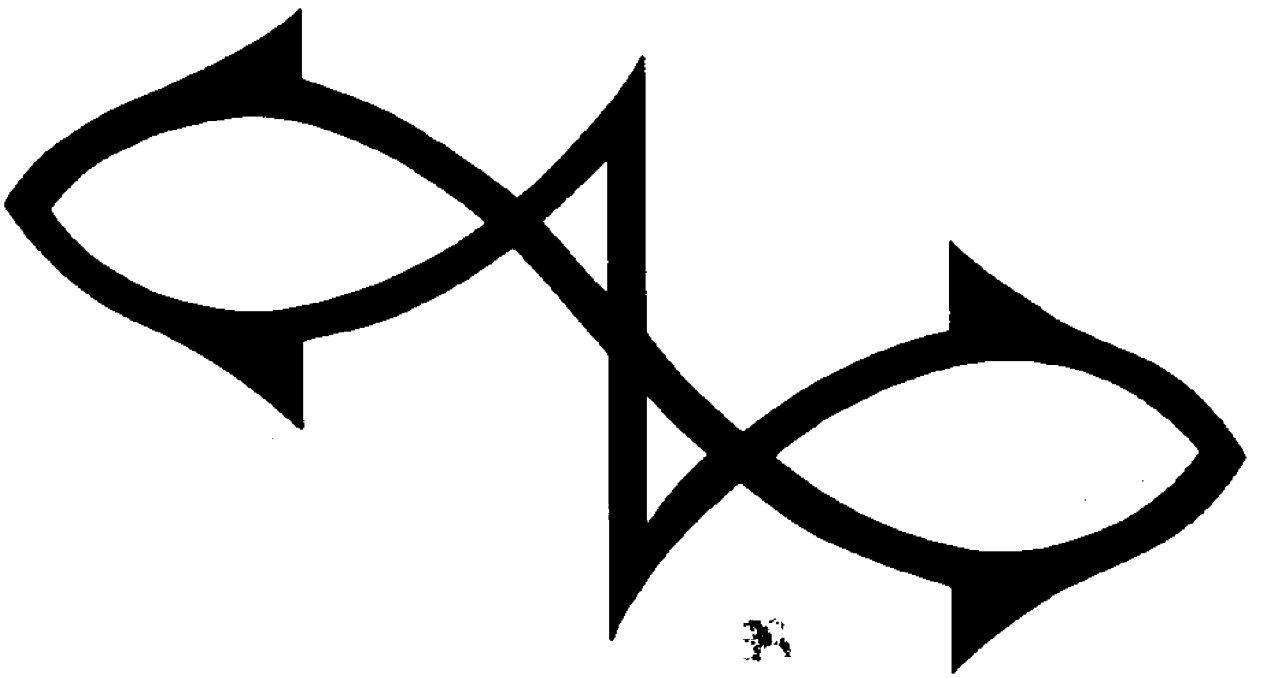
THE LAW OF THE SEA

The United Nations and Ocean Management

Proceedings of the Fifth Annual
Conference of the Law of the Sea Institute
June 15 — June 19, 1970
The University of Rhode Island
Kingston, Rhode Island



Edited by:
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DEDICATION

During the summer of 1970 the Law of the Sea Institute lost two of its strongest supporters--Dr. Wilbert M. Chapman and Dr. Milner B. Schaefer. Both men contributed major papers at the Institute's First Annual Summer Conference, and both attended every subsequent Conference and took active part in the programs. Dr. Chapman served on the Advisory Board of the Institute from the time of the Institute's inception.

Wib Chapman and Benny Schaefer were among the pioneers in modern law of the sea development. They combined theory with practice, and exercised considerable influence on the development of United States policy regarding the law of the sea. Not only were they scientists and statesmen but also teachers, and it was in this role, perhaps, that they contributed the most to the work of the Law of the Sea Institute.

To Wilbert M. Chapman and Milner B. Schaefer these 1970 Proceedings are gratefully dedicated.

CONGRATULATORY MESSAGE

Vice President Spiro T. Agnew

With your fifth annual conference, on the United Nations and Oceans Management, the Law of the Sea Institute is addressing many of the vital international oceanic issues facing mankind. As Chairman of the National Council on Marine Resources and Engineering Development, I extend my best wishes for a successful conference, one that will further enhance the fine professional reputation already earned by the Law of the Sea Institute.

WELCOMING ADDRESS

President Werner A. Baum

University of Rhode Island

I want to welcome you very much to the campus once again. I suppose the best sign of success is having people imitate you, and the imitations of this Institute are starting to spread far and wide. It is a great tribute to the concept, and to the way Lew Alexander has executed that concept.

I hope you will have a very fruitful discussion. It is clear now that the subject with which you are concerned is moving front and center. It requires a great deal of careful input so that we may formulate a policy or policies that will be of benefit for generations to come. I look forward to joining you under social circumstances; have a good time. Thank you.

THE GENERAL ASSEMBLY AND THE SEA

Louis Henkin
Columbia University School of Law

June 1970 is not an obvious time to stop to appraise the activities of the United Nations General Assembly in regard to the seas. Major negotiations and decisions are still ahead; what has been done to date is small, and the shadow it casts is vague and even its direction is uncertain. A recent development, the proposal by the United States of May 23, will no doubt give to future Assembly deliberations a new cast. Still the new US proposal itself responds to, and must be seen with, what has happened in the General Assembly; and the volumes of discussion there, the steps taken, the institutions created, the principles debated, and the resolutions adopted, reveal national attitudes and promise national policies, imply institutional potentialities and limitations, that will shape the future governance of the seas. Students of the UN may glean also lessons about the character and direction of the Organization.

The General Assembly is one organ of the UN, and its actions in relation to the seas might be seen as part of a complex of activities by the UN and its family of specialized agencies. The activities could be variously classified, and it is some measure of their complexity that each classification would not be without relevance or interest. One could begin with "natural" categories, describing what has been done chronologically or in annual segments. (In the General Assembly, the proceedings of 1966 are tentative and apolitical, the concern of the Second [Economic] Committee; 1967 shows major political issues discussed in the First [Political] Committee and each year since produces stronger political assertions and sharper political divisions.) It would not be meaningless to distinguish UN activities according to the sea's geography by horizontal divisions (territorial sea, contiguous zone, continental shelf, deep sea), or vertical divisions (subsoil, seabed, sea, sea surface, air space). One could describe them in terms of the different uses of the sea to which they refer (military uses, exploitation of resources, navigation, fishing) and the efforts these inspire (general regulation, disarmament, conservation, anti-pollution). One could distinguish surveys and studies from political decision; exhortations to piety from programs for action; calls for unilateral national measures from attempts to declare or make law. One could separate what was agreed from what remains in doubt or in controversy.

This paper is about the recent sea activities of the United Nations General Assembly, including what was done at its behest by ECOSOC, by the Secretariat and by various committees, with incidental reference to the Specialized Agencies. Principally, I describe where we are, and offer hesitant impressions as to where we may be going, in respect of the governance of the seabed as regards the exploitation of its natural resources; there is brief reference to efforts to control the seabed's military uses.

I

A decade ago the UN concluded a long, thorough round about the seas. The Geneva Conventions of 1958 were completed and coming into force; only the width of the territorial sea was unresolved and, after a second abortive attempt in 1960, seemed beyond formal resolution for some time. Of course, UN specialized agencies--notably, IMCO (the Intergovernmental Maritime Consultative Organization), WMO (the World Meteorological Organization), FAO (the Food and Agricultural Organization), WHO (the World Health Organization), UNESCO (the United Nations Educational, Scientific and Cultural Organization)--continued to deal with the seas in their specialized ways, but the UN itself was done with the seas. Yet by 1966 the newly established UNITAR (the UN Institute for Training and Research) listed, in its first program, research on "the development of natural resources such as those of the deep sea."[1] That year ECOSOC requested the Secretary General, in cooperation with other international organizations, with governments and others, to survey the state of knowledge as to the mineral and food resources of the sea beyond the continental shelf, and, inter alia, "to attempt to identify those resources now considered to be capable of economic exploitation, especially for the benefit of developing countries."[2] Later that year the General Assembly, on the recommendation of the Second (Economic) Committee, asked for more study, for

> a comprehensive survey in marine science and technology, including that relating to mineral resources development, undertaken by members of the United Nations family of organizations, various Member States and intergovernmental organizations, as well as by universities, scientific and technological institutes and other interested organizations.[3]

In the light of these surveys, the Secretary General was also

> ...to formulate proposals for: (a) Ensuring the most effective arrangements for an expanded programme of international cooperation to assist in a better understanding of the marine environment through science and in the exploitation and development of marine resources, with due regard to the conservation of fish stocks; (b) Initiating and strengthening marine education and training programmes, bearing in mind the close interrelationship between marine and other sciences.[4]

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[1] See 1966 UN Yearbook, p. 525.

[2] Res. 1112 (XL) 40 UN ECOSOC, Supp. No 1 at P. 3, UN DOC. E/4716 (1966).

[3] GA Res. 2172 (XXI) (1966).

[4] Ibid.

The purpose of the new UN activity was knowledge which might be applied; the impetus was hope in the promises of technology; a principal object was to improve the lot of developing countries. In time, the Secretary General produced excellent studies of existing knowledge concerning mineral and food resources of the sea beyond the continental shelf, and of marine science and technology.[5] Important technical studies relevant to the peaceful uses of the seabed generally, to the exploitation of its mineral resources, to scientific research, have also been contributed by Specialized Agencies and their committees.[6] In 1968, on the initiative of the United States, the Assembly also launched the Decade of Ocean Exploration promising a major effort, principally in research and education.[7]

The Maltese Item, 1967-70.

The focus of the Assembly's interest since 1967, however, has been political, and its mood "activist." As all now know, the availability of the General Assembly enabled a then little-known representative of a small country to seize the attention of governments, educate them about technological developments and their consequences, and compel them to face the implications for their own interests. The item proposed by Ambassador Pardo of Malta for the Twenty-Second General Assembly has appeared on the agenda of three sessions to date and promises to be an Assembly perennial. It reads:[8]

> Examination of the Question of the Reservation Exclusively for Peaceful Purposes of the Sea-Bed and the Ocean Floor, and the Subsoil Thereof, Underlying the High Seas Beyond the Limits of Present National Jurisdiction, and the Use of Their Resources in the Interests of Mankind.

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[5] Report of the UN Secretary-General on the Resources of the Sea, UN Doc. E/4449, 21 Feb. 1968; "Marine Science and Technology: Survey and Proposals," UN Doc. E/4487, 24 April, 1968.

[6] By UNESCO's Intergovernmental Oceanographic Commission (IOC), by WMO, by a Joint Working Party of Committees of the FAO, WMO and the ICSU (International Council of Scientific Unions). IMCO and the IPC have studied problems of manned and unmanned Ocean Data Stations. IMCO has produced studies and proposals for dealing with ocean pollution, and the IAEA (International Atomic Energy Agency) has studied pollution of the seas by deposit of radioactive, chemical and biological wastes. The FAO has planned a conference (in 1970) on marine pollution and its effect on living resources. IMCO has called for an international conference in 1973 to prepare an agreement for restraining contamination of the sea. On June 5, 1970 ECOSOC's Committee on Program and Coordination voted for a survey of all the activities of the different agencies.

[7] Res. 2467 D (XXIII), 14 Jan. 1969.

[8] As adopted, modifying slightly the language proposed by Malta.

The memorandum accompanying Malta's proposal expressed concern that rapid progress in technology could lead to expansion of national claims to the seabed, to the appropriation of resources "of immense potential benefit to the world" by the technologically developed nations, and to the use of the seabed for military purposes. Malta proposed that the seabed and the ocean floor be declared "a common heritage of mankind"; that a treaty be concluded which would preclude national appropriation of the seabed, provide for its use in ways that would safeguard the interests of mankind with the financial benefits to be used "primarily to promote the development of poor countries," and reserve the seabed "exclusively for peaceful purposes in perpetuity"; that an international agency assume jurisdiction of the seabed as "trustee for all countries," "regulate, supervise and control all activities thereon," and ensure compliance with the treaty.[9]

The 1967 Assembly found many members surprised, uncertain, hesitant, cautious, but there were already themes and variations, some harmony, some discord, much muting and muffling. Preambularly, the members of the General Assembly could agree to recognize "the common interest of mankind in the seabed and the ocean floor," and to recognize further that their use should be "in the interest of peace" and "for the benefit of all mankind"; all they could agree to do was to establish an ad hoc Committee to prepare a study--of "past and present activities," of "scientific, technical, economic, legal and other aspects of this item," and of "practical means for international cooperation" about it.[10]

In 1968, the ad hoc Committee reported preliminary exchanges revealing a wide disarray of views, and continued hesitation and reluctance (notably by important governments, including the United States and the Soviet Union).[11] The 1968 Assembly, in preamble, recognized the interest of mankind in exploitation of the seabed "for peaceful purposes" and was "convinced that [such exploitation] should be carried out for the benefit of mankind as a whole irrespective of the geographical location of States, taking into account the special interests and needs of the developing countries"; it could agree only to establish a Permanent Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor Beyond the Limits of National Jurisdiction, and ask it to pursue further studies, which should include "the elaboration of legal principles and norms which would promote international cooperation" and ensure "exploitation of their resources for the benefit of mankind, and the economic and other requirements which such a regime should satisfy in order to meet the interests of humanity as a whole." The Secretary General was asked to study possible

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[9] A/6695, 18 August 1967.

[10] Res. 2340 (XXII), 18 December 1967.

[11] Report of the Ad Hoc Committee to Study the Peaceful Uses of the Sea-Bed and the Ocean Floor Beyond the Limits of National Jurisdiction, GAOR, 23rd Session, A/7230.

"international machinery for the promotion" of exploration and exploitation of resources.[12]

In 1969, the Secretary General completed his survey of psssible "international machinery," and the Sea-Bed Committee reported to the Assembly its survey of possible arrangements, but its continuing inability to agree on governing principles.[13] The Assembly told the Committee to keep trying and report back in September 1970. It asked the Secretary General to prepare a further study "on various types of international machinery."[14]

This time, however, a divided Assembly also took significant if preliminary steps towards substantive decision. "Having regard for the fact that the problems relating" to all parts of the seas "are closely linked together," the Assembly asked the Secretary General

> to ascertain the views of member States on the desirability of convening at an early date a conference on the law of the sea to review the regimes of the high seas, the continental shelf, the territorial sea and contiguous zone, fishing and conservation of the living resources of the high seas, particularly in order to arrive at a clear, precise and internationally accepted definition of the area of the sea-bed and ocean floor which lies beyond the limits of national jurisdiction, in the light of the international regime to be established for that area....[15]

In another resolution adopted over the dissent of major powers, including the principal developed countries, the Assembly expressed its conviction that it is essential that exploitation of resources "be carried out under an international regime, including appropriate international machinery," and that there be no "actions and uses which might be detrimental to the common interests of mankind." It

> Declares that, pending the establishment of the aforementioned international regime:
>
> (a) States and persons, physical and juridical, are bound to refrain from all activities of exploitation of the resources

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[12] Res. 2467 (XXIII), 21 December 1968.

[13] Report of the Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor Beyond the Limits of National Jurisdiction, GAOR, 24th Sess. Supp. No. 22 (A/7622).

[14] Res. 2574B and Res. 2574C (XXIV), 15 January 1970.

[15] Res. 2574A (XXIV), 15 January 1970.

> of the area of the sea-bed and ocean floor, and the subsoil thereof, beyond the limits of national jurisdiction;
>
> (b) No claim to any part of that area or its resources shall be recognized.[16]

Under a different agenda item, "Question of general and complete disarmament," the 1969 Assembly, "Recognizing the common interest of mankind in the reservation of the sea-bed and the ocean floor for peaceful purposes," welcomed a draft 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; and asked the Conference of the Committee on Disarmament to continue to work on it, and take into account "all proposals and suggestions" made at the present session of the Assembly so that a draft treaty can be submitted for the Assembly's consideration.[17]

II

It is not difficult to sum up what the Assembly has done to date so as to dismiss it. In 1967 the Assembly voted an ad hoc committee to study the seabed. In 1968 the Assembly substituted the permanent seabed committee and asked it to study; the Assembly also asked the Secretary General to study. In 1969 it asked the Sea-Bed Committee and the Secretary General to study some more. It also requested the Secretary General to ask the members whether they wished to have another conference on the law of the sea. The single "policy" action, the moratorium on exploiting the resources of the seabed "beyond national jurisdiction" did not define the area to which it applied, and the only members that might in fact be governed by the moratorium voted against it and indicated they would not be bound by it.

Students of the General Assembly and, in particular, governments of member States, however, know the uses of Assembly resolutions, of preambles, of different operative words and incidental phrases. The General Assembly's resolutions on the seabed are not unusually ambiguous, but their idiom occasionally wants translation, and it requires background and context and some exegesis to seize their purport and their promises. In them are rhetoric as well as policy, progress and delay, compromise and papered-over divisions, staked-out claims and negotiating tactics, bluff and counter-bluff.

The Competing Interests

The General Assembly, all know, is an arena for the play of national diplomacies, and its seabed resolutions reflect the combinations and divergencies

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[16] Res. 2574D (XXIV), 15 January 1970.

[17] Res. 2602F (XXIV), 21 January 1970.

of perceived national interests as well as the abiding uncertainties of some nations as to where their dominant interests lie. But the Assembly is also a unique diplomatic forum and the seabed resolutions, and the debates behind them, reflect also that special universe that is the UN in 1970 and the ideas and forces that contend in it--principally the struggle between stability and change, between freedom and responsibility, between old nations and new, rich ("developed") and poor ("developing"). As regards the seabed, in particular, the differences bear distinctive banners, the familiar "freedom of the seas" (i.e., national autonomy and initiative) against the new "heritage of mankind" (i.e., dedication to the welfare of those in need).

All governments believe in the promises of great wealth from the seabed, though different governments hear these promises with greater or lesser sobriety, in a more or less distant future. A few States have technical and financial capacities to exploit that wealth and would profit from "freedom of exploitation." These tend to begin with laissez-faire and some of them would like to end there, subject perhaps to rules to prevent conflict when they are needed, to be achieved not by majority vote in any organization but by international agreement (subject to the requirement of unanimity). They resist, in particular, suggestions of authority in the United Nations or in the General Assembly to dispose of the resources of the seabed or to regulate their exploitation. Other "international machinery" is similarly suspect and should be limited, perhaps to a system for registering claims, and other arrangements to prevent and resolve conflict. As a gesture of concession, most developed countries would probably agree that some modest revenue from the seabed might go to an international fund for aid to developing nations.

To most States, on the other hand, national freedom can mean only a "technological grab" by a few developed States. For them the basic principle is that the seabed is the heritage of mankind, its wealth to go principally, or exclusively, to those who need it most. They wish not crumbs from profitable exploitation by the developed countries but a regime which would provide them major royalties. Some seek also not only substantial financial benefits but authority and participation in the exploitation of resources as by an international agency with authority to license or lease and determine the policies of exploitation. Some would prefer even that the seabed be exploited exclusively by an international agency in trust for all, principally for those in greatest need. To these ends, the majority might like the Assembly (by two-thirds majority) to determine the governance of the seabed. At the least, they would like the Assembly to establish acceptable "principles" that would shape a later treaty.

Differences as to the disposition of the resources of the seabed may signal also a wider, deeper struggle between national freedom and international regulation at sea. For some of the many States now constituting the international system, the traditional freedom of the seas remains interesting; to a few, indeed, it is essential for vital interests--for the United States and the Soviet Union, for example, freedom of military deployment in the seas is

crucial to their "balance of terror" and mutual deterrence. To these States, international control is out of the question, and they resist, in particular, assertions of title or authority in the United Nations that would make these uses subject to the grace or sufferance of majorities in the Assembly. The majority, however, has few interests favored by freedom of the seas. Although--in part, perhaps, because--that freedom is deep in traditional international politics and law, these States are tempted to assert international authority over some or all parts of the seas for some or all purposes, and to lodge that authority effectively in an international organization--e.g., the UN General Assembly --where like-minded majorities can shape new laws and legal regimes in their image and interest. To some who favor it as to some who resist it, legislative authority in the General Assembly and international control over the resources of the seabed may appear to be a first step to such authority and control over all the seas for all uses.

Both States that favor freedom of the seas and those that would prefer international regulation, however, have at least one competing interest. Most States are coastal States and increasingly see a national interest in claiming exclusive rights in more and more of the coastal sea for more and more purposes. Many coastal States are tempted to claim a wider legal continental shelf in which they have exclusive rights to mineral resources. Some have sought wide exclusive fishing zones. Many might wish also to exclude, or to be able to exclude, the military uses of other nations, whether for reasons of security, pride, or politics. Some seek wide "territorial seas" giving them exclusive jurisdiction for all purposes. There is tension, then, between a coastal State's temptation to extend its jurisdiction, and its interests in the seas at large. For a developed coastal State the tension is between enlarged coastal State jurisdiction and freedom of the seas: it has to choose between what it would gain from a wide comprehensive coastal jurisdiction for itself, and the detriment its various interests and uses would suffer as a result of wide coastal jurisdiction enjoyed by others. These States fear, in particular, that wide coastal State jurisdiction over mineral sources under the doctrine of the continental shelf might lead to assertions of coastal State jurisdiction to interfere with military uses, navigation, fishing. For the developing coastal States the tension is between enlarged coastal jurisdiction and "internationalization" of the seas: each State must decide whether it would gain more from exclusive jurisdiction in a larger coastal area or from limiting its own jurisdiction (and that of other coastal States) so as to leave more for international authority and the international common pot.

The divisions I stress between developed and developing nations are, of course, gross, requiring many qualifications. Among developed as among developing nations there are important differences of national interest which produce a spectrum of national attitudes and policies. Much depends on particular geography, on how much coastline a State has, on the geological character of its coastal seabed, on the resources and uses which the coastal area offers. Whether they are developed or developing, States favored by wide, rich coastal seabeds might choose the bird-in-the-hand of wide coastal State jurisdiction

rather than rely on what they might get some future day under a yet-to-be-determined regime from the seabed "beyond national jurisdiction." On the other hand, whether they are developed or developing, States might see little reason to favor a wide legal continental shelf if they are land-locked, or "shelf-locked," or have narrow continental margins, or little hope of finding major mineral resources there. Developing States not blessed with wide, rich shelves should be particularly eager to limit the legal continental shelf of all if they could achieve an "international regime" which gave them substantial benefits "beyond national jurisdiction." But developed States, even some with much to gain from a wide legal shelf, might prefer narrow shelves for all if "beyond national jurisdiction" laissez-faire or some modest international regime allowed them substantial freedom to apply their technology and capital to exploit mineral resources.

As regards the sea's mineral resources, in particular, generalizations are subject to a special qualification which has been commonly overlooked. For some States, developed or developing, coastal or land-locked, the promise of enormous mineral wealth from the seas is a threat of competition to national mineral industries. Some of these States, then, may seek a voice in the disposition of the resources of the seas not in order to promote and share in their exploitation, but to control, perhaps even to prevent, such exploitation and limit its effects on the market in the same or related minerals.

Since law is shaped by the interplay of a variety of national interests in a complicated political process, direct interests in the mineral resources of the seabed do not tell the whole story. For all nations the seabed is one congeries of issues as to which national policy will be influenced by other international issues and by the exigencies of relations with other nations in and out of the United Nations. Some States without obvious reason to favor wide coastal State jurisdiction over mineral resources might yet support it in order to obtain support for their own interests. Latin American countries, for a principal example, might see in a wide legal continental shelf support for their claims to wide exclusive-fishing areas, or even for wide territorial seas (also designed largely to achieve exclusive fishing rights there). Land-locked countries might favor coastal State claims in exchange for support for the principle that the land-locked are entitled to share in the common heritage of the international seabed. There are dispositions among developing States to make common cause, other tendencies favoring bloc voting, bilateral and multilateral political alignments and antagonisms. There are also relevant "principles," tendencies and moods. There are dispositions to "radicalize" the United Nations, to sweep aside traditional restraints, to overwhelm counsels of "realism" and warnings of futility or danger to the UN and twist the tail of the Big Powers. At the same time nationalism and the unilateral pursuit of particular claims seems to be growing stronger and infecting even countries with impressive records of international cooperation, e.g., Canada, as in its recent assertion of an extensive anti-pollution zone. The Soviet Union, which has often catered to the wishes of developing countries, has important interests in traditional freedom of the seas, a particular insistence on its sovereign

autonomy, and a particular resistance to international authority. The United States has some authentic generosity, and pretensions and aspirations to "internationalism," but powerful domestic interests are concerned to maintain national autonomy at sea and maximum national self-sufficienty in mineral resources.

In rough sum, most developing States wish to "internationalize" the seabed and share in its wealth, though some of them fear its competition with national industries. Latin Americans (and some others) also desire to internationalize the seabed but they are even more eager to appropriate large coastal areas, at least for some purposes. The United States, the Soviet Union, et al., would like as little "internationalization" as possible and would resist especially any that interfered with military uses; they are concerned to confine the jurisdiction of coastal States, and, in particular, to prevent their interference with military uses of the sea and seabed outside a modest territorial sea.

The different interests and preferences suggest different possible alignments in the General Assembly or at international conferences. In general gross terms, developing countries might band together to seek wide coastal State jurisdiction and comprehensive internationalization beyond; or developing countries having no major coastal interests might support the United States et al. to achieve narrow coastal State jurisdiction, in exchange for substantial internationalization beyond; or the United States might offer to Latin American States and others wide coastal jurisdiction for agreed limited purposes in exchange for their restraint as to military and other uses, and their resistance to comprehensive internationalization of the seabed beyond national jurisdiction. Of course, there is room for compromise as to the particular components, resulting in different "package" combinations.

The Score to Date

The discussions in the Sea-Bed Committee and the debates and resolutions of the General Assembly reflect different national interests as the members preceive them, combining and dividing as I have indicated. A synthesis by the legal sub-committee of the Sea-Bed Committee summarized emerging agreement and disagreement:[18]

--There was general agreement that there is an area of seabed beyond the limits of national jurisdiction, but no agreement on where national jurisdiction ends or what it entails;

--There was agreement that the "international area" is not subject to national appropriation or sovereignty, but no agreement as to whether one may acquire property rights there by occupation and use, and whether any State or enterprise can dig and keep what it finds;

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[18] I condense and paraphrase from the Report of the Sea-Bed Committee, note 13, p. 6, at pp. 29-31. The subcommittee's synthesis was noted with interest by the Assembly, Res. 2574B, Note 14, p. 6.

--There was wide support for the principle that the seabed is the common heritage of mankind, but some did not agree, and no one wished to be explicit as to what it meant;

--There was agreement that there are principles of international law applicable to the seabed, but no agreement as to what those principles are;

--There was agreement that the seabed should be reserved exclusively for peaceful purposes, but no agreement as to where (in relation to the coast) this principle took effect, or what was meant by "peaceful purposes";

--There was agreement on the need for some kind of "regime," but not what kind;

--There was agreement that the resources should be used "for the benefit of mankind irrespective of the geographical location of States and taking into account the special interests and needs of the developing countries," but no agreement as to how mankind or the developing countries (including the land-locked states) shall benefit;

--There was agreement that there should be freedom and international cooperation for scientific research carried out with the intention of open publication but no agreement distinguishing scientific research effectively from commercial exploration;

--There was agreement on the need for appropriate safeguards against pollution.

The failure of large substantive agreement to date should not conceal small, important movement. Resistance to early consideration of the future of the seabed has crumbled. The Assembly has unaminously affirmed and reaffirmed that there is an area of seabed "beyond national jurisdiction," destroying the argument that under the 1968 Convention on the Continental Shelf the seas are "international lakes," with every part of the seabed constituting legal continental shelf of the nearest coastal State. The accepted principle implies that national jurisdiction is based on some relation to the coast, and the most extravagant claims by coastal States to date, indeed the largest claims which coastal States might plausibly make, would leave most and perhaps three-fourths of the seabed in the "international zone." As regards that zone, although agreement that the seabed should be exploited "for the common interests of mankind" is many-tongued rhetoric that could subsume virtually any disposition, there is a prevailing mood, and perhaps some commitment, in the explication provided by the additional phrase "irrespective of the geographical location of States" (i.e., including the land-locked States) and "taking into account the special interests and needs of the developing countries."

Tactics

To date, at least, the majority favoring comprehensive internationalization of the seabed has not ventured to "legislate" that regime, perhaps fearing a paper victory which the developed countries would disregard wholly, leaving no restraints at all on their capacities to take the wealth of the seabed. Most developing countries, however, have joined in procedural and tactical measures designed to assure them a strong voice in future lawmaking, to improve their bargaining postures, and to further their substantive aims.

From the beginning, the developed countries, favoring status quo and laissez-faire, resisted UN intervention and assertions of General Assembly authority, and urged the need to study and to wait and see. The developing countries have been reluctant to agree too soon lest they obtain too little, a mistake some feel they made in regard to outer space; but they have also feared that delay would permit a few developed countries to take more and more, and present accomplished facts. They have urged declarations of norms and principles to be approved by the General Assembly so as to shape future law in a forum in which they can press the developed countries. Perhaps in preparation for eventual proposals, perhaps in "bluff" to strengthen their bargaining power, they have commissioned studies of "international regimes" including possible comprehensive internationalization, and of "international machinery" including possible international ownership, operation or management. By the Moratorium Resolution, asserting political doctrine in legal garb to deny the developed countries the right to exploit the resources of the deep seabed until a new regime was adopted, they sought to neutralize the strong card of the developed countries--their ability to resist the regime desired by the majority and proceed nonetheless to exploit the resources of the deep seabed.

A dependent tactic was designed to mould the character of a future international conference, shape its agenda and influence its product. The developed countries, notably the United States and Russia, are generally content with the 1958 Conventions which largely favor national freedom in the seas. They desire an international conference, if at all, only to resolve remaining uncertainties, principally the width of the territorial sea (and its relevance for passage through international straits), and the extent of the continental shelf; on these issues, too, many believe, they would tend to resist the extension of coastal State jurisdiction. Most developing countries, on the other hand, have apparently not feared the extension of coastal State jurisdiction and some of them devoutly wish it. But because extended coastal State jurisdiction would raise serious questions under existing law, because developed States would probably resist it, the majority has deemed it politic to postpone the issue. The item on the General Assembly's agenda, and the title and jurisdiction of the Sea-Bed Committee, are expressly confined to the seabed "beyond national jurisdiction," and the debates have deliberately, almost religiously, avoided discussing where coastal State jurisdiction ends and what it entails.

The majority has also concluded that eventually, too, it would be desirable to determine coastal State jurisdiction only after and in the context of other

issues. Many developing nations have been uncertain as to where their dominant interests lie and have preferred to postpone decision on what they would like as coastal States until they see what the international zone offers. And since, it appeared, developed States desired to define coastal State jurisdiction, and define it narrowly, that issue could be a weighty counter for the majority to use in negotiating a desirable regime for the international zone. If, as by the moratorium, they could prevent the developing countries from exploiting in the deep seabed until an international regime is established, they could condition their agreement to such a regime also on concessions in regard to other uses of the sea as well, for example exclusive fishing rights or limitations on military uses. They have supported their proposal by insisting that it would be easier to achieve "comprehensive" agreements on all issues than to negotiate them singly, or in "manageable packages" (as the United States has urged). Hence the 1969 Resolution declaring that all the issues of the sea are linked and asking the Secretary General to ascertain whether members desire a comprehensive conference on all the law of the sea, with the extent of coastal State jurisdiction in the seabed to be determined in the light of the international regime to be established for the area beyond. The form of the question, of course, implied the desired answer and it might well be the answer of the majority. If such a conference means that coastal State jurisdiction would not be decided for some years and might increase "creepingly" in the interim, that did not appear objectionable to most coastal States.

The success of the majority's tactics, of course, depends on several assumptions. It assumes that the developed countries seek a narrow coastal State jurisdiction and are eager for an international conference to achieve it. There have been strong views in the United States that it should seek a wide legal continental shelf (but resist creeping jurisdiction to other uses). If these prevailed, the United States might be content with the opportunities afforded by the ambiguities in present law and not seek any international conference at all. (Even some who favor a narrow shelf believe it would not be desirable for the United States to reopen other sea-issues to achieve it.) In any event, if the United States shared a majority's desires for wide coastal State jurisdiction, at least as regards mineral resources, the majority could not use that issue for bargaining on other matters.

The tactics of the majority depend also on the effectiveness of the moratorium. Many developed countries, and others, voted against it, and the US has announced that it is not bound by it. There have been suggestions that the US might destroy the majority's tactic by insisting on its right to explore and exploit in the deep seabed; indeed, since the moratorium applies only beyond the undefined "national jurisdiction," immediately the United States could effectively flout the moratorium only if it claimed a narrow continental shelf and insisted that it was exploiting resources beyond that shelf because any State was entitled to exploit the resources of the seabed beyond national jurisdiction.

Some believe that, in a misguided attempt to deny the supposed wishes of some developed countries, and to maintain solidarity with a few developing

States which stand to profit from wide coastal State jurisdiction, a majority of the developing States made a fundamental error. The resolutions they adopted clearly favor extension of coastal State jurisdiction: a comprehensive conference on the law of the sea, with coastal State jurisdiction a late item, will leave that issue unresolved for years, allowing coastal States to creep into the seas. The Moratorium Resolution, in particular, by forbidding exploitation beyond "national jurisdiction" without defining where national jurisdiction ends, can only spur developed coastal States to claim wide national jurisdiction so that they can exploit "lawfully" within it. But it is increasingly recognized that for years ahead the principal wealth to be extracted from the seabed will be the petroleum resources of coastal areas. If these go to coastal States, there will be little or nothing for "the heritage of mankind," little or nothing in benefits for other developing countries, little or nothing to be governed by an international regime or "international machinery." A moratorium would have served the aims of most developing states only if coupled with a narrow continental shelf. And they might have done better to exploit sympathetic forces within countries like the United States by offering the United States support for coastal State jurisdiction narrow in extent and limited in content in exchange for a generous international regime beyond national jurisdiction.

Military Uses

The divisions in the General Assembly have had different influences in regard to military uses of the seabed. Again, the developed countries generally favor national freedom of action, though apparently only the US and the USSR have capacity and interest to consider major military uses of the seabed, whether for emplacement of weapons or for supporting military devices, e.g. for submarine detection and tracking. The mass of the UN membership brings to the seabed its general desire to limit the armaments of the super-powers. The coastal States among them consider that they have a particular concern with foreign military uses of their coastal seas. While few of them could hope effectively to object to military uses of the high seas beyond their territorial waters, e.g., by submarines, their sovereign rights in the resources of their legal continental shelf inspire claims that they have other rights in that seabed as well: it does not fetch too far to argue that foreign military activities may threaten the coastal State's control and exploitation of the mineral resources.

The original Maltese proposal asserted, and the General Assembly has several times affirmed, that the seabed beyond national jurisdiction "should be used exclusively for peaceful purposes." Interpreting that proposition to their own tastes, all governments have supported it. Some have sought to have it mean that the seabed is barred to all military uses. For the US, "peaceful purposes" has meant "for purposes consistent with the UN Charter" and therefore does not exclude any military activities by the United States since they are all "defensive."

In both the ad hoc and the permanent Sea-Bed Committees, the US and the Soviet Union claimed that control of military uses of the seabed is properly not the responsibility of those committees but of the Eighteen Nation Disarmament Committee (now the UN Committee on Disarmament). Some delegations, however, insisted that such arms control is properly part of the seabed "package" and the Assembly's resolutions have given them support. The question was complicated by the fact that the jurisdiction of the Sea-Bed Committee extends to the seabed "beyond national jurisdiction" which for purposes of resources meant beyond the legal continental shelf, but many nations wished to control armaments on the shelf as well; most coastal States, surely, would have liked to prohibit their continental shelves to military uses by others.

The US and the USSR have largely succeeded in keeping arms control on the seabed in the context of disarmament negotiations and in the jurisdiction of the UN Disarmament Committee. From that Committee came a draft treaty presented jointly by its co-chairmen, the US and the USSR, "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."[19] But, encouraged by the 1968 Resolution of the General Assembly, members of the Sea-Bed Committee did not refrain from speaking their piece about the subject, and from commenting specifically--sometimes sharply--on the US-Soviet draft. Some members thought that the draft treaty did not go far enough and that additional military uses should also be prohibited. The principal objections came from coastal States which sought to safeguard what they considered their rights on their continental shelves and in their coastal waters. They were concerned that forbidding emplacement of weapons of mass destruction on the seabed more than 12 miles from the coast might imply a right to carry on other military activities outside that limit, even on the continental shelves of other States. The provision that would allow parties to verify compliance with the treaty might enable them to act on foreign continental shelves to the possible prejudice of rights of the coastal State.[20] In the resolution adopted under the Disarmament item of its agenda, the Assembly welcomed the draft treaty but also "the various proposals and suggestions made about it"; it called upon the Conference of the Committee of Disarmament "to take them into account" and "to continue its work on this subject" so that "the text of a draft treaty (a revised draft?) can be submitted to the General Assembly for its consideration."[21]

Even more than in regard to seabed resources, deliberations about the control of armaments on the seabed find the US and USSR standing together

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[19] See Report of the Conference of the Committee on Disarmament, A/7741, 3 Nov. 1969, Annex A; 61 Dep't. State Bull. 365 (1969).

[20] See, e.g., the addendum to the Report of the Sea-Bed Committee, A/7622/Add.1, 20 Nov. 1969.

[21] A draft meeting some of the objections was circulated by the United States and the Soviet Union in April 1970.

against many others. In regard to such armaments, the general membership is discussing proposed law not of general applicability and relevance but effectively for the US and Russia alone. There was a time when all UN members eagerly sought any possible agreement between the United States and Soviet Russia, particularly in regard to the control of their armaments. All seemed to believe that such agreement, however minimal, would impose some limitation on the power of the Super-powers, produce some political detente, add some security for all. In 1969 many members seemed less worried about the US-Soviet confrontation, more afraid that the Super-powers were "ganging up" on the rest. Some of them apparently thought less about the possible contribution of a disarmament agreement to the general welfare, more about its possible impingement on their particular interests in coastal seabed.

III

In March 1970 the Sea-Bed Committee met to pursue its mandate from the General Assembly, but neither the economic and technical subcommittee nor the legal subcommittee made notable progress toward agreement on basic issues. The representative of the US expressed a general sentiment of disappointment and deplored the unwillingness of members to consider realistic compromises. Others, no doubt, might have blamed the failure of the Sea-Bed Committee on the US, for everyone was waiting for it to reach a national position.

In the General Assembly and in eventual multilateral conferences, the voice of the United States will dominate the development of the future law of the seabed. In addition to general influence, it brings to bear on the various issues "vital interests" in military uses on which it will have to insist, unique technological and financial capacities that cannot be effectively gainsaid, and a measure of enlightenment and tractability that will be conciliating and persuasive. It was largely because the United States was marking time while it labored to produce national policy that the General Assembly moved little and the majority of its members probed and pushed but principally staked out positions for future bargaining. At the next session of the General Assembly, and the meeting of the Sea-Bed Committee that will precede it, deliberation will revolve about Mr. Nixon's policy statement of May 23.[22]

The proposal which the US brings to the UN is not without ambiguities but its outlines are clear. The US proposes a new agreement which would freeze the legal continental shelf at the 200-meter isobath, recognize the resources of the seabed beyond as the common heritage of mankind, and establish an international regime to govern their exploitation. "The regime should provide for the collection of substantial mineral royalties to be used for international community purposes, particularly economic assistance to developing countries. It should also establish general rules to prevent unreasonable interference with other uses of the ocean, to protect the ocean from pollution, to assure the integrity of the investment necessary for such exploitation and to provide for

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[22] See, e.g., Press Release USUN-70 (70), May 25, 1970.

peaceful and compulsory settlement of disputes." In every coastal area, however, the area between the 200-meter isobath and the end of the continental margin would be a "trusteeship zone" with the coastal State as trustee for the international community. "In return, each coastal State would receive a share of the international revenues from the zone in which it acts as trustee and could impose additional taxes if these were deemed desirable." Beyond the continental margins, "agreed international machinery would authorize and regulate exploration and use of seabed resources."

