateral arrangements have been agreed).

[4] In December 1957, the Indonesian government declared that "all waters surrounding, between, and linking the islands to the State of Indonesia. . . constitute natural parts of inland or national waters under the absolute jurisdiction of the State of Indonesia. . . . The 12 miles miles of territorial waters are measured from the line connecting the promontory point of the islands of the Indonesian state." Embassy of Indonesia, *Report on Indonesia* (Washington, D.C.: November-December 1957, January 1958), vol. 8, no. 7.

[5] The U.S. Government officially denies that it has any agreement with any country to provide advance notice of the passage of warships through international straits.

[6] Testimony on April 10, 1973, before the Subcommittee on International Organizations and Movements, House Committee on Foreign Affairs, 92nd Cong., 2nd sess., p. 12. Stevenson and Jared Carter, of the Department of Defense, substantiated the risk by citing Egypt's denial of passage to a commercial vessel in the straits leading to the Gulf of Aqaba before the June 1967 Arab-Israeli war, on the grounds that the cargo bound to Israel was not innocent. (Egypt, however, based its contention on the position that there had been a state of war since 1948.) Carter added that there were other examples of states claiming that warships do not have the right of innocent passage.

[7] In those nations where the United States has its own bases or regular access to foreign bases, the United States has interpreted overflight rights to be implicit in permission to use the bases. If there are no such base rights, permission for overlight is supposed to depend on diplomatic clearances (received by filing one-time transit requests with the defense attaches three or four days in advance of the flights). In emergencies the U.S. practice has been to get clearance, go around, or, infrequently, fly over without clearance. In practice, the distribution of American bases has obviated serious overflight restrictions. In the Middle East crisis of November 1973, however, only Portugal granted the United States overflight, thereby making it necessary to fly over the Strait of Gibraltar.

[8] See, particularly, the proceedings of 1969-70 in the Eighteen Nation Disarmament Committee (ENDC), renamed the Conference of the Committee on Disarmament (CCD) in August 1969, which led to the 1971 *Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil Thereof*. Edward Duncan Brown draws principally from these and other UN documents, such as the proceedings of the Seabed Committee, in examining the legal status of passive listening devices on the continental shelf in *Arms Control in Hydrospace: Legal Aspects* (Woodrow

Wilson International Center for Scholars, Ocean Series 301, June 1971), pp. 22-35. See also Captain L. E. Zeni, "Defense Needs in Accommodations Among Ocean Users," in Lewis M. Alexander, ed., *Law of the Sea: International Rules and Organization for the Sea* (Kingston: University of Rhode Island, 1969), p. 33; John A. Knauss, "The Military Role in the Ocean and its Relation to the Law of the Sea," in Lewis M. Alexander, ed., *The Law of the Sea: A New Geneva Conference* (Kingston: University of Rhode Island, 1972).

[9] One can infer this from the fact that the original U.S. position on the prospective law of the sea treaty implicitly protected the legal right of the United States to emplace such devices on the continental shelf beyond the 200 meter depth. See also Knauss, "The Military Role in the Ocean," p. 79. Article 3 of the U.S. draft Seabed Treaty provides that the area beyond this depth "shall be open to use by all States, without discrimination, except as otherwise provided in this Convention." The only exception pertains to the exploration and exploitation of certain natural resources. In tabling the treaty, U.S. representatives, in a studied reference to military uses of the seabed, pointed out that it expressly protected the rights of states to conduct activities other than exploration and exploitation of certain natural resources in the area beyond the 200 meter isobath.

[10] The utility of ASW as a deterrent to a nuclear attack would seem to be negligible since its contribution to the U.S. second-strike capability by protecting SSBNs is insignificant as compared with the other components of this capability. ASW would play a major role, as a part of the U.S. strategic warfighting capability, particularly in protecting convoys. But the utility of protecting convoys in any reasonably imaginable war with the USSR is highly questionable. Moreover, the efficacy of ASW against SSNs is probably declining. For a balanced and skeptical analysis of the role of naval forces in general war, see Laurence W. Martin, *The Sea in Modern Strategy* (London: Institute for Strategic Studies, 1967), chap. 2.

[11] The following straits could be included in the category of major economic significance. Those that might be adversely affected by local restrictions, depending on political circumstances, are *italicized:* Florida, Dover, Skagerrak, Mozambique, *Gibraltar, Hormuz, Bab el Mandeb* (now that the Suez Canal is open), *Malacca, Lombok, Luzon,* and *Bosporus-Dardannelles.* Indonesian and Malaysian actions indicate the kind of restrictions that could be imposed, even though they were accommodated to American naval passage. Malaysia, concerned about the ecological disaster that could follow an accident to supertankers in the hazardous channels of this strait, claimed a territorial sea of twelve miles in 1969. Indonesia, which in 1957 had proclaimed its archipelago doctrine of sovereignty encompassing its 13,000 islands, joined Malaysia in 1970 in a treaty dividing the Strait down the middle. When the carrier U.S.S. *Enterprise* and accompanying ships passed through the strait en route to the Bay of Bengal during the Bangladesh crisis of 1972, Indonesian spokesman reaffirmed the right of the littoral states to control such passage but reconciled this right with the American action by stating that the Command of the Seventh Fleet had given advance notice. Captain Edward F. Oliver, "Mallacca: Dire Straits," *U.S. Naval Institute Proceedings* (June 1973), pp. 27-33.

[12] Linton Wells II, "The Sea and Japan's Strategic Interests, 1975-1985," unpublished dissertation, The Johns Hopkins University, 1975, pp. 16-23.

[13] *Washington Post,* March 23, 1973, p. A1. Iran and Oman later denied the report. Iran subsequently announced that it was preparing a bill that would extend antipollution controls to 50 miles from shore or the limit of the continental shelf.

[14] See Laurence W. Martin, "The Role of Force at Sea," *Perspectives on Ocean Policy,* Proceedings of Conference on Conflict and Order in Ocean Relations, Ocean Policy Project, The Johns Hopkins University, October 1974, pp. 34 ff.

[15] See statement before Committee II by John Norton Moore, July 22, 1974.

[16] On the prospect of unilateral legislation and customary law, see H. Gary Knight, "Alternative Approaches to Order," *Perspectives on Ocean Policy.*

CHAPTER 4.

COMMERCIAL NAVIGATION

Introduction

Constraints on U.S. policy options with regard to commercial navigation may be found at two levels—international and domestic. The international legal regime applicable to navigation is undergoing significant changes in the UN Conference on the Law of the Sea. Although navigation per se is not on the agenda of the Conference, other resource issues which are before the Conference have both a direct and indirect effect on shipping. Since preparations for the Conference have been underway, U.S. policy on navigation related issues has changed in a number of respects. Official U.S. policy may be contrasted with the provisions of the single negotiating text that emerged from the 1975 session of the Law of the Sea Conference. While a management approach to shipping suggests criteria that should guide U.S. policy, a consideration of alternative outcomes of the Conference defines the constraints on U.S. policy options.

The Present Legal Regime and Pressures for Change

Commercial navigation has traditionally operated under two legal principles. The first principle is freedom of navigation, that is, the high seas are open to all for the purposes of navigation. The second and concomitant principle is flag state jurisdiction, namely each state exercises effective jurisdiction and control over vessels flying its flag.

The 1958 Geneva Convention on the High Seas transposed the classical doctrine of freedom of the seas into international treaty law. Article 2 of the convention lists four freedoms of the sea, the first being freedom of navigation. The convention specifies that no state may validly purport to subject any part of the high seas to its sovereignty. The freedom of the high seas must be exercised with reasonable regard for the interests of other states and in accordance with the conditions laid down by the convention and other rules of international law. In the exercise of flag state jurisdiction, a state must exhibit the genuine link of control of its vessels, and fix conditions under which a ship may acquire its nationality and fly its flag.

The traditional legal notions of freedom of the seas and flag state jurisdiction that have applied to navigation are increasingly under pressure from a number of sources. The first source includes the proliferation of coastal state claims to jurisdiction. A number of states have extended claims to expanded territorial seas and contiguous zones or resource zones of up to 200 miles. New uses of the oceans made possible by rapidly evolving technology constitute a second source of pressure. These uses will, as in areas under coastal state jurisdiction, enjoy legal rights at least equal to those of navigation. A third limit on freedom of navigation on the high seas is the growing assertion of an international interest in the manner in which flag states administer their vessels. Restrictions are manifested in the form of conventions such as those promulgated by the Intergovernmental Maritime Consultative Organization (IMCO) to deal with vessel-source pollution or safety.

These pressures on the international law of the sea are most clearly visible in the deliberations of the Third Law of the Sea Conference. Indeed, the Conference has tended to focus so intensely on the acquisition of resource rights in the oceans that navigation per se has been relatively neglected. Resource concerns have made three jurisdictional areas particularly problematic for navigation: the coastal state economic zone, straits used for international navigation, and archipelagic waters. The assertion of property rights to particular resources in 200-mile zones distinguishes the economic or resource zone from the traditional legal concept of the contiguous zone. The navigation or other activities of certain types of vessels are of necessity restricted or precluded by these property rights. The problem, then, in UNCLOS III is whether resource jurisdiction will be distinguished from navigational freedoms. Will navigational rights be coequal with coastal state resource rights in the zone or be subordinated to them? How will the legal concept of the resource zone be rationalized?

Navigation through international straits has become a difficult legal issue in the context of general agreement to establish a uniform territorial sea of 12 miles. Under a global territorial sea of 12 miles, over 100 straits used for international navigation would be overlapped by territorial waters. Maritime states have argued in favor of freedom of transit or unimpeded passage through, over and under such straits. Straits states on the other hand have insisted that the more restrictive regime of innocent passage apply in such straits. At issue, from a legal perspective, is whether future navigation through these straits is to be viewed as a modification of the freedom of navigation (as supported by maritime states) or as a privilege granted by coastal states (as supported by coastal states).

Can a definition or list of international straits be agreed? And can the concept of unimpeded transit be rationalized to balance the interests of navigating and straits states?

The problem of archipelagic waters combines, in a sense, the navigational dilemmas of both coastal zones and straits. Archipelagic state claims to establish archipelagic waters within straight baselines linking outermost islands and to establish a 200-mile economic zone beyond raise the issue of primacy of resource over navigational rights. The new concept of archipelagic waters is being applied to many areas which have heretofore been major shipping lanes. Once again the question arises: how best to balance the interests of littoral and transiting states? Can the concept of archipelagic transit be refined to meet this need?

Domestic Shipping Interests

Except for a brief period during World War I, the United States has not played a major international role in the building or operating of ships since the middle of the 19th century. The causes of this relative decline are numerous, ranging from comparatively high labor costs to the high value of the dollar on world exchange markets. American shipyards have not been competitive in the world market place. In 1970 it cost twice as much to construct a vessel in U.S. shipyards as in foreign yards. The result has been that the average age of the U.S. fleet, including privately and government-owned vessels, was 22 years in 1972, making it the oldest in the world.[1] Nor has the U.S. fleet fared well in terms of shipping operations. While U.S. trade and commerce have grown, a declining portion of it is carried in U.S. bottoms. Despite cargo preference provisions, U.S. flag vessels carry only 5.5 percent of the tonnage and 20 percent of the value of goods in U.S. ocean borne foreign trade.

A number of efforts have been made, with varying degrees of success, to reverse the trend in the U.S. merchant marine. These include the Merchant Marine Act of 1936 and the Merchant Ship Sales Act of 1946. The most recent legislation, the Merchant Marine Act of 1970, represented an attempt to correct the deficiencies of the 1936 legislation and to stimulate the construction of around 300 vessels during a ten year period. These acts provide various benefits and incentives, including federal loan guarantees, construction and operating differential subsidies, and a tax-deferred construction fund. As indicated by these and other pieces of legislation, various segments of the U.S. shipping industry are politically active in the government and particularly the Congress.

A recent example of the political impact of this industry was the Energy Transportation Security Act of 1974 that would have required 20-30 percent of petroleum and gas imports to be carried on U.S. built, U.S. flag vessels. Despite the adverse consequences for the price of petroleum products in this country, both houses of Congress passed the bill but were unable to override an Executive veto.

While elements of the U.S. shipping industry have vigorously pursued legislation and various means to subsidize or otherwise improve their situation, the industry has been relatively inactive in determining U.S. policy in the law of the sea negotiations. Among the eight subcommittees of the Advisory Committee to the U.S. Law of the Sea Delegation, that on Maritime Industries has always been among the smallest and least vocal, with only four members in 1974 and six in 1975.

It may be the case that the industry interests are adequately protected from any UNCLOS III outcome by liner conference arrangements. In addition, a number of groups both within and outside the government have interests similar to those of the shipping industry and have pursued them actively in the formulation of U.S. law of the sea policy. They include the petroleum industry, the Department of Defense, the Coast Guard, the Maritime Administration of the Department of Commerce, and the Department of State. The petroleum industry is concerned to ensure the unimpeded shipment of petroleum supplies around the world. Although its policy with regard to navigation is somewhat influenced by its concerns in other areas, such as access to offshore oil,[2] the petroleum industry generally represents a policy that would be pursued by the shipping industry if it were to become active. The basic premise of the petroleum industry policy on marine transportation is that unrestricted commercial navigation is in the interests of all countries, since all share an interest in reducing the cost of shipping their exports and imports. Restrictions on navigation through principal international straits or in the territorial seas and economic zones of coastal states would extend shipping routes and lead to waste of fuel and higher freight rates. The industry therefore supports the right of innocent passage in the twelve mile territorial sea, high seas rights in the 200-mile resource zone and beyond, and unimpeded passage through straits used for international navigation.

The petroleum industry distinguishes between the right to set and the right to enforce standards applying to navigation, and calls for agreement on international standards covering the design and construction of vessels and equipment, navigational safety,

pollution prevention, pollution liability, and damage compensation. States would adopt domestic legislation applying these standards to vessels flying their flag or navigating within their territorial seas or entering their ports. Further, the petroleum industry recommends that the Law of the Sea Conference confirm the Intergovernmental Maritime Consultative Organization (IMCO) as the agency responsible for formulating international standards for vessel navigation. The industry notes that the conventions adopted by IMCO to date contain desirable international standards and need to be ratified by more states to bring them into force. Enforcement of internationally agreed standards for commercial vessels should, in the industry view, be shared by flag, port, and coastal states. Enforcement of international standards on vessel design, construction and equipment would be the responsibility of the flag state supplemented by limited port state authority. The coastal and straits states would have the responsibility to enforce internationally agreed navigation standards in the territorial sea. Beyond the territorial sea, the coastal state may undertake emergency action where a maritime casualty threatens major pollution damage to its coastline. Internationally agreed operational discharge standards would be enforced beyond the territorial sea by flag and port states, except where a coastal state's coastline or economic interests are threatened by an operational discharge.

This rather complex and detailed policy with regard to commercial navigation is designed to prevent unnecessary stopping and boarding of vessels by coastal states. In the case of port state enforcement, it further provides that vessels be promptly released after providing evidence of financial responsibility. And finally it calls for private parties as well as states to have access to the dispute settlement machinery created by a law of the sea convention.

While the petroleum industry policy might not be acceptable to all segments of the shipping industry, it would certainly meet the needs of many groups within the industry,[3] As such, it has come to form the basis of official U.S. policy on commercial navigation in the law of the sea negotiations. The background and evolution of government policy in this area merit closer examination.

U.S. Policy and the Law of the Sea Conference

Despite the fact that navigation is one of the oldest uses of the oceans, it does not appear on the agenda of the UN Law of the Sea

Conference. This reflects the resource preoccupation of the negotiations. In fact, all countries, both coastal and land-locked, share a common interest in ocean navigation for purposes of commercial transport. This fact is often overlooked, however, in discussions of coastal state jurisdictional rights or in flights of rhetoric about the hegemony of maritime powers.

Gradually, however, a number of developing states have become more explicit about their concern to avoid undue restrictions on navigation. This has led, in the case of pollution questions, to a backing away from the view that the coastal state should have the right to set operating or vessel construction standards in its offshore zones that would be more stringent than international standards, and to acceptance of the need for international regulation. It may also account for a growing measure of support for unimpeded transit through international straits. As countries such as Venezuela, Nigeria, and those of the Middle East begin shipping petroleum in their own tankers, they will come increasingly to oppose coastal (or international for that matter) restrictions on tankers. Clearly, the issue of commercial navigation does not lend itself to a fundamental North-South political division in the Law of the Sea Conference.[4]

Although navigation per se is not on the agenda or being discussed directly at the Conference, a number of issues that have a direct bearing on navigation are. They include the breadth of the territorial sea, transit through international straits, regulation of vessel-source pollution and juristictional rights and responsibilities in 200-mile resource zones and archipelagic waters. U.S. policy with regard to each of these issues has developed at different points in time and in some cases has been elaborated, altered or refined over time.

Evolution of U.S. Policy

Since 1970, the most obvious trend in U.S. policy has been away from a stress on maritime considerations toward an emphasis on coastal rights and interests. This shift has been occasioned by both domestic and international pressures. In 1970 and 1971, the United States laid heavy emphasis on the right of "free transit" through and over international straits that would be overlapped by territorial seas if twelve miles were internationally accepted. Beyond a 12-mile territorial sea, U.S. concerns with maritime mobility led it to propose a system of preferential fishing rights and a continental shelf zone that would be highly international in character. A negative response, both domestic and international, led to refinements of this position as early as 1972. That year the

United States began describing free transit as a simple and limited right to pass from one end of a strait to another. The United States ceased to refer to transit as a high seas right and began to elaborate certain coastal state rights in international straits. These included a coastal state right to enforce violations of its own laws and regulations committed by ships in transit as well as a right to enforce mandatory internationally agreed traffic safety schemes.

A significant development in U.S. policy was the increased reliance on international standards that would be promulgated by the Intergovernmental Maritime Consultative Organization (IMCO). Both with regard to straits transit and vessel source pollution, the U.S. proposed significant new responsibilities for IMCO. IMCO would develop mandatory safety standards and traffic separation schemes. There would be strict liability for deviation from specified lanes enforceable by the straits state. The United States argued strongly that IMCO was the appropriate international body to handle these issues given its technical expertise. Moreover, it had the potential to develop a significant role in protecting the marine environment.

In 1973, the United States submitted a complete set of draft articles on protection of the marine environment which developed and elaborated this position. These portions of the marine pollution articles dealing with pollution as it relates to navigation are similar to the position of the petroleum industry described above, with a few minor differences. Like the industry position, the official policy distinguishes between the right to set and the right to enforce standards for vessel source pollution. Standard setting powers would be vested in IMCO which would also give its approval to requests for higher standards for special areas. The official position differs from that of the petroleum industry in that it provides the right for the flag state to impose higher standards on vessels flying its flag and for the port state on vessels entering its ports. Presumably the direct interest of these states in promoting navigation would preclude the formulation of arbitrary or unduly restrictive standards. In the case of enforcement, the official U.S. policy relies heavily on coastal state and port state enforcement rights. The government does go further than the industry in specifying occasions where coastal state action would be appropriate and the types of arrangements it might make with other states to carry out an enforcement action. The coastal state would be authorized to take direct action, including arrest, to prevent, mitigate or eliminate a pollution danger resulting from maritime casualties off its coast or from a violation of international standards. Secondly, the United States proposes a system whereby

coastal states could take enforcement actions against vessels of a certain flag if authorized by the compulsory dispute settlement mechanism on the basis of its finding that the flag state had persistently failed to take enforcement action. For ordinary violations of international standards, the coastal state could require information from the offending vessel and could require enforcement action either by the vessel's flag state or the next port of call.

In most respects, the U.S. official position on straits and pollution has remained unchanged since 1973. The only development in that policy in 1974 was the addition of a provision, to placate the Canadian Government, that would allow the coastal state to recommend to the international organization (presumably IMCO) that special standards and regulations apply to sensitive areas on the basis of depth, navigational or environmental limitations.

The most significant development in U.S. policy affecting navigation in 1974 was official acceptance of the concept of a 200-mile economic zone. The U.S. draft articles stipulate that nothing in the "chapter shall affect the rights of freedom of navigation and overflight, and other rights recognized by the general principles of international law." The United States specified elsewhere that the enjoyment of these freedoms is on an equal footing with the enjoyment by the coastal state of its rights in the zone. The rights of the coastal state, as spelled out in the U.S. draft articles, are to be limited to resource related activities and exclude activities such as scientific research or pollution. In fact, however, it is easy to foresee how coastal state resource exploitation rights and activities will pose limits on navigational freedoms. For example, in the case of coastal state exclusive rights to authorize and regulate artificial islands and installations for economic purposes, the coastal state may establish safety zones and "take appropriate measures to ensure the safety both of the installations and of navigation." This and other provisions of the U.S. text underscore the fact that where multiple and potentially conflicting activities take place within the same limited area, there must be some means to accommodate or reconcile them.

The dilemma then in determining policies on issues affecting navigation—straits transit, pollution and economic zones—is that of reconciling the interests of littoral states with the interests of other states which use the coastal areas for non-resource purposes. A related difficulty will be to determine what are and are not resource-related uses of the coastal area. Clearly, the potential exists for stretching the concept of resource-related activities to

cover navigation insofar as it might result in degradation of the marine environment, for instance.

In the course of the five years during which the United States has been articulating policy in the Law of the Sea Conference, it has moved from a position in which navigational and high seas freedoms would constitute a priority to a position in which resource rights of the coastal state would enjoy equal status with other uses of the coastal areas. At the other end of the spectrum from the U.S. policy of parity is the position of the "territorialists." These countries, including Brazil, Ecuador, and Peru, propose territorial seas of 200 miles in which the coastal state enjoys primacy in all respects—resource and non-resource related uses. The single negotiating text (SNT) that resulted from the Geneva session of the Law of the Sea Conference has attempted to adopt a middle position between these two ends of the spectrum of opinion—with greater success in some provisions than in others.

The Single Negotiating Text

In a number of respects, the SNT that emerged at the 1975 Geneva session of UNCLOS III coincides with the official U.S. position on straits, prevention of marine pollution and a 200-mile exclusive economic zone. The greatest convergence is found on the issues of straits and pollution. The provisions of the SNT on the economic zone, however, show some notable divergencies from the U.S. position. While not directly restrictive of commercial navigation, coastal state rights in the economic zone, as depicted in the SNT, could easily be stretched into far-reaching and restrictive territorial rights. This possibility derives from the inherent difficulty of determining what is and what is not an economic or resource related activity. Article 45 of the Committee II text differs most widely from the U.S. position in this respect. It provides for various gradations of coastal state rights in the exclusive economic zone, presumably in descending order of sovereignty. The coastal state would have "sovereign rights" for the purpose of exploiting resources. It would have "exclusive rights and jurisdiction" with regard to the establishment of all, not just resource-related, artificial islands and installations. With regard to scientific research and a variety of unspecified economic activities in the zone (e.g., generation of energy from currents and winds) the coastal state would enjoy "exclusive jurisdiction." And finally the Committee II text provides coastal state "jurisdiction" with regard to the marine environment.

Clearly these five distinctions in coastal state rights could be blurred in practice and over time, resulting in far-reaching coastal

state rights in the zone. Of course, the Committee II provisions on scientific research and marine pollution may be replaced by the more favorable articles from Committee III which has responsibility for these issues. Such a development, however, can not resolve the fundamental difficulty of determining where resource-related coastal state rights end and the rights of other states to use the area begin. Perhaps the clearest example of this dilemma is the link between rights to manage living resources and the protection of the marine environment. The Canadian Government has made the case most strongly that in order to protect its rights to fisheries in its economic zones, it must also control navigation which may threaten these resources with pollution. Similarly a coastal state wishing to exert its control over the zone could argue that all marine science research has economic implications ultimately and should therefore be subject to its control. The possibility of these contingencies argues strongly in favor of greater drafting precision in the spelling out of rights to apply in the economic zone.

The Committee II text on straits used for international navigation is more successful in terms of precise drafting. It sets forth rather specifically the definition of a strait as well as the rights of both straits states and transiting parties. In most respects, the articles coincide with the U.S. position on straits transit as it evolved after 1972. That is, transit passage is narrowly defined to give the straits state the right to apply a number of laws and regulations to vessels in transit. In defining where transit passage may or may not apply there is one notable difference between the SNT and the U.S. position. Article 44 of the SNT provides for the right of innocent passage in straits lying between one area of the high seas and the exclusive economic zone and territorial sea of a foreign state while the U.S. calls for unimpeded transit in these straits. In this provision, as elsewhere in the Committee II portion of the SNT, the treatment of the economic zone is ambiguous. It is not uniformly depicted as a high seas area, a trend which could prove ultimately problematic for commercial navigation.

The Committee III text dealing with vessel-source pollution is more favorable to navigational interests than the Committee II text. Since it will be dealt with in greater detail in the following chapter, it suffices to comment here that the text coincides with the U.S. position and presumably, therefore, U.S. interests on vessel-source pollution in all critical respects.

In summation, the SNT coincides in part with U.S. policy relating to commercial navigation. The greatest restrictions on maritime transport enamating from the text lie in its articles on the economic zone. As the basis for future negotiation, the text articles on the

zone will need to be carefully revised. Given its maritime interests, the U.S. may want to press strongly for such revisions since the terms of the present Committee II text could lead to a virtual carving up of the oceans into national pieces of real estate.

Options for the U.S.

A Management Approach to Shipping

The use of ocean space for commercial transport may be viewed as an ocean resource. For centuries, the availability of ocean space has far exceeded the demands made on it by commercial navigation and other ocean uses. In a sense the ocean has represented a free good and the process of allocation has been on a first-come first-served basis. The legal doctrine of freedom of the seas was a reflection of this economic situation of excess supply. More recently, as certain areas have become relatively congested, the use of the oceans for navigation has been allocated by means of generally accepted shipping rules and regulations such as those dealing with signals, ship lighting, rights of way and channel markings. These have been simple and relatively costless derogations from the freedom of the seas doctrine.

In the 11-year period from 1961 to 1972, world shipping virtually doubled in tonnage, with proportionate increases since that time. Size as well as number of ships are increasing. New superships are Liquefied Natural Gas Carriers (LNG), Very Large Crude Carriers (VLCC), Express Containerships, Chemical Tankers, and LASH (Lighter Aboard Ship, for carrying barges). While ships have become larger and more sophisticated, vessel traffic systems have not. This poses particular problems in high density traffic areas such as the English Channel/North Sea, Gibraltar/Mediterranean, Persian Gulf, Malacca Strait and entrances to the major ports of the world. Based on past rates of growth, congestion will become more acute in these straits as well as in other heavily trafficked coastal areas. While world shipping is expanding, new technologies are rapidly increasing man's uses of the oceans for a variety of purposes—particularly in the already heavily traveled coastal areas. Thus the problem of crowded shipping lanes will be compounded by the need to accommodate new and as yet unforeseen uses of the seas.

At present there are a number of areas where congestion poses a problem for commercial navigation. They include harbors, the above mentioned straits and closed seas, and coastal areas off the United States and Japan. Outside of harbor areas, the heavily

transited Dover Straits have the highest incidence of collision. These straits averaged passage by 350 major ships a day in 1971 and witnessed 174 major collisions and 34 strandings from 1958 to 1972. During this period, the only forms of traffic control in the area were voluntary traffic separation schemes and a straits surveillance service which broadcast navigation warnings. With regard to most of ocean space, however, there continues to be an excess supply, and the premise of the freedom of the high seas is still operable. In these areas, IMCO regulations regarding traffic separation, pilotage schemes and pollution abatement have been beneficial and relatively costless. In coastal areas, however, where congestion poses or will pose costly hazards to shipping, there is a need to devise a new means to allocate ocean space among alternative users. Where regulation is required, user rights must be established and vested either in the coastal state, in regional arrangements, or in the international community.

As the value of ocean space has risen for navigation and nonnavigation uses, coastal states have extended jurisdictional claims and been willing to expend resources to enforce those claims. Some argue that this constitutes a useful means to allocate ocean space among conflicting uses. In effect, this situation creates property rights to offshore areas on behalf of the coastal state. In these areas, the coastal state would assume the authority to allocate rights among conflicting uses and to regulate or restrict various uses, including navigation, as appropriate. Indeed the coastal state might charge tolls to cover the expenses incurred in managing navigation in congested straits or coastal areas.

In the view of others, granting the coastal state such authority might lead to non-economic results. That is, the coastal state might engage in pure harassment of foreign users as the opportunity and motivation arise. Opponents of vesting navigation rights in whole or in part in the coastal state, therefore, prefer to grant such rights to the international community. According to this view, nonnavigation uses should be excluded from narrow corridors in international straits, or navigation routes and navigation rights in these areas should be vested in the international community by means of a law of the sea agreement. In 200-mile resource zones, navigation by foreign states would not be subject to regulations of the coastal state. Instead, a law of the sea treaty should establish general principles and a responsible international organization such as IMCO would subsequently develop specific international safety and environmental regulations.

Alternative Treaty Outcomes

The preferred outcome for the United States in the area of commercial navigation would be for UNCLOS III to produce what is deemed by the United States to be an acceptable international treaty. That could comprise a treaty generally along the lines of the single negotiating text with regard to straits and Committee III provisions on marine pollution but with substantial changes in the content of the economic zone. Provisions for the economic zone, while protecting coastal state resource interests, should therefore not be susceptible to being translated into restrictions on vessel construction or navigation in the area.

In the event that UNCLOS III produces one or more treaties which embody an accepted regime for commercial navigation, the United States will want to take implementing action at a number of levels. National action would include ratification of the treaty and passage of implementing domestic legislation. Where appropriate, regional agreements on pollution or navigational safety might be concluded to supplement the agreement.

At the other extreme, the least desirable outcome from the U.S. point of view would result from UNCLOS III passage of a treaty which would impose unnecessary restrictions on commercial navigation in all areas—through straits and in territorial seas and economic zones. In such an unlikely event, the United States would want to submit reservations to all unacceptable portions of the treaty or to the treaty as a whole. Since virtually all countries have a general interest in maintaining a smooth flow of international commerce, a treaty thoroughly restrictive of navigation is improbable.

More likely is a treaty which would be unacceptable in some but not all respects. That is, it might provide an acceptable regime for commercial navigation in the areas of straits and pollution but not with regard to the economic zone. In such a situation, the United States could submit reservations to those portions of the treaty it finds unacceptable while accepting the remainder. Where a provision or set of provisions were unacceptable, the United States might want to issue a clear statement of its policy and its understanding of the international law on the issue. Such an approach could be pursued in conjunction with other like-minded states. Moreover, bilateral agreements would play a very important role in a few cases in which the United States had particular leverage on issues of economic zone and straits states rights. With regard to marine pollution and vessel safety standards the United States would want to continue to support the activities of IMCO

and regional approaches.