Pending the negotiations of a treaty to this effect, the US calls on all nations to join in an interim policy, whereby

> all permits for exploration and exploitation of the seabeds beyond 200 meters be issued subject to the international regime to be agreed upon. The regime should accordingly include due protection for the integrity of investments made in the interim period. A substantial portion of the revenues derived by a State from exploitation beyond 200 meters during this interim period should be turned over to an appropriate international development agency for assistance to developing countries.

The President's statement concludes:

> It is equally important to assure unfettered and harmonious use of the oceans as an avenue of commerce and transportation, and as a source of food. For this reason the United States is currently engaged with other States in an effort to obtain a new law of the sea treaty. This treaty would establish a 12-mile limit for territorial seas and provide for free transit through international straits. It would also accommodate the problems of developing countries and other nations regarding the conservation and use of the living resources of the high seas.
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> I believe that these proposals are essential to the interests of all nations, rich and poor, coastal and landlocked, regardless of their political systems. If they result in international agreements, we can save over two-thirds of the earth's surface from national conflict and rivalry, protect it from pollution, and put it to use for the benefit of all. This would be a fitting achievement for this 25th anniversary year of the United Nations.

The US proposal is an effort to compromise competing domestic claims as well as to accommodate in some measure the views of developing countries and of particular coastal States. Within the United States, it is an open secret that the Department of the Interior had supported the views of the National Petroleum Council and pressed for a wide continental shelf with virtually laissez-faire

beyond. The Department of Defense had urged a narrow shelf in order to confine the danger of "creeping jurisdiction" that might hamper US military uses of seabed and sea in the coastal areas of other States (outside their territorial waters). It is reported that the Defense Department had urged that the US offer a comprehensive, generous international regime beyond the continental shelf in exchange for agreement to a narrow shelf. The US proposal of May 23 seeks to reduce the likelihood of "creeping jurisdiction" by limiting national sovereignty over resources to the seabed within the 200-meter isobath, and subjecting the rest of the seabed to an "international regime," implying international rather than national authority. It seeks to satisfy the Department of Interior and the oil interests by declaring the rest of the area which they sought as continental shelf (the entire continental land-mass) a trusteeship zone under US administration, so that American companies will deal with the Department of the Interior (and with national governments in foreign coastal areas) as on the continental shelf. (The President assured them also that he would "propose necessary changes in the domestic import and tax laws and regulations of the United States to assure that our own laws and regulations do not discriminate against US nationals operating in the trusteeship zone off our coast or under the authority of the international machinery to be established.") The provision that the coastal State would share in the revenues of the trusteeship zone meets in part domestic charges that the US was "giving away" resources to which it is entitled under existing international law.

Whether the compromise will satisfy everybody or anybody in the United States is uncertain; there is debate as to which of the competing domestic interests largely prevailed, which of them won the President's decision and which was thrown only the rhetoric. In any event, the same domestic interests will doubtless continue to strive to determine US policy in resolving the many ambiguities in the proposal and in filling the large areas left for international negotiation. Our inquiry here is how the US proposal will fare with the other governments, particularly in the Sea-Bed Committee and in the General Assembly. The US proposal does not recognize UN authority in the seas or seabed or any legislative authority in the General Assembly, but proposes a multilateral treaty; of course, as happened in regard to outer space, there would presumably be no objection to a declaration by the Assembly of general principles that could be later concretized in an international agreement. The proposal pointedly concentrates on seabed resources and avoids linking their disposition to other sea issues. Almost incidentally, it offers another, separate treaty on the width of the territorial sea and transit through international straits, and on fishing rights, but refrains from reopening the 1958 Conventions in other aspects. It says nothing about military uses of the seabed, presumably leaving these for separate disarmament agreement.

As regards mineral resources, the proposed treaty would accept the principle that the resources of the seabed (not the seabed itself) are the heritage of mankind, would establish an "international regime" and "international machinery" and provide for "substantial mineral royalties" to be used "for international community purposes, particularly economic assistance to developing

countries." The "international regime" and the "international machinery" are largely undefined, though the reference to assuring "the integrity of the investment necessary for such exploitation" probably excludes suggestions that an international agency itself exploit the seabed, and seems to contemplate at least some role for national, perhaps even private, investment. For the rest the proposal is consistent with various possible international regimes, from international licensing to national initiative governed only by minimal rules but subject to payment of royalty.

The trusteeship zone is designed to appease particular coastal States that desire wide shelves. To persuade them to accept a narrow continental shelf, it offers them a wide trusteeship zone under their administration and a to-be-negotiated share of the international revenues of that zone. As conceived, the zone would not be subject to any "international machinery" but the coastal State's authority would be limited by the terms of the international regime. In testimony before a Senate Subcommittee on May 27, Mr. Richardson, the Under-Secretary of State, amplified:[23]

> The coastal State would act pursuant to authority delegated to it under the treaty establishing the international regime and would be responsible for assuring adherence to the general rules established by that treaty. Within this framework it would, as trustee for the international community, authorize and regulate exploration and exploitation of seabed resources within the trusteeship zone pursuant to its own laws and regulations. It would decide on who would be granted leases and for how long. The conditions on which such leases would be granted subsequent to ratification would be consistent with and in addition to the general rules specified in the regime treaty. The treaty would make it the responsibility of the coastal State, as trustee, to prevent and punish violations of the general provisions of the treaty regarding exploration and exploitation of natural resources.
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> The agreed international machinery would perform many of the same functions with respect to the exploration and exploitation of natural resources beyond the continental margins. From a technical point of view, one would have to assume that certain functions would be performed under the international regime by individual States with respect to their nationals operating under authorizations from the international machinery. An example of this would be criminal penalties.

The trusteeship zone, then, would be much like continental shelf but something less; enough less, it is hoped, to reduce the likelihood that the coastal

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[23] Hearings Before the Special Subcommittee on Outer Continental Shelf of the Committee on Interior and Insular Affairs, U.S. Senate, May 27, 1970.

State's jurisdiction will "creep" to other uses. Some coastal States may refuse it because they seek full national control, and all of the revenues, of the resources of the area, perhaps because they seek also national authority in the area for other purposes and uses. Those who resist extensions of national authority might have even stronger reasons for rejecting it. The coastal State's trusteeship would apparently be in perpetuity and the authority of the trustee State would know few limits. In reply to a senator's question, Mr. Richardson said that, by delegation from the international regime, the coastal State would have complete jurisdiction to issue licenses in its trust zone and could, for example, exclude foreign nationals; it would also have power to regulate crime, pollution, taxation and apportionment of royalties. Apparently, then, while the trusteeship zone would be subject to the international regime, the regime the US contemplates would leave the coastal State autonomy in at least the respects indicated, and apparently contemplates that no international agency or "machinery" would have any authority whatever in regard to the zone. If so, it can be argued, the trusteeship is a "gimmick" which could not survive; it is only continental shelf with some payment to the international fund, would soon become continental shelf in all respects, and creep--or gallop--towards territorial sea.

But the US proposal is in many respects preliminary; in particular, the details of the international regime and the international machinery remain to be negotiated. The developing countries, no doubt, will seek a more comprehensive, more intensive international regime than the United States might prefer. The United States might well find that it can go some way towards the wishes of the majority if the regime and machinery are to govern only mineral resources, not other uses of the seabed. It may well conclude, too, that a stronger international regime (and perhaps even some machinery), with effective authority in the trusteeship zone as well, is essential if the trusteeship zone is to survive and national jurisdiction within it is to be arrested.

The United States proposal will facilitate the promulgation of principles by the General Assembly. It provides a basis, some framework, and large room for negotiation of international agreements thereafter. What will emerge I cannot say, but the configuration of forces does not exclude the possibility of a radically enlightened regime for the resources for the seabed. It will require some self-restraint and accommodation by all, and sensitive awareness --mostly by the developing nations--of the limits of hard bargaining. The developing States have votes in the General Assembly but these are not enough to achieve effective political authority over the seabed, control over its military uses, or even title, management or beneficial interest in its wealth. The coastal States among them do have the power to assert authority in sizeable coastal areas, to seize their wealth, and to deny them to others for various uses important to them. The developed countries, principally the United States, have the power to maintain the freedom of the seas at large and to seize the wealth of the seabed beyond national jurisdiction. If the developing States cannot restrain a few coastal States among them from grabbing what geography

makes available to them, it will be difficult to persuade the developed countries not to grab what power, technology and wealth make available to them in areas beyond the plausible reach of any coastal State.

But the real issue may now be not between coastal State jurisdiction and freedom of the seas, but between coastal State jurisdiction and substantial "internationalization." The majority of the United Nations may begin to recognize that every inch of seabed and every ounce of mineral that go to the coastal State are being taken from the "common heritage of mankind," and that extravagant claims of coastal States would leave nothing of that heritage and nothing for an international regime and international machinery to govern.

On the other hand, in exchange for narrow shelves and continued quiet use of coastal areas (outside territorial waters) for purposes that need not interfere with important rights of the coastal States, the United States can probably be pushed to great enlightenment and generosity in regard to the resources of the entire seabed. The members of the United Nations have an opportunity to achieve substantial benefits for themselves, launch new departures in international cooperation for the benefit of States that depend on an international welfare society, and score a major success for the United Nations at its Twenty-Fifth Anniversary.

COMMENTARY

Hon. Arvid Pardo
Ambassador of Malta to the United States

Thank you, Mr. Chairman. I am afraid that Professor Henkin in his excellent address has left me very little to say. I do not wish to repeat what he said and therefore I shall be very brief.

I think the only contribution I can make to this meeting is to try to place the proposals which my Government made in a wider perspective.

The rapid progress of technology is making established law, both national and international, outmoded in many cases and this causes dissatisfaction and tension both within and between nations. The impact of rapid technological progress is particularly noticeable in the case of ocean space--and by this term I mean the surface of the seas and oceans, the water column subjacent to the surface, the seabed and ocean floor and their subsoil--where the very foundations of present international law are becoming obsolescent. Ocean space beyond a narrow coastal zone has been governed traditionally by the principle of complete freedom of use and exploitation, limited only by comparatively few bilateral or multilateral conventions that curtail complete freedom in certain limited ways usually for certain specific purposes and with respect to a limited number of States.

The legal principle of freedom, which has served the world well for centuries, reflected a situation of fact characterized by a technological capability permitting human utilization of only the surface and upper layers of the seas and exploitation of living resources well below maximum sustainable yields. Also, population agglomerations in different countries and world industrial development were in the past incapable of producing pollutants in quantities sufficient to impair the quality of the marine environment over large areas.

No principle of law has been formally internationally agreed upon as governing the seabed beyond the legal continental shelf; utilization of this area by man, for purposes other than as a support for submarine cables and pipelines, appeared so remote as late as 1956 that no legal regulation was believed necessary.

The factual situation is now changing rapidly; advancing technology is permitting States to make increasing and more intensive use of ocean space in all its dimensions and for an increasing variety of purposes. This development together with the effects of increasing world urbanization and industrialization is making possible the pollution of vast ocean areas. Also technology is permitting intensive exploitation of living resources at increasing depths beyond maximum sustainable yields. Since utilization of the living and non-living resources of ocean space is at the same time becoming increasingly vital to the world and developments in the military field are making the depths of

the ocean an environment which may become vital to the strategic balance of power, it is not surprising that States with the required capability are taking full advantage of the possibilities of contemporary technology.

In this situation the traditional principle of only slightly modified complete freedom of action on and under the high seas cannot be maintained without the most serious consequences; at the same time it is becoming most urgent to establish an internationally agreed upon body of rules--an international regime --to cover human activities with regard to the seabed beyond national jurisdiction.

If these steps are not taken with a sense of urgency by the international community we face gross economic waste in the exploitation of ocean space resources, probable destruction of most desirable species of living resources, an intensified arms race, probably irremediable ocean pollution and increasing international tension and conflict in ocean space. Present diplomatic differences with some Latin-American States, the virtual destruction of the blue whale, pollution of most coastal waters of industrialized countries, are only pale examples of what we can expect a few years from now if international law relating to ocean space is not soon radically revised.

To take fisheries as an example, we observe schematically that increasing exploitation by new and traditional users is putting pressure on existing desirable fishery resources; the relative scarcity of desirable fish species encourages States to multiply their conservation efforts in order to maintain an economically important industry; but since there is no generally agreed upon and effective international regime for the conservation and allocation of living resources of ocean space, an increasing number of States see their best hope in an extension of national jurisdiction in order to reserve for their nationals the exploitation of the living resources of ever wider areas of the oceans within which national authorities can enforce effective conservation methods. This trend is exemplified in the recent Declaration of Montevideo which contains the assertion that "the scientific and technological advances in the exploitation of natural wealth of the sea have brought in their train the danger of plundering the living resources through injudicious or abusive harvesting practices or through the disturbance of ecological conditions." The remedy as seen by the States that participated in the Montevideo Conference is to extend national jurisdiction.

But the extension of national jurisdiction does not solve the problems of increasing ocean pollution or of gross economic waste in the exploitation of ocean space resources. We are faced with a basic contradiction here. On the one hand our international system is based on the complete freedom of action of the national State; on the other hand the benefits of technological advance can be fully and effectively achieved in ocean space only through international cooperation requiring a limitation and subordination of the national interest to the interests of the world community. From this contradiction there results tension and conflict with national States each attempting to avoid loss and

maximize gain under a legal system that is in direct contradiction to the factual situation--ocean space is an ecological whole--and to the imperatives of scientific and technological advance.

The need to construct new regimes for the high seas, fisheries, continental shelf and for the seabed beyond the continental shelf has not yet been frankly faced at the international level, partly perhaps because it is impossible to do so without considering the creation of international institutions for which the world may not yet be prepared. Thus the present situation is likely to continue to deteriorate for some time before the international community is likely to take action.

This was the main reason that decided my Government three years ago not to raise the entire complex of problems related to contemporary law of the sea. My Government believed that there would be greater chances of effecting useful change by raising the several aspects of the law of the sea as they became the subject of international concern. It was thought that the most urgent question at that time was to establish a viable and equitable system of international law for the seabed beyond national jurisdiction since no generally agreed international law was applicable to this vast area which technology was opening to the activities of man.

My government felt that there was considerable danger that the virtual legal vacuum covering the seabed beyond national jurisdiction would be rapidly filled by unilateral extensions of national jurisdiction and that the multiplicity and diversity of jurisdictions thus established would generate conflict, economic waste in the exploitation of resources, and make the problem of ocean pollution more difficult of solution. On the other hand, my Government felt that the very lack of agreed law was a factor that would facilitate the establishment of an equitable international regime that would include provision for balanced international institutions with supervisory and regulatory powers. A first step towards such a regime would be the proclamation by the General Assembly of agreed principles for the exploration and exploitation of the seabed beyond national jurisdiction.

Although progress has been slow, I am hopeful that a declaration of agreed principles will be adopted by the United Nations General Assembly and that eventually it will be possible to establish an international regime and to create balanced international institutions for the seabed beyond national jurisdiction since the alternative would be anarchy and conflict. All nations have an interest in avoiding these conditions. For instance, technologically advanced countries in the absence of an agreed international regime would scarcely be able to use or to exploit the seabed beyond a relatively narrow coastal zone without fear of controversy and in some cases perhaps even of confrontation; this would involve a political or economic cost which it is normally desirable to avoid. There is, however, a limit to the price that States are willing to pay for an agreed international regime; thus, to take the example I have just made, technologically advanced countries, while probably

willing to envisage a certain sacrifice of national interests in order to obtain a regime that would command wide international acceptance, would almost certainly not be ready to agree to an international regime for the seabed beyond national jurisdiction the provisions of which would be weighted against their vital national interests.

Thus it is necessary to envisage a regime that is equitable, i.e. that takes into account the basic interests of all countries whether coastal or landlocked, whether developed or developing. An equally necessary requirement is that a future regime establish a legal framework that makes possible the rational utilization of scientific and technological progress for the benefit of all States; in other words a regime for the seabed beyond national jurisdiction should make possible expanding opportunities for all States in the utilization of the marine environment, otherwise there would be little reason to establish a regime. Thirdly, in modern conditions an international regime for the seabed must make provision for international institutions.

A basic prerequisite to the establishment of an international regime is agreement on a clear and precise definition of the limits of the area of the seabed beyond national jurisdiction. The ambiguous definition contained in the 1958 Geneva Convention on the Continental Shelf must be changed.

I do not think that there is time now to comment in detail on the provisions that it would be necessary or desirable to include in an international regime for the seabed--that is to say, in the international agreements that will legally regulate human activities on, or relating to, the seabed--beyond suggesting that it will be necessary to conclude at least two agreements. The first, in my view, should be a careful revision of the 1958 Geneva Convention on the Continental Shelf more clearly to define the limits of that area of the seabed which is without national jurisdiction and the rights and obligations of States with regard to this area. In this connection the time has come, in my view, either to prohibit or strictly to regulate actions of States within their national jurisdiction that can seriously impair the marine environment subject to the jurisdiction of other States.

Perhaps I can also suggest a few general considerations with regard to the second international agreement--that concerning the seabed beyond national jurisdiction--which my Government believes is most urgently required. I have already observed that the rapid advance of technology is making possible the increasing utilization of the seabed at ever greater depths and distance from the coast for a variety of purposes. If no international regime is established the advance of technology will be matched by extensions of national jurisdiction over ever wider areas until, in a not too remote future, not only the seabed but the entire ocean space of the world will be claimed by national States. Such a development could have grave consequences for world order.

Essentially an international regime for the seabed beyond national jurisdiction must be based on the one hand on the universal interests of States to avoid a situation either of anarchy or of more or less permanent conflict and

on the recognition that there are certain functions--such as pollution control--that cannot be performed effectively by the national State acting alone; on the other hand an international regime must offer States advantages that cannot be obtained through an extension of national jurisdiction. The most basic of these advantages is an agreed legal order through which each State can be assured that it may utilize the seabed beyond national jurisdiction without fear of challange. Other advantages that an international regime can offer are, for instance, a more effective utilization of contemporary technology, the minimization of economic waste, a more effective action with regard to problems of general concern, such as ocean pollution, etc. An international regime, in other words, should offer expanding opportunities for all States in their use of the seabed beyond national jurisdiction.

It is in vain, however, to hope that such a regime can receive wide support among the poorer countries of the world without provisions effectively protecting some of their most vital interests; of special importance among these is equitable participation in the economic benefits that can be derived from the exploitation of resources of the seabed, effective protection of land-based sources of minerals against destructive competition, and easier access to the results of scientific research. These requirements of many of the poorer countries of the world can only be effectively implemented through the establishment of appropriate international institutional machinery with powers to supervise and to some extent regulate the activities of States with regard to the seabed beyond national jurisdiction. If such machinery does not form part of an international regime, many countries would prefer to extend their national jurisdiction, as circumstances may suggest, and then to exploit the resources of the area claimed by hiring the necessary technology.

Careful analysis of the functions and powers of the institutional machinery that must form part of an international regime for the seabed is, therefore, of crucial importance. Of equal importance is the credibility and impartiality of such machinery. All States must be assured that their vital interests cannot be seriously endangered by decisions taken through the institutional machinery; this aim, however, can be attained only through an appropriate balance of power within the future machinery. The requirement of a balanced machinery excludes the possibility of its being placed under the control of the United Nations General Assembly where each country has theoretically an equal weight and where consequently technologically advanced countries are at a great disadvantage. Some link, however, with the United Nations system would appear desirable.

Various devices are conceivable to ensure a wide and equitable balance in the control of whatever institutional machinery may be created for the seabed beyond national jurisdiction. Provision could be made to give certain States veto rights or to require a two-thirds favourable majority for a decision to be adopted on certain questions. These are well known devices which, however, do not appear to be particularly desirable in connection with an international institution enjoying supervisory and regulatory powers with regard to the seabed beyond national jurisdiction. More desirable, perhaps, would be to envisage

different groups of countries exercising a different weight in the different fields of competence of a future international institution; for instance technologically advanced countries could enjoy preponderant influence in formulating regulations concerning exploitation of resources and the measures to be taken to control ocean pollution, while developing countries could have a preponderant voice in determining practical methods for an equitable sharing of the benefits derived from the exploitation of resources. Novel methods for balancing the interests of countries in the determination of the decisions of an international institution could also be investigated: for instance control would be widely spread were 40 percent of the voting weight allocated to coastal States having specified capabilities in the marine environment, an equal weight allocated to all other coastal States and a 20 percent weight allocated to landlocked countries. The specific voting weight of each country would be determined in agreement with the other countries belonging to the same category. Such a system would have some disadvantages, but would also have many advantages including the fact of spreading control widely and of giving some assurance of being responsive to the preponderant will of the international community. At the same time it is unlikely that an international machinery utilizing a balanced system of voting such as that just outlined could make decisions seriously endangering the vital interests of any country.

As I have already suggested, the balancing of the interests and weight of different States within any future international machinery is a subject that merits, and which I hope will receive, careful attention at the international level.

A final point: I feel that it is essential that any future regime that is established for the seabed beyond national jurisdiction make some provision to the effect that with the agreement of the major powers the international machinery created may undertake such functions as may be agreed upon with regard to policing any arms control agreement that may be concluded for ocean space. I feel that eventually the desirability of these functions being undertaken by an international authority will be recognized.

I do not think that there is anything else which I can usefully say at the present time. Thank you very much.

ACTIVITIES OF THE UNITED NATIONS GENERAL ASSEMBLY SINCE 1966 RELATING TO THE SEABED AND OCEAN FLOOR

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General Assembly Resolution 2574 (XXIV) provides a useful focal point for this brief commentary on the activities of the United Nations General Assembly regarding the seabed and ocean floor. This resolution records, better than any previous resolution of the General Assembly on the subject, the Assembly's hopes and fears, objectives and frustrations in its quest to elaborate the principles of a regime to govern the area or zone lying beyond national jurisdiction.

The General Assembly of the United Nations is not a legislature in the strict sense of the term. It does have, however, something that resembles a quasi-legislative competence. (In this regard I agree with Professor Falk). Its resolutions are clearly not binding on the States that do not accept them or even in some cases on those States that vote for them. They are nevertheless binding on the United Nations itself, especially in procedural matters. It is therefore very difficult to subscribe to the view, which is often expressed in categorical terms, that resolutions of the General Assembly are in the main meaningless and ineffective. Often ineffective, perhaps, but never meaningless! Moreso, when such resolutions are passed nearly unanimously or with the support of at least a two-thirds majority of the members of the international community. Parts B and C of General Assembly Resolution 2574 (XXIV) were adopted with near-unanimity and without dissent; while parts A and D received a two-thirds majority.

The General Assembly in Part B of Resolution 2574 (XXIV) renews the mandate of the 42-member Sea-Bed Committee, expresses satisfaction to IOC and the specialized agencies for "their participation in and contribution to the Committee's work" and invites the Committee to consider further questions entrusted to it under Resolution 2467 (XXIII) in the light of reports and studies to be made available to it. Resolution B clearly underlines the objective of the Assembly for a "comprehensive and balanced statement" of principles. It therefore by implication rejects a partial or interim declaration of a few general principles on which some concensus may have been reached. The General Assembly, in its request to the Sea-Bed Committee to expedite its preparation of a comprehensive and balanced statement, is expressing unequivocally its fear that, in the absence of such a comprehensive statement, uncontrolled developments in the area may pre-empt the work of the Committee and render it meaningless.

It is to be noted that Resolution B also requests the Committee "to formulate recommendations regarding the economic and technical conditions and rules for the exploitation of this area in the context of the regime to be set up." (writer's emphasis). The General Assembly sees the regime to be established as an organic whole; the economic and technical rules for exploitation to be examined and formulated by the Economic & Technical Sub-Committee must

be an integral part of that regime, whose legal principles and norms are to be elaborated by the Legal Sub-Committee. The Economic & Technical Sub-Committee, under its very able Chairman, Roger Denorme of Belgium, has done some useful work. It has made a preliminary study of the ways and means of promoting the exploitation and use of the resources of the area and in particular examined the specific problems related to marine resources development. During the spring session (March 1970), this Sub-Committee has made a significant contribution to the Committee's work in its discussion of the economic and technical conditions and the rules for the exploitation of the resources of this area. Here the U.S. delegation has given the Sub-Committee a clear and comprehensive picture of its views on the problems for which rules must be devised. The Sub-Committee had before it for its consideration a report prepared by the Secretariat on a review of government measures pertaining to the development of mineral resources on the continental shelf (U.N. Doc. A/AC.138/21). The Secretariat paper does not make any reference to the national practices of the countries of Eastern Europe--an important sector of the international community. The USSR representative in the Economic & Technical Sub-Committee, commenting on 13 March 1970 about this gap, stated that the paper was based only on national practices of capitalist and developing countries. It is conceivable, and here it is a correction again, that upon examination the national practices of the Eastern European group of States may well find easier applicability to the area under consideration. The political reality is that the USSR and the other countries of Eastern Europe continue to maintain strong reservations about an international regime for the area and until they are prepared to make a significant shift in their position, there can be no real agreement on this question.

Little progress, if any, has been made on the other hand by the Legal Sub-Committee in arranging a comprehensive and balanced set of principles for the area. Conflicting inter and intra-State interests have not helped to produce the climate for agreement. This is not to say that some broad agreement in the Committee on the Sea-Bed does not exist on several points regarding the general principle of reservation exclusively for peaceful purposes, the need to combat pollution of and other hazards to the marine environment, and reasonable regard for the interests of other States in their exercise of the freedom of the high seas. A specific example may suffice here. Broad agreement does exist that the seabed and ocean floor and the subsoil thereof beyond the limits of national jurisdiction shall be reserved exclusively for peaceful purposes, but no agreement exists for the formulation "accordingly, all military activities shall be excluded, and all forms of military use shall be prohibited." It is in any case unrealistic to expect that such a prohibition will ever get universal support and, if adopted, will ever be effective.

The main points of controversy would seem to be the concept of the common heritage, dedication of a portion of the proceeds and other benefits from the resources of the area to international community purposes, the relevance of international law and the so-called freedom of scientific research. These are the main causes.

The concept of the common heritage of mankind is indeed a novel concept, which has the support of the developing countries and some developed countries, among them Norway, and now the U.S. but only to the extent of the resourses of the area. Some delegations have criticized the concept on the ground of its novelty; but this criticism has now been happily laid to rest. The proponents of the concept have insisted that new concepts are necessary to meet new situations in this new environment. Law must be stable in order to inspire confidence, flexible enough to command respect, but at all times creative so as to accommodate change and to respond meaningfully to the balanced socio-economic interests of the international community.

Another major criticism of the concept is that it is devoid of legal content. Words by themselves have literary meaning. They do not ipso facto have legal, scientific or other content. In the case of this concept, it is the task of the Legal Sub-Committee to give it content. A detailed study of the debate on this concept in both the Ad hoc and the Permanent Sea-Bed Committee reveals that three basic elements of the concept have been clearly identified. They are as follows:

(1) Non-appropriation of the area by any,
(2) Administration by all, and
(3) Equitable and progressive distribution of benefits to all.

If agreement can be reached on these three identifiable elements of the concept, then in formulating this principle, which is considered by many as the key and cornerstone concept for an international regime for the area, these elements can be spelt out in the first principle of the declaration.

The concept of the common heritage of mankind seems to find a place in President Nixon's Oceans Policy Declaration of 23 May 1970. The President's proposal is for States to agree, inter alia, to regard the resources (writer's emphasis) of the area beyond the 200-meter isobath as "the common heritage of mankind." Some regard this statement as a mere sop to the developing countries, several of which are wedded to the concept without clearly understanding its true purport. The concept as it is understood by some proponents, among them Dr. Ballah, apply not only to the resources but to the area itself. The Nixonian proposal seems to tie the concept of the common heritage to the notion of a dedication of a substantial portion of royalties to international community purposes. To many delegations of the Sea-Bed Committee the term "international community purposes" connotes aid and economic assistance to the developing countries. One wonders here whether President Nixon is not addressing himself to a UNDP-type regime (machinery) which hands out developmental aid based on pre-investment surveys. Is it here envisaged that the regime to be established will in the future provide the necessary funding for organs like UNDP and so relieve the richer nations of the world of their primary responsibility in this regard? It is submitted that if the area lying beyond national jurisdiction (however defined) is to be the common heritage of all mankind, what flows then as a natural corollary from that concept is the fact of its non-appropriation

by any, its administration by all, and a progressive and equitable distribution of benefits to all. Each State has therefore a right to its share, however apportioned and by whatever agreed criteria. That share is not aid and the State entitled to it may utilize it as it chooses.

The General Assembly in Resolution C, noting with satisfaction the study on international machinery prepared by the Secretary-General, requests a further study of machinery, particularly a study coverning in depth the status, functions and powers of an international machinery having, among other things, power to regulate, supervise and control activities. The Sea-Bed Committee has not discussed in depth the question of machinery. What is clear from the informal conversations which have taken place so far is that a mere International Registry Authority is considered inadequate and that the majority of delegations lean towards a strong and just managerial mechanism; and in the words of the Ceylonese delegate in an intervention made on 10 March 1970 to the Legal Sub-Committee, "...a trustee or fiduciarius, who will maintain and defend the status, conserve the property and distribute equitably the benefits deriving from it. The only possible trustee is...an international institution with adequate authority to perform that function." The concept of a trustee in an intermediate trusteeship zone who seems to be the principal beneficiary is quite novel and at the moment unclear. It is probably this type of trustee that the Soviet delegate had in mind when he talked of one of the heirs of the common heritage appropriating the heritage itself.

Resolution A is procedural in that it seeks to ascertain the views of member States on the desirability of convening a new conference to deal comprehensively with all the interrelated problems of the marine environment. Concealed, however, in the interstices of this procedural resolution are two substantive points of disagreement: (1) whether a regime for the area should precede precise delimitation or the other way around (this difficulty has been amusingly referred to by a delegate as an "Apres-vous, Alphonse" problem), and (2) the organic vs the piecemeal or so-called "manageable package" approach to the problems of the law of the sea.

The arguments on both sides are well known and need not be repeated here. It is, however, worthy of note that the General Assembly in two preambular paragraphs of Resolution A (a) notes that the establishment of an equitable international regime for this area would facilitate the task of determining the limits of the area to which that regime is to apply, and (b) affirms that there exists an area of the sea bed and ocean floor and the subsoil thereof which lies beyond national jurisdiction.

The Sea-Bed Committee has not addressed itself at all to the substantive question of limits, which is held by many to be outside its mandate. It is felt that this is a matter to be dealt with at a new conference on the law of the sea. The few delegations that have made passing reference to the question of limits feel that the geomorphological criterion should provide a "working hypothesis" (e.g. Piero Vinci of Italy) for a discussion on the question of

limits. Equity demands, however, some accommodation for the countries of the Pacific coast of South America, who clearly cannot be reasonably expected at this point in the present uncertain state of the law to roll back the frontiers of their territorial sea.

The words of Professor E.D. Brown, speaking on the subject of Our Nation and the Sea at this conference last year, seem to be very relevant here. He stated, inter alia, as follows:

> "...If the U.K....may enjoy the riches of the North Sea out to about 170 miles, the charitable recognition of 50-mile limits for States such as those on the West coast of South America hardly see it as a negotiable proposition..."

Much less negotiable would seem to be a proposal for a 200-meter depth limit for such States or for other States. It may well be that the limits may have to be regional, taking into account diverse geophysical factors of the marine environment and the need of developing coastal States to have wider maritime jurisdictions than developed coastal States in order to redress somewhat existing social and economic imbalances and inequities.

The majority of developing countries fear that the benefits from the exploitation of the area beyond national jurisdiction will further aggravate such economic imbalances and inequities. In the absence of a meaningful and effective international regime for the area, the technologically equipped will have a virtual carte blanche to exploit the resources of the area. Moreso, if delimitation should precede the establishment of an international regime for the area (and this is conceivable in the context of society), then it is feared that no meaningful regime for the area will be established. It is felt that, in the absence of a regime and with a precise delimitation of the area giving an abbreviated maritime jurisdiction to some coastal States, the technologically equipped will no longer need the protective legislative umbrella of coastal states to exploit areas which, prior to delimitation, fell within the jurisdiction of such states. Such legitimate fears of some members of the international community seem to have found expression in Resolution D, which is short-titled "the moratorium on exploitation." To many the resolution is meaningless in the absence of any precise delimitation of the area to which it applies, to others it is lex lata in the sense that it is declaratory of existing law and yet to others it bespeaks the reasonable expectations and hopes of the international community for the early establishment of a regime under which exploitation of the seabed's resources for the benefit of mankind can go forward in an orderly, efficient and equitable manner.

The General Assembly of the United Nations, through its Sea-Bed Committee, must direct its energies to the early establishment of an international regime for the area and to the adoption of a balanced and comprehensive declaration of principles. To achieve this, conflicting national interests must be reconciled if the fears of the international community are to be allayed, its frustrations relieved, its hopes, objectives and reasonable expectations realized.

DISCUSSION

Nanda: My name is Ved P. Nanda. I teach law at the University of Denver. Mr. Chairman, we have heard from three very sympathetic observers of the UN scene about the activities of the United Nations General Assembly. I think a critic would probably point out that despite lengthly debates at the UN on questions such as: (1) who owns the ocean's resources, (2) how should we reconcile the different uses of the sea, we can discern very little and very slow progress at reaching any consensus on these issues.

The last year has been rather disconcerting. A reverse trend is in evidence insofar as even some developing States have started questioning the primacy of an international body to regulate and/or own the oceans' potential resources. First of all, it is true that how much lies underneath the sea is not known to us. Second, we do not know when it is going to be commercially feasible to exploit these resources. Third, we are not sure at the present time that the United States and the Soviet Union would agree to use the sea only for peaceful purposes. Therefore I would like to ask Ambassador Pardo his assessment of the future UN role, taking into account actions by Canada and some Latin American countries, and the military uses of the sea by the US and Soviet Union; isn't this a setback from the intital, laudible objective that you started with?

I teach international law and the law of the sea, and therefore my concern is the concern of a person who is interested in the UN activities, of course being aware of the many complexities and hurdles, and being firmly of the view that the road to progress does not lie in creating illusions, illusions for optimism or over-optimism.

Pardo: Thank you very much, Professor Nanda. You've posed a number of questions. I don't know whether I will be able to satisfy you.

The first question is how can we resolve controversies on the use of the sea, if I remember correctly. Well, to resolve controversies on the uses of the sea, and of the seabed in particular, I would think that the first step is to establish a generally recognized law. We have no generally recognized law. The 1958 Convention on the Continental Shelf establishes certain norms only for the so-called continental shelf. There are no generally recognized norms in international law with regard to the area beyond the continental shelf however defined, except for the freedom to lay submarine pipes and cables, a few general concepts such as the concept of a reasonable regard for interests of other States, and a few fragmentary rules found in certain bilateral or multilateral conventions; otherwise there are no other norms whatsoever.

I believe that to reduce controversy, one must first establish law. International law in the present stage of world organization can be established only on the basis of States, members of the international community, freely agreeing to limit their powers and freedom of action. In the present stage of human development, States freely agree to the limitations mentioned only when convinced that these are in the national interest.

Pardo (continued): In other words, to establish viable international law covering human activities with regard to the seabed beyond national jurisdiction--that is to say to establish an international regime for this area--it is necessary to convince States that it is in their interest to agree on clearly defined limits to the area of the seabed subject to national jurisdiction and to an international regime for the area beyond. While all States may agree in principle on these objectives, it is most difficult to attain a consensus on their practical formulation in concrete terms in view of the opposing interests of the many member States of the international community. The attainment of such a consensus, or at least of an overwhelmingly prevalent view, is a long process in any matter of considerable political importance. I hope however that the normally slow international deliberative processes can be speeded up somewhat as far as the seabed beyond national jurisdiction is concerned for we are facing the prospect of having the technological capability to exploit increasingly vast areas of the seabed yet of being unable to do so without great economic and political cost due to the absence of law. So I hope that soon States will recognize that it is to their advantage to establish the type of international law that the interests of all require.

The second question as I understood it was, how much do we know about the seabed beyond the continental shelf? I suppose by this term is meant the geological continental shelf. We know very little about the seabed beyond the geological continental shelf: probably 95 per cent of the area is virtually unexplored. One of the difficulties, however, in reaching agreement both on the limits of the legal continental shelf and on various provisions to be included in an international regime, is that States tend to discount technological capability to exploit the resources of the seabed beyond the geological shelf some years in advance; thus what are now only potential interests tend to be regarded as legal rights already vested in the State. This makes the process of negotiation more complex and also quite frustrating.

I believe that the third question was, whether the fact that the United States and the Soviet Union are likely to continue to utilize the seabed for military purposes was not a setback for the achievement of the initial objective of my government? Perhaps the original objective of my government will not be attained as rapidly as had been thought possible, but I am convinced that in the long run both the United States and the Soviet Union will wish to control in their own self-interest the arms race in this new environment which is opening to mankind. Already the present strategic arms race is becoming an intolerable burden by diverting resources from essential social and economic objectives. Extending the arms race to a new environment would increase the burden that both the Soviet Union and the United States are carrying. Much however will depend on whether it becomes possible to establish international institutions that can act credibly, effectively and impartially. If such institutions are established, I believe that there is a good chance that eventually they will be utilized by the major Powers to police any agreement for the total or partial demilitarization of the seabed that may be agreed upon, since this would be in the obvious interest of these Powers.

Henkin: Having taken so much of your time, I hesitate to take any more, but I would make one small point. I am grateful, of course, to Mr. Ballah for the kind things he said, but would correct and reassure him on one point: I am not cynical about the U.N., and if I have any quarrels with it they are "lover's quarrels." Nor am I cynical about developing countries: it is not cynical, only realistic, to expect any nations to act in their interests as they see them.

Surely, I do not intend to preach to the developing countries: there is too much preaching going on, on the part of both developing countries and developed countries. Nor am I in a position to negotiate with them: I have little influence in Washington, less even than many other people here. But, I am satisfied, there is now an opportunity for achieving agreement in the common interest, including--indeed, especially--the interest of the developing countries, and it would be tragic if the possibility of agreement were destroyed because nations are prisoners of suspicion, or even, you might say, of "principle."

Something Mr. Ballah said illustrates what I have in mind. He seemed to find objectionable the statement in the United States proposal that the international regime should "provide for the collection of substantial mineral royalties to be used for international community purposes, particularly economic assistance to developing countries." I suspect that Mr. Nixon used familiar concepts like "royalties" and "economic assistance" to help persuade some objectors, including some members of Congress. But if the words have particular substantive content and connotation, I should think they imply exactly what the developing nations want: to me they suggest that payments would be made to the international community as of right, and they do not suggest any particular form, or forum, or formula for assistance to developing countries.

The need is for negotiation, not suspicion, for hard facts, not labels. Everyone can put his own labels on things, but it would be sad if labels became principles and nations became imprisoned by them, for that can destroy the hope of meaningful negotiation.

INTRODUCTION

William E. Butler
Harvard University School of Law

This afternoon we turn our attention to what is undoubtedly the most complex of questions: The management of international fisheries.

"Management" is one of those pseudo-scientific terms connoting a measure of rational guidance and control that more often than not is virtually impossible of attainment. If by "management" we intend "the judicious use of means to accomplish an end," it may be questioned whether the means to manage international fisheries is "judicious," whether it is directed at achieving appropriate or realizable ends, or whether the means themselves are suited to their tasks. If we understand "management" as a purely descriptive term--as the manner of treating, directing, carrying on, or using fisheries--then we are left with the present inadequate, imperfect system. I suspect we shall use "management" in both of its aspects this afternoon, and we would do well to remind ourselves from time to time of the distinction.

As a specialist in international and comparative law, principally Soviet law, I am struck by the relative wealth of data on certain international fishing arrangements, and the virtual exclusion of others from scholarly analysis or professional discussion. I am not aware of any serious study, for example, of the various mixed fishing commissions which the Soviet Union has formed with Ghana, Cuba, China, and other States, and I suspect there are numerous other bilateral fishery commissions and arrangements of equal importance involving other countries.

Our panel this afternoon reflects the same diversity of expertise and professional background represented in the audience, which is what makes this conference so delightful and rewarding. Our first speaker this afternoon is Dr. Hiroshi Kasahara, a Professor and Associate Dean of the College of Fisheries, University of Washington. Dr. Kasahara is a biologist by training, who has served for some years as Assistant Director of the North Pacific Fisheries Commission, a number of years with the U.N. Development Program in New York, and who since 1969 has been associated with the University of Washington.

INTERNATIONAL ARRANGEMENTS FOR FISHERIES

Hiroshi Kasahara
Associate Dean, University of Washington College of Fisheries

When I was invited to participate in this conference, I thought of taking up a new subject, namely the relationships between any new regime that might be established for seabed and arrangements for the use of superjacent waters, particularly those for fisheries. But I noticed that this subject would be discussed in other sessions. So I have decided to go back to the old subject of international arrangements for fisheries.

I am not going to say anything new about the adequacy or inadequacy of the present international arrangements for fisheries. The subject has been discussed time and again by various people in the last few years, so that I see no need for further elaboration. The views of those who are for or against the existing framework of international arrangements are expressed in numerous publications.

My own views were summarized in a short statement published as part of the Proceedings of the Law of the Sea Institute Conference in 1967, when I was still with the United Nations Development Programme. I see no urgent need for changing this statement in any substantial way.

More recently, I summarized my views on this subject in a paper prepared for a preparatory meeting of "Pacem in Maribus" to be held in Malta at the end of this month. After describing the present regime which consists of a variety of arrangements with main emphasis on the establishment and operation of regional international fishery bodies, I said as follows (not exact quotations):

> The above outlined regime for the regulation of high seas fisheries is quite imperfect. The regime has been criticized for its inefficienty and a lack of principles applicable on a world-wide basis. Yet none of the alternative proposals that have been presented so far appear to be workable. Most of these proposals ignore the historical background of fishery development, the diversity of interests among nations, problems of implementation--in fact, most of the practical aspects of international arrangements for high seas fisheries. I have not yet seen any of these proposals translated into practical arrangements for solving problems of the real world. They also do not pay enough attention to the fact that some of the existing arrangements go far beyond the question of conservation (for maximizing total physical yield) and include a variety of measures to cope with the question of who gets what. If the parties to a convention can agree, almost anything is possible.
>
> I am afraid that the existing regime appears the only practical one for the time being. Any serious attempt to change it drastically would perhaps bring about further reduction of the part of the ocean which could be used by any nation capable of developing living

resources therein, and result in a slowdown of fishery development in many parts of the world.

What we should attempt is not to change the basic aspects of the existing regime but to make it more workable and expand its coverage to avoid the depletion of important resources and prevent unnecessary international disputes. The present regime has many weaknesses, but it has a definite advantage in that it is still flexible enough to accommodate further developments in the exploitation of marine living resources. In view of the great potential of food resources of the ocean and the possible technical innovations that are not forseen at present, it would be a mistake to codify too rigidly fishing and related activities in international waters. What looks like a good principle for regulation of international activities might become a serious obstacle to development in the future.

How can we improve the existing system? Since there are long-established arrangements of different types with different historical backgrounds, no generalization is possible. One of the most serious problems of the present arrangements, however, is a general lack of ability to deal effectively with new problems arising from rapid developments. Even now, new important fisheries are popping up or drastic changes in the existing fisheries are taking place every year in different parts of the world ocean.

We face a dilemma. To be effective in dealing with problems arising from the exploitation of a particular resource, a fishery agreement must be very specific. On the other hand, if the arrangement is not flexible enough to accommodate new issues, then ad hoc negotiations have to be carried out each time a serious problem arises from a new development which cannot be handled in the framework of the existing agreement.

Let us take the North Pacific as an example. This region is at the moment producing more fish than any other part of the world ocean. In general, most of the existing international fishery agreements in the region are fairly good for handling the specific problems for which such agreements were negotiated. The Fraser River Salmon Convention still works quite well for the conservation of one of the most important salmon systems, as well as for dividing the catch between the fishermen of the two nations. Whether or not the United States should introduce limited entry in their salmon fishing industry, as the Canadians have done, is entirely up to the government and industry of the United States, and has nothing to do with the work of the Salmon Commission operating under the Convention.

The Halibut Convention, through its Commission, has done a good job in maintaining the stocks of halibut in the Northeast Pacific. The fishery is, to some extent, suffering from the development of large international trawl fisheries in the Bering Sea and the Gulf of Alaska. Considering the enormous amounts of fish of various kinds taken by the foreign fleets in this region, in

contrast with small quantities of halibut caught by the American and Canadian fishermen, the degree of suffering may not seem unreasonable from an overall international point of view.

The International North Pacific Fisheries Convention, with its Commission, has also functioned fairly well for the real purpose for which it was concluded, namely to provide the American and Canadian salmon and halibut fisheries with a reasonable amount of protection against Japanese fishing on the high seas. In spite of differences of opinion among the three national sections of the Commission on various issues, none of the parties is quite prepared to abandon the existing arrangement or replace it with a new one. The Fur Seal Convention is just as good as any international arrangement that can be made for a resource of this sort.

Considering the historical background of the issues involved and the differences between the two nations in the political regime and the organization of industry, the Japan-Soviet Fisheries Treaty, too, might be considered a pragmatic arrangement. Every year, after prolonged negotiations, they come to an agreement concerning the high seas fisheries of the Northwest Pacific Ocean. An overall political consideration on both sides, to avoid a serious diplomatic conflict over fishery matters, appears to persuade them to make a compromise before the beginning of the high seas fishing season every year. The Russians may be determined to eliminate Japanese high seas fishing for salmon and king crab eventually. But if they are, they intend to do it step by step without causing too serious repercussions.

Controversies over fishery issues between Japan and South Korea seem to have been reduced greatly after the conclusion of a treaty. The current disputes are mainly over the export of fishery products from Korea to Japan.

The Inter-American Tropical Tuna Convention has also been an effective one. The Tuna Commission has been able to adapt itself to meet the conservation needs and the wishes of most of the participants. Some people are critical of the types of regulations now in effect, but the Commission will perhaps be able to cope with the changing situation, possibly by adopting some system of national quotas. We have seen the beginning of this in the establishment of a catch allowance for small vessels in each nation.

What most of the existing international fisheries arrangements in the North Pacific have failed to do is to catch up with changes in the international fishery situation in this region. This is not because the negotiators of the treaty were short-sighted, but is due largely to the almost unforeseeable rapid developments that have taken place during the past two decades.

All nations have greatly intensified fishing in their coastal waters. Japan and the Soviet Union started sending large fleets to distant waters to exploit new resources; South Korea joined later. Major resources developed principally after World War II include those of saury, squid and others in the

Western Pacific; various flounders, pollock, rockfishes, herring, pandalid shrimps, king crab and tanner crab in the waters of the Bering Sea, Aleutians and northern Kuriles; rockfishes, flounders, king crab, shrimps and hake in the Northeast Pacific; tunas across the ocean; as well as some whale stocks. Saury and anchovy stocks in the Eastern Pacific along the American coast are also being developed. Many resources in Asian coastal waters have been fully exploited or overfished.

Technological improvements and the employment of factory ships and mother ships have made fishing extremely mobile and dynamic. Emphasis has shifted from one stock of fish to another. The level of maximum exploitation has often been reached within several years. This has made traditional management concepts based on the long-term development of a fishery rather impractical.

Negotiations for the North Pacific Fisheries Convention, for example, would have been rather different if the negotiators had had a better idea of how the resources in the North Pacific, other than salmon and halibut, were going to be developed during the fifteen years following the time of negotiation, which was 1951. We can't reverse the history. So what can we do? The four countries bordering the North Pacific--the United States, Canada, Japan, and the Soviet union--have dealt with the situation, to a degree, by carrying out ad hoc negotiations and making tentative arrangements at least to prevent major controversies from developing. But because of the nature of these agreements, negotiations must be held almost continuously to renew or revise them.

Although I am not sure that this is a practical solution, perhaps what we need in the North Pacific is a new, open-entry treaty which would provide an overall forum to consider new problems and issues as they arise. The new fishery body (possibly a commission) to be established under this treaty would work in close coordination with the existing commissions. Some of the new problems might be referred to the existing commissions. The latter in turn might call the attention of the new body to urgent problems that cannot be handled under the existing arrangements.

In view of the absence of a comprehensive and continuing arrangement for the demersal fish stocks in the international fishing grounds of the Bering Sea and the Northeast Pacific, the new treaty might place its emphasis initially on these resources. It could perhaps absorb some of the existing agreements of a temporary nature concerning these resources, such as those recently concluded between the United States and the Soviets, and between the United States and Japan.

The treaty would be open to all nations interested in the exploitation of living resources in this part of the world ocean. I realize that the lack of normal diplomatic relationships among some of the nations of the region would create difficulties. But all we could do in a situation like this is to keep the treaty open.

As more nations feel justified to extend the limits of national jurisdiction over the waters off their coasts, we may expect another round of difficult international disputes over fishery matters. Such a trend will perhaps continue on a worldwide basis no matter what sort of an overall agreement, if any, might be reached at the next Law of the Sea Conference. The new North Pacific treaty suggested above would be helpful in facilitating the settlement of issues from this source of conflict.

The negotiators of the new treaty should take into account the dramatic developments that have taken place in this region since the 1950's, as well as the experience gained in the exploitation and management of new resources.

For such a treaty to be effective, it would have to adopt new concepts of management. With the present technology of fishing and processing and the increasing demand for fishery products, any stock of fish which has hitherto been unutilized may be exploited to a maximum degree within a matter of a few years. This has happened to a variety of resources in different areas during the last ten to fifteen years. It sometimes makes the traditional concepts of fishery management almost unworkable.

Before scientists can collect biological data over a number of years to reach conclusions as to the condition of the resource concerned and recommend measures to manage it on a rational basis, the resource would have been fished to or beyond the level of so-called maximum sustainable yield. Fishing activities are becoming increasingly transient with emphasis shifting from one resource to another. This does not mean, however, that fishing pressure on one resource is completely removed when emphasis has shifted to another resource. Fishing on the former often remains fairly intensive to keep it at some level of equilibrium, while pressure on the latter mounts.

The fishery body under the new treaty should be able to make timely recommendations to keep up with developments of modern fisheries. The system of research and the attitude of scientists should also be adjusted. The research workers concerned should not hesitate to make recommendations on the basis of whatever evidence is available to them, if the possible damage done by not taking immediate action is considered greater than the possible adverse effects of making a wrong guess. The administrators and politicians concerned should stop twisting scientific evidence to justify their positions. If the recommendations are not acceptable for political reasons, they should so state and be prepared to be responsible for the consequences of their decision.

Of course, we cannot expect people to adopt overnight a new philosophy of international fishery negotiations, but I believe they are increasingly aware of the fact that many of the fishery issues are not as important as they used to be if they are put in proper perspective in relation to the status and prospect of economic development of the nations concerned and the rapidly growing importance of international relationships in many other fields.

A WARNING--
THE DECLINE OF INTERNATIONAL COOPERATIVE FISHERIES MANAGEMENT
LOOKING PARTICULARLY AT THE NORTH ATLANTIC OCEAN

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International cooperative fisheries management is on the brink of disaster. In fact it may already be sliding down the slippery slope irreversably toward extinction. This noble experiment, which looked so promising only a few years ago, may already be dead before the pending modifications in the two Conventions in the North Atlantic give the Commissions the necessary new powers, or before the proposed Law of the Sea Conference can be convened in several years to consider establishing a new legal framework for international cooperative management of high seas fisheries. This, of course, is my personal view based on my experiences, primarily in the North Atlantic fisheries, and does not necessarily reflect the view of anyone else, particularly the Department of State or the United States Government.

The North Atlantic is perhaps the best area of the world to consider the success or failure of international cooperative fisheries management--as reflected primarily in the international fisheries commissions. Here we find two such commissions with over twenty years' experience and with eighteen nations with considerable experience both in working together and in fisheries management--the International Commission for the Northwest Atlantic Fisheries (ICNAF) with 14 members and the North-East Atlantic Fisheries Commission (NEAFC), also with 14 members, 10 nations being members of both. Here we find very extensive and intensive fisheries of all varieties, nations heavily dependent on fisheries and with hundreds of years of experience in their conduct, a vast amount of scientific talent and experience devoted to fisheries matters, an extremely high degree of technological sophistication, and a vital interest in making international cooperative fisheries management work. Most of the nations of the world which conduct large fisheries and most which conduct distant water fisheries are represented on one or both commissions. One of the two principal exceptions, Japan, has been fishing in the area and is about to join ICNAF.[1] We find highly important coastal fisheries interests in direct competition with highly important distant-water fisheries. We find the nation most heavily dependent on fisheries, Iceland, and a number of others which would be hard-pressed to carry on without their fisheries, such as Poland. We find an extremely large investment in vessels and plant, and a very great number of new, large vessels. We find highly sophisticated gear and techniques. All in all, we find most of the world's fisheries problems and interests reflected, and probably the world's greatest concentration of resources to deal with them. Nowhere else in the world is there such a concentration of able and experienced fisheries administrators and scientists.

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[1] Japan became a member of ICNAF on July 1, 1970.

Regulations for the conduct of a large number of international fisheries have existed for many years, and they are constantly being added to or improved as we gain in knowledge and experience--and as the problems continue to grow. The authority of the Commissions and their resources and techniques have grown over the years, and are still being expanded and improved. And yet, in recent years they do not seem to be able to cope with the growing number of problems, and one resource disaster after another strikes us. In spite of what North Atlantic fisheries management seems to have going for it, numerous stocks have been severely depleted and others appear to be in grave danger. Unfortunately, the number of problems appears to have been growing at a much faster pace than the power or willingness to deal with them.

This is not to say that there has been no success. The regulations which have been introduced have undoubtedly helped to conserve many stocks, and many of them are still working well. Others have worked well for a while, and have been modified to keep them abreast of changing circumstances and increased knowledge. Some have worked well for a while, and then failed as circumstances changed too rapidly. The mesh regulation for haddock on Georges Bank is a prime example. The first regulation to be proposed by ICNAF, in 1952, took effect the following year and has been improved several times since. It obviously contributed to the conservation of the stock for many years in a stable fishery, but it failed in 1965 when a vast increase in fishing effort altered the circumstances and led to a severe depletion of the resource. Additional regulations were introduced last year in an attempt to cope with the situation which remained even after the additional effort had been withdrawn, but many consider that it was too little and too late--that the stock may not recover.

The yellowtail flounder fishery has not been regulated. Regulations were not considered to be necessary for such a stable fishery until recently, when it appeared that the maximum sustainable yield had been reached or perhaps slightly exceeded. At the last moment, new information revealed that a substantial amount of new fishing effort had been introduced suddenly in the stable fishery, and that the maximum sustainable yield had been greatly exceeded. Now it is necessary to restore the stock rather than to maintain its productivity. A few weeks ago ICNAF adopted proposals toward that end, although they do not go as far as American scientists and fishermen considered necessary.

Haddock and yellowtail are relatively small stocks. The same thing can and has happened to other, larger, resources. The vast herring stocks of the Northeast Atlantic have been decimated by over-fishing, and thus far it has not been possible to do much toward reversing the disaster. Fishing effort on herring has now been diverted to a substantial degree to the northwest Atlantic; at the same time local coastal fishermen's interest in developing this resource is growing. Fear has been expressed that the Northwest Atlantic herring stocks may be approaching the maximum yield or may even have exceeded it, although data is scant. Because of the attention it is receiving now, it may be possible to avert a resource disaster in the Northwest Atlantic herring stocks through

ICNAF action, but one possible current success does not do much to offset the current failures. ICNAF agreed to study the matter urgently; and adoption of regulations is looked to next year. Agreement to study something is a hallmark of the Commissions, but agreement to do something is a horse of another color.

A problem of a different sort is encountered in both Commissions in relation to the Atlantic salmon fishery. In the last few years a significant high seas salmon fishery has developed off West Greenland in the ICNAF Area and off the Norwegian coast in the NEAFC Area. In 1969, after considerable pressure had been developed by the countries which support the salmon stocks through their stream preservation and restoration programs and their hatcheries, and by various sports fishing interests in Canada, the United States, the United Kingdom, Ireland, Iceland, Norway, and others, both Commissions adopted regulatory proposals which would have banned high seas salmon fishing outside the twelve-mile fisheries limit. Both proposals were adopted by a two-thirds majority, over the objection of Denmark which conducts the major West Greenland fishery and a significant fishery in the Northeast Atlantic, and the objection of Germany which did not participate in the fisheries but raised legal questions as to the authority of the Commissions. The NEAFC proposal did not enter into force under the terms of the NEAFC Convention because of the number of Governments which presented formal objection to it. The ICNAF proposal did enter into force for eleven nations, only one of which conducted a minor high seas fishery off its own coast--Canada--but not for three others which objected, including Denmark. Norway also objected, although it had voted for the proposal, on the grounds that it would have been discriminatory to eliminate the small Norwegian fishery off West Greenland while permitting the Danish fishery to continue.

At their 1970 annual meetings, both Commissions adopted new proposals to limit but not eliminate the high seas salmon fishery. Norway, Denmark, and Germany voted for both proposals. In the US view, the NEAFC proposal is far less effective than we think necessary, and it was strongly opposed by the United Kingdom which has major salmon interests in the NEAFC area. The ICNAF proposal is somewhat stronger, and should put a lid on the rapid expansion of the West Greenland fishery, but probably will allow some expansion. The US, along with most countries, continues to support the ban as the only effective conservation measure, but voted for the new proposals in ICNAF to limit the fishery while working toward the long-term goal.

All in all, the continuing salmon problem illustrates the difficulty in regulating an anadromous fishery when the principal country involved in the fishery does not produce the stocks but maintains a veto over any regulatory measures.

Is there a viable alternative to international cooperative fisheries management? A number of nations claim there is--unilateral extension of fisheries or territorial jurisdiction to encompass the fishing grounds off their coasts, the Latin American nations with 200-mile claims being the most notable. They,

of course, hope that their action will gain widespread support by nations around the world and will become accepted international law. Most countries, to date, do not agree that such action is permissable. Nevertheless, the trend for some time has been for greater and greater claims by coastal nations to offshore jurisdiction, primarily because of fisheries problems. Extended jurisdiction is a simple and attractive answer to many people even in countries which have not made such claims, such as the United States, and even though it would not solve problems such as the salmon one I have mentioned. Nor is it a practical approach to management of such far-ranging resources as tuna. Most fishermen in the United States and throughout the world are coastal, however, and they are increasingly pressing for extended jurisdiction to solve their problems. The New England fishermen in large part do not consider ICNAF to have served their interests very well, in spite of ICNAF's long-standing and increasing regulatory activities. The resources on which they depend have been depleted under ICNAF, they point out, by actions of large distant water fleets which can then move on to other coasts.

In view of this attitude, which in the Northwest Atlantic is largely shared by Canadian fishermen, and considering the overall interests of the North Atlantic fishing nations in maintaining the freedom of the seas and countering the trend toward extended jurisdiction, why are there such difficulties in securing effective action in the Commissions, especially before a resource is depleted? One reason is that the Commissions may not have adequate authority to take necessary action. The primary reason, however, is the rule of unanimity. No nation can be bound by a Commission action against its will. National interests are always pitted against the overall interests, and national interests virtually always prevail. "Yes," one nation says, "we must do something about that problem, but let's do it to the other guy and leave my fishery alone because I have special problems," and this is chorused around the room. Or, "we will accept limitations, but just a little; the other guy should be restricted more because he's the bad guy." As long as this attitude prevails, and it doesn't show much sign of changing, the Commissions will continue to be only marginally effective. As long as the rule of unanimity prevails, and that shows no sign whatsoever of changing, the Commissions can not be fully effective. They must operate on the level of the lowest common denominator, not the level of the greatest good.

Are the Commissions doing anything which may help, short of changing the unanimity rule? Both ICNAF and NEAFC have initiated major steps to broaden their powers to include the allocation of national quotas. This should relieve the situation to a considerable degree if it is possible to negotiate such divisions of catch, or "who gets what," because it would eliminate the element of competition between coastal immobile and distant-water mobile fleets on an over-fished or maximum-producing stock. However, the Commissions do not have this power yet, and it probably will be two or three years at least before Governmental action is completed conferring this power on them. The ICNAF proposal, by the way, is not limited to national quotas. The Convention presently lists five types of regulatory action which may be taken, some of

which have never been used. The proposed amendment would remove this limitation and would leave the Commission free to propose any type of regulatory action whatsoever that it considered appropriate for a given problem. Thus, while national quotas is the action in mind at the moment, ICNAF would have a great deal of flexibility in the future in what it proposes to its Member Governments.

Another major step has already been taken, the institution of international enforcement. The two Commissions cooperated closely in developing the enforcement schemes, and they are virtually identical for the two areas. The NEAFC scheme is already operative, and the ICNAF scheme will become operative next year. Many consider the schemes to be minimal, and that much greater authority must be given to the international inspectors, but this is a major step forward in assuring that the regulations which are in force are observed uniformly by fishermen of many nations.

ICNAF has also just completed a major step in speeding up the process for bringing new regulations into effect. In the past, it sometimes took five years or more to bring a regulation into effect after it was adopted by the Commission. Sometimes proposed regulations were amended by later Commission meetings or even completely superseded before their entry into force. Now, all regulations proposed at an annual meeting are either in effect or rejected before the next annual meeting, and it is possible to bring a regulation into effect for some countries but not for others. While this did not work in the case of the salmon, it is conceivable that situations would develop where it would not matter for an effective regulation if one or two countries were not bound.

Thus, the machinery is generally there or in process to do a fairly effective job, even given the unanimity rule. Thus far, it hasn't worked too well. The pace has increased considerably in the last few years. However, in far too many instances in both ICNAF or NEAFC it seems to be a case of taking action which is too late, or "better than nothing, but not much" as many people have put it at recent meetings. The awareness of this situation is growing, which is a favorable sign. I heard more people at the NEAFC and ICNAF meetings this year warn that the Commissions must get busy and do something or they will be discarded. If these Commissions fail, the 200-milers have another big gun to add to their arsenal in arguing that their way is best, for if these countries in the North Atlantic can't manage fisheries cooperatively, who can? I personally have serious doubts that the Commissions will increase their pace enough to cope with problems which are already partially out of hand, and the problems seem to be growing at a faster pace than the Commissions' pace in dealing with them.

There is a third route open to us, of course, which is being explored in connection with the proposed Law of the Sea Conference. That is re-defining the freedom of fishing on the high seas, which presently operates under only general conservation and "reasonable regard" limitations, to give the coastal States some well-defined preferences for their small relatively immobile fisheries over the large distant-water fisheries. If adopted, this should

stop the trend toward increased jurisdiction, and while it would not eliminate the Commissions it would fundamentally alter their character. No longer would there be an absolute right in a Commission to say, "Don't do it to me, do it to the other guy."

Unfortunately, both effective action in the Commissions and adoption of a new formula at a Law of the Sea Conference on fishing face the same fundamental difficulty. The ones who need to be regulated are agreeable to it only if it limits the other guy more than them. Further, many fisheries scientists and administrators do not seem to realize even now that the days are gone in which years can be taken in studying and taking action on a particular fisheries problem, for the time is gone in which problems could take years to develop. With modern vessels, gear, and techniques, it is increasingly easy to create a new problem overnight, and problems of fisheries management today must be dealt with speedily. Again, many distant-water fisheries do not seem to realize that the dominant position of distant-water fisheries is a thing of the past; that they can't move in suddenly on a resource on which a small fishery depends and deplete it before moving on to another part of the ocean. The ones who are creating the problems, both in the fisheries and in the Commissions, are the very ones who are forcing the world by their actions toward coastal State preferences or coastal State jurisdiction, and in the long run they are going to suffer most.

REMARKS

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As the chairman has said, I am a fisherman. I actually make my living, a major part of it, by going out on the ocean and catching fish; so I hope that no one expects a startling paper from me this afternoon. I have, however, been president of this co-op for some twenty years, and in this capacity I have been advisor to ICNAF since some time before intensive foreign fishing started off our shores. I have also been involved in every negotiation, I believe, of bilaterals that we have in the Atlantic with Poland and the Soviet Union, so I have had some experience with this. It is in the same area that Bill Sullivan was talking about, and at this point it is customary to say that he said everything that I was going to say; but that isn't really true. Although I didn't know what he was going to say, I had figured to work around it a little bit anyway.

I will try to give the fisherman's point of view on how these international arrangements in the North Atlantic are working. I was going to say that I didn't think they were working very well. I wasn't going to use the word "disaster," but it is still a pretty good word. It is applicable. This commission ICNAF is built as a conservation commission; that is what it is supposed to be. It simply is supposed to deal with stocks of fish so that they attain their maximum sustainable yield, and to assess them; and there are a group of scientists from all the countries involved in this who are supposed to make management recommendations to the commission. These scientists and the commissioners, the administrators involved, I find, are very competent people, good people, trying to do a job. They have made some good recommendations, but the recommendations have not been followed.

At the annual meetings of ICNAF, I sit as advisor in the back row behind the commissioners. It is extremely frustrating to hear the representatives of European distant-water fishing nations very smoothly thwarting any really effective action--putting it off and watering it down--because it doesn't seem to them to be in their best interests to take effective action at the time.

It has become a habit in ICNAF to take several years at least to do anything effective about depletion of a stock of fish. The question is brought up one year, and is met with, "Let's take a look at it next year and have a proposal the following year," and so it goes. Meanwhile the fishing pressure is such that stocks of fish can be decimated in a year or less, while the managing body takes several years to do anything effective about it.

I think that the troubles with ICNAF are, first, that it is too cumbersome, as Bill says; even though it is being streamlined, still I don't think it is going to be sufficiently effective to cope with the problems that must be faced.

A second problem is that ICNAF is dominated by distant-water fleets fishing off the US and Canadian coasts. Naturally their interests are very different from the interests of the coastal countries; and since they are in the majority, they can frustrate any wishes of the US if they want to. Also, a single nation can just cop out of anything that it doesn't agree with.

Still another problem, I think, is that in spite of all we do, regulation will continue to come after depletion of resources. This has happened over and over again, and I am afraid from the signs now and the stock problems we have that this is going to continue. Also, if we get an effective quota system, which seems to be on the way, these quotas are going to be on depleted stocks, and we are going to get a small share of the depleted stock--and this is not too well accepted by my fishermen.

Bill did talk about the bilaterals. They have taken the pressure off of special stocks of fish that are important to our coastal fishermen. But actually, what we are doing is negotiating an agreement on high seas fisheries, and these fisheries are no more ours than anyone else's. So whenever we negotiate these agreements, for everything we get we have to give something. Sometimes we get something we badly want; but overall it still is not an effective arrangement. Large fleets are still out there overfishing several species. Today, right at this moment, they are out there; they continue to fish on more species, and more nations continue to come into the area. So these agreements are a delaying action at best, and the problem is going to expand to where I am afraid we won't be able to cope with it much longer.

Somebody said to me, "Now don't just criticize, which is the natural thing to do; say what you are going to do about it, Dykstra. What do you propose to do?" I have been party to most of these arrangements. Many times I have been ready to quit. I have advocated quitting, but I have stuck with it; and I think that for the immediate future we are going to have to try to stick with these arrangements and try to improve them. They are being improved a good bit, but I do see trouble down the road. It is just going from bad to worse, and getting into an unmanageable situation. Of course we are, as I said, in hope of an international convention in the not too distant future, and it is my understanding that fishery matters will likely be part of the agenda of this convention.

What can we do about fisheries if we do have an international conference? Well, we can keep pretty much our present arrangement and have completely free fishing outside of a narrow territorial sea. This is the position which the Soviet Union strongly favors, but it is an extreme position and probably will not sell. We could extend the fishery jurisdiction of the coastal State out to the edge of the shelf. This is a very neat arrangement; it is short and sweet. It will do a very effective job for my fleet. I like it. I think it's great, and there are others who do too. However, this is perhaps an extreme position too, and I think that there are alternatives a little bit closer to the middle than either of these.

One position which is very close to present US policy is to continue to say that we have freedom of fishing outside of twelve miles, but that there are certain preferences for the coastal State. This would include quota arrangements in which the coastal State gets a larger share of the quota. Another possibility is that of adding more species to those that are considered to be creatures of the shelf. Some solution or combination of solutions like this would still retain freedom of fishing outside of twelve miles for all nations. This may be satisfactory to some people, but it seems to me to be a very messy arrangement, and can become very complicated as more nations fish in an area. You could get into a situation where representatives of the various nations are spending all of their time negotiating agreements. I am not too pleased with it, but it is better than the present situation.

Another arrangement that we could have--and the one which is most acceptable to me--is to give the coastal State control or make the fish over the shelf the property of the coastal State. In other words, to say that the fish belong to the coastal State, and then make provision for certain species or situations. Some suggestions for special arrangements are:

1. An arrangement for far-ranging pelagic species. This would take care of our tuna people.

2. An arrangement for anadromous fish that range beyond the shelf but have their homes in coastal rivers. This could be used for salmon problems.

3. Bilateral or multilateral arrangements where two or more countries are adjacent to an area of the shelf. This could be used for shrimp problems.

4. Provisions that resources will not go unharvested if any nation has the capability and desire to harvest them.

5. Gradual phasing out of traditional fisheries.

Something else I would like to say--some people keep peddling the notion that you can't draw lines around the fish, and that because the fish can't see lines on a chart it is not possible to say that the fish on this or that side of a line belong to anyone. This may be true for some fish, but it's only true for about ten percent of all stocks of fish, and almost all of the fish that my people fish on spend their entire lives on the shelf. So I don't like to have people say that for less than ten percent we will make a rule and then make the other 90-odd percent conform. I would rather make the general arrangement for the 90 percent and the special arrangement for the ten percent; and I think it's unfair to say you can't regulate fisheries by having control on the shelf.

So these are some of the arrangements that could be made and have a workable situation. To me it sums up that the present arrangements in the North

Atlantic are not working well. They seem to be in serious trouble, and the danger is that before we can do something different or before we can become more responsive--and I don't think we can be sufficiently responsive--we will have added to the condition, and will, as a friend of mine used to say, "force a more extreme solution," namely, a serious conflict over jurisdiction.

If we go into an international conference, I would hope that we could review the United States position for a narrow fishery jurisdiction and certain preferences for the coastal State. I would rather see it go over the hump the other way and get control of the coastal fisheries for the coastal nation, and then put some sort of qualifications on it so that no country can be too arbitrary about it.

THE INTERNATIONAL FISHERY: A PROPOSAL BASED ON THE NEW WELFARE ECONOMICS

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In this presentation I wish to discuss some of the inherent problems facing the economist when attempting to introduce economic relationality into the use of fish stocks on the high seas.

As most of you probably know, the economist regards existing international arrangements as failing dismally. This is essentially because in almost every instance little if any attempt is made to control entry. Instead the target of existing arrangements has been an excessively large catch, namely the maximum sustained yield (MSY), together with too small fish stocks being maintained, and most importantly, too much expenditure in fishing effort. While nations continue to mouth sentiments as to the common heritage of mankind and the needs of the developing countries, they continue to waste hundreds of millions of dollars each year in a seemingly senseless attempt to get as big a share as they can of the ocean's wealth. The relatively successful attempts to conserve stocks--usually coming after severe depletion problems are experienced--may contribute appreciably to the welfare of mankind, but should not mask the fact that substantial wastage continues. This is the economist's chief message. But it appears that as a bystander shouting "foul, foul" hoping that someone will listen, he is not often heard, and if so given the polite answer, "technically a foul, yes, but the game must go on."

In this paper I seek to bridge the credibility gap between the economist and the other specialists in this area. In the first part of the paper I attempt to reorient economic thinking away from a predominant concern with economic efficiency, towards a simultaneous treatment of efficiency, equity and efficacy. In this regard I follow the lead of Christy and Scott in The Common Wealth in Ocean Fisheries, but by casting the problems in terms of simple welfare analytics, hope to achieve a more systematic rapproachment with those who cannot accept either the economist's goals or his attempts at finding solutions.

Part II of the paper gives a sketchy outline of a product of this way of thinking when a proposal for change is made. This proposal is not particularly original but, I believe, can be defended more systematically because of the exercises carried out in advance (not all included because of space). Finally some comments on the role of the UN in complementing such a proposal are made.

I

The Concept of "The" Economic Optimum

In a situation where the existing distribution of income between nations has little if any claim to be "morally acceptable" (without implying that it is

necessarily morally unacceptable--we just don't have any criteria for judging), the concept of "the economic optimum" becomes somewhat meaningless. Fisheries economists have tended however to argue that while the "maximum economic yield" is ambiguous, it carries within it an important proposition; namely that a movement from any overfished state or maximum sustained yield towards maximum economic yield will always permit society to be better off in the sense that any loser could be fully compensated for his loss, while some or all could be made better off. This proposition is invalid--and the more so if there are many imperfections and barriers to trade between nations.

In diagram 1 we are assuming only two parties are involved in the disputed fishery, countries A and B. The axes measure in some sense the welfare of the nations, as perhaps in the form of net national product. The line WW shows the outer bounds of all possible states of the world (in economic jargon the GRAND UTILITY Frontier).[1] Assume an overfished stock: this implies that we are not approaching the frontiers of welfare but instead are at I as shown; clearly there exist a large number of situations which improve the lot of one or both without making the other worse off (the shaded area).

Assume now we implement the maximum economic yield policy: for the moment we characterize this as a movement to III as shown, so that A is better off but B is worse off. We know that if we take the outputs of fish and other commodities that go with this position and redistribute them we can move along some path UU (the Utility Possibility Frontier). As shown this path need not pass through the shaded area, so that we cannot claim on an a priori basis that we could compensate B for its losses. This is because while a movement of this nature allows us to produce more of things other than fish, it may involve a reduction in fish outputs and we have no guarantee that those who consumed the fish would find sufficient compensation from the other goods produced.

However if we consider a move to a maximum sustained yield at minimum cost, II, we know that we could always do better than the present situation since we have more of everything. Therefore VV through position II intersects the shaded area (the Samuelson Compensation Criteria is satisfied). Thus we find that once the economist is cut adrift from accepting money values as being just, we could argue that, whereas a movement to MSY at minimum cost guarantees the possibility of improvement, any change thereafter could conceivably make us worse off. Note however that we are not saying that the MSY at least cost is in any sense "optimal." Indeed we know that we can never reach the full world potential with this arrangement unless the resources used to exploit the fish stocks cost us nothing.[2] However the onus is now on the economist to find out and demonstrate

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[1] For a further elaboration of this and other concepts used, see any Intermediate Microeconomic text such as Leftwich or Ferguson in the section marked "Welfare Economics."

[2] As shown in our diagram there is a substantive portion in the shaded area outside UU. I shall not repeat the standard proof of this proposition. See Christy and Scott.

which policies can lead to an improvement. In the meantime a cautiously minded person could legitimately call for MSY at least cost as an interim strategy, pending proof of the virtues of any alternative.

Since I am engaged in the role of the devil's advocate, I might go all the way to point out that since jobs--and I might add particularly fishing--is very much a desired objective in itself, the same cautiously minded person could defend MSY without least cost on the same grounds as above.

Since the issues are of immense practical importance I should make it clear that I am thoroughly convinced that the researcher will be able to discredit MSY in any form in most fisheries, and will readily be able to identify regimes that do in fact permit improvements. This is certainly true of the fisheries within territorial waters. My objective has been simply to compel the economist, by attacking from the rear, to leave the dubious sanctuaries of his a priori reasoning, to demonstrate improvements and in particular to follow through his estimation of potential surplusses to show precisely how losers might be compensated. Like others my concern is with those who need proteins and meaningful jobs. Will they continue to enjoy them and/or in fact be fully compensated if the economists have their way?

Which "Economic Optimum"

The economists' notion of optimal efficiency requires that we be at a point where it is impossible to make someone better off without making anyone worse off--we are somewhere on WW on diagram 1. Perhaps more than any outsiders, the economist is aware that there are a vast number of alternative world-orders that satisfy this minimal condition, and even more aware that we cannot provide a criteria for choosing among them without making moral or value judgements. Our previous discussion assumes as a moral judgement that any change in the international order should not be to the detriment of any party. This is made in the belief that this would be widely accepted by all parties, at least as an initial starting point. While this value judgement significantly limits the number of international arrangements we might have to consider, excluding possibilities below IC and to the left of IC in diagram 1, it still leaves an embarrassingly large number of non-efficient and "efficient" regimes, and does not resolve the question of which one we should choose and who should get the pie. Faced with this problem, fishery economists have tended to take a frankly pragmatic position, namely that the interested parties will have to thrash it out between them; the economists' job is to make sure that there is not any pie being wasted. I shall elaborate on the limitations of this viewpoint below.

Limitations of International Compensation

In our discussion of diagram 1 above, we have characterized a movement from the status quo to a more efficient regime as moving from one point to another point. This is inaccurate since it is only after it has been decided on how the economic surplusses should be distributed that any particular point

is attained. More important however is our assumption that once we have regulated fishing effort and catch and (indirectly) the output of other commodities, then we are free to redistribute all according to some notion of equity or through a bargaining situation. However, it is quite evident that at any international conference on the management of the seas the entire income of any nation or any part thereof is not a negotiable item. Thus the possibilities of compensating losers may be significantly constrained so that a policy which is potentially capable of improving the lot of all, cannot in fact operate. This incidentally could also be true of MSY policies. (In a later diagram, No. 4, the boundary of feasible negotiable alternatives from the point of view of compensating losers in cash or in kind, is shown by FF.)

For reasons of this nature, economists have frequently argued for broadening the range of negotiations to include non-fishery items. This will increase the possibilities for the gainers to "bribe" the losers and hence to accommodate change. However it also introduces the real possibility of the use of threats so that we are no longer assured as to the equity of the bargaining table.

The Veto and the "Spoiler."

It is perhaps because of the desire to avoid the use of threats that nations have rights such as the freedom of the sea and the right of veto in international fisheries conventions. In effect the present holdings of a nation in the common wealth of the seas is to whatever portion he can grab now and in the future. Under these circumstances, it becomes dubious whether there exist alternate regimes that can guarantee the individual nation as much as he might gain--or more important, believe he might gain--by exercising his veto.

In diagram 2 below we have a regime at I with excessive effort and some overfishing. If A goes along with the management scheme designed to improve the situation, but B does not, we might move to a situation shown by IV where B makes substantial gains while A loses. Alternately, A might adopt the role of the "spoiler" and B go along with the scheme so that we move to a situation such as V. In order to be able to guarantee that neither A or B will play the "spoiler" we must be able to achieve situation VI which is impossible. Of course if both parties play the spoiler, little will in fact be gained by either, and we may even move to a worsening situation.

This is in a way trite but nevertheless might give grounds for questioning the tendency to presume that a bargaining situation can yield a rational outcome. More important is the fact that it will often prove very difficult to identify the nation that is a "spoiler" as distinct from one making "legitimate" claims. This is particularly true of the newcomers to the fishery, and especially if that newcomer is a relatively small developing nation who feels quite morally justified in attempting to improve his lot at the relative expense of the established fishing nations. If there are a large number of such developing nations, the situation could become intolerable.