Another middle-range scenario would result from a situation in which no treaty were to emanate from UNCLOS III. The result in terms of national actions would resemble neither the pre-UNCLOS III world nor the situation that would result from a general international treaty. States would issue a variety of claims and a premium would be placed on state practice as the means of developing international law of the oceans. In such a context, the United States might wish to pursue a variety of means to advance its maritime policies. Its unilateral pronouncements on navigational and coastal state rights and responsibilities could be coordinated with those of other nations with similar policies. Indeed, where possible, multilateral agreements might be concluded, obliging parties to take a number of steps with regard to their own flag vessels. These might deal with general issues as well as technical specifications, navigation standards, labor conditions and so on. They could be clearly spelled out and could provide for appropriate enforcement actions. With regard to straits and archipelago transit, the United States might want to supplement the multilateral approach with special bilateral arrangements in particular straits. Similarly the United States could work actively to promote regional policies that create uniform regimes on pollution and other coastal zone issues. And finally the United States might want to urge that IMCO pick up work on those areas under its jurisdiction to begin where a law of the sea treaty failed to materialize.

Whatever the outcome of the Law of the Sea Conference, the work of IMCO will be critical in developing a future regime for commercial navigation. In the first place, it is important to see to it that the conventions that IMCO has already negotiated come into effect. As of the present, two major conventions which set higher standards of performance for flag states have yet to be ratified by the requisite number of states: the 1967 Convention on Intervention on the High Seas in Cases of Oil Pollution Casualties and the 1973 Convention on the Prevention of Pollution from Ships. The future program of IMCO efforts is also critical. Even if UNCLOS III were to produce a treaty that dealt acceptably with the various legal issues affecting navigation, it will not directly address the issue of how to improve navigation. Such work would be best undertaken by IMCO. Of critical importance is the establishment of international vessel traffic systems for those areas in which shipping congestion poses dangers, with such factors as past and projected traffic flow, weather, topography and accident statistics taken into account. The first stages of such a system would include traffic

separation schemes and a mandatory listening watch on a specified VHF frequency. Depending upon need, this might be developed into a system that would provide for complete movement reports and shore control capabilities. The development of such navigation systems as well as improved safety standards and strict liability requirements are areas in which the United States should press for further progress in IMCO.

At the same time that work on navigation in congested areas is progressing within IMCO, the United States might also seek bilateral understandings with straits states to facilitate a smooth flow of navigation through international straits. Even if there is a law of the sea treaty calling for unimpeded transit through international straits, there is no guarantee that it will be accepted by littoral states. Indeed, their position in international negotiations to date suggests that they will not accept a treaty providing for unimpeded transit through straits. It will therefore be necessary for the United States to develop appropriate bilateral understandings with these governments to promote regular traffic flows through straits until the needed international vessel traffic systems can be agreed upon.

Given the global interest in maintaining international commerce, it is doubtful that UNCLOS III would set out deliberately to draft a treaty creating unnecessary restrictions on navigation. Such a product may result, however, due to the fact that the Conference is focusing on resource issues rather than on navigation per se. Whatever the Conference outcome, the United States will want to continue to pursue a policy calling for shared coastal state and international responsibility for management of traffic in congested areas based on internationally agreed rules.

Notes

[1] This overall characterization should not be taken as neglecting the fact that some sectors of the U.S. commercial fleet are relatively new, technically proficient and profitable.

[2] In fact the petroleum industry concern with commercial navigation is relatively recent. While the National Petroleum Council began issuing reports on law of the sea as early as 1969, they focused on access to offshore resources. Not until 1973 did the NPC take a position on marine transportation.

[3] Of course such a policy does not meet the navigational interests of the U.S. navy whose vessels claim the right of sovereign immunity in any event.

[4] Such a division can, of course, arise where developing countries are seeking special advantages. In the UN Conference on Trade and Development (UNCTAD), for instance, they have pressed for more favorable shipping rates and incentives to growth of their own fleets.

CHAPTER 5.

MARINE ENVIRONMENT

Introduction

The deterioration of the ocean environment and the formulation of corrective measures pose complicated questions. On the one hand, the environment is but one of several fundamental issues concerning the use of ocean space currently being negotiated at the UN Law of the Sea Conference (UNCLOS). As such, it influences and is influenced by the resolution of these other issues. On the other hand, ocean environment deterioration is part of a broader, new class of problems known as transnational pollution. The physical interdependencies of ecological systems transcend political frontiers, and pollutants generated within one country damage the environment of other nations as well as such international common property resources as the oceans.[1] Controls for transnational pollution are in their infancy, and work on ocean environment measures must break new ground.

From another perspective, ocean environment is a question of the efficient use of oceans for multiple purposes including waste disposal. However, by virtue of its international character, and the fact that agreements are negotiated among sovereign states, analysis of the allocative efficiency of using ocean environmental services must be tempered by international equity, or distribution, considerations. In this sense the environment is not unlike the fisheries and mineral exploitation disputes—the commingling of efficiency and distributional objectives within international negotiations. Moreover, this perspective highlights the interactive roles of legal, political, and economic analysis. To award or limit rights to ocean space for waste disposal involves an economically scarce resource, assimilative capacity. When these entitlements and restrictions are accomplished by negotiation and not by fiat, as they must be for international resources, they stand at the nexus of economics, politics, and the law.

Finally, the multiplicity of pollutants, the diverse ways in which they enter the marine environment, the fragmentation of control instruments by pollutant, spatial jurisdiction, comprehensiveness, and the great uncertainties surrounding the environmental and economic consequences of ocean pollution, make analysis complicated and difficult.

The UN Law of the Sea Conference provides an occasion for analysis of U.S. marine environment policies. However, UNCLOS tells only part of the story. While UNCLOS may modify the present environmental jurisdictional regime, important issues of environmental resource management will remain. This will be so whatever the results of the Conference. U.S. policymakers should also consider these issues of ocean resource management that exist independent of UNCLOS.

The purpose of this chapter is to analyze marine pollution and pollution policy, and to present an evaluation of policy and policy options. Therefore, criteria for evaluation are important and should be clearly stated. Fortunately, general principles derived from environmental resource management are also useful in the ocean context. The most important principle observes that natural environments are economically valuable resources which provide a variety of beneficial services to mankind. Economic and social activities place stresses on natural environments. These stresses can be moderated in a number of ways including pollution abatement. The modifications, however, generally involve economic costs. Rationally calculated environmental resource policy considers both the damages done to the environment and the costs of modifying environmentally damaging activity. Rational policy attempts to maximize the benefits over costs from using environmental resources (including nonmonetary benefits), net of the real costs associated with environmental controls. Thus the evaluation criterion for policy is an extension of cost-benefit analysis.

A second criterion for evaluating ocean environmental policy, and derived from general principles of environmental resource management, is that the control instruments themselves are economically efficient. That is, the instruments (e.g., design standards for oil tankers) should achieve their objectives (e.g., reduced oil pollution) at least economic cost, subject to the institutional, political and legal constraints within which they operate. For this reason analysis of the constraints cannot be separated from evaluation of marine environmental policy. Although policy formation is often a disorderly and inefficient process, these general principles provide benchmarks or criteria for evaluating policy.

A more difficult conceptual problem involves specifying whose welfare is to be maximized. In theory, an environmental policy which maximizes global welfare according to the criteria set forth above need not maximize U.S. welfare, and conversely. International trade negotiations often illustrate this divergence between

national and global welfare. As a practical matter, we have not found any clearcut cases in which an ocean environmental policy was optimal from a global standpoint, but in serious conflict with U.S. interests. One reason appears to be that there is a *limited* harmony of interests among states in preserving the marine environment. As the level of controls is still quite primitive, the range over which states have mutual interests has not been exhausted. Policies which contribute to global welfare can be shown to contribute to ours. This is not to say that policies in place or contemplated are efficient or rationally calculated; rather the same evaluation criteria can be employed from both the national and global perspective. These ideas are discussed more fully in subsequent sections.

This chapter first presents some background information on the sources and types of marine pollution. Next, a conceptual framework for understanding ocean environment deterioration and control measures is presented. Following this, specific issues that have arisen in the ocean environment policy area are examined. Finally, the concluding section considers progress within UNCLOS III, outlines options, and presents conclusions.

Sources and Types of Ocean Pollution: Control Measures[2]

Tables 1-4 present selected data on the sources and types of ocean pollution and control measures. Table 1 indicates, in the vertical stub, types of pollutants, and in the horizontal stub, methods of introduction to the marine environment. The classifications are not always mutually exclusive. For example, dredge spoils often contain heavy metals. Also, the placement of ocean dumping within land-based sources is arbitrary. The Table also notes some of the major environmental control measures that directly or indirectly affect the quality of the marine environment. It should be emphasized that the existence of a particular environmental control measure should not be interpreted as meaning that pollutant/source is under effective control. Tables 2 and 3 extend the description. Table 2 gives recent estimates of petroleum reaching the marine environment. The data do not include atmospheric blowoff of hydrocarbons that reach the oceans.[3] Table 3 presents data on U.S. ocean dumping by dumped material, and by location for 1968 and 1973. The data do not include dumping incidental to normal ship operations, nor marine outfalls. Both oil pollution and ocean dumping are subject to international conven-

tions including the Prevention of Pollution from Ships Convention (1973) and the Convention on the Prevention of Marine Pollution by Dumping Wastes and Other Matter (1972). The former is not yet in force. Table 4, based on the work of the Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP), contains an alternative taxonomy of types and sources, and attempts a qualitative assessment of the importance of each.

Key Identification for Table 5-1

1a International Convention for the Prevention of Pollution from Ships (1973) Annex I. This mandatory annex contains design and operating standards, and effluent discharge limits for tankers. Provisions are designed to reduce both routine and accidental petroleum discharges from tankers and other ocean-going vessels. The Convention has not been ratified and is not in force.

1b International Convention for the Prevention of Pollution from Ships (1973) Annex II. This mandatory annex established effluent discharge limits in ocean transport of noxious liquid substances.

1c International Convention for the Prevention of Pollution from Ships (1973) Annex III. This optional annex deals with ocean transport of containerized noxious wastes.

1d International Convention for the Prevention of Pollution from Ships (1973) Annex IV, V. These two optional annexes deal with vessel's sewage and garbage, respectively.

2 Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matter (1972), more commonly, the Ocean Dumping Convention. The Convention established a blacklist of substances for which dumping is prohibited, but leaves considerable discretion to national authorities in controlling the dumping of other wastes. The Convention has been ratified by the U.S. but is not yet in force.

3 Regional ocean dumping conventions including the 1972 North Sea Ocean Dumping Convention and the 1974 Convention on the Protection of the Marine Environment of the Baltic Sea Area. The North Sea Convention is similar to the Ocean Dumping Convention; the Baltic Sea Convention covers land-based sources and vessel source ocean pollution.

4 U.S. Marine Protection, Research and Sanctuaries Act of 1972, and subsequent implementing regulations established by the EPA. This legislation designates the EPA as the primary permit-granting agency for ocean dumping, but the Army Corps of Engineers retains permit-granting authority over its own activity of dredging operations.

5 Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water (Partial Test Ban Treaty). Signed and entered into force, 1963.

6 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and in the Subsoil Thereof (Sea-Bed Treaty). Signed 1971 and entered into force, 1972.

7 U.S. Federal Water Pollution Control Act Amendments of 1972.

8 Major air pollutants (sulphur dioxide, particulate to matter, carbon monoxide, hydrocarbons, nitrogen oxides, photo chemical oxidents) are controlled in the U.S. by the Clean Air Act Amendments of 1970 and the 1974 Energy Supply and Environmental Coordination Act.

9 U.S. Federal Environmental Pesticide Control Act of 1972. While not directly intended for marine environmental control, it may indirectly reduce land-based sources.

10 The disposal of radioactive wastes from nuclear power plants is regulated by the Nuclear Regulatory Commission. The NRC also has the responsibility for licensing the operation of all marine vessels with nuclear reactors.

11 The EPA sets standards for thermal discharges through the Federal Water Pollution Control Act.

12 For the U.S., the Interior Department is responsible for leasing territory on the Outer Continental Shelf, and for monitoring the safety of drilling. The environmental impact statement provisions of the National Environmental Policy Act (NEPA) are of course involved.

Table 5-1
Major Ocean Environmental Control Measures by Type of Pollution and Method of Introduction
(see also Key Identification)

Type of Pollutant ↓ / Method of Introduction →	Marine-based Sources					Land-based Sources				
	Ocean Routine	Transport Accidental	Dredging	Off-Shore Petroleum Exploitation	Other	Dirty River Discharge	Marine Outfalls	Ocean Dumping	Atmos-pheric Blowoff	Other
Petroleum	1a	1a		12		7		2, 3, 4		
Industrial waste (general)	1b, 1c	1b, 1c				7		2, 3, 4		
Pesticide, insecticide residuals (halogenated hydrocarbons)	1b, 1c	1b, 1c				7, 9		2, 3, 4	9	
Sewage and garbage	1d	1d				7	7	2, 3, 4		
Heavy metals						7		2, 3, 4		
Dredge spoils			2, 3, 4					2, 3, 4		
Radioactive wastes	10				5, 6			2, 3, 4	5	10
Thermal discharges										11
Others									8	

Table 5-2

Estimated Sources and Quantities of Oil Pollution of the Oceans*

Tanker Operations	Metric Tons	% of total oil to the oceans
LOT cleaning/ballasting[a]	84,499	2.4
Non-LOT cleaning/ballasting	455,708	13.2
Product tankers using shore reception facilities	19,492	0.6
Product tankers *not* using shore reception facilities	63,832	1.9
Ore/Bulk/Oil Carriers cleaning and ballasting	119,543	3.4
Additional cleaning and disposal prior to drydocking	91,895	2.7
Tanker bilges	9,573	0.3
Tanker barges	12,787	0.4
Terminal operations	31,933	0.9
	889,262	25.8
Other Ship Operations		
Bunkers	9,055	0.3
Bilges, cleaning, ballasting, etc.	292,481	8.5
	301,536	8.8
Vessel Accidents		
Tankers	104,268	3.0
Tank barges	19,803	0.6
All other vessels	48,972	1.4
	173,043	5.0
Offshore Activities		
Offshore drilling	118,126	3.4
	118,126	3.4
Non-Marine Operations and Accidents		
Refinery-Petrochemical plant waste oils	195,402	5.7
Industrial Machinery waste oil	718,468	20.8
Automotive Waste oil	1,034,588	29.9
Pipelines	25,574	0.7
Overall Total	3,455,999	100.0

*Source: D. Charter & J. Porricelli, "Quantitative Estimates of Petroleum to the Oceans," paper presented at the May 1973 Workshop on Inputs, Fates and Effects of Petroleum in the Marine Environment, National Academy of Sciences, National Research Council, and quoted in C. Pearson, op. cit. The data presented above do not include natural seepage, which is estimated at .6 million tons.

[a]LOT - Load on Top, a technique in which oily water ballast is collected in slop tanks with the heavier seawater settling to the bottom and being released. Fresh oil is then loaded directly on the oil residue in the slop tank.

Table 5-3
U.S. Ocean Dumping: Types, Locations, Amounts
1968 and 1973*

Waste Type	Atlantic		Gulf of Mexico		Pacific		Total	
	1968	1973	1968	1973	1968	1973	1968	1973
	(thousands of tons)							
Dredge Spoils.....	15808	NA	15300	NA	7320	NA	38428	NA
Sewage Sludge ...	4477	5429	0	0	0	0	4477	5429
Industrial Wastes ..	3013	3997	696	1408	981	0	4690	5405
Construction and Demolition Debris	574	1161	0	0	0	0	574	1161
Solid Wastes.....	0	0	0	0	26	.2	26	.2
Explosives	15	0	0	0	0	0	15	0
Total.....	23887		15966		8327		48210	

*Sources: Council on Environmental Quality, *5th Annual Report,* 1974, Table 11, pg. 150 and Council on Environmental Quality, *Ocean Dumping: A National Policy* (Washington: CPO, 1970), and quoted in C. Pearson, *op. cit.*

Note: These data do not include wastes piped to sea (marine outfalls). Note also that 86,758 containers of radioactive wastes were dumped between 1946 and 1970, but at a greatly reduced rate in recent years. The practice has now been apparently discontinued.

Table 5-4
Principal Sources of Marine Pollution

Category of Pollutant	Manufacture and Use of Industrial Products—Disposal via Direct Outfalls and Rivers	Domestic Wastes—Disposal via Direct Outfalls and Rivers	Agriculture, Forestry, Public Health—Disposal via Runoff from Land
Domestic sewage including food-processing wastes	+	+ +	— —
Pesticides			
Organochlorine compounds	+	+	+ +
Organophosphorus compounds	+	(+)	+
Carbamate compounds	+	— —	(+)
Herbicides	+	(+)	+
Mercurial compounds	+	— —	+ +
Miscellaneous metal-containing compounds	+	(+)	(+)
PCBs	+ +	(+)	— —
Inorganic wastes			
Acids and alkalis	+	— —	— —
Sulfite	+	— —	— —
Titanium dioxide wastes	0	— —	— —
Mercury	+ +	+	— —
Lead	+	(+)	— —
Copper	+ +	(+)	(+)
Zinc	+	— —	— —
Chromium	+	— —	— —
Cadmium	+ +	— —	— —
Arsenic	+	— —	(+)
Radioactive materials	+ +	— —	— —
Oil and oil dispersants	+ +	(+)	— —
Petrochemicals and organic chemicals			
Aromatic solvents	+ +	— —	— —
Aliphatic solvents	+	— —	— —
Plastic intermediates and byproducts	+ +	— —	— —
Phenols	+ +	(+)	(+)
Amines	+	— —	— —
Polycyclic aromatics	+ +	— —	— —
Organic wastes including pulp and paper wastes	+ +	+ +	+
Military wastes	?	— —	— —
Heat	+ +	— —	— —
Detergents	+	+ +	(+)
Solid objects	+	+	— —
Dredging spoil and inert wastes	+	— —	— —

Key to symbols:

+ +	important	?	uncertain
+	significant	— —	negligible
(+)	slight	0	potentially harmful
		*	dependent on extent of weapons testing

Deliberate Dumping from Ships	Operational Discharge from Ships in Course of Duties	Accidental Release from Ships and Submarine Pipelines	Exploitation of Seabed Mineral Resources	Military Activities	Transfer from the Atmosphere
+	(+)	−−	−−	−−	−−
(+)	−−	0	−−	?	++
−−	−−	0	−−	?	+
−−	−−	0	−−	−−	−−
−−	−−	0	−−	+	+
−−	−−	0	−−	?	?
−−	−−	0	−−	−−	?
(+)	−−	−−	?	−−	+
+	−−	+	−−	−−	−−
−−	−−	−−	−−	−−	(+)
0	−−	−−	−−	−−	−−
+	−−	0	−−	?	++
?	−−	(+)	−−	−−	++
(+)	−−	(+)	−−	−−	−−
+	−−	(+)	−−	−−	−−
?	−−	0	−−	?	−−
−−	−−	0	−−	?	−−
+	−−	0	−−	?	?
(+)	−−	0	−	(+)	0*
+	+	++	+	+	−−
(+)	−−	(+)	−−	?	?
(+)	−−	(+)	−−	?	?
+	−−	(+)	−−	−−	?
+	−−	0	−−	(+)	−−
(+)	−−	0	−−	−−	−−
+	−−	0	?	−−	−−
+	−−	−−	−−	−−	−−
?	?	?	−−	?	−−
−−	−−	−−	−−	−−	−−
−−	−−	−−	−−	−−	−−
++	++	(+)	(+)	+	−−
+	−−	−−	++	−−	−−

Source: Joint group of Experts on the Scientific Aspects of Marine Pollution, *Report of the Third Session* (Rome: FAO, February 1971), UN Doc GESAMP III/19, pp. 19-22. Also cited in Robert A. Shinn, *The International Politics of Marine Pollution Control* (New York: Praeger, 1974).

These tables obiously do not provide a comprehensive account of the types and sources of marine pollution. Nor do they contain information on damages from pollution. They do, however, illustrate certain features of ocean pollution which are important for the analysis of policy. First, the tables indicate that land-based sources of marine pollution are of major significance. This is especially clear from Table 2, which shows that land-based sources account for 57 percent of oil pollution, excluding atmospheric blowoff. As discussed below, control of land-based sources has been effectively excluded from UNCLOS negotiations. A second feature is that pollution arises from very deliberate activities (e.g., ocean dumping) but also from the incidental result of other activities (e.g., offshore oil production). Environmental controls should comprehend both types. Finally, Table 1 shows that there is a wide variety of marine environment controls in place or contemplated. These range from "global" conventions concerned with a particular type or source of pollution to the incidental result of domestic (U.S.) environmental control legislation. The variety of control instruments suggests that UNCLOS activities, while important, are too narrow a focus for analysis. One feature not illustrated in the tables is the environmental sensitivity of coastal waters. Not only are they critical for most commercial fishing, but their location near land means that they receive the dominant share of pollutants. In this connection, closed or semi-enclosed seas with long flushing times will often require more stringent protection measures.

Principles

The roots of ocean environment deterioration are not difficult to perceive. Economic activity—raw material exploitation, transport, processing, consumption—incidentally produces residuals, or wastes. Wastes disposed in the natural environment in excess of its capacity to assimilate and render them harmless, degrade the quality of the environment. The stock of environmental capital is impaired, and beneficial use of the resources is reduced. The oceans are the scene of economic activity (mainly minerals extraction, fisheries, marine transport), and receive wastes accordingly. Also, the incorrect belief that ocean assimilative capacity is inexhaustible has been instrumental in excessive use for waste disposal. The law of gravity, and the absence of restrictive domestic and international law, have also encouraged ocean waste disposal from land-based activity.

Malicious motives need not be imputed to polluters. Environ-

mental resources have traditionally been common property, with free access for waste disposal and other purposes. The dilemma of common property resources is that it generally is not in any individual user's interest to exercise restraint and conserve the productivity of that resource. Indeed, unilateral restraint is costly for the individual, for the benefits of his action are not appropriated by him, but are dispersed among other users. Unless compensated, there is a clear disincentive for an individual (or state) to act responsibly by limiting his waste loads.

The oceans are particularly vulnerable to environmental insult. First, the legal traditions of freedom of the high seas and right to capture fish stocks have persisted beyond the time when they were economically and environmentally rational. Until quite recently, the supply of ocean service (fisheries, marine transport, waste assimilation) exceeded demand, and ocean resources lacked scarcity, or economic value. In such circumstances free access through a common property resource regime was economically efficient. Appropriation by states, and restricted access to resources in excess supply, would have been inefficient, and global welfare would have been reduced.[5] Excess supplies for most ocean resource services have, however, been eroded and they have become economically scarce. Restrictions on access are necessary to curb resource abuse. This is particularly true of waste disposal, which impairs other ocean resource services. It is not, however, true for marine transport on the high seas. Except for local congestion in heavily travelled waters, excess supply of marine transport services *per se* persists. As explained in the previous chapter, the rationale for free commercial navigation subject to environmental regulations remains strong. However, with respect to ocean-waste disposal, the need for restrictions collides with the remnants of outdated traditions and legal regimes.

Second, the process of restricting ocean waste disposal rights, now underway, does not affect all users of the oceans equally. The incidence of abatement costs, and the incidence of abatement benefits (damages avoided), is unevenly distributed internationally. Effective environmental controls necessarily have welfare distributional results, and there will be welfare transfers from some groups and countries to others. Within the United States and within many other countries, the distributional result of national environmental controls is usually not constraining, as mechanisms for compensatory redistribution of welfare are in place if needed, and the central government can compel compliance when necessary. Neither of these factors operates in ocean space, where international mechanisms for welfare transfer are rudimentary and

residual ownership rights are absent. Accordingly, ocean environment controls proceed through negotiations among sovereign governments, who are constrained to producing agreements such that each member is made no worse off. This constraint can result in inadequate protection of the marine environment.

Third, and closely related, the international community has been unsuccessful in negotiating agreements that reach back to control the very important land-based sources of ocean pollution. The exercise of national sovereignty has effectively eliminated international control over land-based pollution from most serious discussions.[6] The shield of national sovereignty therefore is another serious barrier to marine environment protection.

Fourth, on a quite different and more subjective note, the damages to the ocean environment themselves are of a character to encourage continued insult. While some pollution incidents produce damages that are visible, direct, and critical, some pollution damage is subtle, indirect, synergistic, cumulative and long term. Scientific evidence is often inconclusive. Economic damages are speculative. The ocean environment question lacks a sense of urgency and drama. By itself, this means little. However, ocean environmental policy is being negotiated in competition with other issues of high and immediate priority. Lacking a well-defined domestic constituency, and a sense of drama and urgency, it is slighted in negotiations. Even when it is considered, unwarranted attention is given to acute pollution incidents such as the Torrey Canyon oil spill, and not enough given to low level, chronic abuses. The irony is, of course, that the oceans are ultimate sinks from which wastes are not flushed. Cumulative buildups of pollutants may proceed for many years before recognized as critical, at which time corrective action may be too late. The ability of governments to perceive longer term environmental damages in timely fashion is not altogether encouraging; the prospects for so doing in international conferences such as UNCLOS are sobering.

Ocean Environmental Controls

The case for restricting deliberate and incidental ocean waste disposal rests, then, on the need to conserve the productivity of ocean resources, and the failure of traditional legal regimes to accomplish this. Having established the need for controls, two broad questions of jurisdiction and management arise—where is the authority for establishing controls to be vested, and what should be the purpose and design of the control instruments themselves?

For taxonomical purposes the following types of environmental control jurisdictions are established. They are useful later for sorting out issues.

	Pollution Source		*Control Authroity*	*Examples*
1	Activities on land and within traditional territorial waters[7]	1a	unilateral coastal state control	U.S. Federal Water Pollution Control Amendments (1972)
		1b	global international conventions and agreements	Ocean Dumping Convention (1972)
		1c	regional conventions and agreements	North Sea Ocean Dumping Convention (1972)
2	Activities (vessel and nonvessel) within an expanded economic zone (expected 200 miles)	21	coastal state control	proposed at UNCLOS
		2b	international controls (IMCO or elsewhere)	proposed at UNCLOS
		2c	coastal state control subject to minimum international standards	proposed at UNCLOS
3	Activities in what remains of the high seas (and seabeds)	3a	international conventions and agreements	Prevention of Pollution from Ships Convention
		3b	authority vested in a Seabed Authority arrangement	proposed at UNCLOS

It is with regard to jurisdiction questions and not management questions that UNCLOS is most directly concerned. Jurisdiction for environmental control can reside either fully with the coastal state, primarily with the coastal state subject to international minimum standards, or fully with an international authority as is contemplated for the agency designed to exploit seabed nodules.

Category 1 type pollution problems, in which the pollution source has been within national territory, have largely escaped UNCLOS attention beyond the declaration of general principles. The fact of national sovereignty has restricted environmental controls over land-based sources, and activities within traditional territorial waters, to unilateral national policies and to such voluntary arrangements which states have agreed to among themselves. Category 2 type pollution occurring in an expanded economic zone of perhaps 200 miles has been an active issue within UNCLOS both with regard to jurisdiction and enforcement questions. Despite ecological objections to arbitrary divisions of ocean space, there

has been considerable pressure to couple environmental and economic jurisdiction for coastal states up to 200 miles. The important exception, not yet guaranteed successful, is for separate treatment of vessel source pollution within the economic zone. Environmental controls over activities on and under the high seas (Category 3) are basically a question of vessel source pollution controls, and a question of the nature and powers granted to any nodule exploitation agency ultimately established.

With regard to the next broad question, concerning the purpose and design of ocean environment controls, general principles of environmental policy can be helpful. Specifically, all environmental policy confronts the three questions of how clean is clean enough, what instruments should be employed to achieve environmental quality (pollution abatement) goals, and who pays and who benefits.

The choice of environmental quality goals can be satisfactorily answered on an abstract economic basis by selecting these quality levels (abatement levels) such that the incremental cost of the last unit of pollution abatement is equal to the incremental benefits, or environmental damages avoided. Benefits and costs refer to economic magnitude, and include nonmonetary welfare gains and losses. To go beyond the level where marginal benefits and costs are equal would be as wasteful of real resources, and welfare, as to fall short of the optimum level. Neither zero pollution nor unrestricted waste disposal is economically rational.[8] Two corollaries, particularly relevant to the international character of ocean pollution, flow from this proposition. First, environmental quality goals, or standards, should not be internationally uniform for the following reason. Both cost and damage functions vary among regions and countries, and these differences must be respected if a rational or efficient waste disposal program is to emerge. Internationally established environmental controls are not precluded, but they must be sufficiently flexible to account for legitimate local differences in cost/benefit calculus. Second, the choice of abatement levels cannot be left to states acting in their narrow interests. As argued earlier, the essential dilemma of a common property resource in which international externalities are present is that individual users cannot be expected to conserve the resource adequately.

The general principle for setting environmental quality goals is clear. In practice it is exceptionally difficult to estimate cost and particularly benefit (damage) functions. The reasons are well known, and include the problems of moving from estimates of pollution emissions to ambient quality levels, to biological and

ecological impacts, to economic evaluation. In particular, many environmental services do not pass through markets, and to value them poses considerable difficulties. Also, as mentioned earlier, the indirect, subtle and cumulative nature of ocean pollution argues for caution in setting quality objectives. In any event, abatement goals should be subject to review and revision as new data become available. Additionally, uncertainty concerning cost and benefit functions suggests that the establishment of specific standards could be removed from highly political fora, be formulated by disinterested experts without particular interests to promote, but also be subject to scrutiny and comment by all interested parties before they are firmly established. Of course, regulation cannot proceed without some form of jurisdiction.

The choice of instruments to secure environmental quality objectives will depend in large part on the nature of the pollutant and source. Instruments can range from legal prohibition, to compensatory damage payments to victims, to effluent and emission standards, to fees and charges, to particular design and operating requirements. Instruments can be evaluated according to how well they perform the following functions:

—minimize enforcement costs

—provide incentive for improvement in abatement technology

—respect cost differences among waste disposers (encouraging greater abatement for low alternative cost waste disposers)[9]

—preclude uncontrolled shunting of wastes from one environmental medium/site to another

—maximize information flows concerning costs and benefits

A full discussion of instruments would be tedious. We do, however, observe the following. In the ocean environment context, compensatory damage payments to victims is seldom feasible, as the costs of identifying victims, evaluating their damages, and relating these to specific polluters will be extremely expensive and uncertain. One exception may be acute oil spills in coastal waters. Effluent and emission fees, or charges, have considerable theoretical advantages. They will automatically distinguish between high and low alternative cost polluters,[10] will allow a choice of abatement technology to meet individual circumstances, provide a continuing incentive for technological improvement, and provide a source of revenue to the taxing agency. However, enforcement costs may be prohibitively expensive. Design standards, such as the segregated ballasting provisions of the Prevention of Pollution from Ships Convention, may overlook least cost abatement technology. Nevertheless, they can have a clear

enforcement cost advantage—once in place and certified, enforcement becomes trivial. Additionally, design standards can minimize the problem of inspection, always a touchy issue in international relations.

Questions of the distributional consequences of environmental measures—who pays and who benefits—are more important internationally than domestically. Typically, ocean environmental controls are voluntarily negotiated among sovereign states, and recourse to an international authority pursuing global welfare is absent. Accordingly, agreements are constrained to those in which each party is made no worse off. Distributional considerations, then, cannot be neatly separated from allocative efficiency aspects. At the same time, the mechanisms for compensatory welfare transfer—a network of compensation or "bribes"—are not well developed at the international level. As argued below, this can lead to suboptimal ocean environment policies.