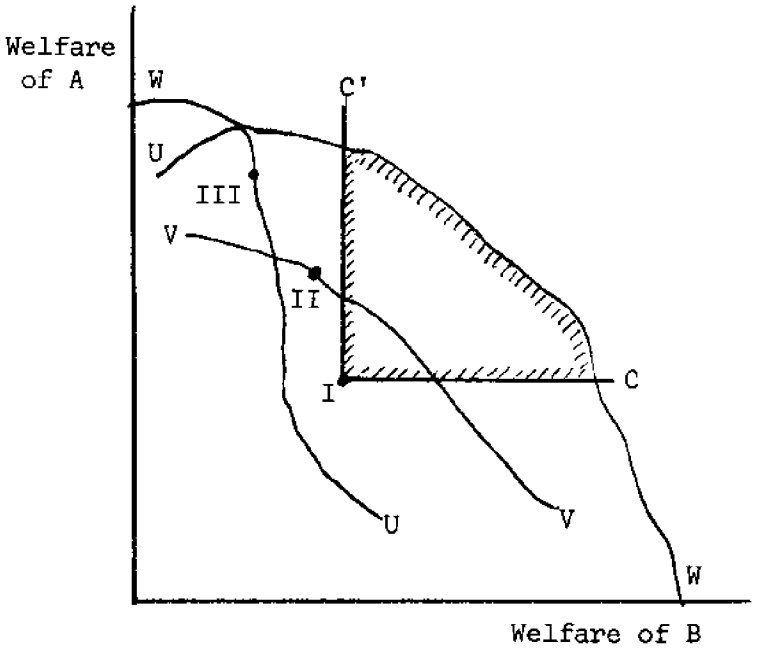

Diagram 1: "The" Economic Optimum

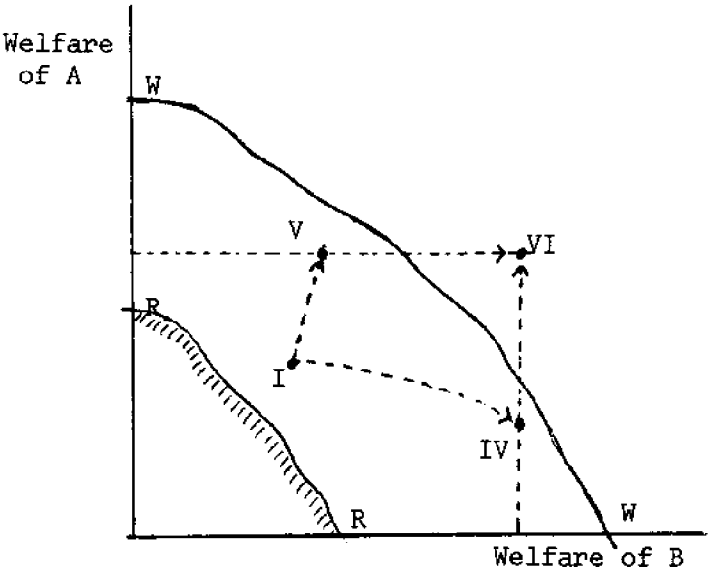

Diagram 2: The "Spoiler"

We might gain some understanding of the history of international arrangements and particularly the more spectacular failures, such as the Whaling Commission, by drawing attention to the possibility of a set of situations so ruinous that we can in fact guarantee more to all parties by cooperation than they could gain even if they encountered spoiling opportunities beyond their wildest dreams. Such situations may not exist but are likely to do so. The pessimist might take the position that only if the status quo falls within such a set (as shown by RR in our diagram 3) that international cooperation will be forthcoming. (This might also suggest a perverse criteria for dividing the gains, namely according to the capacity and/or willingness of nations to sabotage international arrangements--a principle of "future" as distinct from "historical rights"!)

The Problem of Jealousy

Furthermore those economists who assure us that we can find a regime which leaves everyone better off, are (usually tacitly) making a basic assumption as to the psychology of participants. In particular, they are assuming that the welfare of a nation is composed exclusively of benefits enjoyed by its own citizens. One does not have to look closely at any concrete historical situation to realize that it is often a vital concern to individuals and individual nations to retain their relative position or even achieve their "rightful" position vis-a-vis others. In the international arena these jealousies may become so dominant that there may be few if any possible regimes which leave all parties satisfied. (Note that whereas individual fishermen may ultimately buy a situation that improves his take-home pay even if it also improves that of foreign competitors, the general public may not.)

In diagram 3 the line aa shows the least amount of welfare that A will accept for any given level of welfare for B. As drawn it shows that A is very jealous of any decline in its position and requires substantive sacrifices from B. We can draw a similar curve for B's attitudes to A. The shaded area between these curves defines the limited range of feasible improvements. Note however that were the curves to shift in the direction shown by the arrows, indicating an increased sense of rivalry, a time will come when no improvement is possible and indeed the only feasible change might be one of mutual denial.

Taken on their own, each of these suggested constraints on the potential of a priori reasoning and workable economic criteria, and also on the outcomes of the bargaining situation, may appear somewhat contrived. When considered jointly they probably feed on each other and gain strength. Perhaps a conceptual separation of these issues helps; perhaps it oversimplifies. Nevertheless one might distinguish two potential roles for the economist. The first is to explore the Feasible Region bounded by (i) physical possibilities (WW in diagram 4) and by (ii) the need for consent so that no one be worse off (CIC'); by (iii) our limited ability to identify in advance situations assuring potential improvements to all--such as MSY at least cost (VV); by the limitations on money transfers and/or additional bargaining elements which do not threaten the

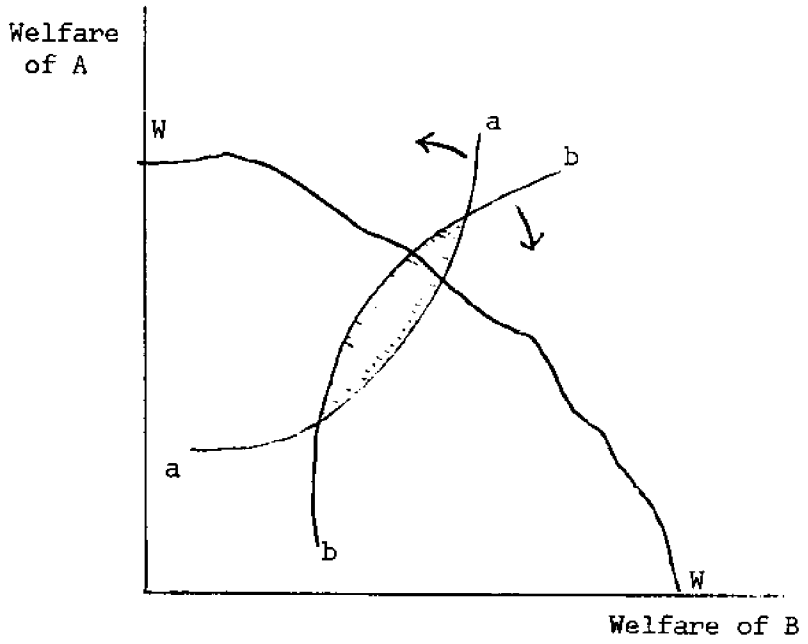

Diagram 3: International Jealousy

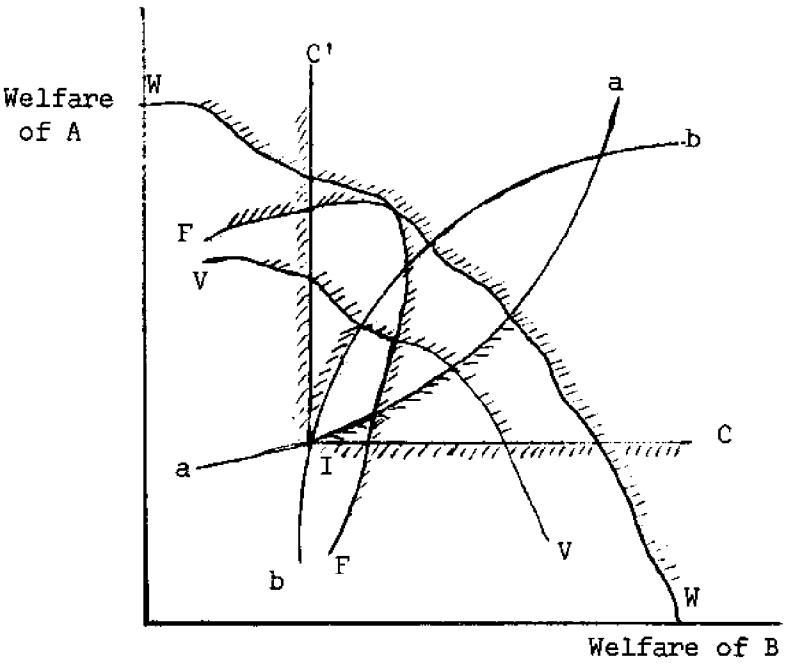

Diagram 4: The Feasible Regions for Reform

position of weaker parties (FF); and finally within the limits of national rivalries and/or sympathies (aa) and (bb).

The area left for practical reform proposals may be small, as shown by the heavily lined area in our diagram. (Note that in different circumstances different boundaries will be operative.) Yet even within this bounded area the economist must acknowledge that his proposals are likely to favor some parties more than others so that additional guidelines might have to be sought, a subject which I touch on below.

The second role of the economist is essentially explanatory and educational and is intended to broaden the range of feasible alternatives. Here as much can be gained by adopting morally compelling positions as rigorous economic logic; facts may also go a long way but will have to be linked with institutional proposals that deal explicitly with issues of equity.

At this stage an apology to those economists who work in this area may be appropriate: I am aware that most workers in this area do in fact make sincere efforts to perform precisely these two roles. What I am attempting to do is compel a more systematic and methodologically sound abandonment of the dichotomy between theoretical and practical proposals on the one hand, and on the other, a questioning of the prevailing tendency to be preoccupied with efficiency "even at second best." The international fishery is not as much a problem in second best--which after all concerns itself with improving efficiency in an imperfect market situation--as it is concerned with the question of efficiency-cum-equity. Indeed in many instances we are dealing with a predominantly non-market situation. In the few instances economists have been or are beginning to be heard (as in B.C. Salmon), the calls for "efficiency" may well, in my own judgement, have initiated most undesirable changes for which the economist must take a substantive responsibility.

What I am in effect proposing is that the tools of Welfare Economics can and should be adapted and applied to concrete situations--a form of "applied welfare economics"--and that the economist will then be able to enter the arena of political discourse in a quasi-professional capacity, but also as an activist. The step from here to bridging the credibility gap which I believe exists between economists and other disciplines involved might be readily made without loss of methodological rigour.

Indeed the economist is not without guidance. In the first place he might learn from past failures of his own initiatives and the successes of alternatives. For example, the success of MSY versus economic yield should perhaps teach him that no matter how compelling his logic, it cannot readily withstand the invested interests of fishermen, processors and marketers on the one hand, and on the other, the scientific-cum-humanitarian sentiments concerning the needs for conservation and the world's need for proteins. To have any effect the economist's proposals must be clearly seen to be compatible with these interests.

The economist might also learn from the prevailing international laws what is or might be acceptable. It is possibly true that laws more often make "equity and efficiency" into joint products and thus render useless much of the theoretical economist's elaborate apparatus for conceptually distinguishing between these two elements. As such, law might reflect more accurately the real constraints on socio-political intercourse. However, a somewhat cursory reading of the international law as applied to fishing, suggests to me that in fact there is much in common between the structures of the law and modern welfare economics.

In particular the economist might discern general principles to guide him or at least be able to align his proposals with particular viewpoints. For example, although the classical assumption of the law of the sea may be interpreted as complete laissez-faire, it might also be argued that it requires as a minimum that situations remain inclusive or non-discriminating--a familiar requirement for market efficiency. The notions of the "right of veto" and "historic rights" might readily be interpreted as the requirement that parties should at a minimum not be made worse off by changes, thus validating the principle of compensation. The "special status of coastal States" is less illuminating, but may perhaps suggest a criteria for redistributory gains. And so forth.

The following proposals, which space does not permit me to elaborate on, are the fruits of my own somewhat hasty attempts to carry out such a program.

II

A Proposal for Regulating the Fishery on the High Seas

The basic propositions are that existing invested interests should be as little disturbed as possible; the sentiments that have so successfully rationalized the limited advances made so far should be further utilized and particularly the notions of "food for the underdeveloped countries" and "conservation"; finally money transfers should be minimized, but where necessary compensation be paid.

For the typical international fishery with more or less over-fishing and with substantive excess capacity I propose:

1. That MSY be used as an overall quota. Initially, a national quota system among presently participating nations is implemented.

2. However, over an agreed period of time an increasing proportion of the total quota should be made available to open bidding by any nation (perhaps with the proviso that no nation may alter its quota between any two years by more than a limited percentage --to avoid extravagant rivalries). National governments rather than individuals will "bid." The aim is eventually to have the entire quota being sold, thus guaranteeing an inclusive regime.

3. The revenues generated be used as follows:

(i) First, they should stimulate scientific research in the fishing and related areas particularly with the idea of improving harvests.

(ii) The bulk of the funds should subsidize, by raising the price, any non-commercial fish stock as near to the present fishing area as possible. If governments so desire they might recoup their costs incurred in obtaining quotas and hopefully would do so from their own nationals. Since funds are already being returned to the fishermen of that nation in the form of a subsidized commercial alternative (which itself may be operated on the same quota basis as the original fishery but without charge), the willingness of nationals to transfer is increased, as is the capacity of those who remain to bear taxes. Of course as effort moves over, physical restrictions such as closure are relaxed in the original commercial fishing.

(iii) Finally the non-commercial catches could be processed perhaps as fish meal, for disposal in the form of aid to developing countries.

Parts of these proposals can of course be treated separately. The objective then is to place the onus on national governments to use international resources somewhat more productively without any necessary sacrifice; we have no fewer commercial fish; no fewer fishing jobs; none or minimal additional expense (unless a nation chooses to not recoup its expenses from a potentially prosperous fleet, in which case it would soon become overcrowded); and as a net gain, we have some aid to underdeveloped nations.

Finally I might mention the potential role of the UN in this effort. Initially the chief function of the UN must be to exhort the major fishing nations to undertake such a program. At worst if nations do not tax their fisherman at all, the program is a form of foreign aid to developing countries (though admittedly one that is "inefficient" in that fish meal might not be the most desired form of aid). It may however require little effective reduction of effort in present commercial fisheries to make it no less desirable than present forms of aid. At best the program may initially provide these much-needed proteins at no cost to nations and with minimal disruption of established industries. (There is an obvious parallel here between the aid-in-kind programs in the area of wheat and grain surplusses.) In time, and once the principles of charging for quotas has become acceptable, the machinery for operating this mechanism for redeploying existing excess capacity could itself be handed over to UN regime. If the initially subsidized fishery becomes commercially self-sufficient with improved knowledge of the capacity of stocks and development of new techniques, an increasing portion of quota charges could be made available for more general use to the UN.

DISCUSSION

Kasahara. I have a few comments on what was said by Mr. Sullivan. I, too, said that there was a general trend for expansion of national jurisdiction. But I do not think this will completely replace the existing arrangements, nor will this obviate the need for making further arrangements.

Let us consider problems in the North Pacific again. The country most likely to extend national jurisdiction is Canada. The United States might also take action to extend jurisdiction over some of the resources now fished mainly by foreign fleets. But this would not really eliminate the need for bilateral or regional arrangements. The United States and Canada would have to continue the Fraser River salmon treaty, and I do not think they would wish to terminate the halibut treaty and divide up halibut fishing grounds off their coasts. The fur seal treaty would continue in any case. I am sure that there would still be some arrangement to protect the Canadian and American salmon stocks. The Soviet Union and Japan are at present not likely to extend national jurisdiction very far. Arrangements between them would remain more or less the same. The tropical tuna fishing grounds would still be largely beyond the limits of national jurisdiction, and therefore the present convention or an agreement of a similar nature would continue to be required.

A different situation would develop in Africa or Southeast Asia. A number of countries along the West African coast have a rather short stretch of coastline each. Should all of them extend national jurisdiction very far, their own fishing activities would be restricted greatly. They would have to make some sort of regional arrangement between themselves.

In Southeast Asia a number of nations are utilizing the resources in the South China Sea and adjacent waters. If they should extend national jurisdiction in all directions, they would have a chaotic situation unless they made some sort of arrangement between themselves.

Although I agree that there is a continuing trend for extending national jurisdiction, this will not completely replace regional arrangements, nor will it obviate the need for making further arrangements.

Schaefer: I am Milner B. Schaefer, Professor of Oceanography at the University of California. I want to remark on a couple of things. First, one of the gentlemen was talking about the unhappiness of some fishermen because of the ineffectiveness of the fishermen of the Atlantic. Augie Felando, a neighbor of mine, runs the Boat Owners Cooperative in San Diego, representing the tuna fishery out of California. He is also somewhat unhappy but for the opposite reason. There is the organization known as the Inter-American Tropical Tuna Commission that I had the pleasure of having organized and directed for a number of years. Unlike ICNAF it had its own independent staff, just as has the Halibut Commission and the Frazen River Salmon Commission. Furthermore, it was not restricted on any recommendations it could make. It was fortunate enough to begin doing research, not as many years ago as the North Atlantic nations,

but in 1950, before anything got over-fished. In the early 1960's, it was obvious that yellowfin tuna were getting over-fished, so there were some effective regulations made; and Augie is now unhappy because he thinks that the quota is too small, that the scientists misinterpreted the data on the low side. The Commission is now doing a small experiment in planned over-fishing to demonstrate their conclusions to him.

It is possible these days for a scientific organization to get the facts from the member governments. In this case, there are several Latin American countries plus Canada and Japan to make effective regulations, but this won't necessarily guarantee that all the customers are going to be happy either.

Another example of successful management of a fishery that developed very, very rapidly (this is not an international fishery) is the fishery for anchovies out of Peru. This produces 9 1/2 million tons of fish a year, nearly 20 percent of all the fish caught in the world. It grew from a very small fishery to full utilization in a period of six years. It was perfectly possible during this time through the necessary biological and statistical data to make an appropriate recommendation and to regulate the fishery at the level of maximum sustainable yield, which is being done very successfully. Ambassador Letts from Peru is here, and I am sure he can expand on this further. I merely want to point out that this is not a hopeless proposition. We know how to get the scientific information, and to manage fisheries, at least from the conservation standpoint.

The other thing I would like to refer to are these problems brought up by Ambassador Pardo this morning on the necessity for management of living resources. He asserted that there was essentially an inadequate basis for conservation of the living resources of the sea. I don't think this is quite true. I think that the combination of the international convention on fishing and the living resources of the sea, and these various regional fisheries bodies (although they don't work as well as we would like to have them work) are an institution, which is working moderately well. As Hiroshi Kasahara mentioned, I think this will probably be the approach in this case. It is the progressive approach from where we are now rather than some supernational agency.

One problem that we don't quite yet know how to deal with within the conservation limitation is, who gets the swag? If there is a maximum sustainable yield, how do you whack it out among the participant nations? This is being approached in the North Atlantic through national quotas. I think probably this will also be the solution in the case of tuna. I personally think one probably does this better by an arrangement among the people operating in a region than under some supernational world-wide authority, because the people that are engaged in the fishery are probably most interested in the problem, and it is easier for them to come to agreement.

This leads to another problem, a matter that Professor Pardo brought up and that Professor Southey also referred to. This is the matter of cranking

into this equation in some way the matter of world-wide equity. Of course, this is what we keep hearing about, the balanced equity on the seabed minerals. I think the big problem is we haven't got any definition of what is equitable; and until nations are able to arrive at some rubric at least for how one determines what equity is, it is almost impossible to negotiate. So I really think that one can't take the same kind of regime that you are going to have for the mineral resources, and transform it into something to handle the living resources. Perhaps we have to approach the management of living resources in a slightly different way than we approach the seabed resources, bearing in mind the success of certain regional approaches, and bearing in mind the lack of definition of equity. I would particularly appreciate comments in regard to these remarks.

Vernon: I am Manfred Vernon, political scientist from Bellingham, Washington. I came across the continent in order, first, to take some information home for purposes of research and teaching, but also to get it across to people at large that are not so much academically inclined. There is a certain quality of a conference of this type in that the so-called experts come together, take many things for granted, and often out of context. I think we ought to become more aware that the pessimistic quality of the conference thus far must be explained in terms of why we are actually worried about the condition of the ocean. There is no doubt that many things have occurred of late that have changed the total political picture of this world. I think we must be aware of it, but we must also keep this in mind in order to address ourselves to those persons who are not basically interested in the question of the sea.

To begin with, we must understand that we suffer a population explosion; in other words, there is more and more need to get food from the sea for the so-called developing nations.

Furthermore, we must now share the sea among many nations. In 1945, the United Nations was founded with 50 nations; now we have 125 nations, most of which are one way or another connected with the sea.

Furthermore, we are committing a great crime as regards the sea. I think we, as sea-bordering nations, are killing the sea through pollution. In other words, so many things have happened that we have to develop a totally different approach to the oceans. I feel that the weakness of the typical lawyers we listen to in these conferences is that they are too much concerned with the situation as of today. I think to some extent the lawyer (excuse me when I say this as a former lawyer) has not enough imagination in the direction of the future and gets involved in the clashes of today. I feel that a conference of this kind can make a greater contribution if we are aware of the situation, namely, there is a clash of interests between conservation and growth. We can talk about conservation and growth on one hand; and yet on the other hand we are doing everything to defeat this, simply because we are more people, more nations, we kill the stocks of the sea and things of this kind.

Thus, I feel that among other things we might have to develop new concepts such as development of new national tastes. It impressed me, for instance,

about twenty years ago that there was not enough rice for Indonesia; therefore, a new taste had to be developed in the direction of the yam or sweet potato. Perhaps the salmon-eating America in the future will have to eat dogfish or something of that kind.

I do think we have to become utterly moral in our approach to the sea and our approach of nations to each other. I think we have come also to an end of laissez-faire as far as the sea is concerned. Therefore, if we want to come to an agreement, nations must get together. One thing that Ambassador Pardo this morning mentioned just in passing which I think we ought to think much more about is the rights of nations to the sea. Each year we are taking more and more under national control. We are very jealous as to the rights of others, and thus there is much more need, as Ambassador Pardo mentioned, for a national duty and obligation to do everything to keep the sea clean, and to make it available to others. The only way, I think, that we can make a contribution as nations or as a conference is to plead in the direction of common sense and cooperation; otherwise, it will be a matter of dog eat dog, or perhaps even dogfish eat dogfish.

Carroz: If I may be permitted, Mr. Chairman, to make an observation as a citizen of a land-locked country, it would appear to me, from many of the statements we heard today, that it is sheer miracle if there are any living resources left in the sea. The vision would seem to be one of extremely complex fishing fleets chasing after the last few fishes at tremendous cost. Perhaps the situation is not that dramatic.

Speaking now as a staff member of FAO, I would like to say how grateful I am to Ambassador Pardo for having referred this morning to the development work of FAO in the field of fisheries. It is true that the assistance FAO is giving to developing countries contributes in a way to increasing the pressure already exerted on limited resources. But the work of the Organization does not stop there, and I was somewhat distressed when Ambassador Pardo went on to say that there was no institutional framework for conservation. Over the years, FAO itself has established several fishery councils and commissions. I should also mention the setting up in 1966 of the FAO Committee on Fisheries, whose main function is to review periodically, in fact every year, fishery problems of an international character. The Committee is still rather young, barely one year older than the United Nations Sea-Bed Committee. Yet, it has already many achievements to its credit and its valuable work was expressly recognized by the General Assembly of the United Nations in several resolutions. In particular, the Committee on Fisheries is responsible for the establishment of new research, conservation and management bodies where they were required, e.g. in the Indian Ocean, in the Southeast Atlantic and in the Eastern Central Atlantic.

Apart from the fishery bodies set up within the framework of FAO, there are a number of intergovernmental conservation and management bodies dealing with particular sea areas or with a given species. I know that many of these bodies, most of which were created within the past 25 years, have become a

favorite target for criticism when they are not dismissed altogether. Yet, on the whole, they are quietly successful and are showing an ability to adapt themselves to changes. Mr. Sullivan himself dispelled some of the gloom he had helped to create simply by listing the recent efforts and achievements of the fishery bodies operating in the North Atlantic, particularly as regards the limitation and apportionment of catches and the joint enforcement of conservation measures. Nevertheless, there is undoubtedly room for improvement and I would support Dr. Kasahara's general conclusions in this respect. In some cases, it would seem necessary to provide fishery bodies with more adequate financing and greater authority.

The positive results of fishery bodies are all the more remarkable in that these bodies cannot adopt decisions of a binding nature but merely recommendations. Member countries usually agree to follow these recommendations out of a growing awareness of the common interest they have in managing rationally and developing the resources of the sea. Another important factor that seems to contribute to the success of fishery bodies is the limitation of their membership to the countries interested in the conservation of all or part of the living resources in a specific sea area. It is among the countries really concerned that cooperation and agreement are most likely to prevail. Let us take the example of the 1958 Convention on Fishing and Conservation of the Living Resources of the High Seas, which is the first international instrument relating to fisheries on a world-wide basis. Today, only 26 states are party to the Convention, which came into force in 1966. As far as one can see, there has been no implementation of its provisions in practice. This, I believe, is an indication of the difficulties that a global authority on fisheries would be faced with.

Herrington: W. C. Herrington, the Law of the Sea Institute. I would like to commend Bill Sullivan for his remarkably frank and realistic comments. Although I agree with much of what he had to say, I would like to ask him a question. How does he compare the work of the United States in conservation matters dealing with domestic fisheries with the conservation accomplishments of the international fisheries commissions to which we are party? It could be that it isn't just the international fisheries commissions which are laggard.

W. Sullivan: Thank you for a lovely question. I am sure that you are right; the problem is not only international. The record of the United States in conservation, at least on the east coast which I'm most familiar with, is not the best. We have ourselves depleted a number of species. My view is that this is because there is no legal authority in the United States government to regulate our own fisheries, generally, except when we belong to one of these international fishery regulatory commissions.

Most of the authority rests with the states. The states in many instances are not able to control the fisheries adequately, because they exert jurisdiction over too small an area. The federal government does not generally exercise

authority over fisheries unless, being party to one of these commissions, a regulatory proposal of the commission becomes effective for the United States.

If the coastal nations, such as the United States, get a preference beyond twelve miles, as we have suggested might result from a law of the sea conference, or if the distant-water fisheries "imperialists" if I may call them that, force the United States into exerting broader jurisdiction beyond twelve miles, in spite of the position of the United States government on this, then the US is going to have to put its own house in order to manage these fisheries. It simply does not have the authority in law at the present time. I don't know whether this is an answer to your question, but it's the best answer I can give in the circumstances.

If I might also just make one remark on Professor Herrington's response, it was not my intention to imply that all existing arrangements would be replaced, and that there would be no need for regional arrangements. Rather, I would say that regional arrangements of the type we presently have, and the kind of jurisdiction we have, and the kind of powers now exercised do not work very well and will not work very well simply with coastal state preferences added or additional jurisdiction for coastal nations. There is still going to be a need for international cooperative arrangements in some circumstances, not all, and these arrangements are probably going to have to be much different than they are today if they involve more than two nations.

In the case of the commissions such as those dealing with salmon and halibut in the Pacific, where they involve two nations at present, there probably won't be very much change. However, if they involve a number of nations, some of which have preferential rights or jurisdiction beyond twelve miles, such as in the North Atlantic, then the arrangement is going to have to be quite a bit different than at present.

Holt: Sidney Holt, UNESCO and IOC. The remarks I wish to make derive from my experience working with FAO and on problems of fish population dynamics. I was a little sad to hear Bill Sullivan having come to the same conclusion as myself --that regional fishery commissions are not really getting anywhere very fast. I, too, have gone through a transition of great expectations to great pessimism, particularly concerning the North Atlantic Commissions. What stimulated me to comment now, however, were Dr. Schaefer's remarks concerning overall quotas and national allocations, and also the comment which I believe he made that there is still hope in agreements between the interested parties, both coastal States and distant-water fishing nations.

I came to the opposite conclusion through following the history of the Antarctic resources. There we had almost all the elements of a situation for successful conservation. There was an intergovernmental commission. It wasn't regional in scope, it was global. It could, therefore, theoretically take account of the movements of whaling effort from one heavily exploited area to another. It had a scientific advisory body. There were agreements on overall

quotas, and outside the Commission but closely linked with it there were arrangements for national allocation of those quotas among the interested parties.

But the result was not a conservation of Antarctic whales, but an orderly plunder of them, rather than a disorderly plunder. The major whaling nations in effect simply agreed on the period over which they would deplete that resource and regain some of their investments in factory ships and whale catchers.

What has always impressed me very much with the history of that Commission was that the requirements for rational management of whaling eventually came near to being satisfied, and the situation was not quite as bad now as it might have been, to a large entent through the intervention of the United States--an intervention in which Bill Herrington was personally involved. The United States was not a directly interested nation in this matter. It was not conducting whaling in the Antarctic, but it was the United States delegation in the Whaling Commission that led a movement to force nations in the Commission to begin to take a more realistic and long-term approach to the whaling.

I think that that move did not quite succeed, but it came fairly near to it; and this has impressed on me very much the need for a set of global principles or even a global machinery within which regional commissions will act. I conclude that we cannot hope for a rational management if initiative is restricted to the limited groups of States that are interested in a particular fishery at a particular time.

Adam: My name is Paul Adam, OECD, Paris. I want to make a remark, from the economic standpoint, on the last speaker's suggestion. He speaks about the possibility of using rents derived from profitable fisheries, in order to help other new developing fisheries. I would like to point out that such an idealistic proposal would not be so easy to carry out. Fishermen anywhere are the link between fish stocks and the markets, and of course the fishermen need to earn their living, i.e. to enjoy a profitable activity. These profits can be divided into two parts. One part is the rent of situation which, in some cases, can be very high indeed (e.g. in Western Europe immediately after the two World Wars). The other part is the rent of ability, which is the highest for the most skillful.

Unfortunately, in practice it will be extremely difficult to distinguish the rent of situation from the rent of ability. Where an owner builds a good vessel and operates it from the right harbor, he has for 10, 15, sometimes 20 years, an advantage upon his competitors who did not make such good investments.

Furthermore, to regulate fisheries would often contradict the necessity of keeping a profit incentive without which the technological progress might well be blocked, and the high sea fisheries are nowadays so widely dispersed that it would be practically impossible to avoid a world regulation. Only in the cases of well-defined regional fisheries, as mentioned by Mr. Dykstra, are regulations possible, and the most successful ones usually emerge from the initiative of the fishermen themselves.

Schaefer: I just want to ask Sidney Holt a question. I agree with him entirely that any regional arrangement has to be under some local set of rules that everybody observes. My question is whether he believes that the present UN Convention on fishing and conservation of living resources of the sea is inadequate for its purpose, if the nations would only apply it.

Holt: I believe it is inadequate, because the definition of conservation used in it is totally ambiguous.

Herrington: I would join with Sidney. I think the time we negotiated the Fisheries Convention was a great step ahead. Unfortunately it hasn't been put to use, and now the world has moved far ahead; the fishing catch has increased greatly, but still it has no effective machinery for regulation. There has been some progress since Geneva, but much more is needed.

A further comment on the example Sidney gave about the Whaling Convention: the needs were known for quite a number of years by scientists. Under the machinery of that Convention, it could always happen that one or two scientists would disagree with the conclusion and provide their country with a rationale to oppose the recommendations for adequate controls. It took between five and six years to organize machinery to get something done. First it required setting up a new control panel of outstanding scientists which had no connection with the countries engaged. This was done primarily because the 1958 Fishing Convention gave us an example which enabled us to get this through.

The panel came in with unanimous agreement on the condition of the whale stock based on the whale movement; having this report from the international panel, the scientist from one country could not very well get up in good faith and disagree. He was overwhelmed by the weight of evidence.

It took them two or three years in international agencies all around the world to develop enough pressure to get the whaling companies to finally accept a limitation which would adequately curb over-fishing. It took many years of work to get action, even though everybody agreed that the fishery was very badly over-fished. The whole process has been much too slow.

THE RESOURCES OF THE SEABED AND PROSPECTIVE RATES OF DEVELOPMENT AS A BASIS OF PLANNING FOR INTERNATIONAL MANAGEMENT

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INTRODUCTION

The explosive growth of the world's human population, and its increasing requirements for goods and services for higher standards of living, have placed tremendous demands on the resources of this planet. At the same time, since World War II there has been very rapid development of technology for exploring and exploiting the resources of the sea, including resources of the seabed in depths far beyond those previously feasible. In consequence, we are turning to the sea to satisfy a portion of our growing needs, and to the seabed in particular for certain minerals, benthonic fisheries, and energy resources of petroleum and natural gas.

We are all aware of the very rapid development of the resources of the seabed, in relatively shallow water, on the continental shelf, and the increasingly rapid development of capability to operate in much greater depths. The increasing demand on the resources of the sea, and some of the problems created thereby, have been extensively discussed in recent publications.[1]

One consequence is the rising concern in recent years over the need to establish suitable regimes for effective development and conservation of oceanic resources, especially in those areas--particularly the seabed--beyond the limits of national jurisdiction. This concern has been reflected in activities of the General Assembly of the United Nations, and of other international and national organizations. There is no need to review these matters in detail at this Conference, because we have discussed many aspects of them at each of our previous sessions. I have outlined some of the history of activities related to possible regimes for the deep seabed beyond national jurisdiction in other recent papers.[2]

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[1] M. B. Schaefer, Ch. 2 in Ocean Engineering, ed. J.F. Brahtz (New York: Wiley, 1968). Nat. Acad. Sci./Nat. Res. Council Committee on Resources and Man, Resources and Man (San Francisco: Freeman, 1969)[hereinafter referred to as Resources and Man (1969)]. M.B. Schaefer, 4 Stanford Jour. Int. Studies (1969), pp. 46-70.

[2] M. B. Schaefer, "Some recent developments concerning fishing and the conservation of the living resources of the high seas," San Diego Law Review (1970) in press. M.B. Schaefer, "The resource base and prospective rates of development in relation to planning requirements for a regime for ocean resources beyond the limits of national jurisdiction." (Paper prepared for UNITAR Symposium on Planning and Dev. in Relation to Ocean Res.,25-27 Feb. 1970). Inst.Marine Resources, U. of Calif., Technical Rept. No. 4 (1970).

As I believe will become evident from later sections of this paper, visions of the taxable revenues from extraction of resources from the seabed beyond national jurisdiction as presented by Ambassador Pardo of Malta[3] and others, which will produce vast sums for the support of the United Nations, the development of underdeveloped countries, or other joint international endeavors, have been unrealistic; in my view they have performed a disservice to mankind by their misleading nature. There is no doubt, however, that the seabed does contain economically worthwhile resources beyond the depths that are presently being exploited.

The nature of the resources that will be subject to international management, their value, and the probable time when they will become commercially exploitable, all depend very much on just where is the region that will be subject to an international regime. As we are all aware, there is a great deal of controversy concerning the outer limit of national jurisdiction, that is the outer limit of the juridical "continental shelf," both as to where it now is under existing international law, and as to where it ought to be. This is readily illustrated, for example, by several of the papers in the Proceedings of last year's Conference of the Law of the Sea Institute.[4] The only thing that seems to be generally agreed upon is that national jurisdiction extends at least to a depth of 200 meters. But there is great controversy over how deep, or how far, beyond that limit the jurisdiction of the adjacent coastal State over the resources of the seabed extends or should extend. Some writers believe that it is, or should be, limited to 200 meters. A large number assert that the present law provides for national jurisdiction to greater depths, but yet not very far from the coast. Few claim that the present law permits extension of national jurisdiction beyond the base of the continental terrace, or beyond the inner portion of the continental rise. However, at least one authority, Professor Oda,[5] asserts that, by a literal interpretation of the 1958 Convention, the entire bed of the oceans is subject to national jurisdictions, and a revision of the Convention would be required to make it more restrictive.

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[3] Statement by Ambassador Arvid Pardo, representative of Malta to the UN, in Committee I, on the question of the reservation exclusively for peaceful purposes of the seabed and ocean floor, Nov. 1, 1967. Reproduced in H.R. 999, 90th Congress, 1st Session, Appendix 9 (1967).

[4] E.D. Brown, in The Law of the Sea: National Policy Recommendations, ed. Lewis M. Alexander (Kingston, R.I.: Univ. of Rhode Island, 1970) [hereinafter referred to as IV Sea Institute Proceedings (1970)], pp. 2-55. I. Brownlie, Ibid., pp. 133-157; Critiques by H.D. Hedberg, pp. 195-170, and L. Henken, pp. 171-178. Panel discussion, "Regimes of the Continental Shelf," Ibid., pp. 188-285.

[5] S. Oda, 7 Columbia Journal of Transnational Law, No. 1, pp. 1-31.

The question of just where the limit of national jurisdiction ends, and international jurisdiction begins, is of the greatest importance in planning for international management, for three reasons:

(1) Most of the seabed resources that are likely to be economically exploitable for the foreseeable future (a time horizon of perhaps 50 years) are in the submerged continental land mass, not on or in the deep seabed beyond.

(2) The present profitably exploitable resources are in those portions of the seabed of the continental land mass covered by relatively shallow water. As one goes deeper for the same kind of resources, problems of development and production get much more difficult and costly, so that the time horizon for planning its utilization increases with increasing depth of water and distance from land.

(3) The outer limit of national jurisdiction that will be acceptable to nations is intimately related to the nature of the international regime for the seabed beyond, and the probable date when such an international regime will be established. As has been discussed in some detail by E.D. Brown[6] and by D.J. Browning[7], the breadth of national jurisdiction upon which coastal nations will agree is likely to be inverse to their satisfaction with the regime for the international management of the resources of the seabed beyond. The probable date when a new international regime for the area beyond national jurisdiction is required is also an important consideration, both because of the long-term versus the short-term interests of nations, and also because, if we can and will take the time to obtain the facts about the resources of the deep seafloor, and to plan their management on the most rational basis in light of those facts--presently largely known--we are more likely to be able to plan a widely acceptable international regime.

The purpose of this paper is to attempt an assessment of the kinds and quantities of resources of the seabed that may be beyond limits of national jurisdiction (that is, resources of the seabed in geological provinces beyond 200 meters depth), the probable demands for them, and probable rates of development. These considerations are fundamental to the rational planning of any new international management regime if, indeed, the present regime needs radical modification. I am not convinced that progressive development of the present international regime of the high seas for these purposes is not superior to attempting to establish some radically new kind of institutions, but that may merely be evidence that I am getting old and conservative.

Although I shall be dealing in this paper only with the resources of the seabed, it must be recognized that one cannot, in practice, consider the regime of the seabed without, at the same time, considering other matters, most partic-

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[6] Op. cit., note 4

[7] Ibid.

ularly the fisheries of the superjacent waters that do not appertain to the seafloor. The necessity of dealing with these various matters simultaneously in serious international negotiations has been discussed in detail elsewhere.[8]

BASIC GEOLOGICAL CONSIDERATIONS

In considering the resources of the seabed, it is important to keep in mind the fundamental geological nature of the habitats of these resources, since this has a great deal to do with the kinds of resources to be found, and their distributions. The material presented here is largely abstracted from a number of recent papers.[9]

The two major physiographic units of the earth are the ocean basins and the continents. The average level of the continents is some 4 kilometers above that of the ocean basins, because the continents consist mostly of lighter rocks. Put simply, the lighter continents are "floating" on the heavier material making up the ocean basins. The material of the continental crust, the so-called sialic layer, includes bedded sedimentary rocks within which oil, gas, coal and other deposits are to be found, as well as the less dense crystalline rocks, such as granites, within which associated metallic minerals may occur deposited as veins or as disseminations. The oceanic basins, on the contrary, are made up of basic magmatic rocks, the so-called simatic layer, in which we expect to find minerals that are genetically associated with oceanic types of basic and ultrabasic magmatic rock, such as chromite, nickel and platinum. Most of the ocean basin, however, is covered by a thick layer of sediment, so that access to the underlying basement rock, and such resources as it may contain, is very difficult.

The continental margin, the submerged edge of the continental block, is a submarine apron that includes the continental shelf, or shallow platform; the continental slope, typically beginning at the outer edge of the shelf and going towards the depths at a sharper angle, varying from as little as 3° to over 45° (25° being common); and the continental rise, a broad, uniform, smooth wedge of

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[8] Schaefer, op. cit., n. 12; Brownlie, op. cit., n. 4.

[9] K.O. Emery, "An Oceanographer's View of the Law of the Sea," Symposium on the International Regime of the Sea-Bed, Rome, June 30-July 5, 1969, ed. Sztucki, Jerzy (Rome: Academia Nazionale dei Lincei, 1970) [hereinafter referred to as International Regime of the Sea-Bed], pp. 47-65. A.J. Guilcher, "The Configuration of the Ocean Floor and its Subsoil; Geopolitical Implications," ibid., pp. 3-31. J.L. Worzel, Ch. 8 in Geology of Shelf Areas, ed. D.T. Donovan (Edinburgh: Oliver & Boyd, 1968). V.F. McKelvey and F.F.H. Wang, "Discussion to Accompany Geologic Investigations Map 1-632," U.S. Geol. Survey (1969), 17 p. V.F. McKelvey, J.F. Tracey, G.E. Stoertz and J.E. Vedder, U.S. Geol. Survey Circular 619 (1969). H.W. Menard and S.M. Smith, 17 Jour. Geophysical Res., (1969, No. 8), pp. 4305-4325. K.O. Emery, IV Sea Institute Proceedings (1970) pp. 211-225.

clastic sediments that, wherever deep sea trenches are absent, slopes gently oceanward from the base of the continental slope in depths of 2,000 to 5,000 meters. The rise is composed of a thick layer of terrigenous sediments, up to 10 kilometers thick, overlying the basement rocks below. The shelf plus the slope is called the continental terrace.

In some localities, such as the continental margin off Southern California, a continental shelf as a shallow platform does not exist, the seabed being broken up into a series of deep troughs and ridges, similar to the adjacent continental land forms. This is known as a continental borderland. It is, however, made up of the same kind of materials as the continental shelf and slope.

The boundary between the rocks of the continents and the rocks of the ocean basins appears to underly the continental slope, or the inner part of the rise, but the exact nature and location of this boundary is very poorly known. However, the minerals, sediment-types and structures of the continents and ocean basins are sharply separated at or near the base of the continental slope. As noted by Emery,[10] the water depth at which the transition occurs may vary from 1,200 to 3,500 meters. Lacking more precise information about the details of rock and rock structure, various depths have been suggested as a reasonable and practical jurisdictional boundary. Emery[11] has suggested 1,000 meters for this purpose. Worzel,[12] on the basis of careful study of existing geophysical information along various sections crossing the continental margin, has stated that the edge of the continent is located approximately beneath the 2,000 meter isobath, while 2,500 meters has been suggested by W. Pecora of the U.S. Geological Survey. As may be seen from the compilation of the hypsometry of ocean basin provinces by Menard and Smith[13] (see also McKelvey and Wang[14] and McKelvey et al.[15]) any of these bathymetric countours leaves a portion of the seabed beyond the boundary; the percentages of the ocean floor included within the 1,000 m, 2,000 m and 2,500 m countours are, approximately, 11.9, 16.3, and 20.5 respectively, while that within the 200 m countour is 7.5. Thus, about 80 percent of the seafloor is associated with the oceanic basins rather than with the continental blocks.

Of the deep seafloor, about half is covered with abyssal plains and hills, that lie at depths of some 3,000 to 5,500 m, consisting of relatively flat to

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[10] Ibid.

[11] Op. cit., n. 9.

[12] Op. cit., n. 9.

[13] Op. cit., n. 9.

[14] Op. cit., n. 9.

[15] Op. cit., n. 9.

rolling and hilly plains, studded with seamounts largely of volcanic origin. However, in some areas the abyssal plains and hills have a rugged surface as the result of extensive fracture zones and faults. The cover of unconsolidated sediment is generally less than 1 kilometer thick, but thicker accumulations may be found locally in some areas. Underlying rocks consist predominantly of basalt.

About 40 percent of the deep seafloor consists of oceanic rise and ridge, that is oceanic mountain ridges and their slopes, rising 1,000 to 3,000 m above the adjoining abyssal plains, and reaching the ocean surface in some places as volcanic islands. Along the midocean ridges, in each of the major oceans, there is commonly a rift valley at the ridge crest, bordered by high ridges offset along numerous transverse fractures or faults, which also cut the adjacent slopes. These midocean ridges are believed to be areas where material from the earth's mantle is moving upward and spreading outward to create continuously new deep seafloor. Much of the ridges and oceanic rises are underlain by bare rocks, largely basalt, but a thin veneer of sediments such as red clay or biogenic sediments (oozes) is present in some areas, and along the flanks of the oceanic rise thin sequences of older sedimentary rocks sometimes occur.

There are also found commonly throughout the ocean basins islands, banks, ridges, guyots, and seamounts composed of basalt of volcanic origin. Some of these are capped by a smooth platform with sedimentary deposits on them; others in tropical areas have been capped by coral growths.

Adjacent to the convex sides of island arcs, or along tectonically active coastal mountain ranges, there commonly occur deep ocean trenches. These mostly lie around the margin of the Pacific Ocean, but a few, such as the Puerto Rico and Sunda Trenches, are on the edges of the Atlantic and Indian Oceans. These trenches include the deepest parts of the seafloor, and they generally reach depths greater than 6,000 meters.

The volcanic islands, banks, etc. account for only some 3 percent of the seafloor, and the trenches and associated ridges for less than 2 percent.

MINERALS AND CHEMICALS

In our consideration of mineral and chemical resources of the seabed (exclusive of the resources of oil and gas that will be discussed separately subsequently) it is convenient to consider them in the following three categories:[16] (1) Mineral deposits within bedrock, or vein deposits. (2) Surficial deposits, that are of two kinds: The placer deposits, including such things as tin, gold, diamonds, iron sands, monazite and other such resistant or heavy minerals, that are deposited in continental shelf areas; and chemical precipitates, including

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[16] "Mineral Resources of the Sea," Rept. of the Secretary General, U.N. Doc. E/4680 (1969). Preston Cloud, Ch. 7, "Mineral Resources from the Sea," Resources and Man (1969), pp. 135-155.

especially phosphorite that is deposited by precipitation from seawater on certain areas of the seabed, and the so-called manganese nodules, precipitated from seawater mostly on the very deep seafloor. (3) Metaliferous brines and muds.

I reemphasize that, although the seabed is of considerable existing and potential importance as a source of minerals and chemicals, it is ridiculous to believe that it will, within the foreseeable future, supply any large portion of the world's total mineral needs. Such statements as "metal extraction from the oceans may provide up to 80 percent of the world's metal consumption within the next 20-50 years"[17] are completely without foundation. The vast quantities of the major metals required for our civilization, such as iron and aluminum, will continue to come almost exclusively from the continents for at least the next century. Very small amounts of such materials are extracted from beneath shallow seas on the continental shelf, as are also significant quantities of some of the minor metals, such as tin, but it must be recognized that these deposits are fundamentally continental deposits, even though they happen to be covered shallowly by seawater. On the contrary, for some of the minor metals such as copper, nickel and cobalt, as we will see below, the truly oceanic deposits are of considerable potential importance, and may even become economic in the near future. But the ocean is not a great cornucopia of minerals and chemicals that will soon provide a large share of mankind's needs. Preston Cloud[18] has recently concluded:

> "The ocean basins beyond the continental margin are not promising places to seek mineral resources... It is...by no means out of the question that materials of substantial value will be won there. What we must avoid is to succumb to the misleading notion that a great variety of resources are available in large volumes, such that when we run out of terrestrial resources we can simply turn to the sea."

Harold James[19] apparently concurs:

> "The mineral resource potential of the deep sea is small per unit area compared with that of the continents. The chief reasons for this are (1) absence of a thick sialic crust, within which ore-producing magmas of granitic composition are generated on the continents; (2) no rocks older than Cretaceous are known to be exposed in the deep ocean, whereas

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[17] Center for Study of Democratic Institutions, Pacem in Maribus (prospectus) (1969).

[18] Op. cit., n. 16.

[19] Harold L. James, Proc. Symp. on Mineral Resources of the World Ocean (Kingston. R.I.: U. of Rhode Island, Grad. School of Oceanog., Occ. Paper No. 4, 1968), pp. 39-44.

> the structural dynamics and erosional processes of the continents have resulted in extensive exposure of ore-bearing Precambrian and Paleozoic strata; (3) important sedimentary and residual deposits such as evaporates, iron-formations, bedded phosphate, placers, coal, and laterite, either cannot form in the deep ocean or are highly unlikely."

Bedrock or vein deposits

With respect to this kind of deposit, there is an important division between the two fundamentally different geological environments.[20] First, there are the geological formations of the continents that generally don't extend beyond the base of the continental slope, and are contained within the continental crust. These include the bedded sedimentary rocks in which occur petroleum and gas, which we will discuss later, and also sulfur, coal, and bedded salt and potash deposits. In the light crystalline rocks, such as granites, we find associated metallic minerals, such as gold, tin and copper, occurring as vein deposits and disseminations. These various deposits on the continental margins are, essentially, of the same kinds as those on the emergent portion of the continent, and whether or not they can be economically exploited depends very simply on the relative costs of terrestrial and marine mining, processing, and transportation to markets. At the present time, a few coal deposits beneath the sea that are extensions of those on land are being mined by tunneling from shore, for example off England and Chile. Some sulfur is being produced, by the Frasch process, where it occurs in salt domes in rather shallow water, such as in the Gulf of Mexico.

As observed by Cloud,[21] although the substructure of the continental shelf and slope contains mineral deposits comparable to the rest of the continent, there are certain problems peculiar to this region: bedrock is more likely to be blanketed by sediments on the continental shelf than on the eroding, elevated dry lands, in consequence of which, in addition to the difficulties with the overlying water column, we can't expect to find as high a proportion of the existing mineral deposits emergent at the sea bottom as we do on the land. In consequence, it seems very unlikely that within the foreseeable future bedrock mineral deposits beneath the sea, and especially beyond the limit of national jurisdiction, even though this be only 200 meters depth, will be of much importance.

The second important division of bedrock deposits are those which may be expected in the rocks of the abyssal depths of the ocean, beyond the continental margin, in which there ought to occur minerals that are genetically associated

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[20] Mineral Resources of the Sea, op. cit., n. 16; Cloud, ibid.; Resources of the Sea, Report of the Secretary General, U.N. Docs. E/4449, E/4449/Add. 1, E/4449/Add.2 (1968).

[21] Op. cit., n. 16.

with oceanic types of rock, such as chromite, nickel, copper, and platinum. Iron and magnesium are probably the most abundant metallic elements in the oceanic rocks, but these cannot compete with iron sources from dry land or magnesium from seawater. Beyond the continental margin, difficulties increase greatly, not only because of the depth of water, but especially because much of the bottom is blanketed by thick sediments, so that there are to be expected no outcrops except perhaps on seamounts and along the mid-ocean ridges. Both James[22] and Cloud[23] are of the opinion that the prospects, even in those locations, are not very promising, because the modern theory of seafloor spreading implies that, beneath a thin veneer of sediments, the ocean basins are generally floored with relatively young and sparsely mineralized basaltic rocks, and the rocks along the mid-ocean ridges are the youngest of all.

Surficial deposits - placers

It is interesting that among the more important nonliving products from beneath the sea are sand, gravel, oyster shell, and limestone. These, however, all come from the very shallow margin of the nearshore zone, although some of them, such as sand and gravel, could also be found further offshore. Since the nearshore deposits are undoubtedly more than adequate for the foreseeable future, there is no prospect of these resources being extracted competitively from depths greater than 200 meters.

Ocean beaches and submerged placer deposits are already being exploited for some kinds of heavy minerals, diamonds, etc. Placer deposits now offshore were originally formed by gravitational segregation during transport in and beneath former beach and stream deposits, when the sea level was lower, or the land higher, than it is now.[24] The approximate outer limit of the depth where one expects such deposits is about 130 meters, corresponding to the position of the margin of the sea during the last ice age, although it may be somewhat greater or less where the land itself has been elevated or depressed. Presently, diamonds, gold and tin are being recovered from nearshore submarine placers, and production of these is expected to increase along with zircon, feldspar, rutile, ilmenite, and other materials that are presently being produced from marine beaches and are also known to occur in somewhat deeper waters.[25] However, all of these are found almost exclusively in relatively shallow water on the continental shelf, well within the depth of 200 meters, so that they are not of concern to an international regime for the resources of the seabed beyond national jurisdiction.

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[22] Op. cit., n. 19.

[23] Op. cit., n. 16.

[24] Ibid.

[25] Ibid.; James, op. cit., n. 19.

Surficial deposits - precipitates

The most important kind of mineral deposit of the seafloor in areas beyond national jurisdiction is the chemical precipitates, that is mineral compounds that are formed by precipitation from seawater. Two such precipitates of greatest importance, because they may become economically competitive with terrestrial sources within a few decades, are phosphorite deposits that occur on the shelf, slope and deeper ocean floor, and manganese nodules found mostly on the abyssal seafloor. These have been discussed in several of the references already cited,[26] and elsewhere. J.E. Flipse presented a paper at the last Annual Conference of this Institute concerning technical and legal aspects of exploitation of manganese nodules, and there was considerable discussion from other participants concerning them.[27]

Phosphorite deposits occur as nodules, flat slabs, rock coatings, or sands. They are most commonly encountered in depths of 50 to 400 meters in the depositional environment of outer continental shelves, upper portions of continental slopes, and tops of submarine banks. They are abundant especially in those regions where there is strong upwelling of deep water, bringing up dissolved phosphate, to the sea surface. It remains an open question whether the precipitation is purely a physical-chemical process or is mediated by the biota. Many terrestrial phosphorite deposits actually originated in such marine upwelling zones, and were subsequently elevated to become dry land deposits.

These oceanic phosphorites occur as thin surficial deposits, large in areal extent but not great in thickness. Some of the submarine phosphorites are of grades comparable to some of those worked on land, and they occur at depths that are probably workable by known techniques, or by techniques that we may confidently expect to be soon developed.

Phosphorus, as one of the important components of fertilizers, is in large and growing demand. Yet, as Cloud[28] has noted, we have very large onshore reserves of this element, and this, together with the possibility of recycling as a necessary measure to prevent pollution (eutrophication), indicates that mankind is not likely to suffer from lack of this fertilizer if he is willing to pay sufficient price. At the same time the marine surficial deposits, in at least some locations, appear relatively promising, both because of the sizeable volumes in known deposits and because of good possibilities for future additions by new discovery, especially since our understanding of the theory of their

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[26] Schaefer, op.cit., n. 1; Mineral Resources of the Sea, n. 16; Cloud, n. 16; James, n. 19; Resources of the Sea, n. 20.

[27] J.E. Flipse, IV Sea Institute Proceedings (1970), pp. 84-86. Discussion. pp. 123-132.

[28] Op. cit., n. 16.

origin is quite good. Particularly promising would be marine phosphorite deposits in areas such as near southeast Asia or Australia, remote from good, known terrestrial sources, where transportation costs from known land deposits are relatively large.

In relation to planning an international regime for the seabed, however, it is to be emphasized that the known phosphorite deposits are largely on the continental shelf and upper continental slope, and the theory of origin indicates that this is the likely habitat to find additional deposits. Since the deposits in shallow water, other things being equal, are more economic to mine than those in deeper water, it is unlikely that deposits in areas beyond the continental shelf and upper slope--except perhaps on the tops of some seamounts--will be economically competitive within any reasonable planning horizon. As in the case of petroleum and natural gas, the role of an international regime with relation to this resource depends very much upon just where the outer limit of national jurisdiction is established.

Manganese nodules, that are chemical precipitates of iron and manganese compounds containing other elements, have been highly publicized (perhaps overpublicized) as a potential major source of some metals and have been very widely discussed.[29] These precipitates occur on the deep ocean floor as round or knobby lumps, ranging in size from less than a centimeter to over 20 centimeters with an average of about 5 centimeters. In some places they occur as slabs or pavements, or as concretions on emergent rock. They can even occur as fine grains, or "micro-nodules." They are largely composed of manganese and iron oxides, typically containing 8 to 41% Mn, 3 to 26% Fe, 0.1 to 2.3% Co, 0.1 to 2% Ni, and 0.1 to 1.6% Cu. In most parts of the ocean, the manganese content is rather low compared to commercial ores on land, and the nodules frequently contain unacceptably high amounts of alumina and silica for either ferro- or battery-grade manganese. This has led some authorities to doubt whether they can properly be regarded as commercial ores of manganese,[30] especially in view of the more accessible occurrence of ores of similar grades at various places on land, including some in the United States.[31] It is noteworthy, however, that while total land reserves of commercial-grade manganese ores are estimated to be

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[29] See n. 26, 27; also John L. Mero, The Mineral Resources of the Sea,(New York: Elsevier, 1964), pp. 127-242. J.L. Mero, Symp. on Economic Importance of Minerals from the Sea, (Los Angeles: Am. Chem. Soc., Chemical Marketing & Economics Div, 1963), pp. 139-159. H.W. Menard, Marine Geology of the Pacific (New York: McGraw-Hill, 1964), pp. 171-190.

[30] California and Use of the Ocean, Institute of Marine Resources, U. of California, IMR Ref. 65-21 (1965), Ch. 13.

[31] David B. Brooks, Low-grade and nonconventional sources of manganese, (Washington: Resources for the Future, 1966), 123 pp.

at least 1,000 million tons (compared with an annual production of about ten million tons)[32] most of the known reserves are in South Africa and the USSR, although Australia, Brazil, Mainland China and some other countries have considerable known quantities. Perhaps, therefore, there is incentive for nations to secure access to even low-grade supplies of this important metal that are less likely to be vulnerable to disruption.

The amounts of nickel, cobalt and copper in the nodules, especially in certain areas of the Pacific Ocean where these run higher than average, make them possibly attractive low-grade ores of these three metals.[33] Potential production of these metals, possibly together with manganese, has attracted considerable current interest. A few authors, such as John Mero,[34] believe that these nodules are capable of being harvested profitably at the present time, but others are less optimistic. Some believe that they may be commercially harvestable within the next decade or so. At least one company, Deep Sea Ventures, Inc., has not only done considerable commercial prospecting but is currently preparing to collect nodules on a commercial basis commencing in the early 1970's.[35] Other companies are in the exploratory and very preliminary engineering design stages.

There has been estimated to be about a trillion tons of these nodules on the floor of the Pacific Ocean alone.[36] There are sizeable regional variations in the metal content, the central portion of the southeast Pacific Ocean being particularly interesting, because there the nodules tend to be high in Ni and Cu, containing as much as 37% Mn, 1.6% Cu, 1.6% Ni and 0.3% Co, with average values 27% Mn, 0.2% Co, 1.3% Ni and 1.1% Cu.[37] It has also been shown by Menard[38] that Co is particularly rich in nodules from the tops of seamounts and other topographic highs, samples with over 1% Co being taken in waters less than

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[32] Mineral Resources of the Sea, n. 16.

[33] Flipse, op.cit., n. 27. F.L. LaQue, Personal communication and material presented at the Ditchley Foundation Conference on the Resources of the Ocean Bed, Sept. 26-29, 1969. F.L. LaQue, "Prospects for and from deep ocean mining," Paper prepared for Conference on the Role of Enterprise in an Ocean Regime, Santa Barbara, Calif., April 1-3, 1970, Manuscript. K.R. Simmonds (Conference Rapporteur), "The resources of the ocean bed,: Rept. of Conf. at Ditchley Park, Sept. 26-29, 1969, Ditchley Paper No. 23, pp. 1-53 (1970).

[34] Op. cit., n. 29.

[35] Flipse, op. cit., n. 27.

[36] Schaefer, op. cit., n. 1; Mero, n. 29.

[37] Resources of the Sea, op. cit., n. 20.

[38] Op. cit., n. 29.

2 kilometers deep. From photographs of the seafloor, the central portion of the Southeast Pacific region[39] has been estimated to contain about 200 x 10^9 tons of nodules over an area of 36 x 10^6 square miles. Information so far available to me indicates that large areas of the seafloor have the nodules more or less evenly distributed, and that they are probably of relatively uniform composition. This, of course, has important implications regarding requirements for a regime governing their exploitation, since the necessity for exclusive access to a deposit depends very much upon whether there are especially valuable deposits of limited extent, as envisaged by Flipse,[40] or whether there are large areas of similar composition.

F. L. LaQue, consultant to the International Nickel Company,[41] has made some very interesting calculations, based on an estimate that the potential valuable constituents of a typical commercially attractive nodule deposit would have the following composition:

Manganese	25%
Nickel	1%
Copper	0.75%
Cobalt	0.25%

His data[42] indicate that the nominal market value of the Co, Ni, and Cu metal content of a ton of nodules is about $43. However, this nominal value must be reduced by the loss of metals in the recovery process, and the cost of recovering, separation, refining and marketing. LaQue notes that it might also be reduced by inability to find a market at the current indicated, or at any, price for all of the metals to be extracted from such nodules, stemming from the fact that the valuable metals in the nodules do not occur in the same ratio as the world needs for these metals. He has calculated, for example, that if nodules were to be recovered to provide the entire present Western World need for nickel, there would simultaneously be made available nearly 3 1/2 times as much manganese and 7 times as much cobalt as the present world market could absorb, even if all present sources of these metals were to be replaced. He believes, therefore, that the maximum recoverable value per ton will involve the idea of using nodules to satisfy the need for cobalt, since this would provide the greatest chance of finding a market for the associated manganese, nickel and copper. He has calculated the tonnage of nodules, and the corresponding area of seabed, that would need to be harvested each year to satisfy the world demand for each of the four metals of concern. His table is reproduced here as Table 1.

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[39] Resources of the Sea, op. cit., n. 20.

[40] Op. cit., n. 29.

[41] Op. cit., n. 33.

[42] "Prospects for and from deep-ocean mining," n. 33.

It is to be seen from Table 1 that if one were to satisfy half the demand for cobalt, he would only need to harvest a little over a hundred square miles of seabed each year, and all of the nickel demand could be satisfied by harvesting less than 2,000 square miles per year. It thus seems fairly obvious that a company does not need exclusive access to a very large piece of the nodule-bearing seafloor, if the nodules are relatively homogeneous in distribution and composition over wide areas. Confirming this, Flipse[43] has stated that his company's calculations indicate that, for a reasonable payout of capital investment and subsequent profit, a 1,000 square mile area (that is a square a little over 30 miles on a side) is a minimum claim, where approximately half the material on the seafloor in that 1,000 square miles would be recovered. He apparently agrees with LaQue that copper, nickel and cobalt will be the major objectives, since he stated "...the first mining venture will be based on looking for nodules of highest nickel and copper values. Those are two minerals in which you have no marketing problem whatsoever... The output of each rig is perhaps 5% of the free world's nickel needs and perhaps 1 or 2% of the copper needs, but an appreciable percentage of the cobalt needs, and indubitably causing a severe relocation of the high purity manganese price." He concurred that claim jumping is not likely to be a vital problem. This would seem especially true since he suggested that "...five ocean mining rigs of the present size contemplated would meet the needs of the free world for the metals that are involved..." Thus only a few companies, with large capital, would be involved.

Apparently, both from what Flipse presented in his paper, and from his remarks during the discussion period, the major reason for desiring to have some exclusive right of access to an established claim is not so much protection from claim jumpers, as other benefits, including attraction of capital investment, tax benefits, and depletion benefits. He apparently assumes that tax benefits and depletion benefits similar to those applying to minerals, or petroleum, in areas under United States jurisdiction will be extended to regions under international jurisdiction.

LaQue's[44] calculations should also be of interest to those envisaging appreciable revenues flowing to an international agency from taxation of such operations. He estimates that if harvesting of the nodules were at a rate corresponding to the total 1967 world production of cobalt, the real metal values of nickel, cobalt and copper contents would be about $285,000,000. This gross revenue would, of course, be reduced by the cost of recovery, refining, marketing, etc. Net income before taxes of $60,000,000 would be an optimistic estimate. With an assumed international tax of 50%, this would yield $30,000,000 for such purposes as assisting developing nations. This would be increased, according to LaQue, by only about $10,000,000 if value is given also to the manganese that might be marketed. While $40,000,000 is not a negligible sum,

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[43] Op. cit., n. 29.

[44] Op. cit., n. 42.

Table 1 (From LaQue)

Tons of nodules and bottom areas to be harvested each year to yield metals at the 1967 level of production from land sources.

Metal	World production in 1967	Pounds per ton of nodules[1]	Short tons of nodules required[2]	Area to be harvested sq. miles	Fraction of total deep ocean bottom area[4]
Manganese	18,650,000 short tons ore	--	29,800,000[3]	1,069	0.0008%
Copper	11,184,377,000 pounds	15	745,625,100	26,746	0.0192%
Nickel	1,007,943,000 pounds	20	50,397,150	1,808	0.0013%
Cobalt	32,890,000 pounds	5	6,578,000	236	0.00017%

(1) Based on nodules containing 25% Manganese, 1.0% Nickel, 0.75% Copper and 0.25% Cobalt.

(2) Based on nodule density of 2 lbs. per sq. ft. of ocean bottom or 27,878 tons per sq. mile.

(3) Increase due to lower manganese content of nodules (25%) as compared with 40% in land-based ores.

(4) Estimated to be 139.5 million square miles (361 x 10^6 sq. km.).

it is obviously not any vast income for the benefit of all mankind. Indeed it amounts to less than 3 cents per capita for the approximately 1.6 billion people in the developing countries.

LaQue[45] has also calculated that the entire gross value of total world production of manganese, copper, nickel and cobalt in 1967 ($6.5 x 10^9), if subject to a 10% tax, would produce distributable revenue of only 0.028% of the world G.N.P., amounting to but 42 cents per capita of the developing countries.

Simmonds[46] has summarized some of LaQue's estimates presented at the Ditchley Conference of last September, and has concluded that "From these figures it will be obvious that both the area of the ocean bottom to be regulated, and the disposable revenue to be subjected to an internationally agreed procedure of allocation, might be very small in magnitude."

In his remarks at the Ditchley Foundation, LaQue[47] also pointed out that the probable method of recovery of nodules will be a harvesting operation from a moving platform that will not occupy the ocean bottom except transiently. In this respect the winning of the nodules from the seafloor is much more similar to a fishing operation than to a conventional mining operation. LaQue has suggested that ability to exploit these resources in such a manner should not be allowed to establish any national jurisdiction over the area thus exploited, flowing from the notion that, since this method of exploitation would not require national jurisdiction, it should not be used as a basis for establishing something that is not required.

If there are large areas of the seafloor the nodule deposits on which are homogeneous, there may be no need for concessions of well-defined areas, in contrast to the approach by which anyone interested in recovering the nodules would have many choices, in much the same way as fishermen now harvest fish. Concessions from some authority would, on the contrary, be required for limited areas of unusually high metal value, if such exist in small numbers. The question of the degree of homogeneity of deposits is, therefore, critical for the planning of a suitable international regime for the efficient exploitation of these resources. Simmonds quotes LaQue to the effect that the establishment of any international agency for concessions might well be deferred until after the need for it has been clearly established in the light of subsequent exploration. Also Simmonds notes that "Many participants echoed his call for a concentrated and immediate research effort as a necessary prerequisite before major policy decisions could be made with regard to the nature, purposes and form of an international regulatory regime. This research effort ought to be centered upon

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[45] Ibid.

[46] Op. cit., n. 33.

[47] Op. cit., n. 33.

the need to widen our knowledge of ocean-bottom topography, ocean-bottom sediments, nodule distribution and quality, ocean currents, surface conditions, and local and shipping-track meteorology."

There is, I believe, adequate time, of the order of at least a decade, to carry on the necessary research and exploration, before there will be any urgent requirement for the establishment of a regime for the exploitation of the manganese nodules that, as we have already observed, are the only foreseeable economically exploitable resources of the abyssal seafloor. The International Decade of Ocean Exploration was originally conceived to provide the required information concerning the resources of the deep seafloor, as a partial answer to the Malta proposal to the General Assembly.[48] However, it has subsequently been broadened in concept to cover investigation of all sorts of phenomenon in the ocean and overlying atmosphere,[49] and has, simultaneously, received very little in the way of financial encouragement.

Not all developing countries are likely to be enthusiastic about an international regime encouraging the development of these new mineral resources, even if it produces tax revenues to be used to benefit developing nations. As LaQue[50] has shown, a substantial portion of the world's production of manganese, copper and cobalt comes from developing countries, and new nickel projects are now being pursued in several developing countries. Substituting ocean for land sources of these metals would detract from, rather than advance, the prosperity of those developing countries in which the land-based ores are located. This has already become an element of the considerations of the General Assembly Committee on the Seabeds.[51]

Metalliferous brines and muds

Recent discoveries of metalliferous hydrothermal brines and metalliferous muds, in the deeps of the Red Sea and elsewhere along rift zones or in areas of volcanism, support the belief that such deposits may exist in numerous locations

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[48] House of Representatives, 90th Congress, 2nd Session, H.R. 1957 (1968), statement of H. Pollack at p. 6.

[49] An Oceanic Quest, the International Decade of Ocean Exploration, Committee on Oceanography of NAS/NRC and Committee on Ocean Engineering of NAE, NAS Publ. 1709 (1969).

[50] Op. cit., n. 42.

[51] General Assembly Seabeds Committee, Economic and Technical Sub-Committee, Interim report, U.N. Doc. A/Ac. 138/SC. 2/L.6 (1970), Appendix III. U.N. Office of Public Information, Press Release, SB/17, 13 March 1970, p. 5.

in the ocean floor.[52] The "hot holes" in the Red Sea contain brines with zinc, manganese, and lead in concentrations from 1,000 to 25,000 times that of normal seawater, and the muds at the bottom of these holes are rich in copper and zinc.[53] Iron and manganese precipitates have been reported from a submarine volcano in Indonesia, and sediments containing 5% Mn and 0.1% Cu have been encountered in the rift zone of the East Pacific Rise.[54] The occurrence of metalliferous hydrothermal brines in California near the Salton Sea, where there is a terrestrial continuation of the rift zone along the East Pacific Rise, gives further reason to believe that similar phenomena may be encountered in such places as the Gulf of California, and elsewhere.

It has been estimated[55] that the upper 10 meters of the mud in one of the "hot holes" in the Indian Ocean contains 2.9 million tons of zinc, 1.1 million tons of copper, and smaller amounts of other metals. Whether or not these deposits in the Red Sea can be mined, processed and marketed at a profit is yet an open question.

There also seems to be some doubt about whether these deposits in the Red Sea are under the jurisdiction of the nearest coastal State, or are in the international realm. Griffin[56] has concluded that "...the Red Sea floor must be deemed to be adjacent to the nearest coastal State. These considerations place the Red Sea deeps and its ore deposits on the legal continental shelf of Sudan." At least one group of entrepreneurs has applied to Sudan for mining rights, while two others have considered the hot-brine areas to be international territory; one of them has applied to the United Nations and the other has incorporated in Lichtenstein on the theory that no one owns these areas. I agree with Dr. Emery and his colleagues who have recently written, "Where all of this maneuvering will end is unknown, but there is the distinct possibility that lawyers will profit more from the Red Sea deposits than will scientists or the metal industry."[57]

We obviously have yet too little information about these kinds of deposits in the deep seafloor, beyond the limits of national jurisdiction, to do much

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[52] McKelvey and Wang, op.cit., n. 9; Cloud, n. 16; Resources of the Sea, n. 20; E.T. Degens and D.A. Rose, eds., Hot Brines and Recent Heavy Metal Deposits in the Red Sea (New York: Springer-Verlag, 1969).

[53] Ibid., pp. 216, 407-440, 563, 568-596.

[54] McKelvey and Wang, op. cit., n. 9.

[55] Ibid.; Degens and Rose, op. cit., n. 52, p. 570.

[56] Ibid., p. 550.

[57] Ibid., p. 571.

useful planning toward their exploitation and management. It seems likely, however, that some of the submarine metal-bearing muds may be economically mineable within one to several decades. There is, therefore, an urgent need for scientific, exploratory, and economic studies on the basis of which one might consider what sort of regime is required for their rational management.

ENERGY RESOURCES (PETROLEUM AND NATURAL GAS)

Thermal energy from fossil fuels has been the mainspring of the development of modern industrial civilization. World production of thermal energy from coal and lignite plus crude oil has risen exponentially from about 5 x 10^{12} kwh/yr at the turn of the century to about 37 x 10^{12} kwh/yr currently[58] and over half of this is now supplied by petroleum. The numerous forecasts of world energy requirements and of world petroleum demands all indicate that, for the remainder of this century, the supply of petroleum and natural gas will be extremely important, and perhaps critical. There are possibilities for substituting to some degree the vast reserves of coal, and of obtaining oil and gas from tar sands and oil shales, while nuclear energy is also developing apace. However, the situation has been well summarized by Weeks,[59] who has estimated that:

> "Over the next twenty years the world will consume something like 500 billion bbl of petroleum and 750 Tcf of natural gas. These amounts are about 110% and 75%, respectively, of the current world proved reserves of these sources of energy. Since oil and natural gas consumption 20 years hence will be about 4 times that of today, the petroleum industry will be called upon to find several times 500 billion bbl of oil to replace that consumed and still maintain a safe inventory."

The development of petroleum fields beneath the sea has been remarkably rapid in recent years. The industry had barely gotten its feet wet in 1946, while offshore production now accounts for about 17% of total world production of petroleum. Some 10,000 wells have been drilled offshore, and production is coming from as far offshore as 70 miles and in water over 100 meters deep. Twenty-eight countries are already producing or about to produce subsea oil and gas. It is anticipated by Weeks[60] that by 1977 the offshore fields will provide 33% of an anticipated annual world production of 25.5 x 10^{9} bbl. According to a recent report of the Marine Council,[61] the worldwide production of oil and gas

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[58] M.K. Hubbert, Ch. 8, "Energy Resources," Resources and Man (1969) pp.157-242.

[59] L.G. Weeks, Jour. Petr. Technology, April 1969, pp. 377-385.

[60] Ibid.

[61] Marine Science Affairs, Report of the National Council on Marine Resources and Engineering Development, April 1970, p. 67.

from the seafloor during 1969 had a value of about 6 billion dollars, constituting 86% of the value of the production of all mineral resources from the oceans.

To put the near-term requirements in perspective, it has been estimated[62] that present proved and probable reserves of world crude oil are in the neighborhood of 600 x 10^9 bbl and ultimate recovery is about 2,000 x 10^9 bbl. One of those responsible for these estimates is Weeks, in an earlier paper, but in his most recent publication[63] he estimates ultimate recovery at 1,500 x 10^9 bbl of petroleum on land and 700 x 10^9 bbl from offshore deposits to a depth of 1,000 feet (256 m); he also estimates that the natural gas resource is the equivalent of 800 x 10^9 bbl of oil on land and 350 x 10^9 bbl of oil in the offshore region to 1,000 feet water depth.

Weeks observes that the area out to 1,000 feet is 10.8 million square miles, and of this 37%, or 6.2 million square miles, is sedimentary basin where one can consider looking for petroleum, and this is 1/3 as large as the 18.5 million square miles of the world's land basins.

We should not forget that an alternative to petroleum and other fossil fuels is nuclear energy, and this beginning rapidly to be developed commercially. However, present successful commercial applications of nuclear energy depend on fission of enriched uranium fuel, that is both limited in ultimate supply and costly. Great success in providing low-cost nuclear energy lies with the development of the fission breeder-reactor, and, ultimately, nuclear fusion. While power from nuclear fission, together with petroleum from oil shales or tar sands and conversion of coal to liquid hydrocarbons, offer sufficient economic competition to petroleum and natural gas to limit acceptable increases in production costs, it is almost certain that natural deposits of petroleum and gas, including those in at least the shallower portions of the bed of the sea, will continue to satisfy a major share of the world's energy requirements during at least the remainder of this century, and most probably beyond. However, Weeks[64] reminds us that the combined totals of potential synthetic oil and gas from shale and coal sources is many times the quantities indicated above as the estimated potential for direct production.

Marine habitats of petroleum and natural gas

As has been pointed out in a review by the Secretary General of the United Nations,[65] the origin of offshore petroleum, and factors controlling its distribution in sedimentary basins on the shelf and slope, are no different from those

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[62] Hubbert, op. cit., n. 58.

[63] Op. cit., n. 59.

[64] Ibid.

[65] Resources of the Sea, n. 20.

on land. From the viewpoint of the genesis and accumulation of hydrocarbons, the most important aspects are petroleum source beds with abundant organic matter, reservoir rocks, structural stratigraphic traps, and geological history--particularly sedimentation and structural development. The petroleum hydrocarbons arise from organic matter from organisms growing in the sea that, after death, have been transformed by bacteria and eventually buried beneath the detrital and biogenic sediments where hydrocarbons are generated. Under suitable geological conditions, these petroleum hydrocarbons migrate into structural or stratigraphic traps, where they may be commercially exploited.

Large commercial deposits are known to exist on the continental shelf, both from geophysical evidence and from actual developments of oil fields.[66] Some of the offshore regions now in production are extension under the sea of onshore petroleum deposits, but another group of petroleum accumulations in the shelf are in structural stratigraphic traps that are separate from, but have a distribution pattern related to, similar structures previously discovered on land. The nature of the habitats of petroleum on the shelf, and evidence concerning its probable occurrence on the slope and perhaps even further offshore, have been discussed by several authors.[67] McKelvey and Lang[68] have summarized our knowledge as follows:

> "Petroleum resources are largely confined to the continental shelves, continental slopes, continental rises and the small ocean basins. Because these areas in general contain a greater thickness of marine tertiary sediments, from which most of the world's petroleum production comes, than do the lands, taken as a whole the offshore areas are more favorable for petroleum than the exposed parts of the continents. Environments favorable for petroleum are highly localized; and...only a small part of the broadly favorable areas actually contained producible petroleum accumulations...Among the geological provinces considered broadly favorable, the incidence of petroleum accumulations in shelves, slopes, and the small ocean basins may be greater than in the continental rises bordering the large ocean basins. Although the rises contain greater thicknesses of sediments, in many places they may not contain suitable reservoir rocks."

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[66] Mineral Resources of the Sea, op.cit., n. 16; Resources of the Sea, n. 20.

[67] McKelvey, Tracy, et al., op.cit., n. 9; Mineral Resources of the Sea, n. 16; Resources of the Sea, n. 20; Committee on Petroleum Resources Under the Ocean Floor, Petroleum Resources Under the Ocean Floor (Washington: National Petroleum Council, 1969), 107 pp.

[68] Op. cit., n. 9.

The National Petroleum Council[69] agrees that the semi-enclosed seas, such as the Gulf of Mexico, Black Sea, Caribbean, and South China Sea, often have thick sedimentary sections in deep water beneath their abyssal floors, so that they may be habitats of petroleum. However, the structural stratigraphic nature of their sedimentary fill is just now being learned. The Gulf of Mexico has certain salt domes (the Sigsbee Knolls) that have shown traces of hydrocarbons in cores drilled by the JOIDES Project. Off the Northwest coast of Africa, in seabed that was at an earlier age also a semi-enclosed sea, there have also been found traces of hydrocarbons in JOIDES cores.

The National Petroleum Council also notes the very thick sediments on the lower slope and continental rise, and the existence of some locations with structural features that might argue for a favorable petroleum potential.

McKelvey and Wang observe that the area beyond the region covered by the estimates of Weeks, that is from a depth of about 300 m to the base of the continent, constitutes a larger submarine area than that included within his estimates, and a larger proportion of the area is underlain by a thick accumulation of sediments. However, until more is known about the composition and structure of these sediments one cannot judge their potential, although it seems likely that it is good.

So far as the floor of the great ocean basins is concerned, that is the sediments of the abyssal seafloor remote from the continents, both the report of the Secretary General of the United Nations[70] and the report of the National Petroleum Council[71] indicate that any sizeable deposits of hydrocarbons are unlikely. The National Petroleum Council observes that knowledge is quite limited, and that hydrocarbons might be found in at least trace quantities in sediments of nearly all areas of the ocean, but that present information suggests that commercial accumulations will be far fewer per unit area well beyond the continental margins. The report of the Secretary General is even less optimistic, stating that:

> "All evidence suggests that the abyssal open oceans are far less favorable than the continental margins and the small oceanic basins and there is little chance that petroleum occurs over large areas of the abyssal plain. However... no definite seaward limit of the existence of petroleum deposits can be inferred at this time, and it is not impossible that small portions of the abyssal floor and oceanic trenches may have some potential."

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[69] Op. cit., n. 67.

[70] Mineral Resources of the Sea, n. 16.

[71] Op. cit., n. 67.

Cores drilled by the JOIDES project in the abyssal ocean, although few, tend to confirm the pessimistic forecast. I am informed by my colleagues at Scripps Institution of Oceanography, which is managing this drilling project, that no indications of deposits of petroleum or natural gas have been found in any of the cores so far drilled in the abyssal seabed remote from the continents.

Prospective rates of development

Present offshore petroleum production comes from beneath portions of the sea no deeper than a little over 100 m, and from areas within 120 kilometers of the coast.[72] The limitation is not so much determined by exploration technology or capabability of drilling in deep water as it is by other production costs.[73] Indeed, there are actually many advantages in offshore exploration, because the application of geophysical seismic reflection techniques is much simpler there, and the recent development of nonexplosive energy sources has not only reduced the costs of seismic exploration but has greatly diminished the danger of damage to fish and other living resources.