Role of UNCLOS

The Law of the Sea negotiations provide the vehicle for moving from one legal regime for the oceans to another. Obviously, the formulation of ocean environment policy is conditioned by the legal arrangements governing ocean space. Indeed, as argued earlier, the historic legal regime was in part responsible for the degradation of the ocean environment. If a new, comprehensive treaty emerges from UNCLOS negotiations it will have a dual impact on ocean environment policy; first, it will reinforce and extend general principles regarding the environmental rights and duties of states in using ocean resources. We can expect these general principles to embrace, to some degree, both land and marine based sources of pollution. Second, and more importantly, a comprehensive treaty will specify the spatial and functional jurisdiction of states for formulating and enforcing environmental controls. As such, it will provide the legal framework within which specific controls and standards are established.

Withal, it is important to recognize that UNCLOS is only one part of the process of developing and implementing marine environment policies. Whatever the result of UNCLOS, nations will still confront the critical management questions of abatement levels, choice of instruments, and distributional considerations. UNCLOS does not attempt even broad environmental protection measures. Accordingly, whatever the outcome—treaty or no treaty, 200-mile coastal state environmental zones or not, recognition of dual standards for industrial and developing countries, etc.,—important issues will remain. There will still be a need to negotiate specific

instruments. Decisions concerning unilateral, bilateral, regional and global approaches will still be made. The problem of the transmutability of pollutants—shunting—will continue. The lag between damages and their perception, and the associated possibility of irreversible damages, remain. The adequacy of cost benefit analysis in situations of great uncertainty and potentially catastrophic damages (albeit with low probability) will not be resolved. While land-based pollution sources may be enjoined to respect the marine environment, compulsion will be absent. The ambivalent attitude of developing countries toward environmental quality, much in evidence at both Stockholm and UNCLOS, will persist. In short, it is important to interpret the environmental component of UNCLOS, and to present and argue policy options for this forum, but it would be incorrect to weight UNCLOS too heavily.

Issues

Choosing Abatement Levels

Assuming that (a) abatement cost and benefit functions are known, but not identical among countries (b) countries attempt to maximize their own welfare and will not enter agreements in which they think they are made worse off and (c) compensatory transfers (sometimes called bribes or side payments) cannot be made among countries, then it can be shown rigorously that abatement levels selected in negotiations can be less than optimal, and protection of the marine environment may be inadequate.[11] Moreover, it can be shown that the more cost and benefit functions differ among nations, the greater will be the distance between the actual and optimum abatement level.[12]

The assumptions underlying this proposition appear quite reasonable. Countries both value ocean environmental services differently, and have different intensities of use of ocean services. Hence, abatement benefit (damage avoidance) functions will differ. Also, countries differ both as to their current use of the oceans for waste disposal and the opportunity costs for alternative disposal. Hence abatement costs functions will differ. Moreover, the assumption that states will not voluntarily enter agreements in which they are made worse off seems to be a minimum condition. Finally international compensation mechanisms are rudimentary. Even if the set of cost and benefit functions is such that each party will be made better off by moving to optimal abatement levels, the classic "free rider" problem will be present, and may interfere with

the selection of the optimal abatement level.[13]

The source of the dilemma is quite clear. All countries have an interest in preserving the marine environment, but this statement can be misleading. Our interests in beneficial uses of the oceans (including especially recreation, aesthetic enjoyment and other amenities) are not identical. Nor does each country contribute equally to pollution damages. Nor is the flow of damages among countries balanced. Optimal abatement policy can place abatement costs on countries in excess of the net benefits they receive from their own and other abatement programs.[14] Unless compensated, they will not join the agreement. Suboptimal environmental quality levels will be chosen.[15]

UNCLOS does nothing to solve this dilemma except, perhaps, if the Seabed Authority is granted environmental control power *and* takes a global perspective. On the contrary, the single negotiating text (SNT) coming out of Geneva explicitly relies heavily on prospective agreements and conventions to be negotiated within IMCO, or on an *ad hoc* basis, to deal with a wide variety of pollution sources, including land-based sources.

Realistically, in the absence of an international authority with powers to establish and enforce controls over a wide spectrum of marine pollution sources, we must rely on a variety of approaches to this problem. First, improved data on local damages from pollution may persuade some countries to undertake abatement programs in their own self-interest. Technical assistance, either bilaterally or through international organizations to developing countries will be helpful. Second, international agreements, either regional or global, will generally promote greater protection than would reliance on unilateral actions. That they may be suboptimal, does not mean they are worthless. Third, it may be possible to cultivate a more global welfare perspective than is implied above. There is adequate evidence that environmental concerns arouse more internationalist sentiment than, say, do trade interests. Fourth, the international compensation mechanisms can be improved. Disadvantaged countries can be compensated, and polluters "bribed" to alter their waste disposal practices. In the longer term, this method should be given serious consideration. Without doubt, industrial countries have captured most of the "rent" from assimilative capacity, and contributed disproportionately to degrading international common property resources. Aside from the supporting equity argument, industrial countries may well have to subvent some abatement costs in developing countries if they wish these countries to follow a less destructive path than we ourselves followed. Finally, the scope for unilateral

action should not be overlooked. Selecting rigorous environmental standards provides an example and pattern.[16] In some cases, for example controls on ships entering U.S. ports, unilaterally imposed standards can encourage more rigorous flag state standards. All of these approaches are examined in the final section on U.S. options.

Shunting

Recognizing that material residuals from extraction, transport, processing, and consumption do not disappear, a waste disposal program involves four options—reducing waste loads by product and process change, recycling waste material, waste treatment to render it less damaging to the environment, and redirecting waste flows to less costly environmental sites and mediums. The appropriate combination of these options is determined by their economic costs—both financial and social, to include environmental damage costs. Wastes are transferable, and can be shifted from one site or medium to another.[17] Economic activity itself is spatially mobile over time.

In the absence of a *comprehensive* waste disposal program, stringent environmental controls in one area may result in the mere shifting of wastes from one area to another. This creates two problems. First, and perhaps less important, controlling one type pollution source and leaving others uncontrolled may miss the least cost method of achieving environmental quality objectives. For example, if the goal is a quantitative limit on petroleum reaching the marine environment, and only marine-based sources are controlled, inexpensive abatement of land-based sources may be bypassed, and the total cost of achieving the desired objective will be higher than necessary. Second, rigid controls on one form of waste disposal may simply divert, or shunt, wastes to other sites and mediums with higher financial and environmental costs. For example, if prohibiting the ocean disposal of sewage sludge results in increased use of river outfalls, or uncontrolled burning, the environmental damages may be higher than with no action at all. Also, if on-board retention of oily wastes from tanker cleaning is mandated, but on-shore reception facilities for these wastes are inadequate, the wastes may be shifted to the more vulnerable coastal areas.

Some attention has been given to this problem. The regional North Sea Ocean Dumping Convention stipulates that restricting dumping in that area should not divert these wastes to other ocean areas. U.S. dumping legislation provides that, in issuing or denying ocean dumping permits, the Environmental Protection Agency (EPA) must consider the impact of using land-based alternatives on

the public interest, presumably including environmental interest.[18] The Single Negotiating Text which came out of the 1975 UNCLOS session provides that:

> In taking measures to prevent or control marine pollution, States shall guard against the effect of merely transferring, directly or indirectly, damages or hazards from one area to another, or from one type of pollution to another.

Despite this attention, shunting still appears a serious issue. As noted, international progress on controlling land-based sources of marine pollution has been slight, and rigid controls on ocean disposal may divert waste flows to environmentally more damaging patterns. Internationally, comprehensive and integrated waste disposal programs are rare.

Spatial diversion of waste flows through partial control programs can also come about through relocation of economic, and especially industrial, activity over time. Dual environmental standards, less restrictive for developing countries, becomes an issue. While it is true that some relocation of economic activity toward the South to conform with environmental assimilative capacity and different valuations placed on the environment may be desirable, rigorous ocean environmental controls imposed by industrial countries, as for example on vessel source pollution, which results in a competitive advantage for uncontrolled fleets of developing countries would be undesirable. This would simply divert pollution from one fleet to another, and would be unrelated to the environmental assimilative capacity of developing countries.

The mining of manganese nodules from the seabed floor presents another possible illustration of waste diversion. If land-based mining and processing operations, and particularly refining and smelting are strictly controlled, and ocean processing of manganese nodules enjoys few environmental constraints, there will be a financial incentive, on the margin, to shift from land-based processing to nodule exploitation. The inclusion of social costs (environmental damages) at one site but not at another, will distort relative production costs, shift economic activity, and decrease global social welfare. Alternatively, stringent controls over ocean refining of nodules combined with some shoreside "pollution havens" could shift nodule refining activity from the oceans to land, with possible higher environmental and financial costs. Again, the need is for a unified and integrated waste disposal program to comprehend land and ocean-based pollution.

Dual vs Uniform Standards

Discussion of this issue has been confused. We note first that the issue of uniform international environment standards has been confused with the question of internationally formulated standards. They are quite distinct. Internationally formulated standards can be nonuniform. Second, the distinction should be made between effluent/emission standards, and ambient standards. One can have uniform effluent/emission standards and differing ambient standards, and conversely. Third, we re-emphasize that uniform international ambient or emission standards are generally uneconomic, and do not respect legitimate differences among countries as to alternative abatement costs, valuation of damages, etc. In this respect the developing countries are correct in requesting due consideration for their capabilities and levels of income.

Their argument is most powerful when (1) pollution damages are local, rather than regional or global; (2) one can be confident that the standards they select accurately reflect their real interests; and (3) they are not compelled, through pernicious competition among themselves, to compete as pollution havens. Unfortunately, these conditions do not obtain with regard to all forms of marine pollution. In particular, vessel source pollution, almost by definition, involves regional or global damages. There seems little justification for less strict standards applied to developing country fleets. Nor can one be fully sanguine about *carte blanche* approval of dual standards, more restrictive for industrial countries and less restrictive for developing countries, for land-based sources. Some land-based pollutants will have regional or possibly global effects. Dual standards for land-based marine pollution are, of course, part of the larger question of shifting polluting activity to less developed regions and countries by imposing differential environmental control costs. The real dangers are that receiving countries may not perceive the full social costs of environmental degradation, or that they may be driven through competition for investments, jobs, etc., to compete for economic activity on the basis of low or zero environmental controls. Developing countries often feel that they should not be obligated to higher environmental standards than the developed countries enjoyed during their industrialization, unless it can be shown to be in their self interest, or they receive some form of compensation. Dual standards, then, are closely linked to the pollution diversion problem.

Coastal State Environmental Jurisdiction and Enforcement Powers

The problem of coastal state environmental jurisdiction and

enforcement powers is twofold. First, will a regime which grants broad authority to coastal states to establish environmental regulations and enforcement lead to greater or lesser protection of the marine environment? The question becomes more important if the breadth of the environmental zone is coterminous with the economic zone as proposed in the Single Negotiating Text rather than with traditional territorial seas. An argument in favor of broad coastal state environmental zones is the need for coastal states to have the authority and power to protect their coastlines and near-shore resources. As coastal states stand to suffer disproportionate damages from pollution in coastal waters, it should be in their interest to establish rigorous environmental controls, and they should therefore be granted the necessary authority. The right to exploit resources within the economic zone should therefore be accompanied by the right to conserve environmental resources in the same area.

The opposing arguments, however, have merit. States have had a rather dismal record of conserving their environmental patrimony. To yield large areas of ocean space to coastal states, without adequate international supervision or control, would extend seaward the area of national sovereignty, and seem needlessly reckless. The ambivalent attitude toward environmental protection held by many states, and their reluctance to cede sovereignty to international authorities was evident in the Stockholm Declaration of Principles: "States have, in accordance with the Charter of the United Nations and the principles of international law, *the sovereign right to exploit their own resources pursuant to their own environmental policies,* and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction." (Emphasis added.) This ambivalence also pervades the UNCLOS negotiations.

The second problem of coastal state environmental jurisdiction and enforcement powers centers on navigational rights. If coastal states are accorded full authority to establish environmental regulations on vessels operating within a broad environmental zone, there could be serious interference with international shipping activities. For example, if a coastal state designated part or all of its coastal waters as environmentally sensitive, it might ban or sharply limit transport of, say toxic substances in these waters. Alternatively, it might declare that certain types of vessels, supertankers or nuclear-powered vessels, are environmentally hazardous and therefore excluded from those waters. Coastal states which are astride major sea lanes could also impose design,

construction, and operating equipment requirements which, if not uniform among countries, could substantially increase ocean transport costs, as shippers attempted to comply with a patchwork of differing and perhaps conflicting standards. If coastal states receive enforcement powers without adequate safeguards, commercial shipping could be subject to unwarranted harassment and interference, ostensibly for environmental protection. One cannot necessarily rely on the self interest of coastal states as users of shipping services to keep transport costs low; coastal state authority could extend to ships in transit to other port states.

The problem, therefore, is to construct a coastal state environmental authority structure which will: (1) protect the legitimate interests of coastal states in guarding their coastlines against environmental hazards; (2) avoid a situation in which coastal states are free to plunder an expanded environmental zone; (3) maintain shipping costs at the lowest possible level consistent with adequate environmental controls; and (4) avoid harassment of commercial navigation.

Land-Based Sources

To some degree, the four issues discussed above—the dilemma of negotiating optimal abatement levels, shunting, dual standards, and coastal state jurisdiction—are all present and are complicating factors in controlling land-based sources of marine pollution. As noted, UNCLOS will not formulate specific controls for land-based sources, but leaves this task to agreements and conventions yet to be negotiated. Therefore, these agreements will confront the problem of selecting suboptimal abatement levels. Moreover, tighter controls over marine-based pollution sources (here considered to include ocean dumping) may divert waste flows to land disposal, or may through the reallocation of economic activity, divert waste loads to developing regions and countries. The shield of national sovereignty sharply limits environmental controls over land-based sources.

UNCLOS is not completely silent on land-based sources. If "successful," it will strengthen the evolving principle that states respect the environment of other states, and areas beyond their jurisdiction. This is a significant obligation, and extends the earlier principle that a state should not undertake activities which directly damage the environment of another state, as set forth in the Trail Smelter Case.[20] At the same time, it is unrealistic to expect that this principle by itself will have much direct practical effect on controlling land-based sources of marine pollution. One reason is that often the most visible pollution damages accrue mainly to the

polluting state itself, and if it chooses not to act against its own polluters, the international community can do very little. A second reason is the difficulty in attributing a source to specific pollutants or to a deterioration in the marine environment. For example, a (disputed) claim is that the oxygen level of the Baltic Sea has been reduced by industrial effluents introduced through river discharges. Attributing responsibility to particular Baltic riparian states is extremely difficult. Or again, it is very difficult to identify the source of chlorinated hydrocarbons such as DDT and PCB in the marine environment. It appears naive to assume that the production and use of these chemicals, which is very much a part of domestic economic structure, will be seriously curtailed as a direct result of states responding to a general principle adopted in UNCLOS.

U.S. Policy Making Process

The adequacy of international ocean environmental policies is determined in part by the effectiveness of domestic policy formulation. As is well known, there are conflicts among U.S. Government agencies concerning many UNCLOS ocean issues, and the environment is no exception. With some effort one can characterize agency positions as follows. The Defense Department supports exemption for military vessels from international environmental standards (the sovereign immunity clause), and generally opposes coastal state environmental zones, as a restriction on free navigation. The Interior Department wishes to facilitate oil transport, while maintaining full U.S. control of offshore oil exploitation. Treasury and Commerce wish to minimize transport costs. The Coast Guard, of course, has pollution control enforcement responsibilities, as well as a general interest in commercial navigation. The Environmental Protection Agency and the Council on Environmental Quality have supported international standards for pollution control, with port and coastal states allowed to set higher standards if they wish. The State Department, anxious for successful negotiations in UNCLOS, may be willing to compromise in the area of coastal state environmental jurisdiction. One can trace these conflicts through the evolution of U.S. environment policy in UNCLOS. Specifically, the United States has moved away from full flag/port state approach to vessel source pollution to some concessions for coastal state enforcement and rule-making rights, as discussed in the previous chapter.

The problem of conflicting interests among agencies in formulating U.S. policy is not unlike the conflict of issues and interests within UNCLOS itself. As the environment becomes one

of several areas competing for attention and priority, there is the danger that environmental objectives are sacrificed in a negotiated compromise. The danger is greatest when the environment lacks a well-defined, cohesive, and politically strong constituency and an agency within Government to articulate the interests of this constituency.

We do not attempt to evaluate systematically the success with which environmental interests have been represented within the National Security Council Interagency Task Force on Law of the Sea, or marine environment policy more generally. We do, however, observe the following. First, the United States played a major role in the successful negotiation of both the 1972 Ocean Dumping Convention and the 1973 Prevention of Pollution from Ships Convention. Obviously, internal coordination within the United States was adequate for these major environmental measures. Second, coordination for UNCLOS may have lagged. The United States made no environmental policy statement until 1972, although it was made a UN Seabed Committee agenda item in 1970. Also, CEQ was first represented on the Task Force in 1973, and the EPA was first represented on the U.S. delegation at Caracas in 1974. Congressional input on this area has been slight. Third, the absence of effective action on land-based sources of marine pollution in UNCLOS is weak, but presumptive, evidence that environmental concerns are being overlooked on the grounds of "political reality."

Fourth, and perhaps most important, the communication between scientists with knowledge of the marine environment, and international lawyers who negotiate agreements is conceded to be inadequate. Part of this problem arises within the environmental sciences themselves, and simply reflects the great uncertainties surrounding the physical effects of pollutants in the marine environment. But the problem also flows from the social sciences and the legal profession. What standards might be adopted by coastal states if they are granted broad environmental zones? Will regional environmental compacts in semi-enclosed ocean areas be a viable alternative to global conventions? What will be the spatial pattern of oil production, transport, and use over the next two decades? What environmental data are needed to negotiate economically rational and politically feasible control agreements? To what degree will states tolerate international inspection of polluting activities? These are some of the questions that social scientists and policymakers should be addressing. Communication is necessary, but the uncertainties are equally distributed among the scientists and those formulating policy.

UNCLOS Progress, Options, Conclusions

The Single Negotiating Text

Analysis of environmental issues within UNCLOS is risky on several counts. It is not clear whether any treaty will emerge, and if one does whether it will be comprehensive and widely accepted. As noted elsewhere in this study, the Geneva session leaves these questions open. Moreover, it is not clear whether the Single Negotiating Text (SNT) provides an accurate blueprint of the final treaty, should one be agreed to. It is tempting to evaluate the draft articles of the SNT as though they were likely to become final, but as carefully pointed out by the Conference President,

> the single text should take account of all the formal and informal discussions held so far, would be informal in character and would not prejudice the position of any delegation nor would it represent any negotiated text or accepted compromise. It should, therefore, be quite clear that the single negotiating text will serve as a procedural device and only provide a basis for negotiation. It must not in any way be regarded as affecting either the status of proposals already made by delegations or the right of delegations to submit amendments or new proposals.

One must accordingly be cautious in attributing durability to the draft articles of the SNT.

Finally, the committee structure of the Conference itself presents substantive and analytical problems. Topics were allocated to three Committees; discussion of a seabed regime to Committee I, territorial seas, economic zones, continental shelf, etc. to Committee II, and environment, technology transfer and scientific research to Committee III. Obviously there is an environmental dimension to each of these topics. Decisions taken concerning the structure and activities of the Seabed Authority, the rights and responsibilities of states within their territorial waters and economic zones, and technology transfers and marine research all have an environmental component. It becomes necessary to meld the separate work of the committees to evaluate UNCLOS progress. From a substantive viewpoint, a strong argument can be made that the initial decision to allocate topics in this fashion has two undesirable results. First, the opportunity to manage ocean space environment as a whole, reflecting its ecological unity, was lost. Second, some issues have apparently fallen between the stools, including a detailed environmental mandate for the Seabed Authority.

General Principles

As expected, the SNT contains, as general principles, the obligation of states to protect and preserve the marine environment, to take all necessary measures to ensure that pollution from their activities does not cause damage to other states or to areas beyond those in which they exercise sovereign rights, and to guard against pollution diversion as discussed above. Release of toxic, noxious and persistent substances are mentioned in general terms but are not identified.[21]

The special circumstances of developing countries and the continued strong attraction of national sovereignty are recognized and illustrated in Articles 3 and 4:

Article 3

"States have the sovereign right to exploit their natural resources pursuant to their environmental policies and they shall, in accordance with their duty to protect and preserve the marine environment, take into account their economic needs and their programmes for economic development."

Article 4

1. "States shall take all necessary measures consistent with this Convention to prevent, reduce and control pollution of the marine environment from any source using for this purpose the best practicable means at their disposal and in accordance with their capabilities, individually or jointly, as appropriate, and they shall endeavour to harmonize their policies in this connexion."

While important as statements of purpose and principle, these general principles have little direct consequence.

Specific Action Deferred

At numerous points, the SNT implicitly acknowledges that UNCLOS has not attempted to formulate environmental measures, but defers their development to other fora. For example, Article 6 calls for regional and global cooperation, directly and through international organizations, for the formulation and elaboration of "international rules, standards, and recommended practices and procedures" for the prevention of marine pollution. This document is quite deliberate in leaving open not only the substance of these rules, standards and recommended practices, but also the bodies in which they are to be developed, and the extent to which they shall be regional or global in nature.

The significance of this is that regardless of whether the treaty emerges or not, the environmental fate of the oceans will probably be determined in large part through a long run, rather *ad hoc*, and perhaps disorderly process in which agreements may be reached (a) in particular regions (b) concerning particular pollutants (c) covering particular sources. In short, the present fragmentation of ocean environment policy formulation will probably continue. Accordingly, the several issues identified in the preceding section will remain important—issues such as selecting abatement levels through negotiations, shunting, and dual standards.

Land-Based Sources

Article 16 of Part III of the SNT sets forth a general obligation to prevent, reduce, and control pollution from land-based sources. How the obligation to prevent is consistent with reduction and control is not clear. To accomplish this, states shall establish national regulations, and shall *endeavour* to establish global rules, standards and recommended practices and procedures through international organizatons and diplomatic conferences. To keep dual standards for developed and developing countries an option, the rules, standards, etc. should take into account "the economic capacity of developing countries and their need for economic development."

Article 19 calls on states to establish national controls on ocean dumping, and to endeavour to establish global and regional rules, regulations and so forth, through intergovernmental organizations and diplomatic conferences. No saving clause for developing countries is inserted, and indeed the article provides that national laws be no less effective than global rules and standards. One reason for the stronger formulation of Article 19 over Article 16 is that ocean dumping was successfully dealt with at an international conference, and the broad outlines of dumping policy are now in place. One should not make too much of the proviso that national laws be no less effective than global rules. Recall that the Ocean Dumping Convention established few specific rules beyond the blacklist items, and left broad discretionary power to national authorities.

Finally, Article 21 calls on states to establish national laws to control marine pollution from the atmosphere, and obliges states to *endeavor* to establish global and regional rules, standards, etc. concerning atmospheric sources. No guidance is given as to where these should be negotiated, their relative urgency, or other factors. In short, controlling land-based sources is left to national legislations, and whatever future agreements that can be concluded

among states.

Vessels

Military vessels are given sovereign immunity from standards and enforcement provisions.[22] Article 20 declares that states should act through the competent international organizations or by diplomatic conference to establish rules and standards for preventing, reducing and controlling pollution from vessels. Further, states shall establish national regulation for their flag vessels. These are injunctions to action, but do not ensure results. There is no saving clause for developing country fleets. As argued earlier there is little justification on economic or environmental grounds for dual standards for developing country fleets, and the absence of a saving clause is a plus.

With respect to coastal state authority, Article 20:

- permits coastal states to establish more stringent standards within its territorial sea, with an obligation to achieve the greatest possible uniformity with international standards. Coastal state standards should not hamper innocent passage.
- permits a state to apply to the competent international agency for designation of its economic zone as a "special area"—if international standards are not available, or if they are inadequate to protect the area. If so designated, special mandatory measures could be applied against vessels by the coastal state.
- provides a saving clause permitting coastal state authority in the economic zone in areas subject to severe climatic conditions and a fragile ecological balance.
- does not contain language found in earlier drafts which excluded coastal state regulation of ships design, operating equipment, etc.

In this convoluted manner, the SNT attempts to protect the legitimate interests of coastal states, and also the navigational rights for marine transport. The same objectives are present in the enforcement provisions on vessel pollution, and have led to an even more complicated web of rights and duties among coastal, port and flag states. The enforcement provisions rest heavily on the existence of unambiguous and effective international rules and standards. Unless and until they are in force, enforcement questions will center on national laws. Also, the breadth of coastal state enforcement power past its territorial sea has not been agreed to, but presumably will fall short of its economic zone.

Economic Zone (Non-Vessel)

With regard to international constraints on coastal state activity within its economic zone, the SNT appears surprisingly weak. Unlike vessel source pollution, in which the coastal state can make a persuasive argument for environmental authority to protect itself from foreign shipping, there is no particular reason to give coastal states full authority over the environmental consequences of their activities. On the contrary, to give coastal states full environmental jurisdiction over nonvessel activity within their economic zones without residual international authority appears dangerous.

As currently written in the SNT, Article 17 contains the familiar formulation wherein states are called upon to establish national regulations, and to act through intergovernmental organizations and conferences to establish rules, standards, etc. in order to prevent, reduce and control pollution from such activities as offshore oil production within their economic zone. Additionally, states are obliged through articles 13, 14 and 15 to: "keep under surveillance the effect of any activities which they permit or in which they engage to determine whether these activities are likely to pollute the marine environment"; to report to the UN Environmental Programme the results; and, "when states have reasonable grounds for expecting that planned activities. . .may cause substantial pollution of the marine environment, they shall, as far as practicable assess the potential effects of such activities on the marine environment and shall communicate reports of the results of such assessments. . ."

In effect, coastal states are given a free hand with regard to offshore oil production, with some mild reporting and assessment requirements. As with land-based sources, adequate protection of the marine environment will depend in large measure on the effectiveness of domestic environmental controls.

Seabed Authority

The establishment and enforcement of environmental regulations covering exploration and exploitation of the international seabed area (manganese nodule exploitation) was not considered in Committee III. Instead, they explicitly referred the problem to Committee I.[23]

Committee I work has resulted in extremely weak environmental requirements. Within the General Principles section, the only environmental obligation is to ensure the "orderly and safe development and rational management of the Area and its resource." Other provisions in this section deal with preventing

damage to land-based mineral producers, the benefit to producers and consumers, sharing the benefits and so forth. Consider next the environment article, 12:

> With respect to activities in the Area, appropriate measures shall be taken for the adoption and implementation of international rules, standards and procedures for, *inter alia:*
>
> (a) The prevention of pollution and contamination, and other hazards to the marine environment, including the coastline, and of interference with the ecological balance of the marine environment, particular attention being paid to the need for protection from the consequences of such activities as drilling, dredging, excavation, disposal of waste, construction and operation or maintenance of installations, pipelines and other devices related to such activities;
>
> (b) The protection and conservation of the natural resources of the Area and the prevention of damage to the flora and fauna of the marine environment.

Note that the "Area" is earlier defined as the seabed and ocean floor and subsoil thereof, beyond the limits of national jurisdiction. The superjacent water column over the deep seabed is not included. Accordingly, refining activities located on the ocean surface in the neighborhood of the mining site would appear to fall outside the responsibility of the authority. This is given confirmation in the description of activities covered in Article 12, in which there is no reference to refining activities. This is a serious omission, as some observers believe that the refining activities will create worse environmental damages than the extraction activity. The failure of Committee III to involve itself with this area adds to the seriousness of the omission.

Note also that the language of Article 12 is weak, calling for appropriate measures to be taken for the adoption of rules, standards, etc. What are appropriate measures? How soon are they to be taken? Within the authority itself, Articles 28 and 31 would establish a technical commission to, *inter alia*, prepare assessments of the environmental implications of activities in the area, consider and evaluate these assessments, and recommend rules and regulations concerning the protection and preservation of the marine environment to the Council. In turn the Council shall adopt rules and regulations. No environmental impact statements are

apparently required of companies or governments proposing to engage in mining.[24] Finally, Annex I of Part I of the SNT contains the following language:

> In respect of rules, regulations and procedures for the following subjects the Authority shall uniformly apply the objective criteria set out below:
>
> (17) *Protection of the marine environment.* The Authority shall take into account in adopting rules and regulations for the protection of the marine environment the extent to which activities in the Area such as drilling, dredging, coring and excavation as well as disposal, dumping and discharge in the Area of sediment or wastes and other matters will have a harmful effect on the marine environment.

The obligation to "take into account" is not particularly reassuring.

Options for the United States

The preceding analysis has set forth some basic principles concerning ocean environment policies, described important issues that remain open, and has analyzed the Geneva text with regard to the marine environment. In doing so, it proved useful to separate out environmental management questions from those of environmental jurisdiction, although the two were shown to be closely linked. Criteria for evaluating ocean environmental policy were presented in the introduction and elaborated in the text. These criteria apply more strongly to management than to jurisdictional questions. UNCLOS is primarily concerned with jurisdictional issues. Therefore ocean environment policies cannot be directly evaluated, but an assessment must be made of the policy implications of alternative environmental jurisdictional outcomes.

Options for U.S. policy can be categorized along three dimensions:

1. According to the results of UNCLOS
   a. no treaty
   b. treaty similar to Geneva single negotiating text
   c. an "improved" treaty
2. According to particular pollution problems
   a. land-based sources
   b. vessel source pollution
   c. activities within the economic zone

d. activities in and under the high seas

3. According to institutional modes of action

   a. unilateral U.S. action
   b. regional bodies
   c. bodies set up by specific conventions
   d. international bodies such as IMCO
   e. United Nations Environmental Programme (UNEP)
   f. a new international marine environmental authority

A full discussion of each would require up to 72 separate cases, and would be needlessly tedious and confusing. Instead we make the following points.

1. An International Environmental Agency, with broad powers to deal with all major sources and types of pollutants and to manage the environmental resources of the oceans from a global perspective, would be a desirable jurisdictional outcome on economic and ecological grounds. The problems of choosing abatement levels, shunting, dual standards, coastal state jurisdiction, and land-based sources would be reduced. Such a regime is not at all likely, in part because of the loss of national sovereignty; alternative arrangements are necessary.

2. If the ultimate treaty looks like the SNT, it does not appear that U.S. environmental interests would necessarily be immediately and seriously damaged. By U.S. environmental interests, we mean the ability to pursue rational ocean environment policies according to the criteria for rational policy set forth above. The reason the SNT would not directly damage U.S. interests is that the provisions are sufficiently broad to allow the United States to initiate and support a wide range of marine environment agreements. Most of the institutional modes can be activated—reliance on the UN Environmental Programme for certain monitoring, information exchange, and coordination functions, strengthening IMCO with regard to vessel source pollution, concluding regional agreements where appropriate, etc.

   At the same time, it should be clearly recognized that adoption of the SNT in its present form would impair the longer term chances of developing rational environmental policies. This is because jurisdiction over the economic zones (the environmentally most sensitive area) would go to coastal states without effective safeguards by the

international community. Such a system would reduce but not preclude rational environmental management.