With respect to drilling technology, the industry is already drilling exploratory wells in water as deep as 1,300 feet (396 m).[74] The Glomar Challenger, which is doing scientific exploratory drilling through the sedimentary column in the abyssal depths of the ocean for the JOIDES group, is capable of doing so in almost any depth of water. The ability of this vessel, however, to drill at great depths through very hard structures is presently limited by inability to accomplish reentry of the drill hole, thus making it impossible to replace worn bits. Capability to reenter the drill hole is expected to be attained within the next year; a method has already been designed, and the equipment for it is being constructed and will be tested within the next few months.

Thus, the limitation on depth of petroleum production is essentially economic rather than technological. According to the National Petroleum Council,[75] commercial exploitation in water depths up to 1,500 feet should become possible within less than five years, and within ten years the technical capability (but not necessarily economic capability) to drill and produce in water depths of 4,000 to 6,000 feet (1219 to 1829 m) will probably be attained. It would seem, therefore, that just how fast the development of deposits in waters deeper and farther offshore will occur depends primarily on economic factors. It has, for example, recently been reported that gas discoveries in the Norwegian sector

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[72] McKelvey and Wang, op. cit., n. 9; Weeks, n. 59.

[73] Petroleum Resources Under the Ocean Floor, n. 67.

[74] Ibid.

[75] Ibid.

of the North Sea, beyond the deep trench off Norway, are not economic because of the cost of getting the product to shore in Norway; the gas may, however, be marketed in the United Kingdom. Extracting petroleum and gas in great depths and far from shore, and getting it ashore, will be technically difficult and costly, the cost increasing rapidly with depth and distance.[76] Consequently, the rate at which production from the seabed will progress out and down the continental slope will depend upon how rapidly the technical problems are solved, and on production costs.

As already noted, competition from other sources of petroleum, such as oil shale, sets a limit on the costs that can be borne competitively. For example, oil in the United States is worth about $3.00 a barrel, although it is worth only about half that much in many foreign areas, such as the Persian Gulf. It is expected that oil shale from the vast deposits in Colorado, Utah and Wyoming will be capable of producing petroleum for about $2.12 per bbl by 1976 and $1.58 per bbl by 1980.[77] This source of energy also faces potential strong competition from nuclear energy, which again tends to put a ceiling on the cost that can be borne by offshore petroleum development.

Implications for an international regime

As we have shown, it is highly probable that the major portion, at least, of petroleum and natural gas in the seabed occurs on the continental margin (on the shelf, the slope, and perhaps the rise). Prospects are poor on the abyssal seafloor. Consequently, the question of just where national jurisdiction ends seems to be critical with respect to forecasting how soon any international regime is required for the area beyond national jurisdiction. Should national jurisdiction be limited, as some have suggested, to a depth of 200 meters, a regime is already needed, because some leases at greater depths have already been let by more than one nation, and production will soon be taking place. On the contrary, should the limit of national jurisdiction extend, as some authorities have asserted that it does already--at least potentially--to the entire continental terrace,[78] there would seem little need for an international regime for a decade or more.

Whatever regime governs the exploitation of subsea petroleum and natural gas, it will need to be able to guarantee to the entrepreneur security of tenure to a reasonably large area for a reasonable length of time, because of the

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[76] Ibid.

[77] Prospects for oil shale development, Colorado, Utah and Wyoming, U.S. Dept. of Interior, May 1968, p. B-19.

[78] Committee on Deep Sea Resources of the American Branch of the International Law Association, Interim Report (1968). See also discussion by National Petroleum Council, Petroleum Resources Under the Ocean Floor, op. cit., n. 67, pp. 55-67.

highly localized and highly concentrated nature of the deposits to be exploited, and because of the large investment in equipment for extracting it from the earth, storing it locally, and transporting it to shore by vessels or pipelines. Gaskell[79] has discussed a number of these factors at some length. He concludes that, even on the continental shelves, it is necessary, considering present-day values of petroleum, to find very large reservoirs to make any discovery an economic one; and he further points out that any hopes of a world organization becoming rich by having authority over the oil and gas beyond the continental shelf are unrealistic.

In addition to the need for tenure because of the physical nature of the deposits, there is a desire for tenure, at least on the part of United States operators, because of tax benefits and depletion benefits. As noted above in connection with discussion of such benefits in relation to manganese nodules, this involves an assumption that they will be available with respect to seabed resources even though the resources lie beyond the limits of national jurisdiction. I personally regard this assumption as somewhat unrealistic.

It will also be necessary for a regime responsible for the petroleum deposits of the seabed to encompass means of insuring against undue interference with other uses of the seabed and the overlying waters, and especially to control pollution that can damage living resources. Danger of pollution is also important in the case of other kinds of seabed mining, as will be discussed further below.

LIVING RESOURCES OF THE SEABED

Certain sedentary species are resources of the seabed under the definition of the Convention on the Continental Shelf. These are the species that, at their harvestable stages, are either immobile on or under the seabed, or are only capable of moving in constant physical contact therewith. There are, however, closely associated with the seabed a variety of demersal species that, although juridically resources of the superjacent high seas, are dependent upon the seabed for food, shelter, and other necessities. These, together with the pelagic living organisms of the overlying water column must be of concern to a regime for the the seabed because of the effects on them of mining or petroleum extraction, or on the harvesting of these organisms. This will be dealt with in the next section of this paper.

The sedentary species that, under the Convention, are resources of the shelf may be dealt with rather quickly for our present purposes, because few of them extend to depths beyond 200 meters.

The benthonic plants, such as the kelp and other algae that live attached to the seafloor, are confined to quite shallow depths, much less than 200 meters,

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[79] T.F. Gaskell, "Exploration, evaluation and exploitation of deep water petroleum," International Regime of the Sea-Bed, pp. 75-95.

due to lack of adequate sunlight for photosynthesis at greater depths. Only on the tops of some shallow seamounts, remote from continents, will there occur benthonic plants subject to an international regime. Thus, the sedentary plants are of little or no concern with respect to possible international regimes of the seabed.

On the contrary, benthonic animals occur on the deep seafloor into the greatest depths of the ocean. However, as I have shown in detail elsewhere,[80] beyond the continental terrace (actually beyond about 1,500 m depth) the living resources associated with the seabed, both sedentary and demersal, present no foreseeable economic potential. Among the benthonic animals, only certain species of molluscs and crustacea qualify as sedentary species according to the definition of natural resources of the seabed under the Convention on the Continental Shelf. Of those that do qualify, there are few or none in depths beyond 200 meters, with the exception of certain species of crustacea (such as king crabs and tanner crabs) concerning which there is some difference of opinion as to whether, at their harvestable stages, they move otherwise than "in constant physical contact with the seabed or subsoil."

However, between 200 m and about 1,500 m there do occur a variety of harvestable demersal crustacea and fish, and other benthonic species on which they feed. As noted above, these demersal species also have other intimate associations with the seabed. While they are legally creatures of the high seas, a regime of the seabed needs to take account of them to the extent that exploitation of the resources of the seabed may affect them or their harvesting.

POLLUTION AND INTERFERENCE WITH OTHER USES OF THE SEA

The United Nations Committee on the Sea-Bed, and other groups considering seabeds problems, have quite properly been concerned with effects on the living resources both of the seabed and of superjacent waters, of the extraction of minerals, petroleum and other resources of the seabed.

I have discussed at some length in another paper[81] various problems concerning effects on living resources involved in regimes for the deep seabed. The essential points may be summarized as follows:

As already pointed out above, very few of the living resources qualifying as natural resources of the seabed under the provisions of the Convention extend beyond 200 m. However, there do occur as deep as 1,500 m a large variety of demersal species that, although juridically resources of the superjacent high seas, are intimately associated with the seabed and, therefore, need to be of concern to an international regime.

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[80] M.B. Schaefer, "Living Resources and the Seabed,: Ibid., pp. 155-185.

[81] Ibid.

Beyond a depth of about 1,500 m, living resources associated with the seabed present no foreseeable economic potential, in consequence of which the regime need not be concerned with possible damage to benthonic or demersal species in the abyssal region.

On the contrary, there occur in the open sea, even in mid-ocean, important pelagic living resources in near-surface waters. In consequence, we are concerned with possible damage to them that may arise through pollution of the upper layers of the sea by floatable materials, such as petroleum, or by sediments brought into the surface layer in the course of mining operations, or from chemicals employed in ore benefication or processing. A regime for the use of the resources of the deep seabed, even well beyond the continental margin, thus needs to include necessary measures for prevention or control of such pollution.

There need to be taken into account the following specific problems created by the exploration and exploitation of the nonliving resources of the seabed:

(1) Killing of living resources, or their food, by explosives employed in seismic geophysical exploration. This can be minimized and controlled by (a) the employment of nonexplosive energy sources and (b) proper monitoring of the employment of explosives to prevent their detonation in or near to concentrations of important living organisms.

(2) The direct destruction of sedentary organisms during removal of minerals from the seabed, or their destruction by the deposit on the seabed of spoil from mining operations. This will require proper zoning, and control of mining practices.

(3) The destruction of sedentary, demersal, and pelagic organisms by pollution associated with the use of the nonliving resources of the seabed. Exploration for and production of petroleum seems to present a particularly important hazard, because this floatable material can cause widespread pollution in near-surface waters as well as near the seabed.

(4) Installations on the seabed can present hazards to trawls or other fishing gear. Such problems can be dealt with in the deep sea, as in shallower water, by several means; including (a) burying of some installations such as pipelines, (b) location of installations in an orderly manner to minimize hazards, (c) adequate devices such as surface buoys or near-bottom sonar transponders, to enable fishermen to locate and avoid the installations.

(5) Installations at or near the sea surface can present hazards to navigation of fishing vessels, and also hazards to other classes of vessels. This, again, requires adequate systems of warning devices, and, in some situations, the establishment of "freeways."

Concerning the solution of the foregoing problems, by whatever regime is adopted, it is to be noted that there already exists a considerable body of admiralty law and customary international law, covering at least some of these matters. In addition, the provisions of several existing international conventions are concerned with some of them. This can provide a basis for further progressive development of the existing regime, and might obviate the urgent necessity for some radically new regime for this purpose.

COMMENTARY

Joseph W. Morris
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I greatly appreciate the opportunity of appearing on this panel today. When Dr. Christy called me and invited me to be on this panel, he told me that he was hopeful we would react to the President's recent proposal on United States ocean policy concerning the seabed and that is what I shall do.

I want to say that the views that I express to you this morning are my personal views. They may or may not reflect the views of my client or anyone else in the petroleum industry.

First of all, I suggest that it might be helpful at the outset if we looked at the President's proposal.

I. THE PROPOSAL BY THE PRESIDENT OF THE UNITED STATES ON UNITED STATES OCEAN POLICY - Dated May 23, 1970

The President proposed:

1. The adoption of a treaty under which all nations would "renounce all national claims" over the natural resources of the seabed beyond the point where the "high seas" reach a depth of 200 meters and all nations "would agree to regard these resources as the common heritage of mankind."

2. The establishment by treaty of "an international regime for the exploitation of seabed resources beyond this point. The regime should provide for the collection of substantial mineral royalties to be used for international community purposes, particularly economic assistance to developed countries."

3. The establishment of "an international trusteeship zone" comprised of the continental margin beyond a point where the "high seas" reach a depth of 200 meters. The coastal States would act as trustees "for the international community" with respect to the trusteeship zone.

4. The establishment by treaty of "agreed international machinery" which "would authorize and regulate exploration and use of the seabed resources beyond the continental margins."

5. The establishment of an interim policy for the United States requiring "all permits for exploration and exploitation of the seabeds beyond 200 meters be issued subject to the international regime to be agreed upon." Other nations are called upon to join the United States in such an interim policy. "The regime should accordingly include due protection for the integrity of investments made in the interim period. A substantial portion of the revenues derived by a State from exploitation

beyond 200 meters during this interim period should be turned over to an appropriate international development agency for assistance to developing countries. I would plan to seek appropriate Congressional action to make such funds available as soon as a sufficient number of other States also indicate their willingness to join this interim policy."

II. THE EFFECT OF THE PRESIDENT'S PROPOSAL

If a treaty is agreed upon embracing this proposal, it will constitute renunciation on the part of the United States over hundreds of millions of barrels of oil and billions of cubic feet of natural gas over which the jurisdiction and sovereignty of the United States presently extends under existing principles of municipal and international law. That is to say, even though substantial disagreement may exist concerning the seaward limit of the jurisdiction of the coastal State under Articles I and II of the 1958 Geneva Convention, substantial agreement does exist that those articles do mean that national jurisdiction of the coastal State does exist to some point beyond the 200 meter isobath. And compelling arguments have been made by Professor Jennings of the University of Cambridge and others that, as a minimum, jurisdiction of the coastal States exists out to the seaward edge of the slope based upon customary international law.

The United States, under the Outer Continental Shelf Lands Act, has heretofore granted numerous oil, gas and other mineral leases covering the seabed where the water column above the same far exceeds 200 meters. In fact it was publicly disclosed a week ago Sunday (June 7, 1970) that Humble Oil & Refining Company and others have discovered oil in a vast quantity in 1050 feet of water some 35 miles west of Santa Barbara. The reservoir, it is estimated by some, may have one billion barrels of oil. If unitization is approved by the Secretary of Interior, it "will be the largest on the Outer Continental Shelf, covering 86,399 acres, mostly in water depths ranging from 600 to 1200 feet...At the near point, the proposed unit lies about 15 miles west of Santa Barbara."[1]

I respectfully submit that apart from the constitutional and other legal impediments which may exist which would preclude disclaimer by the United States of the substantial volumes of hydrocarbons discovered by Humble, it is clearly contrary to the best interests of the United States to renounce and give away these valuable resources which are now subject to its jurisdiction and sovereignty. I wholeheartedly share the view expressed by the House of Delegates of the American Bar Association in 1968 when it said:

> "Within the area of exclusive sovereign rights adjacent to the United States, the interests of the United States in the

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[1] Tulsa Daily World, June 7, 1970.

> natural resources of the submarine areas be protected to the full extent permitted by the 1958 Convention on the Continental Shelf."[2]

In my view, the President's proposal embraces a concept which is simply wrong in principle.

It may be argued--indeed Mr. Secretary Richardson has said in his testimony before the Metcalf committee following the announcement of the President's proposal--that the leases west of Santa Barbara would not be in jeopardy because for the most part they would be within the 12-mile territorial sea zone which is the subject of another proposal. He pointed out that inasmuch as these leases were within the 12-mile zone they would be under the jurisdiction of the United States.

It is vitally important in this connection, however, to recognize the fact that the proposal for a 12-mile territorial sea makes it very explicit that this is the position of the United States only if international accord can be reached by way of treaty. If international accord cannot be reached by way of treaty, the United States will adhere to its oft-repeated three mile territorial sea concept. And there is not the slightest suggestion in the testimony of Mr. Richardson or in the testimony of Mr. Stevenson before the Metcalf committee that the 12-mile territorial sea proposal and the seabed proposal are interdependent. Indeed it is my understanding that while these two proposals may constitute part of one policy, it is the position of the State Department that the concept of interdependence is to be steadfastly avoided because "the government does not wish to tie its hands."

A. The Legal Effect of the President's Proposal on Existing Mineral Leases

The president's proposal calls upon the nations of the world to renounce all national claims over the natural resources of the seabed beyond the point where the "high seas" reach a depth of 200 meters. What is the intended scope of this proposal? Does this mean that a future international regime can disregard leases solemnly executed under the provisions of the Outer Continental Shelf Lands Act? Or impose upon the lessee the obligation to comply with the rules and regulations which the international regime may adopt? If this is the intention, then obviously serious constitutional questions are presented. Fortunately Mr. Stevenson, in testifying before the Metcalf committee, has indicated that existing oil and gas leases would be secure. The testimony was as follows:

> "Senator Bellmon. Is it your thought that those interests that are contemplating development beyond the 200 meter limit, that they will perhaps be secure in any discovery they find.

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[2] Resolution No. 73, August 1968.

> "Mr. Stevenson. This is the policy that has been adopted. As we indicated earlier the precise modalities of this will --of how this will be implemented, now that we have had a decision, we are beginning to discuss within the government and with interested parties."[3]

B. The Legal Effect of the President's Proposal on Mineral Leases Which Are Executed During the Interim Period.

The President's proposal calls upon the nations to require "all permits for exploration and exploitation of the seabeds beyond 200 meters be issued subject to the international regime to be agreed upon." Recently Secretary Hickel announced that there would be a public hearing on July 14, 1970, to get the views of all interested parties concerning a possible lease sale on federal lands offshore western Louisiana. In the publicity surrounding this announcement, it was pointed out that the lease sale under consideration includes 127 tracts but that all of this acreage "lies within the 200 meter depth proposed by President Nixon on May 23."

Suppose, however, that some of the tracts involved were covered by a water column exceeding 200 meters. Would it be possible for the Secretary of Interior to lease such lands "subject to the international regime to be agreed upon"? It is submitted that in the absence of an amendment to the Outer Continental Shelf Lands Act, it would not be possible for any such land to be leased "subject to the international regime to be agreed upon." Indeed, the report of the Stratton Committee recommended that the Outer Continental Shelf Lands Act be amended so as to require permission from the Secretary of the Interior to engage in mineral resources exploration beyond the 200 meter isobath upon such terms and conditions as the Secretary deems appropriate.[4]

Assuming arguendo that such an amendment would be forthcoming immediately, a critical problem still exists concerning whether under these circumstances a prospective lessee would be willing to bid for and take a mineral lease which would be subject to the unknown and perhaps burdensome conditions which might be imposed. For example, there would be grave uncertainty surrounding the critical provisions of the lease relating to such things as, the amount of the royalty, the amount of the rental, the length of the term, drilling obligations, etc. The list of uncertainties is infinite.

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[3] Transcript of Hearings before the Special Committee on Outer Continental Shelf, Committee on Interior and Insular Affairs, United States Senate, National Policy on the Seaward Limits of our Legal Continental Shelf, May 27, 1970, at pp. 485-486.

[4] Our Nation and the Sea, Report of the Commission on Marine Sciences, Engineering and Resources (Washington, D.C.: January 1969) p. 156.

I suggest that it is no answer to the prospective lessee to say that "this is a detail"[5] that will have to be worked out; that the international regime to be agreed upon "should" act reasonably or that we would "hope"[6] that harmony could be reached between the international regime and the coastal State concerning the conditions which the lessee would have to observe. I say this because one is struck with the impression when he reads the testimony of the Undersecretary and of the Legal Advisor to the State Department that these matters just alluded to are "mere detail" and relatively unimportant. It very well may be that this is so from their point of view, and when compared with the long awaited policy pronouncement by the President; but these are matters which are of vital concern to those lessees who will be governed by rules to be authored and proclaimed by a new international regime.

And while it is quite true that the Undersecretary said, in his testimony before the Metcalf committee, that there would be "a division of rights and responsibilities"[7] between the coastal State and the international regime, it is unmistakeably clear that in many matters of vital concern, policy is to be determined by the international regime. He put it this way:

> "The international rules would be broader, the national ones would be more specific, and presumably the latter could not be in conflict with the rules of the international regime,..." [8]

By analogy he suggested that the position of the United States in its relation to the international regime would be similar to that of a state within the United States. Significantly, however, he further pointed out,

> "...the authority of the coastal State beyond the two hundred meter isobath [is] subject to the control of the international regime, exclusively...
>
> "The coastal State, whatever it does, whatever powers it has beyond the 200 meter boundary line, and within the continental margin, are exercised by them on the basis of delegation to it by the international regime."[9]

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[5] Op. cit., note 3, p. 474.

[6] Ibid., pp. 462, 472

[7] Ibid., p. 460.

[8] Ibid., p. 441.

[9] Ibid., p. 491.

Another matter alluded to by the Undersecretary was the following:

> "The President has suggested that leases and permits beyond 200 meters be issued subject to the international regime to be agreed upon. The regime should accordingly include due protection for the integrity of investments made during the interim period. What we have in mind are grandfather arrangements similar to those which were made with respect to areas in the Gulf of Mexico at a time when it was unclear whether particular areas were under the jurisdiction of the states or the Federal Government."[10]

I assume that what Mr. Richardson has reference to is the statute[11] and the arrangements between the United States and the State of Louisiana. I submit that this is an imperfect analogy. The arrangements between the United States and Louisiana are set forth in an Agreement dated October 12, 1956. That agreement spells out the exact conditions upon which leases will be granted in the four zones which were delineated Offshore Louisiana. It specifies the duties and obligations of the lessee with respect to the royalties, rentals and bonuses which it has to pay. In addition, if leases are granted by the Federal Government in Zones 2 or 3, the lessee also enters into an agreement with the State of Louisiana which provides that in the event these lands are finally determined to be within the jurisdiction of the state, the state will either ratify the existing federal lease or that the lessee will grant another lease on the form used by the State of Louisiana, which contains the same expiration date, and the same rental, royalty, and drilling provisions.

The situations are not analogous because under the grandfather arrangement, while the lessee may not know who the ultimate lessor will be, he does know the terms, conditions and obligations with which he must comply, whereas as was pointed out earlier, the list of uncertainties with respect to taking a lease subject to "the international regime to be agreed upon" are infinite.

III. THE POLICY BEHIND THE PRESIDENT'S PROPOSAL

The policy behind the President's proposal appears to have been twofold:

1. The establishment of an international regime for the exploitation of the seabed resources so that all nations might "agree to regard these resources as the common heritage of mankind"; and

2. The establishment of an international boundary with respect to the

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[10] Hearings before the Special Subcommittee on Outer Continental Shelf of the Committee on Interior and Insular Affairs, United States Senate, Statement by the Honorable Eliot L. Richardson, Under Secretary of State, May 27, 1970.

[11] 43 U.S.C. 1335.

exploitation of the seabed[12] so that there would be established clearly recognized international principles and rules governing the whole problem.

As Mr. Richardson put it:

> "Our own investors need to know what the rules are and these rules, in turn, contribute to the possibility of a relatively stable situation as distinguished from one which is otherwise likely to be progressively chaotic."

Mr. Richardson went further, saying that

> "a failure to develop, a failure to adopt a proposal like this would otherwise be to create uncertainties that would tend to discourage investment."[13]

I suggest that just the opposite is true. It has been my experience that when the Secretary of Interior offers deep water seabed tracts for sale under the Outer Continental Shelf Lands Act, no one has expressed grave legal misgivings concerning his power or authority, within the legal framework of the law as we now know it, to give valid and subsisting leases. Furthermore, no doubt or objection was expressed by the departments of State or Justice concerning the soundness of the opinion by the Assistant Solicitor of the Department of Interior when he concluded that the Secretary of Interior had the power to give mineral leases on seabed tracts which are 40 miles from the shore and in waters having a depth of 670 fathoms. Nor has doubt been expressed by other lawyers who are called upon to advise their clients concerning the meaning of the Outer Continental Shelf Lands Act and the meaning of Articles I and II of the 1958 Geneva Convention. They have concluded that the jurisdiction and sovereignty of the United States over these lands is exclusive.

The same opinions have been expressed concerning deep water leases offshore other coastal States. Numerous other countries have granted concessions with respect to the minerals found in the seabed off their shoreline, and in many cases it is a seabed which is overlain by waters far in excess of 200 meters. And according to Professor Jennings, no proteses have been forthcoming from other States casting doubt on their asserted jurisdiction.

I submit that the existing legal framework has not and would not tend to discourage exploration and exploitation of hydrocarbons.

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[12] Op. cit., n. 3, p. 492.

[13] Ibid., p. 480.

COMMENTARY

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It is a privilege to take part in this discussion of the President's policy statement on the developing law of the seabed. My assignment is to discuss this from the viewpoint of the hard mineral industry. The President has invited worldwide attention to the "stark fact" "that the law of the sea is inadequate to meet the needs of modern technology and the concerns of the international community. If it is not modernized multilaterally, unilateral action and international conflict are inevitable."

The Sea-Bed Committee of the United Nations is currently discussing principles to be embodied in a multilateral convention. It is making little headway and there is little prospect that agreement will ever be reached through a committee of this sort. The problems are in great part political, but they will not be solved by politicians. There must be quiet, careful preparation by legal scholars, by persons experienced in exploring and exploiting the resources of the seabed and by statesmen.

Happily, while the delegates to the meetings of the Sea-Bed Committee are winning headlines in their local papers, some officials in our government and in the governments of some other States have been holding meetings with scholars and industrialists and their lawyers and others qualified to make suggestions and arrive at balanced judgments. The President's statement issued on May 23rd has taken into account the views expressed in these meetings. The result is, in my opinion, a well-balanced adjustment and reconciliation of seemingly irreconcilable positions.

The oil industry is particularly concerned with the proposal that the resources of the seabed beyond the 200 meter isobath be subject to international law, albeit that control out to the edge of the continental margin will rest in the government of the coastal States. The hard mineral industry is concerned mainly with the areas beyond this "international trusteeship" area. The President's proposal as to the deep sea area is necessarily general. The important question is how it is to be implemented. All I can say now is that it promises well--very well--and I congratulate the advisers who participated in preparing this position paper. If it were not at sea, I would call the document a landmark.

In anticipation of the now awaited specific proposals, there are two points I must make of interest to the hard mineral miner. Most thinking and regulating up until now has had to do with drilling for oil and gas. It is customary to require a permit for such exploration. A permit to drill is really a part of a permit to exploit. In the case of hard minerals there is a preliminary stage which does not involve an exclusive right to exploit. We call it prospecting.

It is important if the resources of the deep sea bed are to be located and developed that there be encouragement to prospectors. This means that they must be free to investigate without hindrance, to keep secret what they learn, and to be assured when the time comes for intensive exploration and development that a license will be issued that protects them from encroachment by others.

I note that the President's statement speaks of the issuance of "permits for exploration and development." I trust this means exploration permits that carry with them the exclusive right to develop in the area covered and does not foreshadow a requirement that prospecting be carried on only with permits.

Of course, the ocean and ocean floor must be protected from activities that could be harmful, but prospecting from mobile craft that does not alter the surface or subsurface of the bed of the sea to any harmful extent should not be subjected to licensing requirements. To do so would be to discourage the conscientious and law-abiding States and miners and reward those States and miners that without a doubt would carry on their voyages of discovery without so much as notifying an international authority.

The President's statement recognizes the necessity of establishing general rules "to assure the integrity of the investment necessary for" exploitation of the seabed resources. This, I take it, supports the view that the prospector who spent time and money in finding a rich bed of manganese nodules would be granted a license to exploit without "claim jumping" by others.

I appreciate that it has been suggested that there is no need for such protection. I submit that this view is not shared by those who have participated in serious and extensive prospecting in the deep ocean and in resolving the problem of separating the metals found in the nodules.

It must be recalled that any project for recovering the deep sea nodules will require more than a ship with recovery equipment. There must be land-based plants to separate the copper, nickel and cobalt. These will be located with reference to the area from which the nodules are to be recovered. The process must fit the particular type of nodule found.

The necessary ship, recovery equipment, and a land-based processing plant will call for large investment. This cannot be financed if the prospector must share his find with all comers.

These are matters to be taken care of in the convention to be worked out--but when such a convention will be worked out is anybody's guess. I have indicated that if we follow the route of the United Nations Sea-Bed Committee, it will be a long, long time to come, if ever.

This calls for answers to two questions. First, what are we going to do in the meantime? Second, what can we do to shorten the interim period; that is, what better way can we find for arriving at agreement on a satisfactory multilateral convention?

As to the first, the President has in his May 23rd statement called "on other nations to join the United States in an interim policy." This policy contemplates that each nation would, in issuing permits to operators to explore and exploit the seabed, presently subject them "to the international regime to be agreed upon" while assuring that the regime will "include due protection for the integrity of investments made in the interim period."

What does this mean? How can an operator proceed on a permit subject to conditions left to be determined by agreement between the nations? The President's announcement promises "specific proposals at the next meeting of the United Nations Sea-Bed Committee." Presumably, the United States will, in the interim, follow practices consistent with these specific proposals, particularly if other nations exercise the same or similar self-regulatory practices. If this is what the President's proposal means, I am all for it.

That it does mean this is suggested by another feature of his announced "interim policy." It is proposed that the United States set aside a "substantial portion of the revenues derived by a State from exploitation beyond 200 meters." With Congressional approval such funds would be turned over to an appropriate international development agency for assistance to developing countries "as soon as a sufficient number of other States also indicate their willingness to join this interim policy."

What is the answer to the second question--how are we going to find a way to promote agreement? The President's statement goes no further than to promise to introduce specific proposals to the United Nations Sea-Bed Committee. I trust, however, that our government will do more.

Just as it has consulted leading American scholars and industrialists and what one might call "private statesmen," our government statesmen should, in my view, consult with their counterparts in the governments of those states that have, in the Sea-Bed Committee, indicated a genuine interest in reaching agreement on a sensible deep seabed regime. The necessary preparatory work can be done to reach a consensus on a draft of treaty which, when signed by those participating in this informal procedure, can be opened to accession by all States.

The specific proposals may be discussed in the Sea-Bed Committee if its members choose, the comments made can be studied and the serious ones should be studied, but the informal discussions between the States truly interested in reaching agreement should not await progress toward agreement in a committee where only too many are interested in <u>not</u> reaching agreement.

ARMS CONTROL FOR THE SEABED

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INTRODUCTION

As a native of Rhode Island and a member of the bar of this state, I am delighted to have the opportunity to be here and in view of the importance of the sea to the history of this state, to speak to you of a matter which has deeply concerned the Federal Agency of which I am a member, and the United States Government.

I. DISCUSSION

A. Progressive Closing Off of Environments.

The draft treaty now being negotiated in Geneva which would prohibit the emplacement of nuclear weapons on the seabed and ocean floor represents an additional step in the efforts of the United States and of other States to close off progressively additional areas and environments to nuclear weapons. Since the introduction of nuclear weapons into America's arsenal in World War II, the policy of this Government has been to attempt to subject these weapons to control with hope of their ultimate elimination from any nation's arsenal.

These attempts have been partially successful; first, in limiting the areas in which they could be deployed; second, in obtaining the voluntary renunciation of States to these weapons; and third, in seeking to obtain a limitation on strategic weapons by both the Soviet Union and the United States. In 1959, the Antarctica Treaty dedicated that continent exclusively to peaceful purposes and provided effectively that it be demilitarized except in support of scientific research. This was followed in 1963 by the Limited Test Ban Treaty which closed off the oceans and atmosphere as environments in which nuclear weapons could be tested. In time, that treaty was followed by the Outer Space Treaty (1967) which prohibited the orbiting of weapons of mass destruction and the fortification or conduct of military activities (other than in support of scientific research) on the moon and other celestial bodies, which also were dedicated exclusively to peaceful purposes. In Geneva, the Conference of the Committee on Disarmament today reconvened following its spring recess and, hopefully, will conclude its negotiations on what the United States Government believes will be an effective and viable treaty prohibiting the use of the seabed and the ocean floor as the situs for the emplacement of weapons of mass destruction.

B. Arms Control for the Seabed.

For centuries, the seabed and ocean floor had received only passing attention from man. Oyster beds, conch and sponge banks received the intermittent visitation of divers whose capability to harvest this treasure was limited by

the ability to hold their breath. The pressurized diving suit added a dimension of versatility but it was not until the 1940's and the technological innovations introduced during that period that the seabed became extensively exploitable. The insatiable demand for oil resulted in a proliferation of offshore oil rigs, installed in progressively deeper waters. Security needs resulted in radar picket stations (known as Texas Towers) and improvement of a World War II invention, the Scuba diving equipment. Under current use, and subject to further development, are deep submergence vehicles with retrieving manipulators and, in the case of one commercial vehicle, limited bottom crawling capability.

Since 1967 whem Ambassador Pardo of Malta first inscribed the item concerning peaceful uses of the seabed on the UN agenda, the international community has been grappling with the concept of an international regime to regulate the exploitation and use of the seabed and ocean floor beyond the limits of national jurisdiction.

The rapid advance of technology and the tantalizing vision of the estimated wealth of natural resources locked within the seabed have stirred the imagination and interest of virtually all nations. The desire to avoid dispute, strife and conflict as well as to provide for orderly development of these resources has stimulated the efforts of diplomatic representatives to subject the seabed to widely agreed international regulation. It was an inevitable corollary, therefore, that the discussion of the peaceful exploitation and use of the seabed would lead to proposals to prohibit or restrict military use of the seabed and deep ocean floor.

The proposals made before the UN Ad Hoc Seabed Committee in 1968 ranged from a complete prohibition on military use of the seabed to a proposal that the Eighteen Nation Disarmament Committee in Geneva take up the question of arms limitation with a view to defining those factors vital to a workable, verifiable and effective international agreement which would prevent the use of this new environment for the emplacement of weapons of mass destruction.

Since the Disarmament Committee (now called the Conference of the Committee on Disarmament since its enlargement from 18 to 26 members) took up the matter beginning in its Spring Session of 1969, a realistic and effective measure to control the emplacement of weapons of mass destruction on the seabed has evolved from their deliberations. The scenario developed very quickly. There was at first submitted by the Soviet Union on March 18 a draft treaty text to prohibit all military uses of the seabed beyond a coastal zone of 12 miles. This was countered on May 22 by a U.S. draft text which would prohibit the seabed emplacement of fixed nuclear weapons beyond a three-mile coastal band. It became very clear to their respective sponsors that on the one hand the Soviet proposal for complete demilitarization of the seabed and the ocean floor was not viable in the absence of U.S. agreement; and on the other hand the United States proposal that the treaty prohibitions would begin to apply to the seabed beyond a narrow band only three miles in width did not command support in view of the rapidly diminishing acceptability of a three-mile territorial sea.

On October 7, 1969, the U.S. and U.S.S.R. jointly sponsored a text to prohibit the emplacement of weapons of mass destruction and associated installations beyond a coastal band whose outer limits were those of the 12-mile maximum contiguous zone established by the 1958 Geneva Convention on the Territorial Sea. On October 30, 1969, a revised draft reflecting the recommendations of the other members of the CCD was annexed to the Committee's report to the UN. The draft text was criticized at the UN which remanded the treaty to the CCD with the recommendations and proposals made by UN members with the request that a revised text be resubmitted to the UN at its next General Assembly. The criticisms focussed principally on the manner of delimiting the geographic area to which the prohibitions would apply and to the "limited" nature of the verification procedures. The Argentine delegation proposed that there be a redefinition of the coastal area beyond which the treaty prohibitions would apply on grounds that since the treaty itself dealt with the seabed and ocean floor, it was unwise to describe the coastal seabed zone of exception by reference to a zone of water. The delegation suggested a revised treaty provision to that effect in a working paper circulated in the UN First Committee. The Canadian delegation also circulated a working paper setting out a revised Article III which would provide for additional verification procedures beyond those specified in the Co-Chairmen's draft treaty of October 30. On April 23 the U.S. and U.S.S.R. submitted to the CCD a jointly revised text embodying many of the recommendations that had been made.

II. SCOPE OF PRINCIPAL TREATY PROVISIONS

A. Prohibited Activities

Article I of the draft treaty provides that the parties undertake not to emplant or emplace on the seabed and the ocean floor and in the subsoil thereof "any nuclear weapons or any other weapons of mass destruction, as well as storing, launching installations or any other facilities specifically designed for storing, testing or using such weapons." The description of weapons of mass destruction comprehends not only nuclear weapons (a type specifically mentioned) but also chemical, biological and radiological weapons. The concepts of emplacement or emplanting comprehend permanent installations or containers or carriers whose principal mode of deployment or operation requires physical contact with the seabed. Other equipment specifically designed for storing, testing or using such weapons are prohibited. Dual capability equipment, that is equipment capable of using both conventional weapons and nuclear weapons, is equally prohibited.

B. Zone of Treaty Application

The treaty undertakings apply beyond a narrow coastal zone of the seabed. This zone is defined in the draft treaty as having an outer limit coterminous with the 12-mile outer limit of the contiguous zone referred to in the 1958 Geneva Convention on the Territorial Sea and Contiguous Zone. The zone is measured from baselines established in accordance with the Geneva Convention, and with international law. The Convention on the Territorial Sea and Contiguous

Zone contains detailed rules which are to be used to determine the baselines from which the 12-mile zone is measured in most situations. However the provisions of the Convention do not cover all situations, such as historic bays or bays whose coasts appertain to more than one State. It was for this reason that the language "and in accordance with international law" was added at the end of Article II. In those situations where the rules of Section 2 of Part I of the Convention are explicity inapplicable under the terms of the Convention itself, the rules of customary international law will govern the application of the baselines for the purposes of the treaty. Thus the 12-mile seabed zone would be measured from the line across a historic bay only if the waters were enclosed as internal waters in accordance with the rules of customary international law. Although this draft treaty defines the baselines and the outer limit of the seabed zone by reference to the Geneva Convention, this reference in no way implies that any party to the proposed seabed treaty which is not a party to the 1958 Geneva Convention would find itself bound by that Convention, and Article IV so states. Article IV is a disclaimer provision designed to assure that this treaty stands by itself and, except as the parties may have specifically agreed between themselves for the purposes of this treaty, does not derogate from international law.

C. Verification

Article III represents a balance of views among the members of the Conference of the Committee on Disarmament concerning verification procedures. The Soviet draft text of March 18, 1968, applied to the seabed the principle enunciated in the Outer Space Treaty (Art. XII) that the installations (on the seabed) would be open to inspection to all parties on the basis of reciprocity. The United States originally opposed this proposal on grounds that access to seabed installations could be highly hazardous and, in view of the limited amount of equipment adequate for that purpose, difficult to undertake. The non-aligned States were concerned. They recognized that this treaty essentially called for self-restraint by the super powers. (In other words they were playing with our marbles.) But in one significant area these States felt that their rights were directly involved--the ability to verify treaty compliance particularly in the region adjacent to their coasts. This view was given additional impetus when the Canadian Ambassador criticized the United States' approach as too limited. In the U.S. draft treaty text of May 22, 1969, and in the Co-Chairmen's October 30 draft, verification was limited to observation, a right now recognized under the existing law of the high seas. When representatives of the non-aligned States saw that a NATO ally criticized the verification procedures recommended by the United States, they pressed their claim for additional verification procedures even more vigorously. Indeed, the Canadian representative at the United Nations was looked to by many of them for leadership and, after consulting many of the non-aligned, the Canadian delegation introduced a working paper containing more detailed procedures for verification. Briefly, the Canadian provisions added as further verification procedures, inspection by mutual consent, except where the State responsible for the activity giving rise to doubts cannot be ascertained even after consultation among the parties to the treaty; recourse to the security council if a serious question of treaty fulfill-

ment arises; full or partial assistance to be provided to the less developed parties; and due respect to be given to the soveriegn or exclusive rights of a coastal State in the natural resources of its continental shelf. One element of the Canadian working paper was dropped by the Co-Chairman in the April 23rd draft; the provision for obtaining assistance through international procedures or the good offices of the Secretary General. However, objections to this provision do not originate in or lie with the United States.

D. Other Provisions

1. The draft treaty also provides for a review conference to take place in Geneva five years after the treaty's entry into force. At that time the operations of the treaty and technological developments will be considered. While amendments to the treaty in this context are not specifically mentioned, the possibility cannot be excluded.

2. The treaty also contains a new article, included at the urging of Mexico, that this treaty would not affect the obligation of its parties who are also parties to nuclear free zone treaties. The Mexicans had in mind the Treaty of Tlateloco which was concluded by the Central and Latin American States and in the negotiation of which they played a leading role. The two treaties are highly compatible.

III. UNRESOLVED ISSUES

There are a few recommendations, made either at the 1969 CCD sessions or at the immediate past General Assembly of the United Nations which have not yet been accepted. The principal of these is the so-called "Swedish operative paragraph" which would commit the parties in an operative article of the treaty to continue negotiations in good faith in further measures relating to a more comprehensive prohibition of the use for military purposes of the seabed. The United States has opposed this on grounds that present national verification capabilities indicate that the limited ban in the present treaty draft is the only realistic measure at this time. Moreover paragraphs 3 and 4 of the preamble, taken with the provisions for a review conference, afford ample opportunity to examine whether further arms control measures for the seabed become necessary at some future date. Until such a review takes place, it would appear unwise to undertake a commitment to spend time in negotiations which could profitably be spent in considering more practicable and urgent disarmament measures before the CCD at that time.