3. The option of working for an "improved" SNT would be better for U.S. interests than settling for the current text as it concerns environmental questions. Modifications might include an explicit requirement either to convene an international conference to establish international regulations on offshore oil production or to expand the IMCO Environment Committee functions to include monitoring and rulemaking in this area. Also, the seabed authority could be given responsibility for open ocean refining activity and the draft language could be tightened. Internationally formulated minimum standards for activities within the economic zone would help protect the interests of the United States and the international community.

4. Another option is no treaty, with unilateral extensions of coastal state jurisdiction. This outcome would not necessarily damage U.S. ocean environment interests if other modes of ocean environment policy formation are actively pursued. Indeed, the emphasis in UNCLOS on questions of jurisdiction rather than management, suggest that these other modes should be activated in any event.

5. The three options described above, current SNT text, "improved" text, and no treaty, all suggest that U.S. ocean environmental interests will require use of a variety of other channels and fora. Regional agreements for semi-enclosed areas seem particularly promising, as fewer parties are involved, the benefits may be more visible, and compensation payments easier to contemplate. Moreover, pollution problems tend to be more acute in coastal areas and in closed and semi-enclosed seas.

   There has been some progress already. The Baltic Sea Convention and the Paris Convention concerning the North Sea both contain provisions on land-based sources, although it is too early to determine their effectiveness. Other areas, not necessarily related to the United States, which might be subject to agreements include the Caribbean, Mediterranean, Caspian and Black Seas, and the Persian Gulf. At a minimum a joint commission might be established to monitor and recommend on environmental (and other) issues of shared resource use.

6. The United States has a general interest in preserving the

marine environment, in minimizing tension with developing countries over environmental issues, and in assisting them in economic development. Accordingly, we should not be indifferent to their environmental use of the oceans. At the same time the industrial countries, including the United States, are probably pre-empting the greater part of the assimilative capacity of the oceans and contributing disproportionately to ocean environmental deterioration. It would therefore be equitable and in our interests if we provided some form of assistance to them for environmental control purposes. This could take several forms depending on circumstances. Provision of abatement technology and abatement equipment below cost is one alternative. Direct payments, perhaps through a regional arrangement, is another. Technical assistance in conducting abatement cost-benefit analysis is a third. These and other policy alternatives should be explored further.

7. Unilateral action by the United States (and by others) with regard to marine pollution is another option. Unilateral action may be especially important with regard to land based sources as they are not effectively covered at UNCLOS, and regional arrangements may not be easy to arrange. In this connection, the incidental benefit to the marine environment of measures taken primarily to conserve domestic environmental resources will be important. The phase-out of DDT in the United States is one example.

   In contrast, a unilateral declaration of a 200-mile pollution control zone, such as is found in S.1341, may damage certain U.S. interests. The bill, which would extend U.S. jurisdiction over shipping within the zone, would undercut U.S. efforts in UNCLOS to maintain free navigational rights subject to internationally formulated environmental standards. Even if no treaty is produced at UNCLOS, vessel source pollution should be regulated by an international body such as IMCO for the reasons explained earlier.

8. One conclusion from this chapter is that the data base for establishing ocean environment controls remains weak. The United States can continue to improve its own research capability in this area in both the natural and relevant social sciences. Research results can be disseminated, internationally as well as domestically, and especially to developing countries.

[1] A technical definition of marine pollution might be reciprocal external environmental diseconomies affecting an international common property resource. A widely used international definition is the introduction, by man, of substances or energy into the marine environment with deleterious effects such as health hazards, harm to living resources and marine ecosystems, damages to amenities or interference with legitimate uses of the sea.

[2] This section is taken from C. Pearson, "International Externalities: The Ocean Environment," paper presented at the Ford Foundation Symposium on *International Economic Dimensions of Environmental Management*, New York University, April 17-18, 1975 (to be published).

[3] EPA estimates total hydrocarbon emissions for the United States at 27.3 million tons for 1970. Emissions reaching the oceans are estimated at .6 million tons.

[4] The extent of ocean environment deterioration is not examined here. There is no question that local deterioration is widespread. The extent of more global threats, including the open oceans, through pesticides, heavy metals, petroleum, etc. is more controversial.

[5] Specifically, real resources would have been wasted by denying free access and through unnecessary enforcement costs.

[6] An exception may be the regional convention for the prevention of pollution from land-based sources signed in Paris, 1974. It is too early to evaluate the effectiveness of this instrument.

[7] Considered to be 3-mile territorial sea plus 9-mile contiguous zone.

[8] It should be emphasized that the criterion of economic rationality embraces not only benefits and costs that are readily measured in monetary terms, but also environmental services which contribute to welfare such as aesthetic enjoyment of natural resources.

[9] More formally, the marginal abatement costs among waste disposers should be equal.

[10] A system of effluent charges correctly set will provide an incentive for polluters with a cheap alternative to ocean disposal to undertake more abatement than those facing high alternative costs. Thus greater abatement can be accomplished at a lower real resource cost.

[11] See Pearson, *op. cit.*

[12] If damages are strictly local, in the sense that the coastal state both pollutes and bears the full damages, unilateral action will achieve optimal abatement levels. This is a trivial formulation of the problem, however,

[13] The free rider problem in negotiations arises because one or more participants may be reluctant to reveal their true preferences, hoping for the group as a whole to give them a "free ride."

[14] Optimal abatement levels would equate the marginal abatement cost from each source with marginal benefits to itself and all others.

[15] The Ocean Dumping Convention resolves the dilemma by according wide discretionary power to domestic authorities. Accordingly, members of the agreement retain the right to choose their own abatement objectives. This does not apply to the so-called blacklist items. While it is correct to modify abatement levels in light of local conditions, an agreement that leaves standard setting to national authorities is not much improvement on unilateral action.

[16] For example, the Ocean Dumping Convention was developed concurrently with U.S. legislation.

[17] For example, sewage sludge can be disposed of through river and marine outfalls, ocean dumping, burning, and land disposal (with possible leaching and contamination of ground waters).

[18] Consider Philadelphia, which currently dumps 150 million gallons of sewage sludge annually less than 40 miles from Ocean City, Maryland. At EPA permit

hearings, city officials claimed that high heavy metal content (500 lbs. mercury, 12,000 lbs. cadmium) precludes burning, that land disposal sites are unavailable, and that the only alternative to ocean dumping is disposal in the Delaware River.

[19] Article 5, Part III of the Informal Single Negotiating Text.

[20] In the Trail Smelter Arbitration Case, smelter operations in Canada were causing atmospheric pollution damages to trees and crops in the United States. The Tribunal examining the claim held that when serious injury is established it is unlawful for one state to permit activities which directly damage another state. Canada complied and modified its activities.

[21] Articles 2, 4, 5 of Part III.

[22] Article 42, Part III.

[23] Articles 18 and 24 of Part III, SNT.

[24] The enthusiasm with which the technical commission will undertake its environmental responsibilities is not known. According to Article 31 its members should have qualifications and experience in marine mining and mineral processing, etc., but also in ocean and environmental sciences.

CHAPTER 6.

FISHERIES

Introduction

U.S. fishing activities fall into several categories—recreational or sport fishing, scientific research and commercial fishing. The commercial fishing industry shares a single goal—to produce and market seafood. Apart from this common purpose, the industry is highly fragmented. It is divided into producing and processing segments, but more important from a law of the sea point of view is the division of industry according to location of fishing effort and species harvested. In terms of area fished, some segments of U.S. industry fish off the U.S. coast while others fish in distant waters. Coastal fishermen harvest a variety of species which are found, for the most part, within 200 miles of shore. Different international legal regimes presently apply to sedentary living resources of the continental shelf as compared to pelagic (oceanic) species. U.S. fishing for anadromous species (those spawning in fresh waters) takes place relatively close to or in the spawning rivers although salmon may travel far beyond 200 miles from shore. Distant water U.S. fishing can similarly be divided according to species harvested. Operating out of San Diego, the U.S. tuna fleet is harvesting a highly migratory species that ranges great distances, within and beyond 200 miles from shore. The U.S. shrimp fleet, on the other hand, fishes within 200 miles of shore off the United States, Mexico, Brazil, and other Latin American nations.

A number of factors are relevant to a review of U.S. policy options concerning fisheries. They include the economic value of fisheries to the United States as well as the domestic politics of fishing, and international political and legal factors. A brief review of the evolution of U.S. fisheries policies in the context of the UN Law of the Sea Conference provides the background for understanding present U.S. policy and the U.S. reaction to the single negotiating text that emerged from the Geneva session of the Conference. The outcome of the Conference is one of several variables that set the parameters for determining U.S. policy options. Among the criteria for evaluating fisheries options are management goals of economic efficiency and feasibility goals in terms of internationally viable modes of action.

Economic Value of U.S. Fishing[1]

Among fishing nations, the United States ranks fourth in terms of value and fifth in volume of fish harvested. While the United States fishes off the shores of other nations, the bulk of its catch is taken off the North American coast, and over 60 percent of its commercial marine catch by volume is taken within 12 miles of shore. Of marine resources harvested off the United States, U.S. fishermen catch less than 25 percent, while the remainder goes to foreign fisheries.

In 1974 the total value of the 5.1 billion pounds of U.S. commercial landings was over $957 million, while fish imports amounted to $1.7 billion. Fish products worth $2.8 billion were processed from domestic and imported raw materials. In 1973 there were around 87,200 full-time and 73,000 part-time fishermen in the U.S., and processing and wholesale plants employed a seasonal average of around 93,700. Of the landed value of U.S. fish, the salmon industry accounts for $121 million, and the tuna industry for $163.7 million. The shrimp industry, at $177.9 million in 1974, is the leading U.S. dollar producer, amounting to around 19 percent of the revenues generated from the American fishing industry. The distant water vessels of the U.S. shrimp fleet are among the most efficient and well equipped and account for catches equivalent to about a sixth of the entire U.S. shrimp catch in the Gulf of Mexico.

In addition to the above mentioned salmon, tuna, and shrimp, other species caught by U.S. vessels within 200 miles of U.S. shores account for $470 million. Approximately $1.2 billion was spent on recreational fishing in 1970, the latest year figures were available.

Domestic Politics of Fishing

Although fishing, in economic terms, is less important than other U.S. interests such as offshore petroleum, politically, the fishing interest is powerful. Fishing was once the foremost industry of the United States. Although the United States has slipped from first to fourth place among fishing nations, the fisherman continues to occupy a special social and cultural role in this country. The lone fisherman exemplifies a way of life, much as the small farmer once did, in American history. While the nation's farming has become a large-scale operation, the same transition has not occurred in most segments of the U.S. fishing industry. Indeed, large-scale fishing off U.S. shores is associated with foreigners—with Soviet and Japanese fishing fleets and factory vessels. Therefore, although the U.S. tuna fleet is the most modern in the world, the popular image of highly mechanized fishing fleets is associated with foreign operations.

To some extent the fact of foreign fishing activities has contributed to the political effectiveness of U.S. coastal fishing interests. The foreign fisherman has no votes and has served, therefore, as a convenient stimulus for congressional action to extend U.S. fisheries jurisdiction. Such extension would seem politically costless were it not for the international repercussions that would affect political relations with the Soviet Union and Japan as well as other U.S. interests in the oceans. Since salmon range far beyond 200 miles from shore, a 200-mile limit would fail to protect them and would also invite action against U.S. distant water fishing interests such as shrimp and tuna. For this reason, the salmon, shrimp and tuna segments of the U.S. fishing industry have opposed 200-mile legislation. Due to the impetus behind such legislation, opposition to the bill by segments of the fishing industry is perhaps more politically effective than the opposition of the Departments of State and Defense. These agencies have consistently warned that U.S. global and maritime interests would be seriously affected by the retaliatory or imitative actions that would follow a unilateral extension of U.S. fishing jurisdiction.

Despite these admonitions, the U.S. Senate passed a 200-mile extension bill (S.1988) on December 11, 1974 by a vote of 68 to 27. This legislation was designed to extend the U.S. contiguous fisheries zone to 200 nautical miles (including the territorial sea) and give the U.S. management authority over salmon spawning in U.S. rivers throughout their migratory range. As drafted, the measure would have terminated when the Law of the Sea Conference reached an agreement on an acceptable treaty. S. 1988 lapsed with the 93rd Congress but was reintroduced in both houses of the new Congress. A large number of fishing bills, embodying substantially different approaches to fisheries management, were subsequently introduced before the 94th Congress. By the summer of 1975, the House Merchant Marine and Fisheries Committee saw the advisability of combining the various bills into a single piece of legislation that would satisfy diverse fishing interests. Accordingly, H.R. 200 was "marked up" with amendments that attempted to resolve some of the critical points at issue in earlier bills.

An examination of some of these earlier bills, together with the responses they elicited, provides a useful insight into the various groups that have been actively concerned with the determination of U.S. fisheries policies. In its original form, H.R. 200 reflected, primarily, a concern for U.S. coastal fishing interests. It provided for the extension of U.S. fishing jurisdiction to 200 miles, and over anadromous species wherever they might migrate in the oceans. It called for managing highly migratory species, such as tuna,

through international arrangements. The coastal fishing industry supported H.R. 200's immediate acceptance to prevent further depletion of offshore fisheries. Despite provisions for anadromous and highly migratory species, the bill was opposed by the tuna and salmon industries as well as by the shrimp industry. These groups pointed out that the bill was simply exclusionary of foreign fishing interests without providing for conservation guidelines or for fisheries management and full utilization. Spokesmen for the salmon industry stated that to proceed unilaterally would not protect the fishery since it would require a surveillance and enforcement effort far beyond the U.S. capability to implement. The United States, it was pointed out, would not even be able to enforce a 200-mile fisheries zone, much less an extended regime for salmon. To proceed unilaterally via H.R. 200, in the view of noncoastal fishing interests, would simply invite retaliation against U.S. distant water fishing without providing an adequate scheme for protecting U.S. coastal fishing from overfishing by U.S. fishermen.

An alternative approach was advanced in H.R. 1070 which, with its clarifying amendments, was supported by noncoastal fishing interests and various internationally oriented groups. It did not call for a 200-mile zone and it would have applied conservation measures to all fishermen—U.S. as well as foreign—on the basis of Article 7 of the 1958 Convention on Fishing and Conservation of the Living Resources of the High Seas. According to this bill, the Secretary of Commerce would establish conservation measures to protect fish stocks in areas believed to be overfished. The United States would negotiate conservation measures with appropriate foreign fishing nations for a six month period. At the end of the six months, if agreement was not forthcoming, the Secretary of Commerce could proceed unilaterally to apply conservation guidelines to all vessels operating in the designated areas. The main advantages of the H.R. 1070 approach, in the view of its supporters, were that it was consistent with international law, preserved the U.S. position in the LOS Conference, and did not threaten to provoke a rash of unilateral 200-mile extensions by other states. Coastal fishing interests opposed H.R. 1070 as worse than no legislation at all. They pointed out that only 33 nations have signed the Geneva Convention on Fisheries and that Japan and the Soviet Union are not among the signatories. These major fishing nations would not be bound by legislation based on a treaty to which they were not a party. Moreover, the coastal fishing interests have argued, a bill which does not discriminate against foreign fishermen would threaten preferential rights which U.S. fishermen

have already acquired in offshore fisheries. It would lack the clarity and effectiveness of a simple move to create a 200-mile zone.

H.R. 3412 was designed "To Extend the Fisheries Management Responsibility and Authority of the United States over Fish in Certain Ocean Areas in Order to Conserve and Protect Such Fish from Depletion and for Other Purposes." It was opposed by U.S. coastal and distant water fishing interests for different reasons. Internationalists and the distant water fishermen objected to its provision for establishing a 200-mile management zone although they supported many of its ideas for management. U.S. coastal fishing interests, on the other hand, opposed the management provisions of H.R. 3412 as an attempt by the Administrator of the National Oceanic and Atmospheric Administration (NOAA) to gain new, far reaching powers for its National Marine Fisheries Service (NMFS). This agency, they argued, has never been responsive to the best interests of the fishermen and knows little about the fishing industry. Coastal interests preferred to extend U.S. fishing jurisdiction immediately and adopt management provisions later under a system in which they would have a greater input than provided for in H.R. 3412.

The premise behind H.R. 3412 was that management provisions must be spelled out in any move to extend U.S. fisheries jurisdiction. The bill would have given the NOAA Administrator the authority to promulgate management regulations to conserve offshore fisheries and would have created agencies to manage fisheries at the State, regional and national levels. It would have established an advisory board and council for public input into fisheries management. Among the provisions of H.R. 3412 was a basis for determining license fees which would have provided that ten percent of fees collected from foreign vessels fishing in the U.S. zone would be used to defray the cost of licenses required of U.S. vessels fishing off other nations. In this and other respects, H.R. 3412 was applicable to a post-treaty as well as a pretreaty situation, assuming the treaty favors 200-mile economic or resource zones.

The marked up version of H.R. 200, which differs in some respects from its companion bill in the Senate (S.961), does attempt to accommodate the interests of those segments of the industry which had responded negatively to its earlier coastal orientation. It provides that by July 1976 the United States would declare authority over coastal and anadromous species, managing coastal resources out to 200 miles and anadromous stocks on the high seas. To satisfy the U.S. distant water fishermen, the bill requires the Secretary of State to negotiate access for U.S. fishermen to fish

stocks within 200 miles of foreign nations. If a nation refused to negotiate in good faith, it would be prohibited from exporting seafood into the United States. The bill does not include provision for highly migratory species, indicating that they are to be regulated by international commissions. It does, however, establish a rather complex management plan for the purpose of achieving "optimum sustainable yield"—a goal which is defined to include biological, ecological, economic and social considerations.

While the Congress worked to develop a compromise that would satisfy diverse fishing interests, officials in the Department of State contemplated drafting legislation that would preserve relations with foreign governments while meeting domestic fishing needs. Ultimately the State Department resolved to oppose unilateral fishing legislation on the grounds that the international resolution of the law of the sea issues was preferable to proceeding unilaterally. The Secretary of State, in an address before the American Bar Association, specifically linked the Administration's opposition to 200-mile legislation to a U.S. resolve to conclude the Law of the Sea Conference in 1976.[2]

U.S. Policy and the Law of the Sea Conference

The domestic debate over legislation has been strongly affected by the international context. Major international factors are heavy offshore fishing by foreign nations, the extension of fisheries jurisdiction by other nations (ten countries have unilaterally extended their jurisdiction to 200 miles), and the ongoing UN Conference on the Law of the Sea. Among the many issues under consideration by the Law of the Sea Conference, fisheries is one of the most complex and most sensitive politically. At the international level, it provokes divisions between the North and South, between the distant water and coastal fishing states, and between the land-locked and geographically disadvantaged states, and neighboring coastal states.

Evolution of U.S. Policy

The U.S. fishing interest is beset by divisions within the fishing industry, international disagreements about the ocean regime, and differences of opinion with other U.S. ocean interests. All of these variables must be taken into account in understanding the evolution of U.S. fisheries policy in the context of the Law of the Sea Conference. In the events leading up to the Conference, the first

official U.S. policy statement dealing with fisheries was made in February of 1970. At that time, the U.S. Government indicated its willingness to negotiate an international treaty that would fix the limit of the territorial sea at 12 miles, provide for freedom of transit through and over international straits, and carefully define preferential fishing rights for coastal states on the high seas. This tripartite set of proposals reflected a balanced set of quid pro quos from the U.S. point of view. The United States would recognize 12-mile territorial seas only if freedom of transit were guaranteed through straits that would be overlapped by 12-mile territorial waters. Preferential fishing rights were included as a third part of the package with the hope of appeasing coastal fishing interests at that time. Nine Latin American nations had claimed zones of 200 miles, avowedly to protect fishery resources off their shores. To halt the trend toward such claims and to induce these nations to roll back established claims, the United States proposed that special or preferential rights to offshore living resources be granted to coastal states. According to the concept of preferential rights, a coastal fishing nation would be able to reserve a portion of the catch off its shores for its own fishermen. The amount would be determined by the coastal state's economic dependence on or extent of investment in offshore fisheries. The 1970 proposal deliberately avoided the concept of a fishing zone that might ultimately evolve into a fixed area of expanded coastal state jurisdiction.

A notable feature of the 1970 tripartite policy was the lack of any input by domestic fishing interests. The U.S. provisions on fisheries sought to balance Soviet and Japanese distant water fishing interests with the coastal interests of developing nations in order to persuade the latter to accept 12-mile territorial seas and freedom of transit through straits. In effect, the U.S. fisheries position in 1970 was designed to meet the concerns of other nations for the purpose of facilitating an international agreement on straits. The reasons for the lack of an industry input into fisheries policy were twofold. In the first place, fishing interests were simply not aware that discussions affecting their interests had been underway within the U.S. Government and with other governments. Secondly, the differences between various segments of the industry made a policy input difficult.

The February 1970 statement on fisheries, although sketchy, was sufficient to alert the industry to discussions in progress and to act as an inducement to concerted action. Distant water segments of the U.S. fishing industry had the same negative reaction to a preferential rights approach as the Soviet Union and Japan. The U.S. coastal fishermen, like developing coastal nations, favored

expanding coastal state fishing rights and were happy to see movement in this direction. Neither segment of the industry, however, was happy about being excluded from policy deliberations. Despite their differences, coastal and distant water fishing interests recognized that they would have to act in concert if they were to have an input into U.S. fisheries policy.

In order to gain a voice in policy formulation, the fishing industry began to exert pressure on a number of fronts in 1971. With congressional support, two executive branch voices for the industry gradually strengthened their positions vis a vis other actors in the law of the sea policy process. In the State Department, the Special Assistant to the Secretary for Fisheries and Wildlife was appointed the Coordinator for Marine Affairs in January 1971. The creation of the National Oceanic and Atmospheric Administration in the Commerce Department in 1970 had seen the transfer of Interior's Bureau of Commercial Fisheries to NOAA's National Marine Fisheries Service. No longer having to compete with petroleum interests for the attention of top officials in Interior, fisheries interests were able to play a larger role in LOS fisheries policy with the help of NOAA officials. The industry has exerted leverage on the Congress not only at the State level but also through its various Washington offices and through the National Fisheries Institute and National Canners Association. When a private Advisory Group on Law of the Sea was formed in 1972, the industry mobilized its congressional support to obtain two seats on the U.S. delegation for its fisheries subcommittee. While the extra seat reflected continuing differences among coastal, anadromous and distant water interests, the desire for a voice in the policy process promoted a degree of cooperation.

The adoption of the "species approach" as official U.S. policy was the most notable product of industry cooperation. It was first elaborated, together with the U.S. position on straits and the territorial sea, on July 30, 1971, before the UN Seabed Committee. The species approach applied the concept of coastal state preferential rights to coastal and anadromous stocks of fish beyond an exclusive fishing zone of up to 12 miles. Coastal states would not have preferential rights to highly migratory oceanic species such as tuna, thereby protecting the U.S. fleets off the west coast of Latin America. To provide for U.S., Soviet, and Japanese fishing off the shores of other nations—at least temporarily—the United States proposed that the fishing capacity of a coastal state be used to determine the extent of its preferential rights in its offshore fishery. As that capacity expanded, so would the coastal nation's preferential rights, leaving, of course, the problem of how to phase

out fishing efforts of other nations in the area. To deal with this and other problems, the U.S. proposal included provisions for international cooperation in inspection and dispute settlement as well as joint conservation measures to prevent overfishing. Only if all other measures failed was unilateral state action deemed acceptable. Like the 1970 U.S. seabed proposal, the U.S. species approach of 1971 envisioned a strong role for international and regional organizations in the regulation of high seas resources and sought thereby to reduce pressure for unilateral extension of coastal state control over offshore resources.

As elaborated in 1971 and as revised in 1972, the species approach represented an effort to accommodate U.S. fisheries policy to the prevailing trend toward resource zones of up to 200 miles. Canada's expanded fishery jurisdiction had gone into effect in February 1971. Brazil had applied restrictive fishing measures to a distance of 200 miles. Most significantly, even Malta's Ambassador Pardo had spoken out in favor of a 200-mile resource zone. Within the government the issue of fisheries received a great deal of attention throughout 1971. The viability of applying the trusteeship concept to fishery resources or alternatively of accepting functional or resource zones was the subject of a National Security Study Memorandum soliciting agency responses. The objective of this review was to straighten out U.S. policy priorities among the diverse issues under consideration by the United Nations Seabed Committee. The apparent result of the review was to disentangle fisheries from other considerations.

In August 1972, when the United States next introduced draft articles on fisheries to the UN Seabed Committee, they were no longer linked to territorial sea and straits policy. In the fisheries articles as well as in seabed policy statements, there were further concessions granting the coastal state jurisdiction over offshore resources. U.S. distant water fishing interests played a role in drafting the article, as evidenced by retention of the species approach, but majority international sentiment for wide fishing zones was also a major factor behind the 1972 revisions in U.S. fisheries policy. The new articles provided that the coastal state would regulate harvesting of coastal and anadromous species and that international fisheries organizations would regulate highly migratory stocks. The coastal state had the right to reserve to its flag vessels all the stocks it could harvest. Above that level and to the point of scientifically determined maximum sustainable yield, the coastal state would grant access to other fishing states with priority to those historically fishing the area and then to other states in the region. As its own fishing capacity increased, the

coastal state would reduce the amount of catch allocated to the other states.

The United States reiterated the species approach in meetings of the Seabed Committee in 1973. Then at the 1974 Caracas session of the Law of the Sea Conference, the U.S. moved to accept a 200-mile resource zone. The U.S. draft articles on the economic zone and continental shelf[3] attempted to combine the species approach with a zonal approach. The articles stipulated that the coastal state would exercise jurisdiction and sovereign and exclusive rights for the purpose of exploring and exploiting the natural resources of the 200-mile zone. In regulating fisheries within the zone, the coastal state would insure conservation and full utilization of the resources. The coastal state would establish the allowable catch, within which limit it would harvest up to its full capacity.

Traditional fishing states and states of the region would be licensed for a reasonable fee to harvest the remainder of the allowable catch. Fishing for anadromous species would be prohibited except as authorized by the state of origin. And management of highly migratory species would be governed by regulations established by regional or international organizations. The organization would establish allowable catch, allocation regulations and rules for the collection and payment of licensing fees.

Since Caracas, the U.S. species approach to the 200-mile zone has remained unchanged. The evolution of the U.S. fisheries position after 1970 in an increasingly coastal direction and the U.S. acceptance in 1974 of a 200-mile resource zone were in response to strong domestic and international pressures. The pressures to expand coastal state jurisdiction have remained constant—both domestically and internationally—since the Caracas session. The Administration, however, appears committed to opposing these pressures, at least until the 1976 meeting of UNCLOS III.

The Single Negotiating Text

While the Geneva session of UNCLOS III witnessed an increasingly complex set of political interactions, particularly with the fragmentation of the Group of 77 on some issues and the emergence of the land-locked and geographically disadvantaged states, the concept of a 200-mile resource zone seems to have achieved a high degree of acceptability. There remain, however, significant international differences of opinion with regard to the actual powers of states within 200-mile zones. At one end of the spectrum, a few South American states support a 200-mile

territorial sea or its functional equivalent. At the other end of the spectrum, the United States and other maritime nations would like to see coastal state jurisdiction in the zone limited to the management of resource-related activities with strong international rights and regulations to apply to other activities in the zone.

In many respects, the single negotiating text produced by the chairman of Committee II does not protect U.S. distant water and maritime concerns in an offshore zone. This is especially true of the texts's provisions on highly migratory fisheries. With regard to coastal and anadromous species, however, the U.S. position has been substantially realized. The Committee II text deals with fisheries only under the heading of the exclusive economic zone. Article 45 grants the coastal state "sovereignty rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether renewable or non-renewable," of the exclusive economic zone. Coastal state rights and responsibilities include the right to determine the allowable catch of living resources in the zone for the purpose of achieving the maximum sustainable yield of fisheries populations (Article 50). This determination should take into account the best evidence available to the coastal state. Data relevant to the conservation of fish are to be contributed through appropriate international organizations and by all states concerned with a fishery.

The coastal state is also given the right to determine the "optimum utilization" of living resources in its zone (Article 51). Where the coastal state does not have the capacity to harvest the entire allowable catch, it shall give other states access to the surplus, taking account of various factors such as the importance of the resource to the coastal state, the interests of neighboring landlocked or geographically disadvantaged states, the interests of other states in the region, and the concerns of states that have traditionally fished the area. In this listing, the interests of distant water states traditionally fishing within 200 miles of shore appear as one of several considerations—a fact that may prove disheartening to the U.S. shrimp and tuna fleets. The terms and conditions which may be established by coastal state regulations are numerous and far-reaching. The coastal state may issue regulations regarding licensing, the size of licensing fees, the species that may be caught, the size of the quotas, the seasons and areas of fishing, the gear to be used, the age and size of fish that may be caught and the information to be required of fishing vessels. Coastal state regulations may also apply to fisheries research, which it will authorize and control, to the disposition of samples, to

the placing of trainees on research vessels, to the landing of all or part of the catch of research vessels in the ports of the coastal state, and to requirements for training personnel and transfer of fisheries technology.

Apart from an annex listing highly migratory species of fish, the Committee II text has only one article dealing with migratory species. Article 53 describes regulation of this fishery as "regulation by the coastal state in its exclusive economic zone of fishing for the highly migratory species listed in the annex." To ensure conservation and optimum utilization of such species, the "coastal State and other States whose nationals fish highly migratory species in the region shall cooperate directly or through appropriate international organizations." This article does not go far toward meeting the U.S. position that highly migratory species must be regulated by regional organizations if they are to be effectively managed.

In a sense, Article 54 dealing with anadromous species is more successful in positing a cooperative approach to the management of the species in question. It states that the coastal state in whose rivers anadromous stocks originate "shall have primary interest in and responsibility for such stocks." The state of origin shall establish regulatory measures for fishing within the economic zone and for fishing by other states in other areas. After consultation with other states fishing these stocks, the state of origin may establish total allowable catches for stocks originating in its rivers. Fishing for anadromous stocks shall be conducted only within exclusive economic zones except when this provision would result in economic dislocation for other states. The state of origin "shall co-operate in minimizing economic dislocation in such other States," taking into account the normal catch, mode of operation and areas fished. The possibility for meaningful cooperation is promoted by the provision for special consideration in harvesting of stocks to be given to those states that participate by agreement with the state of origin on measures to renew anadromous stocks, particularly through expenditures for that purpose. Thus, special expenditures to maintain spawning rivers could be the joint responsibility of all states interested in fishing the stock. The article dealing with anadromous species is the only one in which cooperative approaches are spelled out—perhaps because the salmon issue was viewed as a problem among developed states by the El Salvadorian chairman of the Second Committee. In all other articles on fisheries, the rights of the developing coastal state are stressed.

Articles 57 and 58 dealing with land-locked and geographically

disadvantaged states would appear to be similarly biased in favor of developing coastal states. Although article 57 provides that land-locked states have "the right to participate in the exploitation of the living resources" of the zones of adjoining coastal states, this right is to be exercised "on an equitable basis, taking into account the relevant economic and geographic circumstances of all the States concerned." Similarly, developing coastal states of a region which can claim no zone of their own or are "particularly dependent for the satisfaction of the nutritional needs of their populations" on fishing in the zones of neighboring states have the right to fish in the zones of other states in the region "on an equitable basis," taking economic and geographic circumstances into account. Land-locked, geographically disadvanted, and regional fishing states are somehow to pursue this right with states concerned through bilateral, subregional or regional agreements. The stress on coastal state rights elsewhere in the text would give other states—whether land-locked, traditional fishing states, or disadvantaged states—little leverage to effect a cooperative management approach, much less a right to fish. Indeed, it is not difficult to foresee unconstrained authority in the hands of coastal states.