Another recommendation which has been eliminated from the Co-Chairmen's draft of April 23 is the statement in the Canadian working paper circulated at the United Nations last fall which would permit assistance to be sought by parties to the treaty through appropriate international good offices including those of the Secretary General. Some non-aligned countries feel strongly that this arrangement should be reintroduced into the draft treaty text.

The final proposal is the Brazilian recommendation that prior to undertaking verification activities in an area subject to national jurisdiction, the verifying State should notify the coastal State and afford it an opportunity to be associated with the verification effort. The United States has opposed this proposal on grounds that the procedure would accord the coastal State new rights over activities on the continental shelf beyond that spelled out in the 1958 Geneva Convention. It would also infringe upon existing rights of any State to pursue activities in accordance with international law and the freedoms of the high seas (e.g., observation). It remains to be seen whether the Brazilians will withdraw from their position, now that the Canadian proposal has substantially been adopted by the Co-Chairmen.

CONCLUSION

The United States is optimistic that a draft seabed treaty will emerge from the summer session of the CCD, enjoying wide support of its members; and that, in turn, the United Nations General Assembly will adopt the treaty and recommend its signature by all members of the United Nations this coming fall. If this were to happen, we would imagine that the treaty will be open for signature shortly after the New Year 1971 and would be forwarded to the Senate for a favorable resolution of advice and consent.

DISCUSSION

Schaefer: Before throwing the session open to general questions from the audience, I would like to pose one question myself. This refers essentially to what is now paragraph 4 of the President's statement wherein he calls on nations to adopt a treaty under which they will renounce national claims over resources beyond 200 meters. The question that was raised by the House Merchant Marine and Fisheries Committee was that if in fact the United States has sovereign jurisdiction over resources to some greater depth, can this be renounced simply by a convention negotiated by the Executive and ratified by the Senate, or does it require action by the full Congress?

Laylin: Perhaps we need a constitutional amendment. I would think certainly the House should be included in anything in that magnitude that has to do with the raising of revenue. It is definitely the prerogative of the House.

Poirier: Under the U.S. Constitution a treaty is the law of the land even though the resolution of advice and consent required by the Constitution is given only by the Senate, and to the extent the treaty is in direct conflict with a statute that has been passed earlier, the earlier statute is repealed or no longer in force. There are times when the Executive Branch seeks the consent of the full Congress to a treaty by its enactment as law, rather than ratification following the advice and consent of the Senate. I believe that this has tended to take place in the past where revenue bills, or other congressional actions, have to be taken up in the future to support a treaty. By obtaining support of both chambers of Congress for the treaty through the legislative process, there was more likely to be continuing support in the future.

Morris: I think one other aspect of the question to be considered is whether or not a renunciation, if it comes about by way of treaty, to a part of the submerged land beneath the sea which is a natural promulgation of the U.S. land mass into the ocean, can be given away legally by treaty. It has been suggested by some that before there could be a relinquishment of jurisdiction or sovereignty over the seaward portion of that land mass, it would necessitate concurrence by both houses of Congress.

Hayes. Edward B. Hayes, Chicago, Illinois. Following the chairman's provocative question, from the standpoint of sheer legal theory, is not the same problem posed whenever the United States enters into a treaty that forbids it as a sovereign to do something? The United States can enter into a treaty. The Constitution says so. The "out," of course, is that the United States can always take it back unilaterally; but that doesn't get to the roots of the question. It seems to me, if you are going to give up certain rights of sovereignty, like an existing power of governing specified territory, in a democratically controlled society you have to have a broader generality of assent to that kind of surrender of sovereignty than you do for ordinary treaties. "It seems to me," again--for as someone said, I'm a fool rushing in where angels fear to tread. At any rate, that is a question on which I have pondered, and those are my very tentative conclusions.

Hayes (cont'd.): May I ask one question on my own? This relates to the treaty between the United States, the United Kingdom, and the Bahamas--which came along with the first two (I don't know whether it is a sovereignty or not; I don't think they know)--for the development of certain activities and facilities in the Caribbean. Is there in that treaty any suggestion, any--I hate to say "precedent," let's say "paradigm," that would enlighten the problem to which the last speaker addressed himself?

Poirier: I'm afraid I"ll have to decline to comment. I am unfamiliar with that particular treaty.

Nanda: I would like to make a comment on Mr. Morris' excellent presentation. If he has left us with the impression that a customary law has already developed pertaining to the seaward limit of a coastal State, I think that impression at the present time would be erroneous. I realize that there are some publicists who might leave that impression in a reader's mind, but as Mr. Morris knows, before a customary practice is accepted as a principle of customary international law, it's not necessary that a set time span be gone through, or that a set frequency be achieved, or that a set number of States follow the practice in question. They are all important factors, but none of them is conclusive as such. What is more important is the expectation created among the actors in the international arena and such expectation at the present time is that the seaward limit has not been frozen. I agree with that, but I suggest that at the present time there is no expectation either that a challenge would not be made to a coastal State's entension of its jurisdiction, of its sovereignty in the sea or to the ocean's resources ,to any limit; I think no customary practice has as yet developed pertaining to that sovereignty and jurisdiction. The President's present proposal is a challenging one.

Now I would like to make a very brief comment on Mr. Laylin's presentation. At times I too am critical of some of the United Nations' moves, but Mr. Laylin would probably agree with me that specific United Nations studies--some technical and economic studies--have been pretty good.

Finally, I would like to mention that this interim period does provide the United States with a great opportunity, and I agree with Mr. Laylin that what we do at the present time is going to create world-wide expectations, is going to create a precedence, and therefore I would like to say that we must accept the challenge and rise to the opportunity, keeping in mind that not necessarily what's good for the oil industry is in the best interests of the United States. Let me repeat for the record that for many reasons, important reasons, what is good for the oil industry may not be in the best interests of the United States, or the world community.

Laylin: I welcome this opportunity to say that what I said about the General Assembly was not meant to be derogatory of the General Assembly in its general role. Henry Morganthau once said it's nothing but a debating society; Foster Dulles responded, "Yes, but it is that!" I think it is a wonderful institution

to bring out a point of view on the nations; but if you are trying to reach a consensus, you don't do it in a debating society.

Schaefer: Thank you very much, sir. I would like to comment that I wouldn't be so impatient with the velocity. It took from 1947 to 1958 to deal with this problem the first time around, and we only had 85 nations. Now we have 126. I think comparatively the velocity is quite rapid.

Morris: I would like to say that I recognize that there is an honest difference of opinion among lawyers about how far seaward the jurisdiction of the coastal State extends with respect to the seabed. But I would say also that there are those who are far more authoritative than am I who have said that customary international law does recognize that the jurisdiction of the coastal State does extend to the foot of the slope. Professor Jennings has taken that position.

The other thing I would like to say is that I would hope that my remarks would not be interpreted as saying that what is good for the oil industry is good for the country. That was not my intention. I would be hopeful that both you and I, though we might have an honest difference of opinion concerning what is good for the country or the international community, would be able to see beyond the immediate interest with which we may be principally concerned.

Griffin: My name is William Griffin. I have a question for Mr. Morris, but first I would like to make an observation. It has always seemed to me that in debates and discussions of this subject, there is a dichotomy which ought to be drawn for clarity in understanding the issues, but which dichotomy is seldom articulated; and that is that there is a fundamental distinction between the present law and desirable future policy. Mr. Nanda touched on that in essence in his remarks, and so did Mr. Morris when he pointed out that there are two views on what the law now is with regard to the legal continental shelf width.

As to the debate on the limits of the legal continental shelf, there is just one footnote I would like to make, and that is that the resolution adopted by the American Bar Association House of Delegates a couple of years ago which Mr. Morris quoted should be examined very carefully because it is often quoted in the context which leads the listener to infer, rather than that the speaker has implied, that the American Bar Association House of Delegates has adopted a resolution going on record as saying that the law now is that the coastal nation has sovereign rights up to the foot of the slope. That statement merely is a fence-straddling statement, not meant to take a position one way or the other. If you look at it very closely and carefully, when it says, "to the full extent permitted by the convention on the continental shelf"; the debate today and the dabate inherent in the Nixon policy proposal is how far is that extent. The Nixon policy, it seems to me, recognizes that there is a limit and raises also the question of desirable future policy with respect to what that limit should be, as well as with respect to the regime beyond whatever does not inhere exclusively in the coastal State.

Griffin (cont'd.): With respect to the question about treaty power, I'm going to be a little bolder and venture a prognostication. We must draw a distinction between territorial sovereignty on the one hand and sovereign rights on the other hand. The Continental Shelf Convention, declaratory of customary international law, says that the coastal nation has "sovereign rights" over the resources of the seabed. It does not say that the coastal State has territorial sovereignty over the seabed itself. Furthermore, the legislative history of that phrase "sovereign rights" shows that it was deliberately adapted to native claims of territorial sovereignty.

I believe the treaty power is directed to questions of territorial sovereignty, and it would raise constitutional problems and questions if the Senate and the Executive purported to give away territory of the United States, as distinguished from sovereign rights to resources of the United States, without the concurrence of the House of Representatives. I think Mr. Laylin's answer to that, as well as the answers of the other speakers, goes to the question of desirable future policy; and regardless of what the strict constitutional law situation is, it would be desirable policy to have the House of Representatives participate in that decision when it comes.

Now I have a question for Mr. Morris. Looking at the Nixon proposal from the point of view of an operator of an extractive industry who wishes to go to a governmental authority and get a permit giving him exclusive rights and tenure and other legal protections, from the standpoint of an oil operator, are there any drawbacks to the Nixon proposal? Or on the other hand, would it not bring about a stabilization of titles in presently uncertain situations and would it not establish a means for acquiring concessions in deep sea areas which are not now presently within any coastal States' sovereign rights as that phrase is used in the treaty? And would it not maintain national control over the exploitation of resources in the continental margin in the geological sense that Dr. Schaefer used in his introductory remarks? And would it not also invest national concessions in this trusteeship zone area with a character which could materially assist the present expropriation problem?

Briefly, then, the question is would you comment on the Nixon proposal for the trusteeship zone strictly from the point of view of the needs and desires of an extractive operator.

Morris: Thank you, sir. First, I think all must recognize that the United States and other coastal States have in fact granted leases or concessions or licenses in waters which exceed the depth of 200 meters. That fact, in my view, is significant and must be kept in mind.

I recognize that Mr. Richardson argued in his testimony before the Senate Interior Committee, and that Mr. Stevenson did also, that this would tend to create a stability with respect to offshore operators. I would have to answer that notwithstanding the fact that this debate has been raging about the seaward limit of the jurisdiction of the coastal State and the uncertainty which

surrounds the question of where the seaward line is drawn, that it has not inhibited action on the part of oil operators in applying for and securing concessions and leases in deep offshore waters. Presumably oil operators have not been concerned about the lack of stability or the right or the sovereignty of the coastal State to grant those concessions. This is true whether or not those States are or are not parties to the Geneva Convention. This has been true so far as my client is concerned. We have concessions offshore Norway and offshore the United Kingdom in the North Sea, offshore Argentina, offshore the Republic of Cameroon, and in other parts of the world.

So, as I view it, I do not see that there is at the present time any grave concern about the jurisdiction of the coastal State, and consequently I do not believe that this proposal would necessarily bring about the kind of stability of title to which Mr. Richardson refers.

Blake: I am F. Gilman Blake, Jr., of the Chevron Oil Field Research Company, La Habra, California. First of all, I should like, Mr. Morris, to make it perfectly clear that I'm speaking only for myself, not for the oil industry, and certainly not for my "client." However, I'm different from Mr. Morris in that I am by training a technologist, not an attorney, and this may explain part of the difference in my point of view. As I understand it, attorneys are trained to regard anyone with whom they are dealing as an adversary. I, on the other hand, do not make the assumption that the State Department is out to get me. I'm going to assume that they are proceeding in good faith, and until I have evidence to the contrary, I'm going to assume that they say what they mean, in particular in Mr. Nixon's statement.

Let's review again a few of the outstanding points in Mr. Nixon's statement, at least they are outstanding in my point of view. What does it call for? It calls for no unreasonable interference with legitimate uses of the ocean. I don't think anybody can quarrel with that. It calls for pollution control on the oceans. It calls for development of resources. It calls for settlement of disputes. I'm sure we can't quarrel with any of those things. It did not call specifically for non-discrimination in the awarding of any leases or concessions that might be granted, but I think we can infer that.

It did disappoint me in that there was no specific mention of the importance of freedom of basic research. I attended the industry meeting on May 25 at which Mr. Stevenson spoke. I queried him on this particular point. He assured me that basic research was intended to be included among the "other uses" of the ocean, and it was a drafting oversight that it was not specifically included. So I'm not too worried about that point at the moment, although I think we should work to see that it stays in there.

It calls for a trusteeship zone beyond the 200 meter isobath on the margins of the continents. It states that the coastal State is to get a share of the revenues derived from any exploitation in this trusteeship zone, and that the trustee could impose additional taxes if it so wished.

Blake (cont'd.): I think that this is a very important provision because it insures that the coastal State has a selfish interest in the development of resources in the trusteeship zone. Without this interest it is my contention, based on experience offshore California and elsewhere, that it will be impossible to get the cooperation of the coastal State, which is essential as a practical matter to development of the resources in the trusteeship zone. This is the security of access problem that I have mentioned on previous occasions.

The President's statement called for some sort of administrative national machinery beyond the continental margins. It doesn't go into any detail; this has to be worked out. I have no comment except to say that I disagree with some of our speakers who indicated that the oil industry couldn't care less what happened beyond the margin. We do care because we want to see international peace and order, and that's the most important part of it.

The statement calls for no moratorium on exploration or exploitation. On the very short-term basis, I don't think that it is a terribly important position, but on a longer basis, let's say ten years or more, I think it certainly should be in there. I have no objection to it anyway, especially since without the moratorium there is to be an interim arrangement with a grandfather clause with respect to protection of investments made in good faith. I have a particular interest in that grandfather clause. There is a bonus in it which I didn't really expect to get, but which I wasn't worried about, and that is the part about the quota and the tax laws.

As to the question of the 12-mile limit, it has been indicated that that was not a necessary part of this treaty. I would disagree with that. One of the questions that I asked Mr. Stevenson at this meeting was whether or not the omission of the minimum distance criterion was deliberate. The answer, as I understood it, was, yes, it was deliberate, because it was intended that the 12-mile territorial sea be a necessary concomitant of this particular treaty. There were some special problems for which the detail had yet to be worked out. One of these that I asked about was the southern California borderland, or incised continental shelf.

In other words, then, I feel that the President's proposal is in fact a very useful and valuable skeleton on which we can build. A lot of details have to be worked out before we can give the final approval or disapproval as far as a member of any industry is concerned. I agree with Mr. Laylin; it is the best proposal I have seen yet.

Mr. Laylin indicated that within one of the committees of which he is a member, the expression of the oil people was similar to that of Mr. Morris. With respect to this, maybe I'm a maverick; but if so, I'm not the only maverick in the industry. I have here in my hand a letter from a senior and well-known figure in the oil industry, addressed to another of the same. I don't feel free to name them at this time because they haven't given me permission to

publish this letter,[1] but I would like to read two or three sentences of it. It's commenting on the Nixon proposal:

> "It seems to some of us, therefore, that he [Mr. Stevenson] should be given the greatest possible support and cooperation, and that the greatest care should be exercised in criticizing the proposal. Already it has apparently gotten about that the oil industry is "very angry." This is the kind of loose talk that can cause much mischief and can make it difficult to have our views heard and taken into account."

I'd like to add a footnote with respect to the Humble discovery, described as being 35 miles west of Santa Barbara. I am familiar with Santa Barbara Channel, and my company is a joint venturer with Humble on that discovery. When the gentleman says it is 35 miles west of Santa Barbara, I remind those of you who are not familiar with the geography in that area that the coastline at Santa Barbara runs almost due east and west. Thirty-five miles west of Santa Barbara does not mean 35 miles off the coast; as a matter of fact, it is only about six miles off the coast, well within the proposed territorial zone of 12 miles.

Morris: Thank you very much, Mr. Blake. May I respond? First of all, may I say I impugn the good faith or integrity of no man when he disagrees with me, least of all Undersecretary Richardson or Mr. Stevenson. I certainly didn't intend to suggest that I impugn anyone's good faith or integrity; but just as you and I may have differences of opinion concerning the conclusion to be drawn from the remarks which appear on the record, then I think we, you and I, should express them.

I didn't say, and I quoted from the news release concerning, and I didn't say that the Humble discovery was 35 miles seaward of the coastline. I didn't intend to convey that suggestion.

Lastly, my understanding concerning the conference to which you alluded and which you attended was that the answer to the question which was put concerning the interdependence of the two proposals--the 12-mile territorial sea proposal and the seabed proposal--was they are not interdependent. I like your answer better, and I hope it's right.

Poirier: I would just like to comment very briefly on the remark that Mr. Morris and Mr. Blake made about interdependence of the law of territorial sea and the question of the agreed outer limits of the continental shelf.

I think the United States generally likes to approach its present law of the sea problems in manageable packages so they can be handled more efficiently.

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[1] G. W. Haight, Esq., later kindly gave permission to be identified as the author.

Poirier (cont'd.): We worked for a long time in the UN to make sure that the experts on the Disarmament Committee in Geneva were charged with addressing the question of arms control for the seabed and the ocean floor, and to make sure that the UN Sea-Bed Committee recognized that primary jurisdiction lay with the Disarmament Committee. The question of the draft proposal on the breadth of the territorial sea is not particularly tied to the outer limit of the continental shelf. Rather, it is bound to problems involving passage through and over straits. It has also been associated with preferential fishing rights in coastal States in given areas adjacent to their territorial seas. I would think that the State Department would prefer to see the problems associated with the outer limits of the continental shelf dealt with separately rather than combine them in one package with problems relating to the breadth of the territorial sea.

Schaefer: I have one small comment. I'm glad to see that at least some members of the petroleum industry are not terribly concerned about tax and depletion benefits. At last year's conference we heard Dr. Flipse who deals with manganese nodules. During the discussion period he indicated that the major reason he would like to have some exclusive jurisdiction from his sovereignty wasn't so much because he was worried about claim jumpers, but because there were three possible benefits: one, attraction of capital investment; second, tax benefits; and third, depletion benefits; as you can see in last year's Proceedings.

Blake: May I just clarify one point? I didn't wish to imply that I'm not concerned with import quotas and depletion allowances. What I meant to say was I do not feel that that is a necessary condition to the setting up of an international regime.

Wilkes: Professor Daniel Wilkes of the University of Rhode Island, and my question is directed to the discussed constitutional question raised by Mr. Morris.

In his assessment of constitutional difficulties involved in a U.S. treaty which submits prior leases to an international regime, did Mr. Morris take into account the Supreme Court's leading precedent? This was the ruling on prior leases for fur seal killing when the U.S. and Great Britain agreed to stop all killings in the Pribilof Islands pending the binding ruling of the arbitrator in the then-pending Bering Sea Fur Seal Arbitration. There, too, you will recall, the federal government had issued leases under enabling legislation. There, too, the foreign policy power was exercised in a manner which, if purely domestic government action, could be a constitutionally prohibited abrogation of vested rights without compensation. There, too, the Supreme Court was asked by the government lessor to hold that the federal government is not--repeat not --rendered powerless by prior domestic leases from agreeing internationally to actions which new international situations require, as the Chief Executive in his exercise of his foreign policy responsibilities sees it. And there, too, arguments were advanced by the lessees that if the United States government is not powerless to make agreements to conserve resources just because it has made leases, at least the government must pay for the cancellation of those leases.

And, you recall, the Supreme Court held even this payment was not constitutionally required.

In sum, might not the real remedy for your clients be, not in opposing a presidential policy on clauses which make new leases beyond 200 meters "subject to a future international regime" which merely states existing constitutional law. Doesn't it lie, rather, in the proposal of the Stratton Commission on Marine Science, Engineering and Resources that ultimate legislation provide some offset funds for any new hardship which the ultimate international regime may--not, it seems necessary to fairly shout, must--create?

Morris: It occurs to me that there is a difference between the nature of the property right which one finds in the seabed over which the United States has jurisdiction and the nature of the property right in a seal. I have not studied that case, and I'm sorry that I can't do better in responding to your inquiry.

Poirier: The answer to the question is found in the arbitral resolution of the Bering Sea Dispute. At the end of the last century, the United States enacted legislation calculated to prevent seals frequenting the Pribilof Island in the Bering Sea from becoming extinct through excessive hunting. Under that legislation which involved extra territorial application of municipal law to nationals of other States, the U.S. initiated criminal proceedings: seizing unlicensed ships being used to hunt seals on the high seas far beyond the outer limits of the U.S. territorial sea. The crews were imprisoned and fined. The nationality of the ships and their crews, if memory serves me well, tended to be British, Canadian, Russian and Japanese.

One of the questions put to the arbitrators, appointed by the affected States to resolve the dispute, was whether the United States Government had property in the seals captured on the high seas by foreign ships and nationals beyond the U.S. three-mile territorial sea. The answer came down in the negative. There exists no valid property right in wild animals on the high seas until they have been reduced to possession. The U.S. legislation had been based on the concept that it had a property interest. The United States ultimately acquiesced in the determination. Subsequently effective conservation measures were achieved by a treaty, which remains in force.

McKnight: Maxwell McKnight, National Petroleum Council. There are two assumptions in my question, raising a problem not yet touched upon which I consider rather important. The first assumption is that there will be another international law of the sea conference and, secondly, that a new Convention on the Continental Shelf will emerge with a different mix than the 1958 Geneva Convention particularly as to the definition of the seaward limits of national seabed jurisdiction. The question is: What would be the effect of such a new convention in relation to the existing 1958 Geneva Convention taking into account that the two conventions may have different sets of ratifying countries? In this connection, Mr. John Stevenson, Legal Advisor to the Secretary of State, was asked much the same question at a briefing on May 25, 1970. He responded that

he hoped to make the Government's views known on this question in the near future and added that it may not be necessary to reopen the 1958 Geneva Convention, but merely to build on it.

Laylin: The matter is fairly complicated by the fact that the World Court in the North Sea cases said that Section 2 of the 1958 treaty was declaratory of customary international law. Now by a parody of reasoning, if a large enough or significant enough number of nations should enter into this new treaty that is contemplated in the President's proposal, then the court might hold that the new treaty became the customary international law, overriding the earlier.

Your point, I suppose, is that on the exploitability test under the 1958 treaty a State that did not enter into the newer treaty could still claim exclusive sovereign rights out as far as exploitation had been achieved, so it's a practical question all right.

Breuer: My name is Dr. Breuer, Federal Republic of Germany Ministry of Transport. Mr. Morris spoke of the idea that we need an international regime of the high ocean seabed. This is, of course, a very good idea, and it would surely find the strong support of my country and of several other countries in the world; but the task to come to such a new convention will be a very difficult one because it will find strong resistance of some old nations like Portugal, and, of course, also the resistance of a very great number of developing countries. Therefore, my point is that we should seek as soon as possible the support of land-locked countries.

I took part in the 1958 Conference in Geneva, and one very astonishing fact was that the land-locked countries did not take the floor in all discussions of the continental shelf. Under existing international law, the citizens of all nations have the same rights outside the boundaries of the coastal State. They have all the same rights in taking part in research and exploration in the high seas, but under the existence of the Continental Shelf Convention, their rights are more and more excluded, taken away. If the coastal countries have all opportunities to make exploration and research and can use the seabed in all industrial respects, then the rights of the land-locked States are excluded. They cannot take part. Therefore, I think if we should try now to come to a new convention for the international regime of the high oceans, then we should seek as soon as possible the support of such land-locked countries. This would be in my mind very useful because among these land-locked countries are a very big number of developing countries. We have landlocked countries in all continents: in America, Bolivia and Paraguay; in Asia, Afghanistan and Laos; in Europe we have Switzerland, Austria, Czechoslovakia and Hungary; and there are a number of them in Africa. I think it would be useful to have the support of such land-locked countries, and ask what Mr. Morris thinks about this.

Morris: I would say it's rather clear that if a convention of the type proposed by President Nixon is to be adopted, the support of the land-locked countries as well as a substantial number of coastal States will need to be secured; and Mr. Stevenson and Mr. Richardson have both pointed this out in their testimony.

Hedberg: Hollis Hedberg, Princeton University. I have two questions. First, however, I want to comment on an imputation that I have heard this morning--that oil people think only that what is good for the oil industry is good for the nation. I have had the privilege of being associated with the National Petroleum Council group which has been working on the matter of jurisdiction over offshore bottom resources and I want to say that the attitude taken by this group (and, to be sure, perhaps it is a selfish attitude) is not "what is good for the oil industry is good for the nation" but rather "what is good for the nation is good for the oil industry."

Now with respect to the President's statement of May 23rd. There are fine sentiments and fine goals in this statement to which all of us would subscribe; but, I ask, why is it necessary to set a purely artificial boundary of 218.8 yards for the limits of U.S. jurisdiction? What is the magic of 218.8 yards that makes that the ideal limit to coastal nations' sovereign rights over bottom resources? Why wouldn't it be better to choose a natural boundary like the base of the slope as a guide and then convert this to an exact boundary based on straight lines connecting geographic coordinates? Why try to utilize the impracticable device of a depth boundary?

My second question is, why, in order to achieve these fine goals, should it be necessary to create an intermediate zone--a trusteeship zone--involving two boundaries, one based on depth and the other on the indefinite extent of the "continental margin," with all the headaches which the delineation of such boundaries would involve? Why not a single boundary?

Laylin: Of course, there is no magic in 200 meters, but it has a historical explanation in that it was the first provision in the draft of treaty which became the 1958 Convention, and it has become more or less a consensus. Now, as exploitation has demonstrated beyond that under the treaties now drafted, the boundary moves out; the land-locked nations and others quite rightly felt that this was a creeping encroachment on the high seas in which they were entitled to participate along with the coastal nations. It seems to me the solution that the President has proposed is a very admirable balancing of the interests in this regard.

Poirier: I believe that the 200-meter isobath was selected during the 1958 Geneva Law of the Sea Conference because it was held to represent the average depth of continental shelves throughout the world. There are some that are much deeper--I think that the Antarctica shelf is 550 meters deep. However, there was a consensus at the time the Continental Shelf Convention was being negotiated that 200 meters was a fair, representative depth figure.

Schaefer: I want to comment myself on the second half of your question about the transition zone. I personally am not very happy with this cumbersome way of handling it, but I think there is a reason for treating this piece of continental shelf or slope that is adjacent to the coastal State rather in a different way than the far reaches of the abyssal sea floor which I believe one of our

earlier speakers mentioned. If you are going to be exploiting resources, say, 20 miles off the coast that are right next to the shore area, if you are actually going to be harvesting these in any efficient fashion, you must have the cooperation of the coastal State; otherwise it would cost you too much. You come clear across the ocean, drill an oil well, pump the stuff up and haul it clear back across the ocean--this certainly wouldn't make it as feasible to develop as if you can pump it ashore by pipelines, and otherwise get the cooperation of the coastal State. I think when one gets into the practicality of negotiating for the use of resources adjacent to somebody's coast, you are going to have to make an arrangement with him for logistics; otherwise you are not going to be competitive. So there is a perfectly good basis, I believe, in economic practice for treating this zone somehow differently than the middle of the ocean; although I do not altogether agree with this particular Stratton Commission recommendation.

McKernan. I think it is fair enough to say that the intermediate zone concept has been developed for the reasons that Dr. Schaefer mentioned, and also it's a reasonable compromise nationally and internationally.

Internally, we have very divergent interests. These vary from many people who see the ocean as a very important area for the defense of our country, and advocate strongly a very broad use of the term freedom of the seas. I refer you to a paper by Dennis Clift on this subject. Then there are those represented by Mr. Morris; some of the oil people have advocated a very clear and unequivocal assertion of jurisdiction not only to the slope but to the outer edge of the rise. It seems to me that the President's position is quite logical in trying to bridge these two divergent points of view within our own country, and looking internationally it seems to me, by my own personal knowledge and personal contact with nations both developing as well as developed, that this particular approach perhaps has the best chance of success of any that I can think of.

The gentleman from the Federal Republic of Germany just mentioned the question of land-locked nations. I think that is a very good point. On the other hand, there are those who have great continental shelves like the United States and others who would like nationally to benefit from these. It seems to me that the advantage of making such a proposal from the United States is that it might fly. It won't do us much good to make a proposal that has no chance of success.

In negotiating fisheries, I often find that once you can find an agreement within the various divergent opinions in the United States, you can pretty well sell it internationally.

One other point: Mr. Morris gave a very interesting talk this morning, and in the discussion on his point of view, I made note of two statements that he made with which I disagreed; but it is delightful for someone coming from Washington to hear someone who sees things very black and very white. He made a statement at one point that the President's statement was clearly contrary to the best interest of the U.S. He also made a statement that it was wrong in principle. I personally see nothing wrong in the principle advocated by the President.

It isn't clear to me that it is contrary to the best interest of the United States. There are many other people that would like to express their opinions.

Morris: As I made it clear earlier, that represents my point of view. I recognize that there are other points of view, and when I say to me it seems to be contrary to the best interest of the United States, I say it in the same sense that others who share my point of view say that it is contrary to the best interest of the United States to adopt an international boundary which is more landward than the seaward edge of the slope. Some would argue that it ought to be to the seaward edge of the continental rise.

Turning to the point about the 200-meter line, my feeling concerning why the 200-meter line is inappropriate as an international boundary stems in some large measure from the fact that we are not starting with a new slate today. We had an existing body of law and an international treaty to which we are party which says that the jurisdiction of the coastal State extends to the 200-meter line, and to such greater depth as the superjacent waters admit of exploitation. Although two parties may disagree concerning the meaning of the latter phrase, I suggest to you that all must agree it means some point beyond 200 meters. And that being true, then I have difficulty with a new proposal which renounces, as the President does, our claim beyond the 200-meter line.

Eichelberger: I'm very much impressed at the breadth and liberalism of this discussion here today from when the subject first came up at the Institute a few years ago; and I'm impressed at the common feeling of humanity that is developing toward the solution of this problem for the best of all mankind. I heard Ambassador Pardo deliver his address before the General Assembly a few years ago. Most governments wished he'd never thought of it, particularly the great powers; and the small states scarcely knew what he was talking about. But the General Assembly has met several times, and the UN Permanent Sea-Bed Committee has met. Progress is slow, and there have been very difficult arguments, but I think one thing which speakers yesterday have shown is that there is developing a common sense of humanity and community purpose toward the 70 percent of the earth's surface that is not subject as yet to sovereign claims.

If this 70 percent could be sealed off as a common heritage of mankind, arrangements so made that those who have the capacity to explore and exploit can do so, certainly that would be one of the greatest steps that has been taken for mankind. It would be unthinkable that in this 70 percent there should now be such rivalries, where one has the right to go such a distance out until he meets someone coming the other way. You can have a struggle today involving the developing states; the big coastlines that don't know what to do with their resources, whether to lease them to the petroleum industry or not. You can have an unfortunate power struggle and a colonial race. It doesn't take the imagination of an Ambassador Pardo.

The imagination is in the President's proposal. Much of it needs clarification, I would agree, but I think it put forward the concept that there are

great resources, in a great area, that are a common heritage of all mankind; and that all mankind would have the right, by leasing and other, to develop according to his capacity. It seems to me that's much bolder than talking about what is best for the United States. I believe that the important thing today is what is best for humanity, and I believe we will find that what is best for humanity is best for the United States.

In conclusion, modern science, modern technology is developing beyond our imaginations; 90 percent of all the scientists that the world has ever known are alive today. The capacity to explore and exploit the seabed today has gone way beyond what any would have dared predict in the General Assembly's Sea-Bed Committee two years ago. Representatives of our government and other governments made statements about the limited capacity of technique in the seabed that they wouldn't possibly repeat. It seems to me that we have to recognize the great challenge, and that we will have to develop forms of control, forms of world government, that we could hardly imagine today. It could very well be that this vast area of the sea is the first area in which we can make this great experiment in world society and still preserve the interest of people according to their capacities to develop.

Esterly: Henry Esterly, New York City Community College. I would just like to make a brief comment on Chairman Schaefer's initial question which was whether or not the President of the United States through a new treaty could renounce existing treaty rights, whatever purpose they might seek to accomplish.

The question reminds me somewhat of the present Cambodian debate. Perhaps it is not as important; perhaps it wouldn't tear the country apart the way Cambodia has, but we have been considering whether or not the President has the power as Commander-in-Chief to go into Cambodia. Here, too, we are questioning whether or not the President has certain constitutional powers which already have been fully outlined in the law and also in American practice and historical precedents. I think we should be very cautious regarding the possible setting of a precedent such as the previous speakers Mr. Hayes and Mr. Griffin suggested, that the President, in exercising his treaty powers, should engage in prior consultation with the House of Representatives. I do not think that it would be politic to consult formally with the House. Certainly, it would be politic to do that informally and to prepare the groundwork very carefully before any treaty which would change or renounce existing rights, especially, for example, those concerning the exploitation of the resources of the high seas, is entered into.

The Senate as a body is broadly representative enough to provide a forum in which the President under the Constitution can attempt to secure agreement to any treaty which is proposed. If by treaty a President can acquire, for example, the Louisiana Territory, which back in the days of President Jefferson was acquired by treaty, then certainly the President through the same process can also give up territory and could also give up rights.

Esterly (cont'd.): In addition, I want to emphasize one of the points which was mentioned, that treaties are the supreme law of the land. The Constitution says that together with, or on an equal level with the Constitution, treaties are the supreme law of the land. In the case of Missouri vs. Holland (1920), it was held that treaties can accomplish their objectives without Congressional legislation.

Let me conclude, therefore, by saying that I do not think it should even be suggested that the President, in making a treaty through the usual process of getting the views and consent of the Senate, should also go to the House of Representatives.

Herrington: Mr. Chairman, yesterday Professor Henkin said something to the effect that when a gentleman in the legal profession stated that he was defending some position because of principle, not money, it meant money. In a similar vein my observations have been that when a member of the diplomatic profession states he is voting for some proposal in the interest of mankind, he means in the interest of his own country.

Now with respect to the proposed "trustee zone." Somewhat like "exploitability" in the 1958 Shelf Convention, the "trustee zone" is a compromise that might make the overall proposal palatable to most coastal States. It avoids drawing a sharp line off their coasts where their control terminates. Most of these countries would resent having the sea area a short distance from their coasts under the jurisdiction of an international body which might be dominated by interests they oppose. The trusteeship arrangement would enable them to run the show in this area. It is proposed that the trustee pay some part of the income from the zone into an international fund. However, it would not be too surprising if somewhere along in the discussions it should be decided that developing countries would be exempt from such payments. In the course of twenty or thirty years this trustee zone very likely would be pretty well incorporated under the jurisdiction of the coastal State.

The "trustee zone" then is a stroke of genius that might make the overall proposal sell internationally.

INTRODUCTION

Gerard E. Sullivan
Woods Hole Oceanographic Institution

The discussions thus far have principally concerned themselves with some of the legal and political issues that have resulted from activities of national sovereigns, of international organizations such as the UN General Assembly, and from the current very pronounced focus on the oceans and the world community.

Our subject this afternoon concerns itself with another international aspect of the oceans--the science of the oceans--and as your agenda tells you, the topic is the Intergovernmental Oceanographic Commission, or IOC, as it is most generally referred to.

I expect that I should note here that there are probably two general groups of people in the audience this afternoon: one which is intimately familiar and conversant with the IOC and its activities, and the other with little understanding at all of the workings of the organization.

The Commission itself traces its origin back to 1960 at a meeting in Copenhagen, which, among other things, was concerned with the possibility of acquiring or constructing an international research vessel, a major vessel to ply the oceans of the world doing scientific research. The vessel as such never came into existence, but the idea for the IOC did. This idea was given its proper birth at the 13th general conference of Unesco. Since that time the Commission has concentrated primarily on the promotion of scientific efforts in the ocean and an international cooperation among its member States.

Our first speaker this afternoon is Dr. Sidney Holt, Secretary of the Intergovernmental Oceanographic Commission and the Director of the UNESCO Office of Oceanography. Dr. Holt will direct his comments on the IOC principally in terms of its new and developing role as a lead international agency for expanded programs of ocean research.

The second speaker is Professor Warren S. Wooster of Scripps Institution of Oceanography and present president of SCOR. Dr. Wooster was the first Secretary of the IOC and director of its Office of Oceanography.

Our final participant, Mr. William L. Sullivan, actually should not be listed as a speaker since he was good enough to come on board this particular panel this afternoon in a very impromptu fashion. He has no prepared statements, but is readily identifiable by his knowledge of the IOC and of marine science generally. He has, I believe, attended every session of IOC since its inception, and nearly every Bureau and consultative council meeting. There are few people in or outside of Washington who know more about these things than Bill.

THE INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION - A BIASSED HISTORY

Sidney J. Holt, Secretary
Paris, France

Why biassed? Because I am a biologist, and especially a fishery biologist. Because I worked for FAO throughout the period of existence of the IOC. And because my six months as IOC Secretary is long enough for me to be impressed with several of our problems, but not yet clearly to see many solutions. Thus, although I have been associated, indirectly, with the IOC since its conception, my direct experience with its work is very limited both in time and in breadth of subject. Certainly some of you will know much more about some aspects of our Commission's work than I do. Nevertheless, it is perhaps worthwhile for the benefit of others not so well informed, for me briefly to summarize its history, and--what is very important in the present context--the relations of its activities to those of other intergovernmental organizations, especially those of the United Nations system.

Until the mid-1950's the flag of marine science was flown within that system, practically speaking, only by FAO--involving the Biology Branch of the then Fisheries Division, and FAO's two regional Fishery Councils. Oceanographers thought, however, that FAO was not then sufficiently strongly or broadly oriented towards science, and the Science Sector of Unesco seemed to offer a more congenial intergovernmental home for them; a further advantage was membership of Unesco by the USSR--then emerging as a powerful force in marine affairs. Thus an International Advisory Committee on Marine Science was formed in Unesco; for a few years it advised on the allocation of small sums for individual research activities, discussed the pros and cons of an international oceanographic research vessel, and helped orient a small program of training of marine scientists through fellowships and short courses. It also served as forum for informal consideration of development of a special intergovernmental instrument in the UN system.

In the same period the oceanographers also organized themselves better internationally at the non-governmental level, and the Special (later Scientific) Committee on Ocean Research was formed, in ICSU. SCOR initiated the International Indian Ocean Expedition, the IGY showed the effectiveness of cooperative investigations on planetary and regional scales, under ICSU auspices, but the need for complementary intergovernmental action as far as the oceans were concerned quickly became evident.

By 1960 the idea of an Intergovernmental Commission, to be sponsored by Unesco, had been clarified. The FAO Secretariat proposed at that time first that the program activities should be worked out in common by Unesco, WMO and FAO, and then, specifically, that the new Commission should be a joint one between Unesco and FAO. This idea did not carry because many oceanographers had a poor opinion of FAO's record, and government representatives said it would be too complicated (despite positive experience, before and since, of inter-Agency joint organs)--they were supported by the opinion of the Unesco Secretariat. From that time on marine science developed, in the UN system, in two parallel

streams, with some cooperation but little real coordination. To these streams--roughly labelled fundamental oceanography, and fishery research--were added in the following years the significant, though smaller and less clearly differentiated, marine science efforts of WMO, and later, and even smaller, of IMCO and the UN, as well as the specialized program of the IAEA. "Oceanographers" regarded the IOC as "their" organization, whereas marine fishery research workers increasingly gravitated to FAO. The oceanographers had an alternative, non-governmental instrument, in SCOR; the fishery scientists had no such body--they had, and still have, only very slender connections with the ICSU system, but they did, and still do, have the scientifically oriented elements of international fishery commissions as regional rallying points, and a quasi-non-governmental organ in FAO's Advisory Committee on Marine Resources Research (ACMRR).