The provisions of article 60 with regard to enforcement bear out the primacy of the coastal state. In the exercise of its sovereign rights the coastal state may "take such measures, including boarding, inspection, arrest and judicial proceedings, as may be necessary to ensure compliance with the laws and regulations enacted by it." Nowhere in the articles on fisheries is there any reference to provisions for compulsory settlement of disputes. The coastal state is rule maker, enforcer and arbiter when it comes to fishing activities in its 200-mile zone.

The U.S. reactions to the fisheries provisions of the Geneva text are several. The U.S. Government will probably find the absence of restrictions on coastal state rights unacceptable although the provisions for coastal state management will probably be supported. Indeed, should a treaty be enacted listing possible coastal state regulations along the lines of the Geneva text, the Federal Government would have very useful leverage vis a vis U.S. coastal fisheries for enacting national management legislation. The coastal fishing industry, on the other hand, supports the strong emphasis of the text on coastal state rights in the economic zone but argues that the government cannot await a law of the sea treaty and that it must proceed unilaterally to enact 200-mile legislation. These interests do not favor the provisions of article 51 which spells out possible coastal state management regulations. They prefer to

extend offshore jurisdiction first and attend to management problems later. The tuna industry is understandably distressed with the text's provision for coastal state management of highly migratory species with only weak references to international cooperation. Anadromous fishing interests, while perhaps wishing more protective language, would find a treaty which incorporates the Geneva provisions a useful basis for negotiating with states fishing U.S. salmon.

As discussed earlier, the Geneva texts are the product of the chairmen of the three main committees and, as such, do not necessarily reflect a negotiated treaty outcome. The extent to which the provisions of the text approximate the outcome that would have been reached if an item had been negotiated varies from issue to issue. In the case of the provisions on fisheries, the Committee II chairman relied to a substantial extent on the text negotiated within the Evensen group,[4] except for the article on highly migratory species. The fisheries provisions might therefore be viewed as approximating the outcome that would have been negotiated. Of course, whatever the language of the Geneva text, it is not at all certain that a final treaty will embody similar provisions, or even that there will be a final treaty.

Options for the U.S.

U.S. policy options in the area of fisheries may be considered in terms of several criteria. These may be divided into two sets of issues: economically efficient management of the resource and feasible modes of action to implement management goals. Economic as well as biological management goals may be pursued in the context of an international fisheries regime. Other aspects of an economically and biologically rational fisheries policy would include the establishment of property rights through management schemes for ecological systems of fish, on a species by species, zonal or regional basis, as appropriate. Difficult political issues which must be considered are: the legal content of coastal zones; the extent of coastal state authority; the terms of access for states exploiting a fishery; and special rights for categories of states such as land-locked and developing states. The implementation of U.S. policy options may be considered in terms of the available modes of action. These range from strictly national decisions through international cooperative arrangements. And finally, U.S. options

in the area of fisheries must be considered in terms of the international situation that will emerge from the Law of the Sea Conference. The international environment will be determined in large measures by whether or not there is a treaty and by whether the U.S. subscribes to its contents.

A Management Approach to Fisheries

Historically, the focus of national and international fisheries regulation has been biological. Most management schemes and regional commissions have been established to conserve fishery resources or maintain stocks at the level of maximum sustainable yield. The 1958 Geneva Convention on Fishing and the Conservation of the Living Resources of the High Seas is based on such biological goals. Under this type of approach, the assessment of stock size, range, recruitment, natural fluctuations of stock, and other features has become more sophisticated. Regulatory techniques based on biological goals include catch quotas, closed areas, closed seasons and techniques which alter or restrict fishing effort such as boat size, gear restrictions and so on. These methods reflecting exclusively biological goals are used by local fisheries and international commissions. They have sometimes resulted in highly inefficient fishing practices and in overcapitalization of some portions of the fishing industry. In recent decades, attention has been given to regulatory approaches based on economic as well as biological goals. Rather than adopt techniques that hinder technological innovation and lead to over-concentration of factors of production in the industry, an economic approach to regulation would limit the extent of effort in a fishery by restricting access to the stock. From a national as well as an international perspective, a sound management program would combine biological and economic objectives, and would seek to produce the greatest net economic return where politically feasible. Based on this analysis, a second best objective would be the maintenance of maximum sustainable yield.

Fundamental to the problem of management is the establishment of clear responsibility for fisheries management both now and in the future. Assignment of property rights is complicated by the fact that living resources of the ocean are geographically mobile and are part of a total ecosystem of the oceans. The establishment of 200-mile national fishing zones will not be sufficient if a stock does not stay within that area throughout its entire life cycle. Moreover, even where species are stationary, they are dependent upon a total ocean ecosystem which transcends the limits of any zone. A coastal species may feed on another species that migrates beyond the zone.

Similarly, environmental problems are easily transferred from one zone to another. The division of the oceans into coastal state fishery zones with international areas beyond will therefore be inadequate to meet the needs of rational fisheries management for many fishing stocks in the absence of strong and effective international and regional environmental and resource regimes.

In the course of determining property rights in fisheries, a number of difficult political problems must be addressed. If coastal state fishery zones become the norm, what types of rights will be enjoyed by other states—by land-locked states, by other states of a region, or by states traditionally fishing an area? The allocation of access rights should be determined within the scope of a biologically and economically sound management regime. It is important that the extension of fishing limits be designed to protect fishing stocks and provide a means of limiting effort—not just to protect local fishermen from more efficient foreign fishing. Important questions must also be confronted as to how state action can be harmonized with regional and international fisheries organizations to achieve a satisfactory fisheries regime.

Feasible Modes of Action

From the U.S. point of view there are several modes of action which it, or for that matter other states, may employ to pursue its national interest in fisheries. These modes include: national action; unilateral moves; bilateral negotiations; regional or multilateral cooperative approaches; and global international activities. Each of these means can and probably will be employed whether a treaty is or is not agreed upon at the Law of the Sea Conference.

National action includes those measures which are primarily domestic in orientation and which would be least affected by and have the least effect upon the international situation. Even national action, however, will depend for its feasibility in some cases on external events. National actions pertaining to fishing off the United States might include the development of effective management schemes within areas of U.S. fishing jurisdiction, the improvement of the effectiveness of the National Marine Fisheries Service as a management agency, or the improvement of Coast Guard enforcement capabilities. Such activities which pertain to domestic jurisdiction would inevitably be affected by the degree of international acceptability that is accorded to a fisheries regime. If a regime is agreed upon at UNCLOS III, then the adherence of most or all states to the regime would facilitate management and enforcement of regulations within areas of jurisdiction. Indeed, where appropriate, managerial responsibilities and enforcement

costs could be shared between the United States and other states wishing to fish within areas of U.S. national jurisdiction.

With regard to U.S. distant water fishing, the scope for national action is all the more important. National action could include reimbursing U.S. vessels for fines or licenses related to fishing in areas claimed by other nations. This would prove particularly difficult if the United States were to require licenses for foreign fishing in a U.S. zone. It could also prove to be an extremely costly course of action. If there is no treaty or if there is a treaty that results in a multiplicity of jurisdictional claims, the United States would probably find itself reimbursing a larger proportion of fines than licensing fees. Moreover, such an approach might encourage other nations to subsidize their fishing vessels operating within a U.S. national zone. Another form of national action with foreign policy consequences that approximate unilateral action is the restriction of imports from countries that harass or arrest U.S. vessels or for other reasons. The frequency of such incidents and the need for such import restrictions will be directly affected by whether there is or is not an internationally agreed fishing regime emanating from the Law of the Sea Conference.

Unilateral actions include actions with direct international political consequences. Like national actions, unilateral actions will vary depending upon whether there is or is not an acceptable law of the sea treaty and upon how long it would take to agree on a treaty. Unilateral action differs from national action in its focus. It is specifically directed at other nations and as such is more clearly a matter of foreign policy. With regard to coastal fishing, U.S. unilateral action could be one of two types, depending upon the treaty outcome. If an acceptable treaty resulted from the Law of the Sea Conference, the United States could issue regulations or enact legislation to implement its provisions vis a vis other governments. If there is no treaty or if the treaty is unacceptable to the U.S. either in whole or as regards fisheries, the United States could act unilaterally via legislation or executive decree to determine a fisheries regime off its own coasts. A variation on this second form of unilateral action would be if the United States proceeded to legislate a fisheries regime such as a 200-mile fishing zone even before the Conference concluded.

If the United States were to act before the end of the Conference or in opposition to a treaty it found unacceptable, it would encounter greater difficulties in enforcing a coastal zone management scheme on other nations in an international atmosphere of some resentment. This, of course, would vary according to the extent of positive inducements included in the legislation. The

approach would, however, adversely affect relations with Japan and the Soviet Union. If no treaty results there will still be enforcement problems, although presumably less hostility at a U.S. action taken in an international vacuum.[5] And finally, if U.S. unilateral action consisted merely of regulations and legislation to implement a treaty, it would encounter the fewest difficulties in enforcement. Not only would enforcement vis a vis other nations be facilitated, but also vis a vis U.S. coastal fishermen. An international treaty providing for coastal state management of fisheries in extended offshore zones would simply add weight to the argument for Federal management and regulation of offshore fisheries.

Unilateral action with regard to U.S. distant water fishing is more problematic than that taken in coastal areas. It would have to be based on a U.S. intent to carry out distant water fishing in a manner consistent with the U.S. view of applicable international law. It might include naval escort of U.S. fishing vessels and a resort to force where necessary. If there were a law of the sea treaty and if the U.S. view of its fishing rights were consistent with that treaty, then such unilateral enforcement actions against a non-complying state would have a measure of international acceptability. If, however, there were no treaty to back up the U.S. interpretation of its fishing rights off other shores, resort to escorts and the use of force would tend to engender a degree of international hostility. On the other hand, if such enforcement action were agreed upon and were undertaken by a number of like-minded states, it could be viewed as setting the parameters of customary international law. Of course, in the event that a U.S. action were taken alone and in opposition to an international law of the sea treaty, it would meet the greatest resistance.

Bilateral fishing relations will continue to be an important mode of action with or without a law of the sea treaty. If a treaty results, however, the ease with which the U.S. pursues its interests through bilateral negotiation will depend very directly on the content of that treaty. In the case of a treaty unacceptable to the U.S., the United States would encounter major difficulties negotiating bilaterally with nations that supported the treaty. Those in agreement with the treaty provisions would have the weight of treaty law behind them. Of course, the reverse would hold as well. Favorable treaty provisions would facilitate achievement of the U.S. position in bilateral negotiations. This is particularly important in pursuing distant water and anadromous fishing interests. Although a satisfactory treaty would ease negotiations with regard to a 200-mile zone, the United States necessarily enjoys

more leverage in its own offshore areas than in areas off the coasts of others. Still, the enforcement of bilaterally negotiated quotas and similar management measures can only be made easier if it is backed by international sentiment reflected in a treaty.

In addition to inter-governmental bilateral relations, distant water segments of the fishing community might pursue private bilateral arrangements with other countries. Where a government seeks assistance with regard to fisheries research in improving its fishing capability or simply in fully utilizing offshore fisheries, it might develop the appropriate bilateral arrangements with U.S. distant water fishermen. These could range from special licensing arrangements through joint ventures to incorporation in the host country.

Regional fisheries commissions have been in existence for some time. Bodies such as the International Commission for the Northwest Atlantic Fisheries (ICNAF) establish gear and vessel restrictions, quotas, closed areas, closed seasons and other regulations. The international fisheries commissions have generally adopted regulations only when decline in a stock becomes apparent. Their goal has been biological—namely to conserve stocks—and biological assessment and analysis have been important aspects of their work. These organizations rely on voluntary national compliance in reporting and in staying within assigned quota limits. The lack of a capability to enforce their regulations has been a primary weakness of regional organizations. Another problem of regional organizations is the failure to receive up-to-date scientific data upon which to base advice and regulations.

Despite their weaknesses, regional arrangements could continue to serve a useful purpose in the aftermath of the Law of the Sea Conference. If no treaty is agreed upon, they will be a particularly important means to secure international cooperation where coastal zones do not coincide with the range of a stock, or where nations have traditionally fished the waters of other states. If a treaty is agreed upon, and particularly if it extends national fishing jurisdiction to 200 miles, the role of regional organizations may be significantly altered depending on the amount of competence vested in the coastal state. If the coastal state is granted the authority to determine the maximum sustainable yield and relevant economic and environmental factors, as well as to allocate quotas, the role of regional organizations would be strictly advisory. In addition to compilation and interpretation of scientific data, however, a treaty might allow scope for a regional organization to play a significant regulatory role. With regard to highly migratory species or in semi-enclosed seas and areas where

fisheries cannot be divided into discrete coastal state zones, regional management organizations will be imperative for rational management of stocks.

At the global international level most regional fisheries councils and commissions operate under the Food and Agriculture Organization of the UN (FAO). Pending the outcome of the Law of the Sea Conference, FAO has been relatively inactive. A law of the sea treaty could, of course, substantially alter the role of such an organization as well as the role of its regional subgroups. The Conference has not directly addressed the function of an international fisheries organization. Clearly the present scientific advisory function could be improved through increased financial and staff support. Moreover, FAO might be granted international standard setting authority comparable to that enjoyed by the Intergovernmental Maritime Consultative Organization with regard to international shipping. Whatever its future authority, the data gathering functions should be closely coordinated with the work of the Intergovernmental Oceanographic Commission relating to fisheries research.

At the international level, perhaps the most important activity with regard to fisheries is the present UN Conference on the Law of the Sea. In that forum, states have elaborated their positions, come to understand the positions of others and tried to reconcile the differences between them. The task of UNCLOS III has been to determine a legal regime for the oceans which deals, among other things, with fisheries. It is understandable, therefore, that international and regional organizations as well as coastal and distant water fishing states attach great importance to the results of the law of the sea negotiations.

Alternative Treaty Outcomes

The policy options confronting the United States can be divided according to alternative treaty outcomes: (1) no treaty, (2) treaty takes too long, (3) treaty produced is unacceptable, (4) acceptable treaty is produced. Each situation will produce a different international climate as well as greater or lesser degrees of support for the U.S. position.

If no treaty results, the present international situation of conflicting jurisdictional claims will become more confused as increasing numbers of states extend offshore jurisdiction for a variety of purposes. The United States will have to consider carefully its national, unilateral and regional or international fisheries policies in terms of (1) the effect they will have on other

nations, and (2) the difficulty of implementing them.

A unilaterally declared fisheries zone, for example, should be established only with great care. It may be designed as a model for other coastal states with carefully drawn rights for distant water fishing interests. It could be designed to complement regional and international cooperative approaches and, insofar as possible, the U.S. might proceed multilaterally. That is, the United States could work closely with like-minded states in developing coastal zone legislation and act in concert with these states. In the course of the LOS negotiations, the views of states have been sufficiently clarified to facilitate the task of determining states with which such a cooperative approach might be undertaken.

Bilateral arrangements would be complex in a no-treaty situation. Initially, distant water and coastal interests would tend to enjoy a certain parity but customary law would quickly evolve—doubtless in the direction of 200-mile coastal zones. From the point of view of U.S. distant water interests, there would be little international legal protection in this situation. Bilateral leverage would have to be obtained from non-fisheries areas. Of course this situation would be improved where U.S. coastal legislation protected distant water interests and was supported multilaterally. If the United States were to play a formative role in the development of customary law, it would have to consider limited enforcement activities—preferably in conjunction with like-minded states.

Regional and multilateral efforts would play the greatest role in a no-treaty situation if rationally calculated management approaches are to be achieved and customary law is to develop satisfactorily. Management would be oriented toward ecological systems of fish and would be considered in conjunction with environmental measures which have similar consequences affecting areas beyond arbitrarily drawn zones.

U.S. options where negotiation of a treaty stretched into an indefinite future differ from those where a conference produces no treaty. As negotiations continue, domestic pressure for the extension of fisheries jurisdiction to 200 miles will mount. Indeed, action may be taken in this direction before the March 1976 session of the Conference. A number of countries are waiting for the United States to move, before taking such action themselves. Their claims may not, however, resemble a U.S. action. The reason that countries are waiting for the United States to move first is that an extension of jurisdiction to 200 miles will generate a negative reaction on the part of land-locked and geographically disadvan-

taged states and will constitute a direct challenge to the decision-making role of the Law of the Sea Conference. If the U.S. acts to anticipate a Conference result, the United States will bear the burden of accusations that she is attempting to destroy the Conference. Other nations can then safely move to enact their own preferred measures.

The option to proceed unilaterally if agreement on a treaty is delayed would seem to have serious disadvantages. In the first instance, it would engender a generally negative response as an act destructive of the Conference. In the second place, it would lead to specific unilateral responses which, quite different from the U.S. action, would jeopardize U.S. distant water fishing interests. In the third place, the response of other countries might prove restrictive of and detrimental to other interests the United States is pursuing in the oceans. In the final instance, the U.S. ability to enforce its action would be more difficult in an environment of international hostility or non-compliance.

Even worse from the U.S. viewpoint than no treaty or a treaty that is too long in the making would be a treaty outcome that is unacceptable to the U.S., in whole or in part. Although a treaty might be voted by as few as seventy-one nations (a majority of the 141 nations participating in the Conference) the fact that it would be a treaty resulting from a major international conference would give it substantial weight. While it is improbable that a totally unacceptable treaty would be voted over the opposition of an influential minority, it is likely that portions of the treaty would be unacceptable to the United States. In that situation, insofar as the unacceptable features include fisheries, the United States has the option of submitting reservations to those portions with which it does not agree. If reservations are acceptable and widely submitted, this course of action would not lead to a particularly negative international response. Of course reservations would not resolve the difficulties that the United States would have in pursuing its policies vis a vis other nations that subscribe to the portion of the treaty rejected by the United States. Efforts to pursue U.S. interests bilaterally, multilaterally or internationally would be most seriously disadvantaged in the situation of a treaty unacceptable to the United States.

Certainly the optimum situation from the U. S. point of view is one in which acceptable treaty provisions, on fisheries as on other issues, would be widely agreed upon. If the Geneva text is any indication, the likelihood of this outcome is small. Every effort should of course be made to improve the single negotiating text by establishing provisions that would facilitate management of entire

stocks or ecological systems of fish. Thus specific powers and responsibilities might be spelled out for regional and international organizations. The text should encourage the pursuit of economic efficiency in fisheries management as well as provide for biological goals of conservation.

Although the United States may not be successful in pushing a LOS Conference to adopt management goals for fisheries, that does not rule out the longer term possibilities. A treaty similar to the Geneva text will lead to practices that will quickly run into difficulty. The United States would be in a relatively better position than most countries to adopt workable national management practices within zones under its exclusive control. Certainly the United States will have to work out cooperative arrangements with her neighbors where fishery stocks range beyond the U.S. zone. But these problems would be minor compared to those that will be encountered by states bordering areas such as the Caribbean or the North Sea. The failure of a zonal approach to provide for sound management in similar situations should lead to a general rethinking of a treaty based on 200-mile zones. As overfishing or inefficient practices become worse, states may be more amenable to adopting regional and international measures and pursuing economic and biological management goals.

Until this happens, the United States will want to pursue sound management practices within its own areas of jurisdiction which may hopefully set a useful example for a subsequent revision of an international regime for fisheries. To accomplish this, the Federal Government would have to exercise its authority to regulate interstate fishing throughout the zone. A realistic means for limiting entry to fisheries would have to be developed. Rather than requiring inefficient practices and restrictions on gear, the government would have to license boats for individual quotas or for the right to fish certain areas. Such management priorities as well as improved enforcement procedures must be adopted in conjunction with any extension of U.S. fisheries jurisdiction whether that comes about unilaterally or by means of a widely agreed international treaty.

NOTES

[1] U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, *Fisheries of the United States, 1974*, Washington, D.C.

[2] Address by Henry A. Kissinger before the American Bar Association Annual Convention, Montreal, August 11, 1975.

[3] United Nations, Third Conference on the Law of the Sea, *United States of America: Draft Articles for a Chapter on the Economic Zone and the Continental Shelf*, A/CONF.62/C.2/L.47 (1974).

[4] An informal negotiating group composed of between thirty and forty member states chaired by Norwegian representative Jens Evensen.

[5] In such a situation it would be particularly important to try to effect a management scheme that would serve as an example for other nations.

CHAPTER 7.

MINERAL RESOURCES

Introduction

Of all U.S. interests in the ocean, perhaps the least ambiguous has been the desire to gain access to ocean minerals. The oil and natural gas deposits off the shores of the continental United States and Alaska are the only promising new source of hydrocarbon resources available to the United States in the near term. The manganese nodules of the deep seabed may one day supply vast quantities of copper, nickel, cobalt and manganese to our import dependent economy. The last 30 years have seen a wide proliferation of claims to extended coastal state jurisdiction over the oceans. At the heart of most of these claims has been the desire to expand national jurisdiction to ensure access to ocean resources. The task of unscrambling these claims has fallen on the Third UN Conference on the Law of the Sea (UNCLOS III).

The resource regimes that will govern the exploitation of ocean hydrocarbons and deep seabed minerals differ according to the location of the resources. Most ocean hydrocarbons are located on continental shelves, and the agreement on an extended zone of coastal state jurisdiction which seems virtually assured at UNCLOS III will put most oil and gas under a coastal state regime. In the United States, this management regime is subsumed under the rubric of outer continental shelf policy and is itself a complex series of domestic issues which cannot be treated here. The minerals of the deep seabed, on the other hand, are more likely to be mined under an international regime. The specific form of this international regime is still the subject of considerable controversy between developed and developing countries.

This chapter will deal with these emerging regimes and U.S. interests and options at UNCLOS and elsewhere.

Section I. Oil Interests and the Law of the Sea Conference

The Early Shelf Debate

Petroleum companies and their supporters were early and active

participants in the debate to establish an outer limit to coastal state jurisdiction. From the beginning, their statements indicate an explicit preference for coastal state control over their operations as opposed to international control. Their position carried the implicit assumption that satisfactory agreements could be struck bilaterally between oil companies and other coastal states.

The United States is generally credited with unilaterally adopting the first important extension of ocean resource jurisdiction. President Truman's proclamation of September 1945 and the accompanying press release claimed that mineral resources of the continental shelf out to a depth of 100 fathoms (600 feet or roughly 200 meters) belonged to this nation, and led to a series of similar claims—and some not so similar—by other coastal states. The most extravagant were those of the west coast Latin American states which claimed 200-mile *territorial seas*, in part to compensate for the lack of a broad continental shelf.

The first two Law of the Sea Conferences in 1958 and 1960 did little to settle the question of the outer limits of coastal state jurisdiction. Whereas a large percentage of states in attendance favored the adoption of a 12-mile territorial sea, no agreement had been reached by the signing of the Convention on the Territorial Sea. States' rights to mineral resources on and below the surface of the continental shelf were recognized in a second convention, and the 200-meter isobath was chosen as a guide. It was not made an absolute limit, however. According to Article I of the 1958 Convention on the Continental Shelf, a coastal state's jurisdiction over mineral resources extends "to a depth of 200 meters or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources. . ."[1] The "flexible" outer boundary of coastal state jurisdiction was generally deemed to be only of academic significance because there were then no economically recoverable resources beyond that depth. Although exploratory wells had already been drilled to much greater depths, the costs were such as to make recovery unprofitable beyond 100 meters.

The calculations of the delegates at UNCLOS I and II proved to be shortsighted. Few foresaw the development of a commercial interest in mining of manganese nodules from the deep seabed or the technological innovations and increasing energy appetites that would render the 1958 limit inadequate.

A short 9 years later, the technological advances that would enable man to exploit the resources of the deepest depths of the ocean were detailed before the UN by Ambassador Arvid Pardo,

the Permanent Representative of Malta. In August 1967 he asked that the subject of the seabed, its delimitation, and its uses be added to the agenda of the General Assembly. The basic tenet of the Maltese proposal was that the resources of the seabed beyond national jurisdiction were the "common heritage of mankind" and that some international regime should be agreed upon to oversee their exploitation. The proposal also envisioned a freezing of national claims to and a demilitarization of the seabed.

While U.S. Ambassador to the UN Arthur Goldberg warmly welcomed the initiative of Malta, other U.S. spokesmen were less than enthusiastic over the proposal. Congressional reaction was prompt and severe. More than 20 different bills appeared in the House and Senate all objecting to granting control over seabed resources to an international authority.[2] The position of the U.S. administration was relatively slow to evolve.[3] Following months of debate within the administration, with the Departments of Defense and State pushing for a narrow area of national jurisdiction and Interior and Commerce advocating a wide area, the decision was made at the highest level to opt for the narrow shelf plan. On May 23, 1970 President Nixon released a statement on the boundary of the continental shelf and the U.S. proposal on the structure of the seabed regime. The United States proposed that all nations renounce claims to the seabed beyond the 200-meter isobath, and that the resources beyond that depth be considered the common heritage of mankind.

The President's policy was encased within formal treaty language by an informal administration task force which worked all summer to prepare a U.S. draft to present to the UN Seabed Committee meeting in August 1970. The draft's most important feature from the standpoint of ocean mineral resource ownership was the proposal for the establishment of an area beyond 200 meters called the "trusteeship zone." In this band between national and international jurisdiction, the coastal state would have had preferential rights with the obligation to turn over to the international seabed authority one-half to two-thirds of resource revenues.

The U.S. draft, while seeming very generous, was not warmly received. Many developing countries found the title given to this intermediate zone distasteful and the plan was attacked as a U.S. plot to dominate the seabeds. Nationally, too, the U.S. drafters came under heavy criticism for relinquishing claim to valuable seabed real estate. Chief among their critics were the oil companies.

The major oil companies, their lobby group (the American

Petroleum Institute), their quasi-official government advisory group (the National Petroleum Council), and the Department of the Interior, had all fought hard to win a presidential decision in favor of a broad band of coastal state jurisdiction for resource purposes. The National Petroleum Council was the most outspoken representative for oil interests. In a 1971 publication, they urged the U.S. Government to assert jurisdiction over the resources of the entire submerged portion of the continent, a distance well beyond the 200-meter isobath being pursued by the narrow shelf advocates:

> It is the carefully considered judgment of the NPC that the August 3 Draft Treaty does not provide the necessary assurance of effective national jurisdiction over the mineral resources of the submerged continental margin of the United States and to which it is rightfully entitled. . .Any treaty which fails to assure effective national jurisdiction over the entire seabed pertaining to the U.S. would be placing in jeopardy a vital national interest of this country.[4]

The interests of the petroleum companies in the resources of the outer continental shelf had first become apparent in 1967 with the advent of new drilling technologies that promised to make exploitation economical at greater depths. New estimates by geologists that all significant reserves of oil would be located on the continental plateau above the deep ocean floor, and the radical procedures embodied in the Malta proposal which threatened to hand over the rights to the international community were two factors that increased oil company interest in the deeper shelf.

Petroleum spokesmen supported their claim to the edge of the margin with carefully drafted legal arguments, and used the threat to national security as further justification. According to the Department of the Interior, oil company representatives, the National Petroleum Council (NPC), and the American Petroleum Institute, the flexible outer boundary of the continental shelf (as defined in the 1958 Convention on the Continental Shelf) implied coastal state jurisdiction beyond 200 meters if the exploitability and adjacency tests of the convention were satisfied. The argument was supported by a discussion of the importance of ocean hydrocarbons to national security and the risk of dependence on foreign sources of oil. Spokesmen for the petroleum interests were not unaware of the fact that 94 percent of all offshore oil was located off foreign shores (a point raised by those interested in convincing oil people that a narrow shelf regime would be more to their liking), but preferred a regime in which they would deal

bilaterally with foreign countries, rather than with a "monopolistic" international authority.

By 1970, satisfactory bilateral arrangements had become harder to conclude following the early successes of OPEC in raising taxes of the oil companies. Oil interests began to realize the benefits of treaty guarantees to ensure freedom of shipping, security of investment and compulsory dispute settlement. With this realization came a willingness to work more closely with the Department of State toward an international treaty.

The oil companies had a somewhat unlikely ally in their struggle within the Interagency Task Force (established by the White House to work out departmental differences and coordinate a U.S. law of the sea policy). In the late 60's, the prospective ocean mining companies shared the oil companies' fears of a monopolistic international authority that would jeopardize their interests. They witnessed the willingness of the Department of Defense to trade off ocean oil resources to insure maximum mobility for the navy, and feared that hard minerals might suffer the same fate. Later, however, oil and manganese nodule mining interests diverged somewhat when the miners began to fear that the hard politicking of the oil companies for a broad zone of national jurisdiction might jeopardize an international seabed agreement. As the different mineral interests began to see their future as tied to different resources regimes, the alliance quickly dissipated.

The internationalists mark this period immediately following the May 23, 1970 presidential statement and the tabling of the U.S. Draft Treaty as the golden age of U.S. ocean policy. In the five years since the president's call for a renunciation of national claims beyond 200 meters, however, the U.S. position has swung toward acceptance of wider coastal state jurisdiction and away from the narrow shelf concept for which the Department of Defense had pushed so hard. While other coastal states have been more strident in their demands for coastal state sovereignty over continental shelf resources, the United States itself has much to gain from expanded coastal state jurisdiction.[5] Yet it has been slow to accept the 200-mile economic zone and its agreement on this issue remains contingent upon (1) satisfactory definition of rights and responsibilities within the zone, (2) a 12-mile territorial sea, and (3) the adoption of a regime of guaranteed passage through straits—the irreducible demand of defense and shipping interests.

An expanded area of coastal state resource jurisdiction appears to be one inevitable result of the law of the sea process. The only questionable factors remaining are the extent of seaward limit and

the rights and duties of states within the "coastal economic zone." At the Geneva session of UNCLOS III, there was near total agreement that the limits of the zone would extend to at least 200 miles. Some states with broad continental margins remain hopeful of gaining jurisdiction to the edge of the margin.[6]

It is unclear to what degree oil company discontent with the 1970 Draft Treaty led to the evolution of the U.S. position on ownership of continental shelf resources. The recent U.S. experiences with OPEC, which provided a vivid demonstration of American dependence on oil and the dangers of dependence on foreign sources for vital supplies, probably had much to do with the change in the U.S. position at the Law of the Sea Conference.[7] What seems certain is that there will be a considerable extension of coastal state jurisdiction over resources of the continental shelf which will bring the overwhelming majority of potential oil reserves under a national regime of exploitation, but will leave the manganese nodules of the deep seabed within the international area, under a regime yet to be constructed.

Most recently, petroleum interests have presented a new proposal for a boundary formula which combines a boundary based on geomorphic features and one capable of being denoted in terms of latitude and longitude. The system would employ the base of the continental (or insular) slope as a starting point. From the base of the slope a boundary zone of "reasonable" distance could be adopted to enable "the eventual designation of a precise, definitive boundary by the coastal state itself, within internationally agreed limits, by means of simple straight lines within the boundary zone, connecting a minimum number of points fixed by coordinates of latitude and longitude.[8] The suggestion seems deliberately vague on the width of this "boundary zone," but the National Petroleum Council report states that a zone of less than 100 km (fifty-four nautical miles) would be impracticable. Elsewhere in the NPC report, the suggestion is made that a boundary zone of 300 km (162 nautical miles) would give states with narrow margins an interest in the economic zone.[9] The strident tone of earlier NPC proposals was gone from this most recent proposal and the oil concern with jurisdictional boundaries is increasingly balanced by greater concern with the movement of oil at sea.

Energy Needs and the Geneva Text

A wide range of oil interests are still the subject of negotiations at the Law of the Sea Conference. These interests include unhampered shipping through straits and coastal zones, the avoidance of

arbitrary pollution standards, and guarantees of the security of investments. In this instance, the U.S. negotiating position coincides with oil interests and each concern above was officially expressed in Caracas and Geneva.

Certainly the most important goal of petroleum interests has been the establishment of national control over continental shelf oil and gas. (Petroleum interests in shipping and pollution standards are dealt with elsewhere in this study.) As mentioned above, this seems to be one virtually assured outcome of the law of the sea negotiating process. Section II of the single negotiating text (SNT) produced at the Geneva session grants coastal states "exclusive jurisdiction" over the continental shelf and its resources. The shelf, according to the text's definition, extends "to the outer edge of the continental margin, or to a distance of 200 nautical miles" whichever is further.

A revenue sharing plan for resources of the shelf is embodied in Article 69 of the SNT which would obligate coastal states to pay an unspecified portion of the value of production from the shelf in the area beyond 200 miles where the margin exceeds that distance. This is the only important restriction to total coastal state sovereignty over resources of the margin, and it will only affect a score of states with margins beyond 200 miles. Since for the United States and the world as a whole, 98-100 percent of ocean petroleum is located between shore and the edge of the margin, virtually all offshore oil will fall under national regimes if the text's formula is adopted. Between 6 and 22 percent of U.S. offshore oil lies beyond 200 nautical miles and would be subject to revenue sharing.

While unenthusiastic about the revenue sharing provisions in the negotiating text, oil representatives have expressed overall satisfaction with the text. The one serious omission from their point of view is a provision reaffirming security of investment. The companies fear that some Third World countries will seek financial and technical assistance in offshore exploration and later demand a greater share of the profits or even resort to nationalization. In recent publications and at the Geneva session itself, petroleum interests fought for inclusion of binding provisions on parties to live up to their contracts. They attempted to leave the impression that without assurances, financial and technical resources would not be available in risky areas. Neither the problem nor the threat to withhold their resources were taken seriously be developing country delegates, and it remains unlikely that many developing countries will be persuaded of their importance.

Options for the U.S.

Because current trends at UNCLOS seem almost certain to confirm U.S. interests in continental shelf petroleum, a discussion of U.S. policy options and their impacts will be limited to two alternative circumstances under which the U.S. might consider other courses of action. U.S. acceptance of a broad zone of coastal state jurisdiction has always been contingent upon the three provisions mentioned above—a 12-mile sea, guaranteed passage through straits, and satisfactory definition of the economic zone. A 12-mile territorial sea appears certain to be embodied in any final agreement. If satisfactory arrangements on the other two issues cannot be reached or if the extended zone of jurisdiction is part of a comprehensive treaty which the U.S. cannot accept for other reasons, the U.S. Government would face a series of options. These options range from the acceptance of a more limited treaty covering only extended coastal state economic and territorial jurisdiction, to a unilateral U.S. claim over resources out to the edge of the margin.

It may not prove to be an all-or-nothing choice. If the U.S. found that it could not accept a complete UNCLOS treaty—because of an unacceptable seabed arrangement for nodule mining, for instance—it could accept those provisions with which it agreed by signing the treaty and placing reservations against unacceptable provisions. A second option would be for the United States to propose that the package be broken down into more limited treaties so that the United States and like-minded states could accept those they favored and reject those not clearly in their interests. Since there is a greater consensus on the idea of an expanded zone of jurisdiction (although not on its characteristics) than on any other UNCLOS issue, the United States should find a large number of states willing to support this approach, particularly if acceptable compromises are not found on other issues at UNCLOS.

While the United States would have the option of declaring unilaterally that it had exclusive rights to resources on the continental shelf, the consequences of such a move are potentially serious. Not only would a unilateral U.S. declaration earn ill will from other states as action in contravention of the continuing international negotiating efforts, but such action would seemingly contradict the U.S. intrepretation of the 1958 Convention on the Continental Shelf. In the U.S. view, this convention gives coastal states clear rights to the resources of the shelf out to 200 meters or beyond to the limits of exploitability. Additionally, although the technology is present to drill beyond the 200-meter depth, it is more profitable to harvest oil supplies in shallower water, and it will be many years before there is much exploitation at greater depths.

Oil company fears of breach of contract by host countries remain a valid concern. However, in the current international political climate in which the multinational corporations operate, treaty provisions holding host countries to contractual obligations show little hope of being accepted or upheld by more than a few developed countries. Any negotiating capital invested on this issue could well be wasted. This does not mean that the major oil companies must willingly submit to contract renegotiations and nationalization of investments. The companies retain the right to deny capital and technology for offshore operations to areas of the world where security of investment seems tenuous. Another option open to the companies is to make technology available in the form of turn-key operations rather than the long term participatory arrangements which are more inviting targets for host country action.

Additional security of investment could be provided through an extension of foreign investment insurance provided by the Overseas Private Investment Corporation (OPIC), a quasi-governmental organization which backs U.S. foreign investors against losses. OPIC insurance guidelines are currently limited to "tangible and removable assets"—only a small part of the exploratory and development expenditures required in offshore operations. OPIC insurance is further restricted to investments onshore or offshore within the territorial sea as recognized by the U.S. Department of State. If current UNCLOS trends result in the establishment of exclusive coastal state rights over continental shelf resources, OPIC coverage could be extended to apply out to the edge of the coastal economic zone. Considering the vulnerability of offshore production investments to nationalization or renegotiation and the heavy expenditures required for research and equipment which are not tangible or removable, Congress or OPIC directors could consider broadening investment coverage to protect the interests of the oil companies more fully. In any event, efforts to protect U.S. oil company investments off foreign shores should not be extended beyond the protective measures offered to U.S. foreign investors generally, without special justification.

Given the high probability that most continental shelf oil and natural gas will fall under a national regime acceptable to the United States, the attention of ocean policymakers and U.S. petroleum interests should focus on the domestic management scheme for offshore oil production. The current debate over U.S. outer continental shelf policy involves a complex interaction among concerns of coastal states over land development, fears of massive or chronic pollution, problems of estimating total

resources and the value of individual tracts, and the desire for greater or less federal control over offshore exploration. This is a vast subject area in itself and beyond the scope of this study, but it is important that the system be carefully examined and changed where necessary to establish a sound management system for U.S. offshore development.[10]

Section II. The Seabed Mining Issue at UNCLOS

Since Ambassador Pardo's speech before the General Assembly in 1967, there has been no major disagreement with the principle of an international area beyond national jurisdiction in the ocean. There remains considerable disagreement, however, on the meaning of the concept of common heritage. The only minerals of current interest beyond the continental shelves of coastal states are manganese nodules—those potato sized lumps which lie strewn about the ocean floor at depths of from 12,000 to 20,000 feet and which contain valuable quantities of nickel, copper, cobalt, manganese and other metals. Since all available data confirms that the *economically attractive nodules* lie beyond the edge of the margin and further than 200-nautical miles from any coastal state, they clearly fall within the international area and their exploitation may one day be overseen by an international regime. The debate over the degree of control exercised by an "international authority," as it has come to be called, has formed the most politically charged and, consequently, the most intractable issue at the Law of the Sea Conference.

On the issue of the international authority, opinions split fairly cleanly along the developed country-developing country axis. It is the developed countries (and principally the United States) which possess the technology to dredge the ocean depths and refine the nodules. They have sought rights of access to, and security of tenure over, mining sites within the international area. The developed countries have attempted to limit the powers of the authority as much as possible, but as yet have not indicated a willingness to undertake seabed mining without the sanction of the international community.

The developing countries number 106 of the 141 states that participated in the 1975 session of the Law of the Sea Conference at Geneva. They have not shared the developed countries' sense of urgency. The notion that the resources of the international area are the "common heritage of mankind" (meaning common property) is a

firmly held belief in the developing world. Their goal is to establish an authority with broad powers to exploit the seabed directly, to oversee its development, to make an equitable distribution of revenues among developing countries, and to prevent injury to land-based procedures of the metals found in the manganese nodule. In recent years, this issue has become closely identified with developing country efforts to reverse the dependency relationship between developing and developed countries and the establishment of the "new international economic order."

The negotiations have continued for several years, with developing countries seeking a strong authority to protect the common heritage resources from unilateral exploitation, and developed countries seeking an agreement which would prove economically attractive to potential ocean miners and provide for a new and reliable source of minerals for domestic consumers. After three sessions of the Conference, there appears to be little progress toward agreement between the major opponents. This history of the debate within Committee I of UNCLOS and the inability to find a compromise have raised questions as to the ability of states to resolve on a multilateral basis economic issues which affect their respective national interests, and questions as to how the United States should now proceed.

Unique Aspects of the Seabed Issue and UNCLOS

Several aspects of the Law of the Sea Conference and the controversy over seabed mining contribute to making the seabed such a politically salient issue for both developing and developed states.

The major factor is financial. The seabed, by most available predictions, contains quantities of minerals of great value. Formerly, these resources might well have gone to those states that first developed the technology required to obtain them. Today, however, developed countries find themselves in the unpleasant position of having to ask the developing states' permission to begin mining if they wish to mine with the sanction of the international community. Developing states, on the other hand, are delighted to find themselves with sufficient votes to grant title to the seabed resources to whomever they choose. International law is sufficiently vague on title of seabed resources so that it has been used convincingly to justify positions on both ends of the spectrum.[11] Even so, developing states are mindful of their impotence to stop the developed countries from mining the seabed if they choose. To date, both sides must be credited with having followed relatively moderate courses of action, whatever the motivation.

A second aspect is that Committee I's task of establishing an internationally agreed system of seabed exploitation is hampered by the lack of precedents for guidance. Seabed minerals are the first to be accorded the status of international resources. The concept of an international resource developed because of the increasing trend away from acceptance of the *res nullius* doctrine to that of *res communis*.[12] Developing the actual mechanics, however, of granting some states access to the common property while guaranteeing other states their share has proved difficult. The political nature that the debate has assumed has not made the problem any easier.

The states clamoring for access to seabed manganese nodules are, by and large, developed countries. Their primary motive is to gain access to new sources of raw materials and allow their corporations, state or private, to turn a profit by raising the nodules, processing them and entering into competition with current land-based suppliers of the same minerals. No public source has stated with certainty that minerals from the manganese nodule can be competitive with land-based minerals, but company officials feel that mineral consumers will willingly pay even a slighter higher price for seabed minerals because of the dependability of supply. Fears of international mineral cartels on the order of OPEC are played upon by would-be miners in their efforts to convince domestic legislatures of the wisdom of their cause. As land-based producers gradually are forced to exploit poorer grades of ore, the prices of the minerals to world consumers will rise and the general expectation is that seabed resources will be competitive soon if not immediately. An added argument is the balance of payments drain that the import of minerals from land-based sources is causing. The United States currently imports 82 percent of its nickel and manganese, 77 percent of its cobalt, and nearly 5 percent of its copper. In 1972, the cost of these mineral imports was $1.1 billion. The U.S. Treasury Department welcomes the prospect of nodule mining by U.S. companies as a means of lessening our dependence on foreign mineral suppliers. Some officials hope that U.S. seabed miners might one day export those minerals which we import today.

Land-based producers are less than enthusiastic about the prospect of seabed mining. They have pointed out that known mineral reserves of cobalt, copper, nickel and manganese are sufficient to last through the end of this century or beyond at only slightly higher prices, with reserve estimates continually being revised upward as technology advances. Development of the seabed by multinational corporations and international consortia,

in the opinion of land-based producers, could lead to windfall profits for producers and only slightly lower prices to consumers, while current producers will face an uncertain future with the loss of their traditional export markets. The economic effect on land-based producers will be examined in greater detail below as it forms the core of the argument within Committee I and is a subject on which much has been said but little is really known. The fact that most land-based producing countries of the metals in question are also developing countries serves to widen the developed-developing split on the seabed resource issue.

The seabed issue at UNCLOS is novel in another respect. It has proven in retrospect to have been the first battlefield chosen by the developing countries of the Group of 77[13] in their efforts to establish the "new international economic order." The voting power of the Group of 77 is impressive within Committee I and the Conference as a whole. Yet there is a keen awareness on the part of this majority that they cannot affort to run rough-shod over the interests of those few countries with ocean mining technology if they hope to obtain their signatures on a law of the sea convention. There is a realization on both sides that developed countries could mine the seabed without international sanction if the demands of the developing bloc proved excessive, and that a treaty without the adherence of the major nations would be of dubious value.

The developed countries, for their part, realize that they have other important assets at stake in the Law of the Sea Conference which might be jeopardized by an insistence on going it alone. Unilateral action by ocean mining states in defiance of the wishes of the overwhelming majority of the world community would certainly lead to considerable ill will, and could also result in increased expropriations of foreign held assets. The decision by states with mining potential to seek an international solution demonstrates the high value they attach to the establishment of an orderly and stable system in which investments are secure, even though it might cost the developed states some loss of control over production when compared to a completely *laissez faire* system. It is this fact above all others which keeps U.S. negotiators involved in Committee I discussions where they are hopelessly out-numbered.

The final factor in the seabed issue at UNCLOS III is that Comittee I is operating under a time constraint. The United States Congress is, for the third year in a row, considering legislation to "authorize" U.S. companies to begin mining the deep seabed beyond national jurisdiction. As of October 1975, consideration of the Deep Seabed Hard Minerals Act (S.713) had not yet progressed much

beyond the Committee on Interior and Insular Affairs in the Senate. Administration spokesmen have reportedly asked the bill's sponsor, Senator Metcalf, and other proponents for time to work out an internationally agreed solution to seabed mining. Historically, the bill, which has had strong ocean mining industry support, was envisioned as a more realistic approach than international solutions which were given little chance of being adopted. Increasingly, the "Metcalf bill" is being considered as an interim measure to grant U.S. seabed miners access in the current period but which would be superceded by a seabed convention if and when it is ratified by the required number of states. The distinction between a national mining system, and an interim approach in the period before a treaty, is lost on the majority of the international negotiators gathered at the Law of the Sea Conference. Most developing countries consider the threat of adoption of the Metcalf approach to be out-and-out pressure tactics. While they have heard administration spokesmen ask the Congress to give negotiations a chance, they have also heard the same spokesmen claim that the existence of the bill may prompt the Group of 77 to adopt a more flexible position.

The position of the developing bloc which forms the Group of 77 is clear as to the initiation of seabed mining prior to a treaty. The so-called Moratorium Resolution (Res. 2574D) adopted in the General Assembly in 1969 by a vote of 62 to 28 with 28 abstentions, declared that pending the establishment of an international regime for the area:

> states and persons, physical or juridical, are bound to refrain from all activities of exploitation of the resources of the area of the seabed and the ocean floor and the subsoil thereof beyond the limits of national jurisdiction.

While General Assembly resolutions do not confer legal responsibility, and the vote on this particular resolution may not provide adequate evidence of emerging international law, developing countries at the Conference feel that the resolution places a moral responsibility on states not to undertake any seabed mining in the absence of a treaty.

According to published reports, an alternative plan to the Metcalf bill is being circulated within the administration by the Department of the Interior. The purpose of this bill, according to an Interior Department spokesman, is not to put additional pressure on Committee I delegates, but to correct the mistakes of the Metcalf approach so that if the Conference fails to open the seabed to exploitation, the United States will have other options open to it. Whether or not the United States will act unilaterally to give

mining firms access to seabed resources depends in large measure on the patience of Congress and the ability of U.S. negotiators to convince Congress that progress is being made toward an eventual international solution.

Review of the Negotiations

Primarily because the 1958 and 1960 conventions dealing with the law of the sea failed to anticipate a commercial interest in mining the deep seabed, the issue of the extent of coastal state jurisdiction resurfaced once technological developments put seabed minerals within reach. By 1967, when the issue was raised at the UN it was clear that a revision of ocean rules was needed.

The Committee on the Peaceful Uses of the Sea-Bed and Ocean Floor beyond the Limits of National Jurisdiction, or the Seabed Committee, produced two resolutions in 1969 that were eventually accepted by the General Assembly. The "Moratorium Resolution," referred to above, put potential ocean miners on notice that the majority of the world community believed that ocean mining should await an international solution. A second resolution, passed by the General Assembly in 1970, called for an international conference for 1973 to consider the seabed question and other matters pertaining to the law of the sea which were not dealt with in the 1958 and 1960 conventions or were in need of revision. In 1970, the Seabed Committee work resulted in the Declaration of Principles which carried the Assembly without opposition and with only fourteen abstentions. The Declaration embodied the major points of the Malta proposal: (1) that the seabed beyond national jurisdiction and its resources were the "common heritage of mankind"; (2) that an international body be established to manage the area; and (3) that priority in the distribution of benefits of the seabed would be accorded to developing countries.

In 1970, the Seabed Committee began its preparatory work for the Law of the Sea Conference. Most discussion focused on the limits of national jurisdiction that were to be expanded seaward and the rights and duties of states within that zone. Eleven proposals directed to the Seabed Committee between 1970 and 1972 related directly to the seabed and its regime. These proposals ran the gamut from complete discretion placed in the hands of states exploiting the seabed, to an all-powerful authority which would itself exploit the seabed on behalf of the international community. Although there is some newly noted flexibility in these extreme positions, the debate on the exploitation of the seabed has not advanced significantly.

After a procedural session in New York in December 1973, the

Third UN Law of the Sea Conference convened in Caracas in the Summer of 1974. While little actual negotiation took place, the discussions focused on the two central issues before Committee I: (1) "who may exploit the area" and (2) the likely "economic effects of seabed exploitation" on (developing country) land-based mineral producers and what, if anything, to do about such effects. Neither issue was settled by the end of the Caracas session. At the Geneva session in Spring 1975, the Committee I delegates opted to circumvent these crucial issues at the beginning of the session, and to work out first a regime for exploitation that both sides could support. The two central issues will eventually need to be resolved.

The Economic Effects of Seabed Mining

Much of the distance between positions within Committee I is a result of disagreement on the likely effects of ocean mineral production on land-based procedures of the same minerals and how to deal with these effects. Since the countries that are currently suppliers of manganese, cobalt and copper are largely developing countries, the economic effects issues have heightened the polarity between the positions of developed and developing countries. Following several weeks of discussion on economic effects at Caracas there was little agreement on the facts and even less on what to do about them.

A survey of the literature on ocean mining reveals that the companies exploring the possibilities of seabed mining expect the nickel and copper in the manganese nodule to be the biggest revenue producers. The potential ocean miners claim that their projected yearly production of nickel and copper from the seabed will not even amount to the yearly growth increment caused by increasing demand. Consequently, they argue, their production will not rob developing country land-based producers of their markets. Industry's argument lacks credibility, however. First, any production of minerals from the seabed will tend to hold down prices from what they might have been, thereby decreasing revenues of land-based producers. Second, the various minerals found in the manganese nodule are locked within it in proportions which vary considerably from the ratio in which they are in demand in world markets. In other words, attempts to fulfill the demand growth increment for nickel or copper may indeed lead to an oversupply of cobalt and manganese. The table below shows this disproportion.

Table 7-1
Disproportion between Nodule Mineral Supply and World Mineral Demand

Metal	Proportion in a Typical Nodule	Proportion of Quantities Demand in World Market
Manganese	90.0%	56%
Copper	4.5%	40%
Nickel	4.6%	4%
Cobalt	0.9%	0.15%
	100.0%	ca. 100%

The proportions of nickel in the nodule and in world demand are close to the same, but this is not true for other minerals. If seabed production were geared to meet exactly the demand growth in nickel in 1980, it would require only one seabed miner processing 3,000,000 tons of nodules to fill the nickel growth increment. At the same time, he would produce more than six times the demand growth increment of cobalt and one and a half times that of manganese. The ramifications for land-based cobalt and manganese producers are potentially serious.

Developing countries supply nearly 75 percent of the world's cobalt, nearly 40 percent of world manganese and copper and nearly 15 percent of the world's nickel. The table below shows major developing country producers of the metals in question together with their market share, and export dependence.

Table 7-2
Major Developing Country Producers of Nodule Minerals

Country	Tons produced (1971)	% World Total	Exports as % of total exports (1971)
		Copper	
Zambia	718,000	10.78	94.6
Chile	790,000	11.87	78.3
Zaire	449,000	6.74	83.0
Peru	234,000	3.52	28.9
Philippines	229,000	3.44	15.6
Uganda			10.8
		Manganese	
Brazil	2,868,000	12.58	1.1
Gabon	2,059,000	9.03	21.2
India	1,961,000	8.60	1.0
Ghana	659,800	2.90	3.3
Zaire	427,000	1.87	1.6
		Nickel	
Cuba	40,000	5.66	2.1
Indonesia	29,762	4.22	5.9
		Cobalt	
Zaire	14,800	57.22	5.2
Zambia	2,293	8.86	0.6
Cuba	1,700	6.57	— —
Morocco	1,078	4.17	— —

Sources:
1. *Minerals Yearbook 1971,* U.S. Bureau of Mines, Vol. 1, Metals, Minerals and Fuels, 1971.
2. United Nations Secretariat Report A/AC.138/36.
3. Bollow, "Economic Effects of Deep Ocean Mineral Mining," National Technical Information Service, September 1971.

For many of these countries, the export receipts from these minerals are the primary source of foreign exchange. Copper exports accounted for more than 75 percent of total exports for Chile, Zambia and Zaire, and are an important source of revenue for Peru, the Philippines, Uganda and a handful of other countries. Developing country dependence on mineral revenues from cobalt, nickel and manganese are less dramatic, but Indonesia derives 6 percent of its foreign exchange from nickel production. Gabon and Ghana derive 21 percent and 3 percent respectively from manganese, and Zaire's cobalt exports amount to more than 5 percent of its foreign exchange income.

Making accurate predictions of the "economic effects" of seabed mining requires good estimates of future mineral demand and seabed production. From public statements of the future ocean

miners, a good deal is known about their immediate production plans. Two of the three U.S. firms who have made heavy investments in developing ocean mining technology, the Kennecott consortium and the Summa Corporation,[14] are each expected to process 3,000,000 tons of nodules per year to extract primarily copper, nickel, and cobalt. The third U.S. firm, Deepsea Ventures,[15] plans to mine only 1,000,000 tons per year (dry weight) initially and is the only U.S. firm currently planning to extract manganese from the nodule in addition to copper, nickel and cobalt.

Predictions of future demand for the minerals of the manganese nodule are more problematic. A slight difference in the assumed percentage rate of demand growth can make a large difference in projections for tons of minerals needed in future years and consequently in estimates of the degree of penetration by ocean minerals into existing markets. If, for instance, a 6 percent growth rate for copper demand is assumed as it is in a UN Secretariat report, world demand for copper in the year 2000 would be on the order of 55 million tons per year. If 3.4 percent is chosen, the low figure from U.S. Bureau of Mines projections, demand in the year 2000 would be only about 25 million tons. In fact, existing estimates of future demand growth rates vary considerably among the various economic studies of the implications of seabed minerals for existing land producers of the same minerals. Some estimates[16] make use of percentile ranges for growth estimates to correct for the inability to predict demand growth accurately, and lead to predictions of serious implications for land-based producers of cobalt, manganese and nickel. If in 10 years (1985) 5 firms are mining the seabed at full capacity, they will market from 40 to 77 percent of the world's cobalt demand, from 4 to 7 percent of manganese demand, and from 8 to 14 percent of nickel demand. Copper producers have less to fear since 5 firms extracting copper from nodules in 1985 could produce only 0.4 to 0.6 percent of world copper demand. Since one of the major hopes of developed countries is that ocean mining by their nationals will reduce costly expenditures for mineral imports, seabed production will likely replace land production from developing countries for cobalt, nickel, and manganese, unless an agreement is reached within Committee I or by the international authority itself to limit production of the ocean producers, or to hold prices at an artifically high level.

The appearance on world markets of additional supplies of copper, cobalt, nickel and manganese from seabed mining operations can be expected to put a downward pressure on prices. The amount of price decline is a function of the elasticity of demand

for these minerals and the amounts placed on the market. The combined effect of a loss of existing (or potential) markets and a fall in the price level brought about by seabed production promises to have serious adverse effects on foriegn exchange income in a number of developing countries unless seabed mining is regulated. Zaire and Zambia, and to a lesser extent Morocco and Cuba, would suffer losses of export income from cobalt. Gabon is highly dependent on manganese export revenues. Ghana, Zaire, Brazil, Morocco and India would sustain losses from a combined price decrease and demand decrease in manganese. And a loss of nickel markets, combined with a price drop, will have effects on Cuba and Indonesia.

The loss of even small proportions of export income to fragile developing country economies poses a serious problem. Revenues from exports are a crucial ingredient in all development strategies as they are used to pay for the heavy import bill typically incurred by developing countries. The development and maintenance of healthy export industries has therefore been a top priority goal of most developing countries. In addition, unregulated seabed mining may result in a series of secondary effects on developing countries. The specific mining industries involved will be particularly hard hit with the possibility of increased unemployment and loss of tax revenue to the government.

U.S. Policy and the Law of the Sea Conference

While there is a relatively small group of developing country mineral producers which will be injured by seabed mining unless steps are taken to prevent it, the overwhelming majority of countries, both developing and developed, are primarily consumers of these minerals, and could be expected to profit from lower mineral prices brought about by seabed mining. Despite this fact and the best efforts of U.S. negotiators to convince developing country consumers that unregulated seabed mining is in their economic interest, most of the developing bloc has in this instance accorded political solidarity a higher value than economic gain. This trend is manifested within the Committee I discussions by the desire on the part of the Group of 77 to place control firmly in the hands of the authority. With a powerful authority, ruled by a majority voting system which favors the developing bloc, limits on ocean production or limitations to entry for new ocean miners could be imposed to prevent injury to developing country producers.

From the beginning, the United States and other potential seabed mining states have sought a weak authority. The U.S.S.R. originally envisioned a simple administrative structure which

would do little more than serve as a claims registry office for the companies who will mine the seabed. The Group of 77 position, on the other hand, sets forth a comprehensive authority which would be empowered to set production limits, to oversee the transfer of technology to those without it, to sign contracts with prospective miners and which could itself undertake seabed production. As the debate has developed and revealed a strong majority in favor of the more comprehensive authority, the United States has begun to concentrate its efforts on ensuring a veto-proof policymaking role within the authority for itself or for like-minded states.

The structure of the authority, if created, would probably resemble other international organizations. It would have an assembly on which all states party to the convention would sit. Decisions of the assembly would be made on the principle of one state, one vote. The executive functions of the authority would be held by the Council which would meet more regularly to oversee the day-to-day operations of the authority. Most states support a system of seating on the council which recognizes the special interests of two groups and would give them weighted representation: the states who possess the capital and technology to undertake seabed mining and the states which are land-based producers. There is still little agreement among major positions as to the number of seats on the council, how they will be chosen and consequently, who will have control.

An assessment of the progress at the Geneva session is difficult. On the surface it would appear that significant progress was made. In the early weeks of the Conference, there was general support within the "working group" of Committee I to circumvent the problematic questions of who shall exploit the seabed and the economic implications arguments that dominated the discussions at Caracas. Instead, the working group attempted to formulate basic rules and regulations for one method of exploitation through joint venture arrangements between the international authority and private or state-owned companies.

At mid-Conference, the Chairman of the Committee I working group, Christopher Pinto of Sri Lanka, combined 5 major proposals on the basic conditions of seabed exploitation into a single draft with the hope that discussion could then focus on that text. Neither the U.S. nor the Group of 77 accepted all the compromises embodied in the Pinto draft and serious discussions on the conditions of exploitation broke down. Much of the rest of the Geneva session was spent in lobbying the Chairman of the Committee I who, along with the other committee chairmen, had been asked by Conference President Amerasinghe to prepare single negotiating texts. Having

witnessed the fate of the Pinto draft which was torn apart by different groups, Amerasinghe made the decision to wait until the end of the Conference to distribute the single negotiating texts.

While few states are yet officially on record concerning the single negotiating texts, the positions of the major participants are predictable from the texts themselves. The Committee I text is drawn almost entirely from the Group of 77 position with very few concessions to developed countries or to compromises already hammered out within the working group. U.S. negotiators admit that there is little in the Committee I text that will appeal to an American audience, and that it is difficult to see it as a basis for negotiation.

The United States has had one overriding negotiating objective in Committee I of UNCLOS III—the establishment of an internationally agreed system of exploitation of the deep seabed that would give the technologically advanced U.S. ocean mining companies access to and security of tenure over areas of the seabed. Because of the U.S. technological lead and the availability of sufficient capital in the United States, the American position has reflected the assumption that U.S. companies would fare well under a system of free competition with foreign companies. The result of this assumption has been the decision to seek an international seabed mining agreement with a minimum of restrictions on entry, strong assurances of security of tenure over mining sites and reciprocal recognition of other states' claims.

After years of talks on the seabed, it has become clear that the great majority of the international community prefers the establishment of a new international organization with broad powers to control entry into seabed mining as well as production levels and mineral prices themselves. While U.S. negotiators have acquiesced in the movement to create an "international authority" to regulate seabed mining (over the objections of the prospective miners), they have sought to limit the powers of the authority particularly in regard to fixing prices and setting production limits. Additionally, the United States has sought to gain political control in the decisionmaking structure for states with interests similar to its own to ensure that the powers of the authority will continue to be limited. Salient provisions of the Committee I single negotiating text (SNT) are analyzed below, together with their probable impacts if formally adopted.

The Single Negotiating Text

The text places control of the authority firmly in the hands of a

developing country majority. Although the proposed structure of the council of the authority recognizes the special interests of some states, developed states which possess the capital and technology are granted only 6 of 36 seats, plus those seats they will acquire through the geographic distribution of 24 additional seats. With important questions decided by a two-thirds-plus-one majority, and procedural questions on the basis of a simple majority, the structure is clearly weighted against developed states and in favor of the majority view as expressed by the Group of 77.

The SNT vests the power to assign rights to seabed minerals in the authority, and recognizes no other claims to the area. The "Enterprise System," whereby the authority itself conducts exploration and exploitation operations, has become an integral part of the proposal despite strong developed country objections, but the annex setting forth its operating procedure and the rules under which it will function are yet to be conceived. While the negotiating text outlines procedures for the formation and operation of joint ventures between the authority and private or state firms, it seems probable that an authority dominated by the developing country majority would choose to exploit the seabed through the Enterprise System.

There is only one real concession to developed countries who seek permission to mine the seabed through private or state companies. The draft provides (article 22) for the early identification of 10 economically viable mining sites for exploration by private or state companies in joint venture with the authority. From the tone of the rest of the document, however, this appears to be a token incentive, offered to the developed countries to keep their interest and to insure that the prospective ocean miners will continue to make the needed investments in technology. During June 1975 hearings before the National Ocean Policy Study of the Senate Commerce Committee, Marne A. Dubs, Kennecott's Ocean Mining Director, testified that

> . . .the [Group of] 77 are trying to buy the developed countries off by offering ten sites under a "joint venture" scheme to get things started. After that, they would presumably have acquired funds, technology and management from us so that we could be quickly and quietly removed from further seabed activity in the future. One hardly need do more to show the unacceptability of this negotiated text!

Secretary of State Kissinger's August 11, 1975 speech before the American Bar Association reaffirmed U.S. desires to begin mining the deep seabed. While his statement recognized the possibility of

mining operations conducted by the international authority, the United States would support such operations only if national rights to exploit the seabed were preserved, and certain other criteria were fulfilled. The U.S. position remains seriously at odds with the Committee I single negotiating text.

Options for the United States

The following criteria will be used to evaluate possible U.S. actions on the seabed issue:

1. ability of the option to fulfill U.S. negotiating objectives
2. impact of the option on other U.S. goals
3. probability of its adoption in the appropriate forum—UNCLOS, U.S. Congress or bilateral and multilateral arrangements
4. probability that the option will permit successful resolution of the issue
5. costs and benefits of adoption of the option—both political and economic.

The United States retains 3 basic options on the question of commencement of seabed mining: (1) continue the international negotiating process in the hope that UNCLOS III will eventually agree on an acceptable treaty; (2) act in the interim to give mining companies access to the seabed; or(3) simply delay action until seabed nodules become sufficiently attractive economically to warrant their mining without legislated assurances. Until now, the U.S. negotiators have pursued the first of these policy options. Given the fact that the Law of the Sea Conference is not much nearer now to an agreement on Committee I issues than 5 years ago,[17] and a treaty establishing a system of resource exploitation cannot be concluded until mid-1976 at the earliest, an opportunity is presented to U.S. policymakers to reassess their options.

Long before the appearance of the single negotiating text at Geneva, the prospective U.S. miners found ample reason to abandon the long international treaty-making process. Since the beginning, the ocean mining companies and their congressional supporters have argued that time is very much a factor. Their reasons for a sense of urgency are based on their conception of national interests which closely corresponds with the interests of prospective miners. The companies fear that land-based producers of the minerals in question will emulate the strategies of the OPEC producers, curtail production and increase prices to raise revenues. The fledgling organization of some of the world's copper producers,

CIPEC, is viewed as a potential cartel, although recent studies by the Department of State and others have discounted the chances of a successful cartel in copper or any of the other economically interesting minerals of the seabed.

Scarcities of the minerals found in the manganese nodule may not be sufficiently serious to warrant unilateral U.S. action to open the seabed. As pointed out above, world land-based reserves of copper, nickel, cobalt and manganese are sufficient to meet even high range projections past the year 2000, at only slightly higher prices. Despite this fact, however, the United States remains heavily dependent upon imports of these metals.

Of more genuine concern to seabed mining companies is the problem of their decreasing technological lead. Spokesmen for the ocean industry have stated that the technological advantage that they have gained through early investment in the hardware for raising nodules and in the development of processing techniques will soon vanish as foreign firms increase their expenditures in ocean mining technology. The loss of their technological lead could result in the loss of business to foreign competitors. This argument is less important today, however, since all of the companies except Summa have co-opted their major Japanese, British, and German competitors by including them in consortia to explore and eventually mine the seabed.

The greatest problem faced by the mining companies is convincing bankers to loan them the money to make the required investments. According to industry spokesmen, banks have been unwilling to make funds available while title to the resources and security of tenure are still very much in doubt. Again, the movement recently toward the formation of consortia should decrease funding problems and help spread the risks associated with the development of seabed technology.

Even given the balance of payments argument, which is less compelling in this period of floating exchange rates, seabed miners and their supporters have not yet convinced Congress of the urgent need to begin seabed mining. Even if the companies were given clear rights of access to the seabeds today, it could be 5 years before production would be sufficient to make a substantial impact on U.S. expenditures for imported minerals. Without time pressures, there would seemingly be little reason for the United States to abandon the international bargaining process if it expected that its minimum objectives from an international agreement could be fulfilled. However, if the single negotiating text that emerged from Geneva is an indication of what the United States can expect, there is ample reason for considering other options.

The second option that has always been open to the U.S. is that of domestic legislation which facilitates access by U.S. seabed miners to the seabeds. Until recently the only legislative approach being considered was that embodied in Senator Metcalf's bill. The Metcalf bill would empower the Secretary of the Interior to issue licenses to prospective U.S. ocean miners and thereby establish U.S. regulation of seabed mining where no regulatory system has existed. Under the bill's provisions, licenses would be issued until such time as an international agreement on the seabed were signed, and should the international agreement adversely affect the investments of the U.S. licensed firms the government would reimburse the company for its losses.

To a foreign audience, the Metcalf bill represents a thinly disguised attempt by the United States to begin reaping the riches of the common heritage, leaving the rest of the world community to struggle over an international regime. U.S. seabed mining, in the absence of an international treaty and in contravention of the Moratorium Resolution, would earn the U.S. severe criticism, with the additional threat that retaliatory measures might be taken against other American interests. At a minimum, the United States could expect a coalescence of opposition toward its interests in a variety of spheres if the Metcalf bill is enacted. Given the risks in this approach, American policymakers will have to weigh the benefits and the costs of acting now rather than acting later.

Possible New Directions

Within the framework of the law of the sea negotiations, there are at least two alternatives other than the Metcalf type of unilateral action or U.S. acquiescense in a Group of 77 dominated treaty at UNCLOS III. The first is a relatively simple negotiating strategy by which the U.S. could attempt to lead the international community toward an acceptable treaty. The second involves a cautious legislated response.

Despite the realities of economic and political power, developing countries have gained the clear upper hand in the negotiations for a seabed regime. The single negotiating text, written by Committee I chairman Paul Engo of Cameroon working in near seclusion, cannot be termed a compromise document. There is little in it that reflects negotiated compromises and it retains the flavor and, in some cases, the original language of the Group of 77 proposals. From the perspective of U.S. interests as defined above, it is difficult to see in it a basis for negotiation. If U.S. basic interests are to be met in an internationally negotiated seabed regime, the United States will need to redress the imbalance between the intensity of its interests

and the degree to which those interests have been taken into account at UNCLOS. Several years of good faith negotiations have not helped in this effort. It is perhaps time for developed countries to apply some leverage of their own.

Casual Conference observers find it hard to understand the reasons for the current strong position of developing countries and the apparent impotence of the developed countries in Committee I. It is more than simply a matter of votes. The more than 100 countries of the Group of 77 have widely disparate views of the seabed, but in large part they have put away their differences in public and have spoken with one voice. The developed countries have not seriously attempted to coordinate their views. Rather than having a single draft before Committee I representing their views there are 4 different drafts—one each from the United States, Japan, the U.S.S.R., and the Eight Power Draft by European countries. The absence of developed country imputs in the single negotiating text of Committee I should be ample evidence that developed countries cannot afford to be disunited.

With these considerations in mind, the United States could encourage other like-minded states—both developed and developing—to join with it in an attempt to design a text which more fairly represents developed country interests. At the next session of the Conference in New York, the developed countries could present their united text to the Conference as a basis for negotiation along with the unacceptable Geneva text. To follow this strategy would require moving the negotiations back somewhat, but since the current text is not the product of a bargaining process and the compromises it embodies are mostly one-sided, it is not an unreasonable move for the United States to take.

An intersessional meeting could be scheduled prior to the 1976 UNCLOS session to arrive at the developed country text. While substantial differences exist among the approaches of Japan, the EEC, the United States and the U.S.S.R., they are minor in comparison with those between developed country interests and those expressed in the single negotiating text. Developed states (with the possible exception of those of the Socialist bloc which might find it politically impossible to cooperate with other developed states against developing countries) would likely agree to combining their views once they perceive that the current "negotiating text" provides little hope of meeting their aims. The conclusion of an agreed text might be reached relatively quickly.

Finally, the United States and others could make it clear that they cannot accept any proposal as inimical to its interests as the current

negotiating text. They could express the hope that common ground between the two drafts could be found. Failing such an accord, however, developed countries could publicly consider the adoption of their own treaty unless substantial progress is made by a specified date.

This approach, of course, carries with it certain risks. If developed countries are forced to consider adopting their own treaty, developing countries may react strongly to what will be termed developed country pressure tactics. Such reactions could be minimized by being open about the effort to conceive a developed country text, by making the text as appealing as possible to developing countries, and by the adoption of a flexible negotiating attitude. If developed states are forced to adopt their own treaty, the possibility of reprisals against any one developed country are minimized by joint action.

A final alternative, that of a cautious legislated response, provides another mid-range option between acquiescing in the trend toward a treaty which will not serve essential U.S. interests and a program of unilateral action to open the seabed to U.S. miners.

Under this approach, administration law of the sea experts could draft a resolution expressing the *intent* to allow U.S. miners access to the seabed unless a treaty acceptable to the U.S. were concluded by a certain date. Passage of this resolution by Congress would insure that it would be taken seriously by all those at the Law of the Sea Conference. The date at which seabed mining could take place under U.S. law could be carefully determined such that the Law of the Sea Conference be given an adequate chance to conclude a treaty. Since none of the prospective seabed mining companies or consortia is ready to begin commercial operations, this date could be set will into the future—say December 31, 1977—with no loss to the mining companies. Yet companies could be assured that the seabed will eventually be opened to them, one way or another. Legislation could be drafted to accompany the resolution, including provisions to guarantee U.S. ocean mining investors against the possibility that they will not be permitted to use their mining and processing apparatus and techniques, should the United States find it necessary to accept a restrictive mining regime. Other developed countries could be encouraged to adopt similar resolutions. Provisions for reciprocal recognition of each others' claims could be an integral part of the accompanying legislation, as well as generous revenue sharing arrangements.

This approach does not require parallel action by potentially reluctant developed countries. It could be considered alone or in

conjunction with an effort to reach a developed country text. Again, the United States would be open to criticism for pressuring the negotiations. Such criticism could be dampened by a clear expression in the resolution that the United States would prefer an "acceptable" internationally negotiated seabed regime, and by pointing out that a treaty with an American signature would supercede any U.S. legislation, but that the United States cannot wait forever for the international community to settle its differences.

Notes

[1] The 1958 and 1960 conventions, together with other relevant legal documents, can be found in *New Directions in the Law of the Sea, Vol. I*, compiled and edited by S. Houston Lay, Robin Churchill and Myron Nordquist (Dobbs Ferry, N.Y.: Oceana Publications, 1973).

[2] Ann L. Hollick, "United States Ocean Policy: 1948-1971," unpublished dissertation, The Johns Hopkins University, 1971, p. 62.

[3] For a review of the policy process, See Hollick, "Seabeds Make Strange Politics," *Foreign Policy*, No. 9, Winter 1972-73, pp. 680-731.

[4] *Petroleum Resources under the Ocean Floor*, Supplemental Report of the NPC, March 1971, p. 31.

[5] Under the 200 mile economic zone proposed at UNCLOS III, the U.S. would gain more area than any other coastal state, a total of 2,222,000 sq. miles. The next biggest gainers in order are Australia (2,043,300 sq. mi.), Indonesia (1,577,300 sq. mi.), New Zealand (1,409,500 sq. mi.), and Canada (1,370,000 sq. mi.).

[6] Canada was the leader in this movement and has attempted to convince 20 or so other states that they would gain significantly by opting for edge of the margin over 200 miles.

[7] The increased activity of the U.S. Department of the Treasury in the law of the sea and the "economic review" of U.S. law of the sea policy that accompanied it also contributed to the increased interests in ocean minerals within the U.S. position.

[8] National Petroleum Council, *Ocean Petroleum Resources*, 1975, pp. 42-43.

[9] The proposal is biased in favor of broad margin states. Off the northeast U.S. and Canada, the base of the slope even in the absence of a boundary zone is often more than 200 miles from shore, while off the west coast Latin American states, the distance is often less than 100 miles. At least 20 states fit into the broader-than-200-mile category.

[10] See especially, J.W. Devanney, *The OCS Petroleum Pie*, MIT Sea Grant Report 75-10, February 1975.

[11] See Gonzalo Biggs, "Deepsea's Adventures: Grotius Revisited," *International Lawyer*, Vol. 9, No. 2, pp. 271-281; Deepsea Ventures, Inc., "Claims of Exclusive Mining Rights and Request for Diplomatic Protection and Protection of Investments," *International Legal Materials*, Vol. XIV, No. 1, Jan. 1975; and D.P. O'Connell, *International Law*, (London: Stevens and Sons, Ltd., 1965), Chapter 16, "Maritime Territory."

[12] *Res nullius*, literally, the property of no one. This doctrine under international law was traditionally applied to ocean resources outside national jurisdiction, and continues to be applied to swimming resources in the "international area," and the high seas themselves. *Res communis*, or the property of the commons, is frequently applied to resources of the seabed, as evidenced by the vote 108 to zero (14 abstentions) on the Declaration of Principles, General Assembly Resolution 2749, December 17, 1970, which declared seabed resources to be "the common heritage of mankind." The United States does not accept this view.

[13] The Group of 77 which numbered 77 countries in the early days of UNCTAD now numbers roughly 100 in the Law of the Sea Conference.

[14] The Kennecott consortium includes 50 percent ownership by Kennecott and lesser shares owned by Rio Tinto Zinc Corp. (London), Consolidated Gold Fields, Ltd. (London), Mitsubishi (Tokyo), and Noranda Mines (Toronto). The Summa Corporation is included in this analysis with the implicit assumption that raising sunken submarines from the deep seabed will prove to be only a short run use of their "seabed mining technology," and they plan eventually to mine manganese nodules.

[15] Deepsea Ventures is a subsidiary of the Tenneco Company which is a partner in a joint venture with Nichimen Co. Ltd., C. Itoh, Co., Ltd., and Kanamatsu Gosho Ltd., all of Tokyo.

[16] James C. Orr, "The Economic Effects of Deep Ocean Mineral Mining and the Implications for U.S. Policy," Ocean Policy Project Occasional Paper No. 4, Johns Hopkins University, Washington, D.C., 1974.

[17] In fact, a cynical observer of the UNCLOS processes could conclude that positions are more polarized after three sessions of the Conference than they were at the outset. Certainly little willingness to make the essential compromises has been evident in Committee I and as yet there is no basis on which to forecast increasing flexibility in the future.

CHAPTER 8.

MARINE SCIENCE

Introduction

The goal of marine scientific research is to observe, understand and explain the oceans. Marine science research comprises programs of observation, collection, measurement and analysis in order to describe the oceans, their content and their physical interfaces and to understand the processes operating in the marine environment. It is difficult to quantify the value of scientific knowledge, but it is widely recognized that knowledge about the oceans is a prerequisite to optimum use of the oceans and is the basis for most present and future ocean-related activities.

Domestic Marine Science Interests

Scientific research involves a variety of methods and ultimate applications. Marine scientists are found among all U.S. ocean interest groups—from fisheries to defense interests. Their work has been distinguished, according to its immediate application, into three categories—commercial, military intelligence, and fundamental or academic research. Such a distinction is, of course, difficult to maintain in practice since what constitutes fundamental research at one point in time may ultimately have commercial or military value. Some suggest that the most practical way to distinguish between fundamental and applied research is on the basis of whether the data, samples and results are proprietary or are open to the international scientific community. In effect, this definition would rest upon who is doing the research—a mining company, a naval intelligence vessel or a ship from an academic or private research institution.

Such a definition has merit, when applied to U.S. interests, since it indicates the distinct problems confronting the three categories of research in the present international environment and in the context of the Third UN Conference on the Law of the Sea (UNCLOS III). From the point of view of acquiring scientific knowledge, the marine science community supports maximum unrestricted access to all areas of the world's oceans. This is particularly true of the academic researcher and the military intelligence communities. A commercial interest, such as a major

oil company, prefers to have a working agreement with a coastal state before it invests heavily in research and exploration. The military intelligence community (as distinct from the military research community) can only develop such a working relationship in areas offshore allied nations. Otherwise it collects data by clandestine means.

The researchers from academic institutions seek special guarantees for open research and for unrestricted mobility to study the marine environment. Unlike the multinational commercial interests, academic institutions have not developed special offices for the conduct of relations with foreign governments. When engaged in research in an area claimed by another state, academic institutions have generally relied on the Department of State to obtain clearances. At best, this has been a time consuming process, and at worst the State Department will not seek permission for research in areas which, although claimed by a state, are not recognized by the United States as pertaining to the coastal state.

The academic marine science community finds itself in a difficult and somewhat isolated position vis a vis other U.S. interests. While it is often financially supported by business and the Navy, it pursues a distinct policy on access to coastal waters. The academic science community shares the intelligence community's preference for freedom of access to near shore areas, but it breaks with that group in its support for a special right of access for research intended for open publication, as opposed to all other research. Commercial activities are, of course, not publication-oriented. Most segments of the academic marine science community lack the capability and therefore the willingness of commercial interests to negotiate arrangements that offer access to coastal state areas in exchange for some benefit. It would be difficult for a single research institution to devote a substantial portion of its resources to developing such a capability since academic researchers range widely over the oceans rather than concentrating, as commercial researchers do, on exploration of a few areas. To be sure, the largest U.S. oceanographic institutions, the Scripps Institute of Oceanography and Woods Hole Oceanographic Institution, have over a number of years gained some experience in dealings with other governments and scientific institutions, but for the most part, academic marine scientists are dependent upon the State Department to facilitate arrangements for research off the coasts of other countries.

U.S. Policy and the Law of the Sea Conference

While the several segments of the marine science community may differ according to capability, mode of operation, application of research, and dissemination of research results, they seem to share a fundamental belief to the effect that scientific knowledge benefits the international community and that research should remain as free and unrestricted as possible. This conception is basic to the position that the United States has adopted in UNCLOS III.

Marine scientific research was placed on the agenda of the Conference in the original 1970 General Assembly Resolution calling for a Third UN Conference on the Law of the Sea to begin in 1973. It remained on the agenda, was elaborated, and indeed was mentioned in conjunction with several other agenda items when the final Conference list of subjects and issues was completed in 1972. Albeit related to a number of other issues, the main work on marine science research was allocated to Subcommittee III of the UN Seabed Committee and then to its successor, Committee III, when the Conference itself began.

Evolution of U.S. Policy

Although the first detailed U.S. statement on scientific research was made on August 11, 1972, the United States did not submit draft articles on the subject until July 20, 1973.[1] With relation to its policy on other ocean issues, the development of a position on marine science was relatively late. In part, this was due to the fact that nongovernment marine scientists did not begin to take an active role in the U.S. policy process until 1972. The major cause of the delay, however, was simply the slow pace of the Seabed Committee and the relative lack of attention to the subject until quite late in the work of the Committee.

From its first statements on scientific research, the attitudes and policy of the United States remained generally consistent with some modifications until the United States moved to accept a broad economic zone policy in 1974. The United States has stressed the importance of marine science research in the production of knowledge that is beneficial to all mankind. Since ocean phenomena transcend man-made boundaries, international arrangements should, in the U.S. view, facilitate access for scientific investigations. Scientific research should, of course, be conducted in accordance with international environmental standards and, in areas of coastal state resource jurisdiction, should protect the legitimate economic interests of the coastal state.

More specifically, the United States has proposed that the coastal state should have the right to authorize and regulate scientific research in the territorial sea. Beyond that in areas under national jurisdiction, the coastal state should have the right to control commercial exploitation. With regard to scientific research in the zone, the United States has consistently advocated seven coastal state rights or obligations on the researcher:

- advance notification of the proposed research including a detailed description of the research project
- the right of coastal state participation
- sharing of all data and samples with the coastal state
- assistance to the coastal state in interpreting the results of research and their relevance to coastal state interests
- open publication as soon as possible of significant research results
- compliance with all applicable international environmental standards
- flag state certification that the research will be conducted in accordance with the treaty by a qualified institution with a view to purely scientific research.

While the United States no longer refers to "freedom of scientific research" beyond the territorial sea, the United States has stressed that if the foregoing obligations are fulfilled, the coastal state cannot forbid research that is not related to exploration or exploitation of resources in areas under coastal state jurisdiction and beyond 12 miles from shore.

Within the Law of the Sea Conference, the U.S. has found itself in a minority on the issue of scientific research, although support for something less than a full consent regime has been growing. The U.S. is alone in having a major ocean-going academic research fleet. And the promotion of U.S. policy on marine science research has run into significant obstacles in the UN forum. As negotiations have progressed, however, differences between land-locked and coastal states and the refining of national interests on scientific research have mitigated the North-South split on this issue. The intensity of U.S. commitment to its position, the value it ascribes to other ocean interests, and the strength and variety of sentiment of other nations will be factors in the outcome for marine science research.

The Present Legal Regime and Pressures for Change

There is only one mention of marine science in the four conventions that resulted from the 1958 UN Conference on the Law of the Sea. The Convention on the Continental Shelf specifies that "the consent of the coastal state shall be obtained in respect of any research concerning the continental shelf and undertaken there. Nevertheless, the coastal state shall not normally withhold its consent. . ." in the case of purely scientific research, and the coastal state can participate or be represented. This provision has been subject to varying interpretations since it was formulated, and has been used by some coastal states to prevent or impede scientific research. The United States interprets research on the continental shelf to mean research that comes in physical contact with the shelf. This interpretation is not, however, widely accepted. Nor is there agreement on what constitutes fundamental as opposed to applied research.

There is no mention of marine science research in the 1958 Convention on the Territorial Sea and Contiguous Zone or in the 1958 Convention on the High Seas. The United States and a few other countries have indicated that they consider scientific research to be among the high seas freedoms, although it is not specifically listed by the convention. In practice, coastal states have required consent for the conduct of research in the territorial sea as well as other zones of jurisdiction. In the case of a number of Latin American nations claiming 200-mile offshore zones, the legal requirement for the conduct of research has not always been clear. The tendency and preference of these nations—as of other developing coastal states—is to require coastal state consent for research conducted throughout the 200-mile zone. The Group of 77, however, has not succeeded in arriving at an overall position on a consent requirement due to differences between its land-locked and coastal members. The Group has been more united in dealing with the area beyond national jurisdiction, where they would have scientific research controlled and authorized by the international authority.

The attitudes reflected in these legal positions are directly contrary to the prevailing Western view that scientific knowledge constitutes a public good which benefits all mankind. Developing countries argue that the technologically advanced nations are better able to utilize the results of scientific investigation and therefore the benefits accrue unevenly. Furthermore, research has been conducted off their shores which has been contrary to their interests—either in terms of commercial or military application. To

prevent unwanted military research and to gain the benefits from research of commercial application, they argue, the coastal state must have the right to control research in twelve mile territorial seas and economic zones. The motives of developing coastal states are mixed. In addition to fears and apprehensions about unknown offshore activities, they are practically motivated to control access to substantial economic resources. In exchange for consent to conduct research in their area, many developing nations plan to require training, technical assistance, and other forms of development aid. Developing countries are divided, however, over how to share these benefits with the land-locked and geographically disadvantaged states. For this reason, the Group of 77 has not developed a unified position on scientific research. The differences, however, lie not in the question of whether scientific research should be controlled by the coastal state but in the allocation of benefits to be gained from control. These developing country attitudes will play a major role in determining the future legal regime that will apply to marine science research. The outlines of that regime are emerging at the UN law of the sea meetings.

The Single Negotiating Text

From the perspective of the progress of negotiations, it has been fortunate that a range of approaches has evolved on marine science research rather than a confrontation between coastal and researching nations. The text produced at the Geneva session reflects some but not all of the approaches to dealing with scientific research. Several portions of the text indicate the type of regime that may be agreed upon in an international treaty. The single negotiating text is in three parts, corresponding with the three committees of UNCLOS III. Each part contains provisions dealing with scientific research and each is the product of a different committee chairman. There are therefore differences and conflicts between the treatment of issues from one part of the text to another. This is particularly true of the provisions on marine science research.

Part I of the Geneva text deals with scientific research in the context of a regime for the deep seabed, and is highly restrictive. Articles 1 and 22 provide that "activities in the Area shall be conducted directly by the Authority" including activities associated with exploration and exploitation of the Area, such as scientific research. These provisions clearly place research beyond national jurisdiction under the control of the international authority. Article 10 elaborates the authority's control in greater detail. Elsewhere the text provides that scientific installations such

as data buoys may be restricted by the international authority. Article 16 states that stationary and mobile installations "shall be erected, emplaced and removed solely in accordance with the provisions of this Convention and subject to rules and regulations prescribed by the "Authority." The appendix to the Committee I text is equally ominous for the conduct of unrestricted marine science research.

Part II of the Geneva text touches upon scientific research in the context of various forms of offshore jurisdiction. Articles 16 and 18 provide for coastal state regulation of "research of the marine environment and hydrographic surveys" in the territorial sea. With regard to the exclusive economic zone, Part II vests exclusive jurisdiction over scientific research in the coastal state as well as "exclusive rights and jurisdiction" with regard to "artificial islands, installations and structures." The Committee II text conflicts directly with that of Committee III on scientific research. Given the allocation of scientific research to Committee III, its inclusion in the economic zone section of Part II is surprising. The reference to scientific research in the Committee II text was apparently at the request of one delegation and in all likelihood, the approach of the Committee III text will prevail at the next session. The article is instructive, however, as a reflection of the extreme view of the Group of 77 developing coastal states. It provides, in Article 49, that:

> The consent of the coastal State shall be obtained in respect of any research concerning the exclusive economic zone and undertaken there. Nevertheless, the coastal State shall not normally withhold its consent if the request is submitted by a qualified institution with a view to purely scientific research, subject to the provision that the coastal State shall have the right, if it so desires, to participate or to be represented in the research, and that the results shall be published after consultation with the coastal State concerned.

The effect of this article would be to place scientific research in 36 percent of ocean space under coastal state control. The provision which restricts publication of research results without coastal state permission reflects an aspect of developing country positions that necessarily concerns academic researchers. Open publication is the goal and purpose of academic research. Without the freedom to disseminate research results no academic research will take place.

The continental shelf section of Part II applies the highly restrictive provisions of Article 49 to "research concerning the

Continental Shelf and undertaken there" (Article 71). The text defines the continental shelf to include the margin where it extends beyond the 200-mile zone. Thus, under the terms of Articles 49 and 71, research in approximately 40 percent of ocean space would be subject to coastal state control. High seas freedoms are discussed in the next section of the Committee II text. Article 75 includes freedom of scientific research among the high seas freedoms, "subject to the provisions of Parts IV and. . . [scientific research]." Part IV of the Committee II text refers to the section on the continental shelf. Although the reference to scientific research as a high seas freedom is notable in view of its absence from the 1958 convention, it is made subject to provisions that are as yet unspecified and may, in practice, be severely limited.

The Committee II text also deals with scientific research in the context of archipelagos. After defining the archipelagic waters to be enclosed within baselines of up to 125 miles, the text elaborates the concept of "archipelagic sealanes passage"—a form of innocent passage through archipelagic waters. In the course of such passage "foreign ships, including marine research and hydrographic survey ships, may not carry out any research or survey activities without the prior authorization of the archipelagic State" (Article 127). The creation of archipelagic waters will subject scientific research to further coastal state control.

In summary, the Committee II provisions of the Geneva text range from providing for a potentially qualified freedom of scientific research on the high seas to a highly restrictive regime for scientific research in extensive areas of coastal and archipelagic state jurisdiction. Confusion and inconsistency are apparent throughout. Moreover, as mentioned earlier, the inclusion of such extensive references to scientific research is puzzling in light of the mandate given to Committee III to handle marine science.

Of the three parts of the text produced at Geneva, the third part most reflects negotiation and compromise. The text on scientific research is based on an elaboration of four distinct approaches or "pillars" that encompassed the various national positions before Committee III. The small number of issues before the Committee provided the opportunity to articulate and begin to negotiate among the four pillars. It should be noted that this Committee was the only one not chaired by a country representative from the Group of 77 and the text attempts to accommodate developed country interests.

The Committee III text defines marine scientific research as "any study or related experimental work designed to increase man's knowledge of the marine environment." It provides that research in

the territorial sea "shall be conducted only with the explicit consent of. . . the coastal State." With regard to research in the economic zone and the continental shelf, the text draws a distinction between fundamental research and research related to living and non-living resources.[2] The coastal state must give explicit consent to the conduct of resource-related research as well as to the publication or dissemination of the research results. The researcher must fulfill coastal state requests for information and preliminary interpretations of results. In the case of both fundamental and resource-related research, the text provides a check list of information the researcher must supply to the coastal state: nature and objectives of the project; means to be used; description of vessels; geographical areas where activities will take place; expected date of arrival and departure; and the names of the researchers and sponsoring institutions. In the case of fundamental as well as resource-related research the text sets out a number of conditions. The coastal state has the right to participate or be represented in the research project. Coastal state participation in onboard research would occur at the expense of the state conducting the research. The researcher would provide the coastal state with the final results of the research project and would "undertake to provide to the coastal State on agreed basis raw and processed data and samples of materials" (Article 16). If requested, the researcher is to assist the coastal state in assessing these data and samples. The researcher is to inform the coastal state of any major change in the research program. And where the research is of a fundamental nature, the researcher is to assure that results are made available through appropriate international channels.

The Committee III text provides that, in the event of a dispute between the coastal and researching states over whether the research is fundamental or resource-related, the dispute should be submitted to the dispute settlement procedures to be elaborated by a law of the sea convention. The text also specifies that land-locked and geographically disadvantaged states of a region will be notified about a research project and given the opportunity to participate.

When research is conducted in the international seabed area, the researcher shall notify the international seabed authority (Article 25). If "resource-oriented. . . research. . . is planned in an area immediately adjacent to the economic zone or continental shelf of a coastal State," and if "entries into the economic zone of the coastal States may be required" to conduct incidental research, coastal state consent must be granted. Article 25 further specifies that the results of research in the seabed area shall be made internationally available. The orientation of the Committee III text on research in

the deep seabed is substantially different from that of Committee I.

Similarly the Committee III text on scientific equipment in the marine environment is at odds with the other Committee texts. Article 28 specifies that "All rights necessary to operate and manage and the responsibility for such installations or equipment shall remain with the States or the international organizations which have deployed them. . . unless otherwise agreed between the parties concerned," In areas of coastal state jurisdiction, however, "the coastal State has the power to inspect and ensure that the installations or equipment are used in conformity with the purposes and conditions set out for the conduct of the research project." (Article 29).

Despite the inconsistencies and confusion of the texts emerging from the Geneva session of the Law of the Sea Conference, the trend toward far more restrictions on marine science research is clear. The provision of the 1958 Convention on the Continental Shelf for coastal state consent to conduct research was merely the first step toward the expansion of coastal state control of offshore research. The relatively unfettered access enjoyed until recently to ocean areas beyond a narrow territorial sea is rapidly coming to an end.

Since the major portion of marine science research is conducted in offshore areas, the extension of coastal state control to 200 miles and the margin beyond—even if limited to resource-related research—will mark a major change in the environment for marine science. The change will be even more radical if the international seabed authority is given the right to regulate research on the seabed beyond national jurisdiction. The options confronting the United States will depend upon (a) whether or not a treaty emerges from UNCLOS III and (b) the contents of the treaty, if one results. Moreover, the options will vary for different segments of the marine scientific community and for the U.S. Government as a whole.

Options for the U.S.

In considering options for U.S. policy on marine science research, a number of geographic distinctions, modes of action, actors and international outcomes must be kept in mind. The options considered are confined to the conduct of marine science research in the traditional manner. While highly useful, satellite-conducted oceanography can never completely substitute for ship-based observations.

Options Based on Geographic Area

With regard to geographic areas of the oceans, different options may apply in offshore areas as opposed to the deep seabed. In considering national policy, several modes of action are possible—national, unilateral, bilateral, regional or international. The options will, of course, vary according to the actor in question—whether it is a commercial science interest, military research, academic research, or the U.S. Government as a whole. Finally, the feasibility and acceptability of options will depend upon whether a treaty emerges from UNCLOS III, and if one does result, upon whether its provisions are unacceptable, generally acceptable, or acceptable in part to the United States.

Options for marine science research in offshore zones must be distinguished from those in areas beyond national jurisdiction. The importance attached by coastal states to coastal areas is an important political difference with operational implications. On the other hand most scientific research is conducted within 200 miles of shore. Only U.S. commercial interests are fully accommodated to the prospect of consent regimes in these offshore areas. Military intelligence activities can look forward to either an acceptable regime or a deliberate or surreptitious continuation of activities in these areas. The academic researcher, without an acceptable legal regime in coastal areas, will lack needed official support and can either cease research or develop some bilateral accommodations with coastal states.

In the deep seabed/high seas areas the options will be somewhat different due in part to reduced coastal state sentiment and harassment capabilities. Commercial science in the area will initially revolve around deep sea mining, and in the absence of a recognized political authority, will require a workable international regime or U.S. Government legislation and support. Military intelligence and scientific activities will probably tend to continue either within an acceptable regime or in explicit disregard of an unacceptable treaty. The academic researcher will need either an acceptable international regime or U.S. assistance and support for the continuation of research in areas beyond national jurisdiction.

Feasible Modes of Action

Different modes of action will be appropriate depending upon the area, the group or interest in question and the overall international environment. The first level of action to be considered is domestic national action. This can be taken by private or by public agencies

on a number of questions. With regard to private activities, the opportunity exists to establish an institution or mechanism to coordinate, certify and police academic research programs in waters of other nations or in international waters. Such a mechanism commends itself either with or without a law of the sea treaty and in addition to or in lieu of whatever regulatory or certification mechanisms are established within the U.S. Government or internationally. A possible center for such coordination, certification and self-policing activities is the University National Oceanographic Laboratory System (UNOLS). UNOLS operates at present to coordinate university research ships and could expand its function with relative ease. If international guidelines are agreed upon with regard to notification, participation and publication of research results, UNOLS could interact directly with the U.S. and foreign governments and with U.S. ship operators to ensure compliance of its vessels. If an international agreement is not forthcoming, UNOLS could nonetheless establish appropriate standards for its own vessels which, if regularly adhered to, would develop a measure of acceptability for UNOLS approved vessels. The organization could control the behavior of its ships through moral suasion and the threat of withholding certification—with all of its attendant implications for receiving future government funds. The U.S. academic fleet is unique. Research by members of this group could offer significant benefits to other countries, and if properly managed, academic marine science research could continue to flourish.

National action at the government level to facilitate research could begin with a streamlining of procedures within the Department of State. The newly created Bureau of Oceans and International Environmental and Scientific Affairs could improve its capabilities to develop a coherent ocean policy and to take positions and actions consistent with that policy. The Office of Marine Science and Ocean Affairs, under the Deputy Assistant Secretary for Oceans and Fisheries could regularize its staff and improve its operations for securing ship clearances for research conducted within the jurisdiction of other countries. The State Department may not always be in a position to be as responsive to the needs of marine scientists as a UNOLS mechanism might be. This would be particularly true where research programs require access to areas the U.S. does not officially recognize as falling within national jurisdiction. In such instances, where the State Department cannot facilitate scientific access, it could avoid impeding it.

Unilateral action encompasses activities with direct inter-

national implications and may be of two types: (1) an official action taken in isolation or (2) an official act taken simultaneously with other like-minded states (sometimes referred to as "parallel" action). Unilateral actions may include executive branch policy pronouncements, legislation and implementation. The U.S. executive may assert and implement a national policy with regard to scientific research in the economic zone, on the continental shelf or in areas beyond. Similarly, Congress may enact legislation which promotes research by other nations in areas of U.S. jurisdiction, with appropriate notification procedures and assurances. Legislation with regard to high seas activities and seabed mining could also delineate a regime for marine science research beyond national jurisdiction. Executive branch policy assertions or congressional legislation may be undertaken in isolation from or in conjunction with similar acts by like-minded governments. Additionally, policy pronouncements or legislation can be taken in the absence of an international treaty, in reaction to an unacceptable treaty or as an elaboration of and spelling out of the U.S. interpretation of an acceptable treaty.

The effectiveness of such unilateral acts would depend upon U.S. willingness to enforce these policies vis a vis other nations. United States resolve to conduct enforcement activities would depend in turn upon a number of variables—the degree of international and domestic support for the U.S. position, the state of international law, and the identity of the parties against whom enforcement measures were required. The implementation and enforcement of U.S. policy would occur most easily where U.S. goals and a widely accepted treaty regime were in harmony and where links with the offending country were not extensive. As such ideal situations rarely occur, the decision to enforce certain sanctions in pursuit of a policy on scientific research will probably have to be taken on an ad hoc basis in most instances.

Bilateral arrangements to facilitate the conduct of marine science research may be of particular utility in areas of offshore jurisdiction. Whether there is or is not an international treaty, the United States may want to pursue regularized bilateral arrangements for research with those countries geographically nearest to the United States.[3] Cumbersome ad hoc consent procedures might be avoided through bilateral agreements which establish channels for notification, participation, training and technical assistance. An agreement with Canada has been in effect for thirty years providing for twenty-four hours notice for the conduct of research. Similar reciprocal agreements might be developed with other neighboring countries. In the case of more

distant countries, bilateral agreements may be advantageous to both the academic researcher and the foreign government. Middle Eastern governments, for instance, may want certain types of research conducted off their shores, but may not have the capability and may not want to have the research tied to a commercial agreement. Bilateral agreements which facilitate the access of academic researchers could be mutually advantageous in such circumstances.

Regional approaches to academic marine science research would be similar to bilateral approaches. They would be applicable primarily to areas of national jurisdiction. They would involve regularizing means to facilitate access as well as to promote training and participation of non-U.S. nationals. The advantage of regional approaches relates to the scale and time dimensions of oceanic processes. Regional or cooperative studies are especially appropriate because of the vast scale of oceanic processes and the length of time over which observations need to be made. The Cooperative Investigation of the Caribbean Adjacent Regions (CICAR) is one type of regional program that might be encouraged.

With regard to a specific commercial activity—such as fisheries—or monitoring the marine environment, cooperative regional approaches are equally appropriate. Proper management and control in areas of regional interdependence require scientific information comprehending the region as a whole. Regional approaches can be accomplished through international organizations such as the Fisheries Department of the Food and Agriculture Organization (FAO) of the UN or the Intergovernmental Oceanographic Commission (IOC) of UNESCO, with an eye to resource conservation and proper management.

While international organizations may further regional approaches and even bilateral arrangements, their most important contribution to marine science research may be to promote research, set standards, certify programs or, in a distant future, enforce standards at the global level. Among the problems which confront oceanographic programs of various international organizations are lack of financial support and duplication of effort between agencies. As ocean problems occupy more and more attention within the UN system, a strong case can be made for the establishment of a single technical organization to deal with scientific and engineering aspects of ocean affairs. This organization could provide technical information to UN and other organizations which deal with ocean resource management. It could serve to coordinate ocean science and engineering activities of UN and non-UN organizations. The IOC could form the nucleus

of such an organization together with the FAO Department of Fisheries, the World Data Center System for oceanography, the UNESCO Division of Marine Science, appropriate segments of the World Meteorological Organization, and the International Hydrographic Organization. Depending upon the completion of an international law of the sea treaty, the role of such an organization could encompass responsibilities in training and technical assistance, coordination of cooperative programs of research, certification of national programs of research and elaboration of environmental standards.

Of course, the most important international activity with regard to marine science research is the negotiation underway in the UN Law of the Sea Conference. IOC, FAO, IMCO, and other international organizations are deferring a number of decisions pending the outcome of the Conference. The Conference has been underway for seven years, including the preparatory work of the Seabed Committee, and plans to hold another session in Spring 1976. There is no assurance that this will be the last session or even that a treaty will be agreed upon at some future time. If a treaty is agreed to, its provisions with regard to scientific research cannot, with any certainty, be addressed from the terms of the 1975 Geneva text.

Alternative Treaty Outcomes

The U.S. options with regard to marine science research must be considered in terms of several possible outcomes. The Conference may produce a treaty which the United States finds totally unacceptable; or the Conference may produce no treaty at all. Alternatively it might produce several treaties over a period of time as agreement can be reached on each issue. On the other hand, a single treaty might be produced which is generally acceptable to the United States. A variant of an acceptable treaty outcome, however, might be a single treaty which, although largely acceptable, entails undesirable restrictions on scientific research. U.S. policy options regarding marine science in zones of coastal state jurisdiction and in the area beyond will differ according to which of these international outcomes prevails.

While from a domestic standpoint, no treaty might be equivalent to an unacceptable treaty which the United States rejects in toto, the same U.S. actions in these two different situations will generate very different international responses. In both cases, the U.S. could consider the adoption of legislation dealing with an economic zone and with a deep seabed regime. This action might be taken in conjunction with a number of like-minded states. But the international reaction to such action would be far less negative if it

were taken in an international legal vacuum rather than in opposition to a treaty approved by a majority of nation states. Enforcement would, of course, be easier in the former situation.

In the absence of or in reaction to a treaty, the United States might consider legislation which delineates its position applicable to a 200-mile economic zone and to the continental shelf beyond. With regard to scientific research, the legislation could permit scientific research by other states in areas subject to U.S. jurisdiction provided that the researcher fulfilled the obligations for notification, participation, and so on that are part of the present U.S. position. In the absence of a treaty, such a provision might be simultaneously adopted by other states who also feel this is an economical way to have research carried out in offshore areas. This provision would probably not be widely emulated, however, particularly if it were contrary to an international treaty providing for consent regimes. In such a situation it would be difficult to enforce a notification regime for academic research.

Military intelligence operations could and doubtless would be conducted in the absence of or in reaction to a treaty—either surreptitiously or backed by the capability to deter any harassment from coastal states. Marine science related to commercial activities would remain least affected. Bilateral arrangements would generally be worked out with the coastal state—even with respect to fisheries, since the general acceptability of the economic zone concept has grown. Public and private fundamental research in the economic zone will fare worst if there is no treaty or an unacceptable one. While domestic legislation may encourage similar enactments by a limited number of other countries, academic researchers will be on their own when it comes to securing access to coastal areas where the State Department does not recognize the extent or nature of a national claim. If the Department of State will not process requests for clearance, the researching institution will either have to forego the research or develop its own bilateral and regional channels for arranging access. An established process of certification and policing by UNOLS or an expanded IOC might facilitate these private arrangements. Particularly if no treaty emerges from UNCLOS III, efforts could be made to strengthen the role of international oceanographic organizations. This would, of course, be difficult to do if an unacceptable treaty envisions a different role for these organizations vis a vis coastal states.

With regard to the deep seabed/high seas, U.S. legislation, in the absence of or in opposition to an unacceptable treaty, might combine a systematic statement of user rights and obligations in

the area with a regime for deep sea mining. A number of maritime and mining states might be willing to enact similar legislation. If there is no treaty, such a legislative approach would include provisions to harmonize the interests of different ocean users, to collect and equitably distribute revenues from mining activities, to strengthen international oceanographic organizations, and to facilitate cooperative research programs. If there is a treaty with highly restrictive terms for seabed mining and high seas activities, the technologically advanced states would probably be willing to pursue such an alternative means to coordinate their activities in the deep ocean. Commercial users would certainly push for domestic parallel legislation to promote deep sea mining and access for purposes of exploration and scientific enquiry. The naval research community would doubtless support legislation facilitating access for research as would the academic science community. Coastal state harassment of research activities in the deep seabed/high seas would be far less likely than in an economic zone. The extent of support for nationally legislated high seas activities would probably be substantial, and would aid in enforcement of the policy.

In the event of either no treaty coming out of the UN Conference or of a treaty unacceptable to the United States the U.S. Government and the private science community could pursue a variety of national and diplomatic approaches. Executive branch policy statements and domestic legislation would have to be supplemented by private and public bilateral and multilateral efforts. Where appropriate, these efforts could be coordinated with strengthened international oceanographic organizations.

A treaty that was acceptable in most but not all respects would present the U.S. Government with a difficult choice. The Congress could ratify it, ratify it with detailed reservations, or not ratify it at all. Assuming that reservations will be allowed, the middle course is the likely prospect. If the treaty is generally acceptable, the reservations could be limited in number and scope. A treaty reservation on scientific research could be accompanied by executive or congressional action detailing U.S. policy. This could, of course, be followed up with bilateral, regional or multilateral arrangements with neighboring or like-minded states. Once again, academic research would be the most vulnerable in the face of disagreements with other states. In the absence of State Department assistance, private channels would have to be developed to facilitate access.

The ideal situation for the U.S. marine science community would occur if UNCLOS III produced a treaty that did not unnecessarily

restrict oceanographic research in either coastal state zones or in areas beyond. In this circumstance, the Congress could follow treaty-ratification with suitable implementing legislation. Commercial interests could operate bilaterally in coastal zones and under a satisfactory regime in the area beyond. The academic science community could have State Department support in seeking clearances and would benefit in addition from a credible private self-policing mechanism such as UNOLS. Within the context of the international treaty, bilateral and regional arrangements could be elaborated to promote cooperative research. And a generally accepted treaty would be especially conducive to the development of an international oceanographic organization designed to develop cooperative research programs, certify proposed research projects, and act as a clearinghouse for oceanographic data and dissemination of research results.

NOTES

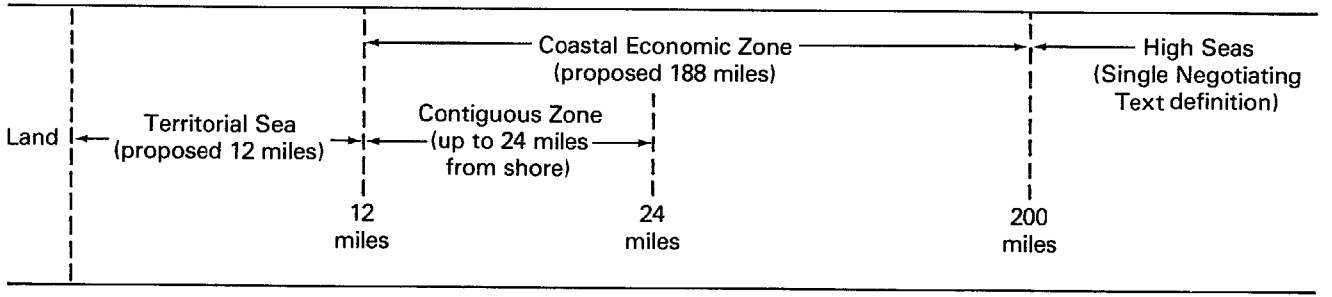
[1] UN General Assembly, Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor Beyond the Limits of National Jurisdiction, *United States of America: Draft Articles for a Chapter on Marine Scientific Research* (A/AC.138/SC.III/L.44).

[2] This distinction was suggested by the Soviet delegation as a compromise between the consent and notification approaches and has been tentatively accepted by both sides.

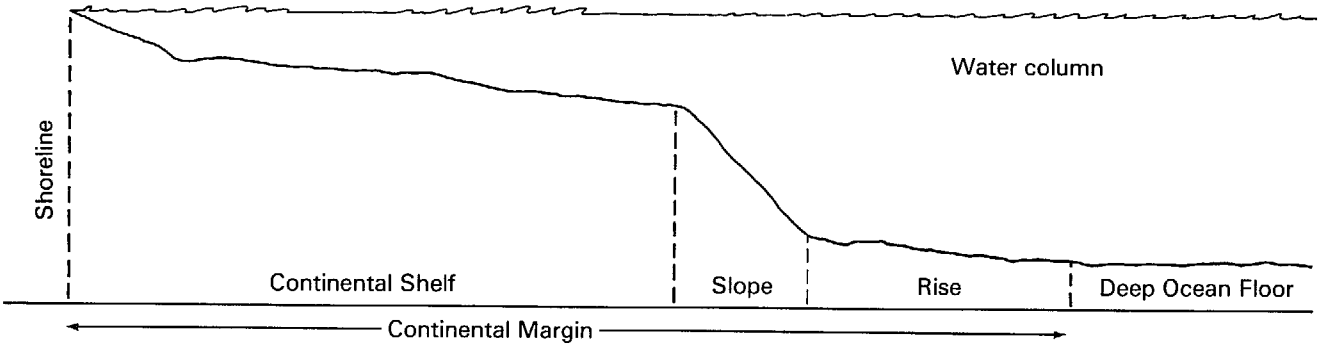
[3] Given rising fuel costs, it is likely that smaller academic institutions will increasingly reduce the length of their cruises and confine their research activities to areas off Canada, Mexico and in the Caribbean.

OCEAN SPACE DEFINITIONS

LEGAL DEFINITIONS



GEOGRAPHIC DEFINITIONS



Glossary of Acronyms and Terminology

Acronyms

ASW	Anti-submarine warfare
CCD	Conference of the Committee on Disarmament
CEA	Council of Economic Advisers
CEQ	Council on Environmental Quality
CIEP	Council on International Economic Policy
CIPEC	Intergovernmental Council of Copper Exporting Countries
EPA	Environmental Protection Agency
GESAMP	Joint Group of Experts on the Scientific Aspects of Marine Pollution
IMCO	Intergovernmental Maritime Consultative Organization
IOC	Intergovernmental Oceanographic Commission
LASH	Lighter Aboard Ship, a ship that carries barges
LNG	Liquefied Natural Gas
LOS	Law of the Sea
LOT	Load on top, a method of reducing oil pollution from tanker ballasting
MIRV	Multiple Independently-targetable Reentry Vehicle
MSY	Maximum sustainable yield
NOAA	National Oceanic and Atmospheric Administration
NPC	National Petroleum Council
NSDM	National Security Decision Memorandum
NSSM	National Security Study Memorandum
OPEC	Organization of Petroleum Exporting Countries
OPIC	Overseas Private Investment Corporation
PCB	Polychlorinated biphenyls
SNT	Single Negotiating Text
SOSUS	Sound Surveillance System, ASW listening devices
SSBN	Nuclear-powered submarine carrying nuclear ballistic missiles
SSN	Nuclear-powered submarine
ULMS	Underwater Long-range Missile System
UNCLOS	United Nations Conference on the Law of the Sea
UNCTAD	United Nations Conference on Trade and Development
UNEP	United Nations Environmental Programme
UNOLS	University National Oceanographic Laboratory System
VLCC	Very Large Crude Carrier
WMO	World Meteorological Organization

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UN Documents
U.S. Naval Institute Proceedings

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the ocean floor and in the subsoil thereof" signed.
International Commission for the Northwest Atlantic Fisheries (ICNAF) established.
(December) UN General Assembly (26th) adopted a resolution: Res. 2881 to expand the Seabed Committee to 91 members, including the People's Republic of China.

1972 (June) Declaration of Santo Domingo issued by the Specialized Conference of Caribbean Countries on Problems of the Sea (A/AC.138/80) claimed coastal states have sovereign rights over resources in adjacent "patrimonial sea" to a distance of up to 200 miles.
African Regional Seminar on the Law of the Sea held in Yaounde (A/AC.138/79).
(November) Intergovernmental Maritime Consultative Organization Convention on the Prevention of Marine Pollution by Dumping at Sea (IMCO).
(December) UN General Assembly (27th) adopted a resolution: Res. 2750C to form three separate subcommittees in the Seabed Committee, Subcommittee I to deal with an international regime and international machinery of the deep seabed; Subcommittee II to deal with the Law of the Sea in general; and Subcommittee III to deal with the prevention of pollution of the sea and scientific research.

1973 (November) IMCO Convention for the Prevention of Pollution from Ships
(December) Organizing meeting (First Session) for the Third United Nations Law of the Sea Conference.
The "energy crisis" gained world-wide attention with the Arab oil embargo.

1974 (March) Kampala Declaration of Land-Locked and Geographically Disadvantaged States.
(June-August) Second Session of Third United Nations Law of the Sea Conference, Caracas, Venezuela, (Ten weeks).

1975 (March-May) Third Session of Third United Nations Law of the Sea Conference, Geneva, Switzerland. Eight-week session concluded with issuance of "informal single negotiating text."

* A number of the entries in this chronology were taken directly from a chronology developed by George Kent, published in *Neptune*, No. 6, May 7, 1975. The Ocean Policy Project wishes to thank Professor Kent and the editors of *Neptune* for permission to republish in this form.

1966 U.S. passed legislation establishing a twelve-mile fishing zone.

1967 (August) Ambassador Arvid Pardo of Malta urged the UN General Assembly to declare that the seabed and ocean floor are the common heritage of all mankind.

(December) UN General Assembly (22nd) adopted a resolution: Res. 2340 establishing an Ad Hoc Committee to Study the Peaceful Uses of the Sea-Bed and the Ocean Floor Beyond the Limits of National Jurisdiction.

1968 UN Ad Hoc Committee on the Sea-Bed met in March, June, August; was replaced by permanent Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor Beyond the Limits of National Jurisdiction (Seabed Committee) in December.

1969 (February) In the North Sea Continental Shelf Cases, the International Court of Justice found: (a) that states had an inherent right to claim and exercise sovereign rights over the continental shelf and its resources as a prolongation of its land territory into and under the sea; (b) where the same continental shelf is adjacent to two states, and no other agreement is made between them, the boundary is not necessarily equidistant between them; (c) the 1958 Geneva Convention did not embody any pre-existing rule on the delimitation of the continental shelf; (d) that delimitation ought to be effected by agreement of the parties according to equitable principles.

(December) Moratorium Resolution (Res. 2574D) was adopted in UN General Assembly prohibiting exploitation of seabed resources pending the establishment of a seabed regime.

1970 (May) Latin American nations adopted Declaration of Principles on the Law of the Sea at conference in Montevideo.

(December) UN General Assembly (25th) adopted two resolutions: Res. 2749 the "Declaration of Principles Governing the Sea-Bed and the Ocean Floor and the Subsoil Thereof, Beyond the Limits of National Jurisdiction," proclaiming that beyond the limits of national jurisdiction the seabed and its resources are the common heritage of mankind, not subject to the claims of any state; Res. 2750C to enlarge the Seabed Committee to 86 members and to convene a comprehensive Law of the Sea Conference in 1973.

1971 (February) Seabed Arms Control Treaty, prohibiting placing of weapons of mass destruction on "the seabeds,

1947 (June 23). Chile issued a Presidential Proclamation claiming sovereignty over the ocean and its resources to 200 miles off its coast (not enforced).
(August). Peru issued a Presidential decree claiming sovereignty over a 200-mile territorial sea (not enforced).

1948 Costa Rica claimed a territorial sea of at least 200 miles width.

1950 El Salvador claimed a 200-mile territorial sea.

1951 In the Anglo-Norwegian Fisheries Case, a dispute between Britain and Norway on the correct method of delimiting territorial seas, the International Court of Justice supported Norway's claim that measurements may be made from straight baselines in their special case of coastal islands.

1952 (August 18). In the Declaration of Santiago, Chile, Ecuador and Peru claimed territorial seas of at least 200 miles and formed a Commission for the Exploitation and Conservation of the Maritime Resources of the South Pacific.
Korea claimed exclusive fisheries zone to 200 miles from its shore.

1954 International Convention for the Prevention of Pollution of the Sea by Oil, to prevent the discharge of oil within 50 miles of land, was signed in London.

1958 "International Conference of Plenipotentiaries to Examine the Law of the Sea" at Geneva produced four conventions:

1. The Convention on the Territorial Sea and the Contiguous Zone (in force September 1964);
2. The Convention on the High Seas (in force September 1962);
3. The Convention on Fishing and Conservation of the Living Resources of the High Seas (in force March 1966);
4. The Convention on the Continental Shelf, which came into force in 1964 (when it received sufficient ratifications), failed to establish a fixed outer limit to coastal state jurisdiction.

1960 Second Geneva Law of the Sea Conference failed to reach agreement on the width of the territorial seas.

1963 Partial test ban treaty prohibited nuclear testing under water, in the atmosphere, or in outer space, signed by U.S., Britain, and Soviet Union. Entered into force October 10, 1964.

Juanita Kreps

Chronology of Major Ocean-Related Events*

1493 Papal Bull issued by Pope Alexander VI supported claims by Portugal and Spain over most of the Atlantic and Pacific Oceans.

1580 Queen Elizabeth asserted "The use of the sea and air is common to all; neither can any title to the ocean belong to any people or private man, for as much as neither nature nor regard of the public use permitteth any possession thereof," in defiance of Spanish control over the seas.

1609 Dutch jurist Hugo Grotius advocated freedom of the high seas, in his doctrine *Mare Liberum*.

1610 Dutch fishing for herring off the British coasts led the British to reverse positions and lay claim to "their" coasts and seas, but soon Britain returned to the Elizabethan position of advocating freedom of the seas and *res communis* as a result of negotiations with the Dutch. These negotiations led to recognition of coastal jurisdictions within cannon range from shore.

1703 Dutchman Bynkershoed enunciated the rule that a nation should exercise sovereignty over waters within cannon range of its shore, and that the range of cannon was then three miles—a rule which had already been well established.

1794 U.S. Congress passed a statute adopting the three-mile limit for the territorial sea (Act of June 5, 1794, 1 Stat. 384).

1872-76 Challenger discovered manganese nodules.

1879 Offshore mining of petroleum began.

1927 Soviet Union issued a declaration claiming a twelve-mile territorial sea.

1930 Hague Conference for the Progressive Codification of International Law failed to reach agreement on the breadth of the territorial sea because of disputes over the precise desirable width.

1945 (September 28). Truman's Presidential Proclamation 2267 laid claim to exclusive U.S. jurisdiction over the continental shelf resources adjacent to the U.S. coast. Proclamation 2668 established conservation zones for fish on the high seas contiguous to U.S. coasts.

(October 29). Mexico claimed the continental shelf adjacent to its coastline.

1946 Argentina issued a Presidential Proclamation claiming sovereignty over its adjacent continental shelf.

Seabed Committee—Committee on the Peaceful Uses of the Seabed and the Ocean Floor Beyond the Limits of National Jurisdiction. Established as an ad hoc committee in 1967, and in 1970 designated the official preparatory body for UNCLOS III.

segregated ballasting—physically separate sea water ballast and cargo tanks on tankers. Eliminates discharge of contaminated ballast water.

shunting—diversion of wastes from one environmental medium or site to another.

territorial sea—marginal belt of coastal waters adjacent to the coast over which the coastal state exercises sovereignty, subject to certain limitations imposed by international law. Current individual territorial sea claims range from three to 200 miles.

transnational pollution—the physical movement of pollutants outside of the territory of the country that generates them.

zone-locked states—states which, by virtue of their geographical proximity to other states, would fail to receive full benefit of the proposed 200 mile economic zone.

geographically disadvantaged—a phrase popularized during the Caracas session of UNCLOS III to assess the relative areal allocation of marine territory under the proposed economic zone.

Group of 77—A coalition of developing countries which gained recognition at the first UNCTAD Conference in 1964 when seventy-seven countries combined to confront industrialized countries on economic issues. The coalition has expanded to include 100 or more countries, but the original designation is still used.

high seas—ocean space seaward of the coastal economic zone. In the Single Negotiating Text, the High Seas begin 200 miles from shore. In the 1958 Geneva Conventions, the High Seas were defined as ocean space seaward of a "territorial sea" of undefined width.

H.R. 200—"A Bill to Extend on an Interim Basis the Jurisdiction of the United States over Certain Ocean Areas and Fish in Order to Protect the Domestic Fishing Industry and other Purposes." 94th Cong., 1st sess.

innocent passage—a regime under the 1958 Convention on the Territorial Sea and the Contiguous Zone setting forth the right of ships to pass through the territorial seas of any coastal state so long as passage is not "prejudicial to the peace, good order or security" of the coastal state.

international authority—in the LOS context, the body envisioned to manage the seabed beyond the limits of national jurisdiction. Various proposals as to its composition have been advanced in UNCLOS III.

littoral states—states bordering the sea.

marine outfalls—wastes, including sewage, piped to sea.

Metcalf bill—see S.713.

ocean dumping—the deliberate disposal at sea by ship or barge of waste materials originating on land.

pelagic species—those spawning and living in the ocean, such as tuna.

pollution havens—the prospect that some countries will attract industry on the basis of zero or lenient environmental controls. Derived from the term "tax haven."

S. 713—"A Bill to Provide the Secretary of the Interior with Authority to Promote the Conservation and Orderly Development of the Hard Mineral Resources of the Deep Seabed, Pending Adoption of an International Regime therefor." 94th Cong., 1st Sess. Also referred to as the Metcalf bill.

S. 1341—"A Bill to Establish a 200-mile Marine Pollution Control Zone." 94th Cong., 1st sess.

Terminology

anadromous species—those spawning in fresh water, such as salmon.

assimilative capacity—the ability of the environmental media to absorb wastes and render them harmless.

bribes—a technical term describing the payments made by environmental damage victims to polluters to have the latter modify their activities.

coastal economic zone—a zone seaward of the territorial sea in which the coastal state has jurisdiction over economic resources. In the Single Negotiating Text, the Coastal Economic Zone extends from the Territorial Sea, 188 miles seaward, to 200 miles from shore.

common property resources—resources not under private ownership, but jointly owned. Many environmental resources are CPRs.

contiguous zone—a zone in which the coastal state may exercise control necessary to prevent or punish infringement of certain of its regulations which occur within the territorial sea. In the Single Negotiating Text, the contiguous zone extends out 24 miles from shore.

continental margin—a natural sub-surface prolongation of continents and islands as apart from the deep sea bottoms; generally consists of the continental shelf, slope and rise.

continental rise—the most seaward part of the margin; a gentle incline between the steeper continental slope and the deep seabed.

continental shelf—a zone adjacent to a continent or around an island, and extending from the low water line to the depth at which there is usually a marked increase of slope to a greater depth.

continental slope—a declivity seaward from a shelf edge to the continental rise.

demersal species—bottom fish

dredge spoils—materials scooped up by dredging navigational channels, etc.

dual standards—the notion that environmental standards should be less restrictive for developing countries in view of their lower levels of economic development.

effluent (emission) fees—charges or taxes placed on polluters to discourage pollution.

Geneva text—"Informal Single Negotiating Text" that emanated from the Geneva session of UNCLOS III in 1975. Also known as SNT.