In the 1960's marine science in the UN Specialized Agencies prospered. It was "coordinated" in the way characteristic of the UN System, at the level of secretariats (not of States), through a new Subcommittee on Oceanography (later on Marine Science and its Applications) of the Administrative Committee for Coordination (ACC). Unesco itself supported not only the Secretariat of the IOC, but also SCOR, and it developed an activity of assistance to States, especially developing countries, mainly through its "regular program."

FAO had fairly good scientific links with the IOC through the acceptance (not without some debate) of the ACMRR--augmented by Soviet scientists--as a scientific advisory committee to the Commission (the other, of course, was SCOR, from the beginning). As concessions to the interests of other Agencies and especially of FAO, the Statutes of the IOC had provided for various links with them--its reports were sent to them, they might assign their staff to the Secretariat, and the Commission might make appropriate recommendations to them. However, these Statutes were considered so inequitable that none of them ever assigned staff, and they paid rather scant attention to the reports and recommendations. FAO not only increased its regular staff and budget very considerably (including substantive efforts in connection with "the environment," as well as with scientific assessment of fish stocks) but also became the executor of very large national and regional development projects using UNDP funds, and which contained significant elements of marine research. So evolved the situation in which the IOC coordinated certain large national activities, and also discussed "mutual assistance," though to little practical effect, while FAO delivered research vessels to many developing countries, established marine research institutes in them, and trained their scientists.

The next impetus for change came with the passage of resolution 2172 by the Twenty-First United Nations General Assembly in December 1966, after eight years of relative lack of interest in marine affairs at that level since the law of the sea conferences in 1958. This called for a survey and proposals concerning Marine Science and Technology to be made by the Secretary General. These were considered by the Twenty-Third General Assembly two years later, and led to the passage of its resolutions 2414 and 2467 which set the seal on the concepts of a "Long-term and Expanded Program of Ocean Exploration and Research" of which an

important element was to be an International Decade of Oceanic Exploration, starting in 1970. All the UN organization concerned (and it was their representatives who played the major part in formulating the Secretary General's proposals also) were prepared to agree that the IOC should be regarded as the focal coordinating point for these activities, provided it were suitably broadened so as to be fully competent and permit an equitable relationship with those organizations. During 1969 the foundations of this "broadening" were laid. The fora of discussion, centered mainly on the revision of the Statutes of the IPC, were an ad hoc Working Group of the IOC, a new and continuing high level inter-secretariat committee, and the Sixth Session of the Commission itself. Again, a proposal of FAO, generally supported by several of the other organizations, was for the Commission to become a joint Commission under all the organizations which were prepared to support it; this time the proposal was strengthened by the great success of the World Food Programme, a joint effort of FAO and the UN. However, again the desire of States for "simplicity" and particular legal arguments prevailed, and the revised Statutes, adopted by the Sixth IOC Session, to be submitted for approval to the Unesco General Conference in November 1970, provide for continuation of the Commission formally as a body of Unesco and of Unesco alone. However, there have been a number of important changes designed to broaden the scope of the Commission's activities, to encourage other agencies to support the Commission in various ways, and to form a joint secretariat for the Commission. It is my main task now to try to make this arrangement work, and in fact as far as the Secretariats are concerned we are working, even during 1970, effectively in the terms of the new statutory provisions. Before I examine these most recent developments in detail and come to the problems associated with them, I should recapitulate the steps for development of the scientific program itself.

In this the scientific advisory bodies have generally been a step ahead of the Commission, as might be expected. They formed a joint working group which met on Ponza, Italy, in April-May 1969, and produced a report which, taken together with proposals received by the Commission from States, formed the basis of a "comprehensive outline of the scope" of the program approved by the Sixth Session of the Commission in September 1969 and "noted with appreciation" by the Twenty-Fourth United Nations General Assembly in its resolution 2560 (Jan., 1970).

The Sixth Session also decided to establish a group of experts on long-term scientific policy and planning to keep the LEPOR under review and advise on its implementation. It could not agree, however, on the principles regarding the selection and composition of the group; this was left to decision by the Commission's Bureau and Consultative Council in January 1970. The difficulties concerned the role of the scientific advisory bodies and the degree of injection of the views of States into the work of such a group. They have been resolved, temporarily at least, through the Bureau's approval of a nomination and selection procedure which is, however, so complex a compromise that the formation of the group is proceeding rather slowly. It is not very likely to produce proposals in time for them to be made known to the Twenty-Fifth General Assembly,

but it must at least report to the Seventh Session of the Commission (March 1971) which is already more than a year after the starting date for the IDOE. The situation might be worse were it not for the fact that detailed proposals are rather slow in coming in from countries.

After this rather lengthy introduction, I will now examine present problems and perspectives.

1. Funding

The Commission receives its basic funding from Unesco, within the biennial budget of the Science Sector, Department of Environmental Sciences and Natural Resources Research ($241,000 in 1969/70). This is complemented by a Unesco budget ($491,000 in 1969/70) for promotion of the general advancement of oceanography, itself supplemented by $470,000 under the UNDP(TA) program. The Director General of Unesco invited the Commission to advise him on the required level of funding from Unesco; the Sixth Session agreed that an increase of about 50 percent in direct support of the IOC was needed in 1971/72, and a significant increase (10%) on the "promotion" side was also desirable. In his proposed budget, which has just been examined by the Unesco Executive Board, the Director General has been able to go rather far in accepting this advice in proposing a 38 percent increase for IOC activities, but considering the overall ceilings within which he is working, is not able to increase the "promotion" budget. The Executive Board of Unesco has shown very great interest in oceanography and clearly sees this as one of the priority areas for continued expansion of Unesco's science program.

The Sixth Session of the Commission also advised that the total support needed from all cooperating agencies in 1971/72 was at least $450,000. This would imply $60,000 in each of those years from FAO, WMO, IMCO and the UN. We do not know yet whether it will be possible effectively to attain that level, although I have some doubts, considering present trends. The other organizations have different budgetary periods and systems, and some of them very limited resources. Their support is made available not in cash, but in kind, mainly through providing conference services and assisting with publications. We had some such arrangements in 1969; they are working quite well, but the advantage is slightly offset by the additional burden placed on the Secretariat (and its travel funds) by conducting more meetings of IOC bodies away from headquarters. The other agencies also have, like Unesco, marine science programs which may be considered as complementary to the IOC; FAO notably has a rather substantial "regular" budget (much of which is devoted to the provision of important--and unique--information services, and also, of course, a very large--by our present standards--UNDP-funded field program which has a considerable element of science in it).

The revised Statutes of the Commission provide for it having, as an additional resource for its work, a Fund-in-Trust. Such a fund has now been established; there is as yet no money in it. To the knowledge of the Secretariat, one member State is at this time considering a specific proposal for an alloca-

tion to the Fund. Meanwhile the Commission has provisionally identified the priorities for use of any monies deposited; these include seagoing training, support of special ocean services, and synthesis of results of cooperative expeditions.

2. Secretariat

The Sixth Session of the Commission estimated a need for the staff to reach, by the beginning of 1972, the number of ten professionals and ten general service. Professionally, it consists at present effectively of four posts: Unesco (one vacant), plus one FAO (just appointed) plus one WMO (80% of time) plus one IMCO (up to 50% of time, to be appointed in near future). The proposed Unesco budget provides for one or perhaps two more by early 1972; the uncertainty derives from an as yet undecided allocation between staff assigned to the IOC Secretariat and those to the strictly Unesco program. Recruitment to new and to vacant posts--perhaps inevitably--tends to be slow in the UN system, and Unesco is no exception in this respect. The staff assigned from other organizations will now, as the revised IOC Statutes provide, work under the supervision of the Secretary who is a Unesco staff member (though not necessarily, in future, the Director of its Office of Oceanography). In implementation of the new Statutes, the Director General of Unesco consulted the other executive heads and the Executive Council of the Commission before appointing the Secretary.

There is thus a clear basis for a joint secretariat; present plans of the UN organizations concerned do not yet, however, envisage support at the level which the Commission itself thought necessary, and which I consider would be a minimum workable nucleus for the Commission to implement its new responsibilities. Certain secretariat services are of course provided by other sectors of Unesco (legal advice, translation, and so on), but most of the operations of servicing the Commission fall to the IOC Secretariat itself, and I find it grossly understaffed for this purpose, and especially clerically.

3. Scope of the Commission's activity

The Commission has sponsored and coordinated a number of cooperative investigations. As certain of these finish, others are starting. The Commission is still, however, engaged with the direct follow-up of the very first of these, the International Indian Ocean Expedition (IIOE) which it took over from SCOR--publication of collected reprints, supporting study of biological collections, preparation of atlases of results, and so on. Thus, commitments in connection with this kind of activity continue to rise steeply, and show no sign of leveling off. At the same time, little attention has been given to assisting the evaluation and application of these results to practical purposes; yet such practical purposes are among the declared objectives of such investigations. Certainly the more advanced countries will take steps to ensure their own exploitation of the data obtained--and they take a particular interest in the efficacy of arrangements for international oceanographic data exchange. But the less advanced countries need assistance in utilizing existing information for their own benefits. This is perhaps mainly the task of certain of the supporting

organizations of the UN family, but I believe the IOC itself, and its Secretariat, have a role to play in this respect, which they have not yet been able to do.

More recently the IOC has initiated the planning of an integrated global ocean station system (IGOSS). This work is carried out in cooperation with UN agencies, representing some of the potential "users" of the products of such a system, and particularly with WMO which is also concerned with such technical aspects of the system as data transmission and the use of common platforms for securing both oceanographic and meteorological data. The IGOSS project, concerning essentially "real-time" data, is closely linked with the general problems of exchange and archiving of marine data, and thus with the development of a world oceanographic data exchange system. A major problem here is the enormous rate of increase in the volume of data, such that the original idea of World Data Centers (WDC's), maintained by large nations as an international service for holding all data, is no longer tenable; the trend seems to be towards a network of national centers (NODC's), with WDC's acting as inventory-referral centers (and in the interim assisting countries with no NODC), and linked with a series of specialized disciplinary centers. I believe it must fall to the IOC to be a coordinating and stimulating center for such an evolving system.

The Commission has become involved with two different but related legal problems: the legal status of Ocean Data Acquisitions Systems (ODAS), and the conditions of conduct of research by countries in areas falling to some extent under the jurisdiction of another State. The ODAS problem of course is related to IGOSS, which cannot conceivably develop far until a legal status for ODAS of all kinds can be established. Although the IOC initiated the required legal and technical studies, and has cooperated closely with IMCO, which has responsibilities concerning markings and safety aspects, there is still some uncertainty as to the responsibility for the next steps, leading to a conference of plenipotentiaries to negotiate a treaty. Some believe the IOC itself should call such a conference; others that it has no such authority and that a new convention is to be negotiated under the auspices of Unesco or IMCO, or jointly by these agencies and perhaps with FAO and WMO. Others wish to see the UN involved in this matter, and even link it with a possible more general conference on the law of the sea in the fairly near future. On the other hand, the people more directly concerned are most anxious that a status for ODAS be established without further delay and do not wish it to be impeded by broader and possibly prolonged discussion on the breadth of the territorial sea, the limits of the continental shelf, and so on; they point to the fact that the IOC/IMCO studies have already resulted in useful draft articles, while their opponents point out that the wording of some of these at least has broader legal implication.

As to the facilitation of research, the IOC position now finds expression in its Resolution VI-13 which defines the Commission's role in assisting States to find favorable arrangements among themselves, and sets out the principles to which the Commission's assistance will be subject. We do not yet have sufficient experience to measure the efficacy of this resolution.

One body of opinion tended to resist the Commission's becoming engaged with these legal problems. Circumstances once having led the Commission into them, however, it is not feasible, nor would it be considered desirable for the Commission to withdraw from such involvement. It does, however, have a day-to-day impact on the other activities of the IOC, which has to be taken into account and allowed for in the future. It also provides an important example of the complexity of decision, within the UN system, concerning the appropriate means to deal with specific marine problems.

The Commission is now responsible for the coordination and promotion of LEPOR, and will also have to take its share of the responsibility for implementing it, alongside individual nations and the UN agencies concerned. The former responsibility shows signs of being rather complex concerning as it does the activities of not only the seventy or so member countries and the UN organizations, but the work of several other intergovernmental and international non-governmental scientific organizations. The eventual degree of the Commission's involvement in implementation is not yet clear; it is related to the undertaking given by organization members of ICSPRO that they will use the Commission as appropriate in the execution of their own programs. It seems to me that the Commission is the obvious instrument for them to look to for development of general monitoring of the marine environment (including pollution monitoring) through concerted actions by States, and the conduct of multi-disciplinary and multi-mission regional studies the further needs for which emerge from LEPOR. An example of a type of pattern that may evolve is given by the recently approved Cooperative Investigation of the Northern part of the Eastern Central Atlantic (CINECA). Essentially ACMRR conceived this project, it was hatched by the ICES and the FAO Fishery Committee for the Eastern Central Atlantic (FCECA), godfathered by SCOR, baptized by the IOC and laid at the doorstep of ICES to nurture, under the watch and with the help of FCECA and the IOC!

Lastly, under the revised statutes the IOC provides technical guidance as to the formulation and execution of the marine science program of Unesco, and under the ICSPRO agreement it will similarly review such programs of the other member organizations of the UN family. If it is fully exercised this will provide for the first time a means for synthesis of all such programs at intergovernmental level, and with an inter-agency secretariat to assist in the task, in addition to the present arrangements for inter-secretariat coordination through the ACC. The need for such synthesis is I believe now recognized, and derives essentially I believe from (a) the enormous scale of ocean research needs, far beyond individual national possibilities; (b) the non-national status, in law, of a large part of the ocean and its bed, and the organic and dynamic links of this part with the smaller, but productive parts falling under national jurisdictions; and (c) the common means, and special technical difficulties, of gaining adequate access to the ocean by men and their instruments.

Now much depends on the attitudes to be taken by governments, in their delegations to the IOC and to the governing organs of the supporting UN organizations. The IOC delegations will need to be more broadly representative than hitherto of all the marine science interests and activities in their countries;

and governments will, we hope, agree to leave the technical program scrutiny essentially to their representatives to the Commission (as I believe the Unesco Executive Board always has, the IOC being a body within Unesco), and to confine themselves within the governing organs of the UN agencies to policy and budgetary decisions. If, however, we find that the separate parts of the program continue to be discussed in depth in the organs of all agencies, and in the IOC, we may achieve a marginally better coordination, but not much else--only a further complication rather than the hoped-for simplification in arrangements for handling international marine affairs; leading possibly to a disenchantment with our experiment in organization, and perhaps furthering the belief that some already hold that the only effective solution would be the creation of a completely new and separate organization.

Success of the limited joint arrangements provided for under the revised statutes will be facilitated to the extent that, by common agreement, the growth, structure and activities of the Commission are not confined or distorted by too strict an application of the general policies established by the governing organs of the several supporting organizations. Such policies may not, individually, be entirely beneficial to a body such as the IOC, and they also may not all be in harmony.

4. Relations with States

The Commission will be credible as a program review body only if its membership includes practically all States interested and engaged in marine investigations. This is not yet so, but membership continues to grow--three accessions in recent months, since the Sixth Session, have brought our number to 70. Some oceanographically active or interested States are not at the time of writing members--for example, in Africa, Sierra Leone, Nigeria and Kenya--but I believe most very soon will be.

Several members are not very active, it is true. I have heard it said that the Commission might have been more effective if its membership had stayed smaller. Certainly a more tightly knit, homogeneous organization might have avoided certain problems, and continued effectively to organize cooperative investigations, but it could not have achieved the present stature by which it qualified to be given a chance as a scientific focal point in the UN system. Nor could it aspire to being the general program review body, or an effective LEPOR coordinator. Nor could it get very far with the legal problems, which mainly derive from attitudes of coastal States whether or not they are active in marine research.

I have recently also heard it said that the Commission is essentially a tool of the maritime powers. The developing countries, of course, have a part of the answer in their own hands: they can join the Commission (they already have a majority, but the Commission has not so far normally taken decisions by vote), work within it, and influence it. But only a part--many of them have a real difficulty in sending knowledgeable delegates and specialists to meetings (which continually increase in frequency and degree of specialized discussion)

and to participate actively in cooperative programs. The overwhelming need here is for international assistance. The IOC has discussed this in terms of mutual assistance, and one day the Fund-in-Trust may contribute, but so far by far the most important potential source and means of such assistance is through the UNDP, and especially the Special Fund sector. In this respect, because the UNDP is mission-oriented in relation to research (and has not been particularly research-oriented, although this policy seems to be improving, from our point of view), FAO has been able to achieve much more than has Unesco, although the technical assistance by Unesco, on a smaller scale, has been flexibly and effectively applied, especially of course in connection with training and education. However, I believe that although specific mission-oriented projects, especially fishery projects, will continue, it will be very important and efficient to find a way for support to be given to more broad marine research and development projects, execution of which might be entrusted to the IOC itself, with the administrative backing of its parent agency. There are certainly, however, considerable procedural difficulties with such a solution, and perhaps insuperable ones even under the revised statutes.

The converse problem concerns the attitudes of the group of more developed countries. By and large these countries look to the UN agencies--some of them at least--as media for contact with the developing countries rather than as instruments for serving their particular purposes as a group; for the latter and for solving their common problems they often look more to regional organizations outside the UN system. The more developed countries have nevertheless always supported the IOC rather strongly, and still look to it to a considerable extent to assist in cooperation among themselves. I believe this to be particularly true of the USSR and USA; slightly less true of the European States with a long tradition of cooperation through other means in the North Atlantic. So one task now is for the Commission to retain that interest, and it can do that, I believe, mainly by being efficient and swift and flexible in action. This may be difficult because as the Commission gets bigger and older a distinct trend to formalization of procedures is appearing. I hope it can be countered, but this will be difficult in view of the complicated support arrangements now envisaged.

But then, of all places, work in the ocean is such that the two groups--the more and the less developed--cannot pursue separate paths; they interact too completely. And, one of these, the less developed, is after all not really a group at all; some States in it now have relatively rather well-developed marine institutions and a number of first class scientists, others are interested but still have virtually nothing. The Commission has to carry them all along with it.

I think it likely that implementation of LEPOR will, to a considerable extent, turn out to be necessary on a regional basis. Again, as far as marine science is concerned, FAO has of the specialized agencies by far the most important continuing regional arrangements, especially through its regional fishery commissions, councils and committees (and to a lesser extent certain regional fishery projects); but none of these provides the virtual total coverage of marine science that ICES gives for the North Atlantic States. Unesco, on the

other hand, has only occasional ad hoc regional meetings, and the thin spread of two regional TA experts; the IOC itself has in its cooperative investigations ad hoc regional activities. Such specific projects of course have much to commend them, but there is clearly a need for continuing regional efforts, as projects such as the Unesco supported Indian Ocean Biological Center have shown. I believe there is a case for developing more broad regional organizations, perhaps in some cases by a broadening of the FAO fishery bodies (or, in the Mediterranean for example, amalgamation with other non-UN system intergovernmental organizations), in other cases starting virtually from scratch. With such development would go the needs to establish appropriate working relationships of these with the broadened IOC, and providing joint secretariats not unlike the joint arrangements for the IOC secretariat.

5. Relations with the scientific community

Scientists associated with ICSU/SCOR showed trust and optimism with regard to intergovernmental action when they handed over the IIOE to the IOC. More recently some of them have expressed second thoughts; they wonder if scientists are losing control of the scientific operations. Such doubts have been magnified by the difficulty the Commission recently had in deciding on the principles of selection of its group of experts on long-term scientific policy and planning, which will take the next step in development of the LEPOR. It is true that quite frequently delegations of some States do not include scientists but this is often related to the problem of developing countries already mentioned. But it seems to me that oceanographers are still widely represented on delegations; they cannot expect always to lead such delegations--though they often do--and furthermore they retain a very important influence through the three scientific advisory bodies. It is to me of prime importance to ensure a very lively relation between the Commission and these bodies. Their financial support still comes largely from the UN agencies that are also supporting the Commission. And it is to their advantage, I think, for it to be evident that an IOC session is not an assemblage of oceanographers but of representatives of States; certainly with limited statutory powers, but with very considerable authority and with governments behond them. The proposals for "broadening" of SCOR, to be debated at the Joint Oceanographic Assembly in Tokyo this September, seem an important step in consolidation of the scientific authority and influence of that body, but it is important that ways be found of associating the large numbers of marine fishery scientists with it in its new form, as well as meteorologists and geologists interested in ocean problems.

The Commission itself has asked Unesco to augment its support for SCOR, and I believe this can be achieved.

6. Relations with other organizations and plans for global environmental monitoring and research

The Commission has so far given very little attention to this problem, but I believe it will soon need to. For example, Unesco is proposing a program on "Man and the Biosphere," to be coordinated by a new intergovernmental council,

Consultations with other agencies are in progress and the new program will exclude the ocean sector. Nevertheless, some biological problems are of global dimensions, and concern the totality of land, fresh water, sea and atmosphere; some coordination arrangements of MAB with the related biological program which is within LEPOR will clearly be necessary, both for such general matters, and to ensure that the interfaces of these elements are efficiently investigated--the estuaries and coastal areas. Again various organizations such as WMO and the UN itself are discussing pollution monitoring systems of planetary scale, while development of such systems with respect to the marine environment are envisaged under LEPOR/IGOSS.

7. Provision of services to the marine science community

I have already referred to data exchange; under this heading I am considering such activities as provision of international bibliographic and literature reference services and assisting specialized national libraries; maintenance and publication of directories--of scientists, institutions, organizations, research facilities, research craft and other ODAS, of opportunities and facilities for education and research; schedules of research cruises, information about instruments and equipment, and so on. The IOC and Unesco Secretariats are at present ill equipped to meet the demands being made for such services. This is partly a problem of staff, but initially of decision and of organization. FAO has gone rather a long way in preparing for them, Unesco is now contributing to broadening the scope of the FAO activity and WMO may be able to join in this cooperation. But the practical problems of developing an integrated system through efforts at a number of different locations are considerable and I believe we shall need to work toward a further centralization of such services if we are to avoid much duplication of staffing, and rely more and more on modern telecommunications and computers for the effective retrieval and transmission of the information as required.

I will not attempt to summarize these remarks, but a few general points are as follows:

(a) The broadened IOC can provide a better instrument than we have had before to facilitate international cooperation in marine exploration and research. Its effectiveness will depend on the evolution of attitudes of supporting agencies to it, and of States to it. We may expect States to support it more broadly as they resolve their national problems of coordination or integration of marine activities within many departments of government. The progress of such resolution will be reflected in attitudes within governing organs of agencies.

(b) For how long the new arrangements will prove adequate depends on the pace of growth of marine science, again of course depending on evolution of government policies towards the ocean. In present form it can be an effective planning body. But if marine investigations by States grow rapidly, and this inevitably leads to heavier demands for international action, a further

structural change may be necessary so that the support by governments through agencies is not excessively limited by the need to keep a reasonable balance within the overall program and budget of each agency.

(c) The IOC is restricting its marine activities to scientific matters, and its involvement in legal matters is strictly related to the protection and improvement of scientific activities. As such it should be useful to advanced and developing States alike; but its broadening and evolution should not hamper the efforts of those States towards improvement of the legal regime and arrangements for exploiting and conserving ocean resources; on the contrary it can assist them, as the Commission's technical and scientific advice has already assisted the UN Sea-Bed Committee. Our experience in broadening the base of the IOC may be useful in any broad review that may be made in relation to the coordination of marine activities, other than scientific ones, within the UN system as a consequence of UN General Assembly Resoltuion 2580 (XXIV).

(d) An important feature of the past few years has been the pace-setting by governments expressing interest and posing questions in the UN General Assembly, and the lag in provisions of funds in the budgets either of the UN or the UN agencies commensurate with the expressed interest. Timetables set, therefore, for action by secretariats and organizations have strained them such that their efficieney has been impaired just when it needed to be high. Some way out of this dilemma will, I hope, be found.

COMMENTARY

Warren S. Wooster
Scripps Institution of Oceanography, La Jolla, California

This unprepared and unwritten talk might be entitled, "Is the IOC a Paper Shark?" I would like to begin by asking three questions about the role of IOC. First of all, what is the relevance of marine science to ocean affairs? Second, what is the relevance of international marine science to marine science itself? If there are positive answers to the first two questions, a third question can be considered, namely, what is the relevance of international mechanisms to the accomplishment of international science?

First of all, what is the relevance of marine science to ocean affairs? I think one could say that up until now the relevance has been very small. The use of the ocean and its resources has not really depended on oceanographic research. A major use of the ocean, shipping, has certainly not drawn very heavily on science. The increased catch of fish from the ocean really hasn't benefited from oceanographic research. It may be that the extraction of petroleum from the shelf can be attributed to geophysical research, but in general, ocean science has not been a major factor in the development of the use of ocean resources.

But we are now moving from the exploitation phase to the management phase, in which our ability to use the ocean intelligently, rationally, and for the benefit of mankind will depend more and more on a science base. I think this is true in the management of living resources. I suspect it is true in the management of non-living resources, and I know it is true in the case of mismanagement of the ocean, pollution, and what we do about it. So I believe, as an article of faith, but I think it could be documented, that marine science does have an essential role in ocean affairs. The politicians, the diplomats, the people dealing with the concept of an ocean regime cannot afford to ignore the scientific aspect of these problems and cannot ignore the need for developing scientific knowledge and understanding of the ocean and its resources.

Now we get to the second question on the relevance of international marine science to marine science as a whole. You will certainly get a negative opinion from many scientists on this. Scientists are often parochial, and will say we have no use for all this. We want to be let alone. We want to work in our own laboratory on our own ship; don't bother us with proposals for international research projects--but, of course, keep the papers coming in from all the laboratories.

My own feeling is there is a definite role for cooperation in science, but it is not exclusive. In other words, much of science must be done in individual laboratories by individuals, and that requires essentially no international cooperation except for the exchange of information (which keeps one honest and saves time). But there are big areas of science--oceanography is a good example --that demand international cooperation. One pertinent area of oceanography is the investigation of processes of whole ocean or global dimensions. It is

immensely difficult for one country, even a big one, to try to elucidate the entire circulation of the Pacific Ocean all by itself. It is also unlikely that a single country can solve all the problems of earth transformation embodied in the concept of sea-floor spreading. I think it is also clear that to provide the scientific basis for management of the ocean and its resources, international cooperation is essential.

Having answered the second question positively, I can speak about the relevance of the mechanisms which exist for getting marine science done and particularly for accomplishing its international aspect. There are two general kinds of mechanisms that have been established, the non-governmental and the intergovernmental organizations. Both on the international level and in any country, the scientists need to talk to each other and to advise governments and help them solve their problems, but still do this as private individuals. At the same time there must be a way for government agencies or governments to work together to coordinate their activities. Both sorts of organizations must be required even in the Soviet Union and in other countries where science is entirely a governmental affair. Even in such countries I would guess there must be some mechanism whereby scientists can formulate their views, and then pass them on, perhaps to themselves in a different capacity where they act on behalf of the government.

On the international scale, the non-governmental organizations perform a number of functions which I consider vital; one of them is, of course, to facilitate communication, to help scientists to exchange their ideas and experience. Another is in bringing scientists from different countries together to work out agreements on methodology or on other technical problems where you really need to have some sort of exchange of views and accepted opinion. An activity of the non-governmental organizations that is most important is the monitoring, evaluation and comment on intergovernmental programs. This happens nationally; for example, in this country NASCO is the non-governmental committee that interacts with the federal government on ocean matters. Internationally, there are several advisory groups that work with IOC. SCOR, the one I know best, is the only one really that is quite independent, because it has other tasks, and is appointed in a different way from the others. This vital advisory function not only involves monitoring programs and informing governmental organizations where they are going wrong, and helping them to solve their problems. There is also an important element of recruiting scientific interest and building links between the scientific community and intergovernmental operators. Science is done by scientists, not by organizations, and the organizations get into difficulties when they drift away from contact with scientists. Thus one of SCOR's big jobs is keeping the lines of communication open between scientists and the intergovernmental organizations.

If one accepts that science is important to ocean affairs and that international ocean science is important in international ocean affairs, then how do we organize this on an intergovernmental level? At the present time there is only one intergovernmental organization that has a specific charge to promote scientific investigation of the ocean, and that is the IOC. Other intergovern-

mental organizations have different goals, which only in part involve the ocean and ocean science. But the IOC has assigned to it by intergovernmental agreement the task of getting on with the job of helping ocean scientists.

There are three general sorts of things that the IOC as an intergovernmental agency can do. Perhaps the most important is to help scientists get their work done. This may involve helping them organize cooperative investigations, for example. This in turn may help scientists to get money from their governments by giving an international blessing to the project. It also means assistance in getting clearances and in looking out for the interests of scientists in developing law on continental shelves and the deep sea.

Another area is that of services. The intergovernmental organization ought to be able to provide services to marine science. One service on which the IOC is now working is the Integrated Global Ocean Station System which would eventually evolve into a system for monitoring and forecasting ocean conditions. Another kind of service is that represented by the International Hydrographic Organization which coordinates and standardizes charting of the sea floor, a very important element of working at sea. Exchange of data and information is another example where the intergovernmental organizations can make a real contribution to the work of scientists. The world data centers are woefully underfunded and understaffed for this job; they are trying to tackle a job that requires many times the funds now available. Services like the provision of standard seawater or standard carbon fourteen are samples of the sort of thing that an intergovernmental agency could do if it had any money.

Lastly, there is an area of development or technical or mutual assistance which involves helping the developing countries to attain capabilities in oceanography. The IOC has never had very much to offer these countries. It has been a rich man's science club because in a certain sense oceanography is a rich man's game. One symptom of this is that essentially all of the UNDP (Special Fund) projects in the marine field are administered by FAO. These projects are for fishery development, and the developing countries are interested in using food from the sea. They are also interested in minerals from the sea. They are not terribly interested in oceanography. For one thing, they don't have oceanographers. But for a developing country to make intelligent, rational decisions on resources offshore and on its policy with respect to the ocean, it has to have some oceanographic capability; it has to get involved in oceanographic work to bring out this capability. Even if its interests are principally in the application of science, the element of understanding and involvement in science must be built as a basis for application. One of the areas that IOC hasn't handled well has been that development. This, of course, has political implications because as a consequence IOC doesn't have the vigorous support of developing countries; this it desperately needs to survive in the jungle of the UN system. There are wolves that are out to devour any straggler brave enough to wander around the jungle, and IOC is somewhat of a straggler. So the IOC needs to do something for the developing countries, and my own view is that the developing countries could benefit from a close association with the IOC.

The oceanographers don't have an independent intergovernmental organization, and so they have, as Dr. Holt says, chosen to cast their lot with the pedagogues of Unesco rather than the farmers of FAO. In practice, this isn't a very successful solution. For one thing, from an intergovernmental point of view, marine science is on a plateau; it is not going to get very much more money from Unesco and it can't do very much more with the small sums of money that it has now. If the choice had been different, and marine science had gone with the fishermen, the financial situation would have been little different, although relations with the developing countries might be better.

Another possibility is to bring oceanography together with meteorology. This would benefit from the science base of meteorology, but would hurt oceanography if it meant splitting off the physical from the biological sciences. I think oceanographers need to be involved in an organization that has both a science point of view and an ocean point of view.

My personal view is that ultimately the science side of international ocean affairs has to be broken loose from Unesco if it's going to survive. This might be done by forming a different association, perhaps with FAO or WMO or even IMCO. It may also be that the proposed environmental agency will develop, as discussed by the Secretary General of the UN.

Another proposal is for an international ocean agency that will handle the whole business from granting leases, managing fish, doing science, making charts, whatever pertains to the ocean, all in one monolithic agency. In my view you can then write off international ocean science. Science is having enough trouble holding its own under the present circumstances. I think there must be some sort of separation of functions. There is required a specialized agency or specialized technical group that looks at the scientific and technical aspects of problems of the ocean, and which is kept decoupled from the management and intensely political aspects.

It may turn out that this can only be done in some combination, so that, for example, environment is the theme instead of the ocean. My own view is that there is enough business in the science side of the ocean business to merit an entity which can perform the functions that are required, that is to accomplish the international science on which the whole area of ocean use and ocean application is inevitably based.

COMMENTARY

William L. Sullivan
Office of the Special Assistant for Fisheries and Wildlife
to the Secretary of State

Back in 1961 when I first got into the fisheries business, I was in the office a couple of weeks and somebody said to me, "Oh, by the way, you take care of oceanography, too." I looked in the files where I found one thin folder, and said to myself, "I don't know what this is all about, but it can't be very much."

A couple of months later I got involved in the US preparations for the First Session of the IPC, but I did not attend that Session. Shortly after that the ad hoc arrangements we had for the First Session preparations were formalized in an interagency Panel, which has continued to be responsible for US preparations for all IOC activities and following up on US participation in IOC programs. I think I'm the only one left who was among the original group on that Panel, and I have been chairman of it for several years now. I have attended all of the Sessions except the first one and all of the Bureau meetings except for the first one, and more IOC committees than I like to think about; so I should be able to say something, but still I'm not sure what I'm going to say.

One thing I'm not going to do is attack IOC the way I attacked ICNAF yesterday. These organizations are quite different. ICNAF takes some scientific research, some industry interests, and some governmental interests in at one end and processes them in various ways and comes out the other end with some regulations which, unless governments present formal objections to them, become legally binding obligations.

I think it should be stressed that in the case of IOC whatever comes out is entirely voluntary in nature. There is no obligation whatsoever; there is no capability under the IOC Statutes or anything else involved in IOC to force any government into doing anything. All of the programs that are proposed in IOC are generally adopted by IOC, because if only two members want to do a particular program, the other ones say, "Okay, let them go ahead; let them have the IOC label on it if they want it."

I also want to stress the problems that IOC has in taking on this new mantle that has been described to you. Dr. Holt is working with a very small staff, just a couple of more people than ICNAF has for the smaller portion of the Northwest Atlantic for which it is responsible. Dr. Holt has the whole ocean, and a lot more meetings than ICNAF to contend with each year. It is going to be a major problem following through on the base which has been laid in the broadening of the IOC. It is a major organizational problem bringing together all the inputs from the seventy-odd countries which are members of the IOC plus the other countries which are involved in the IOC activities because they are members of Unesco or FAO or one of the other UN agencies which works with and supports the IOC.

As Dr. Wooster indicated, these problems are perhaps so vital and so complex, involving all of these organizations and all of these countries in a vast and constantly changing mix, depending on which IOC activity you are talking about, that it may become necessary in the future to simplify the organizational structure in some way; but I don't want to get into that this afternoon. Dr. Holt, and probably rightly since his paycheck comes from there, stressed the relationship of IOC to Unesco, but I want to stress that ever since IOC was created the people in IOC have generally considered that it was an independent or at least a semi-autonomous organization and acted as though it were; and Unesco, at least until very recently, didn't seem to mind very much. People went to great lengths in IOC meetings, and IOC documents, to avoid referring to "IOC of Unesco." They said simply "IOC," and they said it on the same level as Unesco and FAO and WMO, and in fact the UN itself.

That IOC was doing this during what Dr. Holt called the years of the quiet UN has, I think, laid a solid base for the broadening that has taken place. IOC would not have a major role in what lies before us if IOC hadn't acted on its own and had not had this relatively quiet time with the other organizations. If it had not laid a base in the programs it has undertaken of a regional scientific nature, and its other programs such as data exchange and so forth which have been mentioned, I don't think we would be talking about IOC today. With all the activities in the ocean in the last few years, a small organization as IOC could not have survived, and one of the other organizations would have become dominant in this field.

There has been a great deal of stress laid on the scientific aspects of the IPC activities, and again I think this is vital; but I want to stress that IOC is not now, but more importantly, never has been exclusively concerned with science. In fact, there was a great deal of controversy in 1967 when the research vessel problems were first raised in IOC as to whether IOC ought to get involved with legal problems. The fact is that IOC has been involved with legal problems since its First Session in 1961 when the scientists asked the question of whether the buoys, or what has come to be known as ODAS, that they were developing and planting out in the ocean were going to have proper legal protection, whether they were going to have any problems of a legal or administrative nature. They weren't even quite sure what kind of problems they were thinking about when they got to deploying these buoys. First they initiated a search, with the cooperation of the Unesco legal office and the IMCO legal office, of the legal status of these instruments or buoys or ODAS or whatever they are called; and this has led directly into the current activities.

Through a series of refinements this initiative has brought the IOC to the drafting of a convention which will regularize the status of ODAS, because it boiled down in the research that there was very, very little law applicable to unmanned devices for the collection of data throughout the ocean. So that while Dr. Holt was correct in referring to facilitation within existing law as far as the research vessel problems are concerned, he was incomplete with respect to all of IOC's legal activity. IOC is now and has been for many years involved legally as far as the buoys are concerned.

The main thing I wish to stress, however, is the challenge to this organization at the present time. It has been successful in projects it has undertaken in the Indian Ocean, the tropical Atlantic, and the far Pacific. It has been successful to some extent in dealing with data problems, with ODAS. It has made progress with research vessel problems. It has brought together most of the UN agencies with the IOC as a focal point for marine science affairs, and achieved some kind of coordinated approach to all the work of these organizations as well as intergovernmental organizations which are not in the UN family.

It is no longer a "rich man's science club" as Dr. Wooster called it, although it was when it first started. It has the promise, it has the capability--if it can overcome these problems--of providing some help, assistance, guidance to the developing countries in matters which are important to them, in helping them develop the food resources which exist off their coasts, in helping them develop the oil and the minerals which you have heard talked about so much and will continue to hear about at this meeting and which must lie off the coasts of a number--if not most--of the developing countries just as they lie off the coasts of the United States and other developed countries.

IOC has the possibility of becoming one of the important international organizations in spite of its present small size, combining--because none of these things can really exist independently as far as the ocean is concerned--science and politics and law, and probably sociology, as well as the service aspects that have been spoken of. This is the challenge that rests before IOC today. I think, based on what it has managed to do in an evolutionary fashion in developing from what it was in 1961 to what it is today, that there is a pretty good chance that it can succeed.

Miles: Ed Miles, Graduate School of International Studies, University of Denver. I will address myself to the question of interagency collaboration touched on by each of the speakers. I have a much more pessimistic view than even Professor Wooster. I'm interested in the speakers' comments because they parallel some findings of mine on this problem from a study which I have just completed related to the agencies involved in space.

I agree with Dr. Holt that the statutory agreements defining the relationships between IOC and WMO, etc. represent a new departure in the international system, but I do not think that in the long run they will work out for the following reasons: when a new technology emerges in the international system, or even if you have not a new technology but rapid rates of advance in existing science and technology, the effect on existing intergovernmental organizations is usually to increase the scope of their tasks. This leads to an increase in interagency conflict for a number of reasons: at the international level the size of the pie is so small that secretaries-general see themselves as being involved in a zero sum game, which in a way they are; also national delegates to executive committees of the organizations see themselves as being involved in competition with other agencies in their own countries.

The kind of statutory arrangement that you have between the IOC and these other agencies is important because if it were enforced it would restrict the authority of the secretary general on questions involving program innovation in this area. They would lose some of the freedom of maneuver that they now have. National delegates on executive committees also would not like it because it would leave them open, they think, to greater harm from their competing national agencies, and this in the long run would lead them to attempt to subvert the arrangements by exercising greater control on the IOC which would be the lead agency here.

If you would like an example of a unit that has been totally subverted, I would offer the UN's Administrative Committee on Coordination. Everybody knows that the ACC hasn't coordinated anything in its life, and in fact one international official said to me that there's one dirty word that has never been used in the ACC, and that is coordination. People in fact talk about "appropriate mutual consideration." You may not want to react to these comments, Dr. Holt, because they might lead you to commit an even greater indiscretion, but if you would, I would be happy to hear your reaction.

Holt: What can I say except that you made an extraordinarily clear analysis of the situation. I perhaps conveyed some optimism about interagency cooperation, but in a distinctly limited context. First, I think it is generally recognized in the UN system that coordination in the field of marine science has in fact been better than in almost any other field of interagency interaction. I wouldn't say that it has been perfect, but it has been notable that the effective cooperation of the secretariats has been greater in this field than in others.

My optimism about cooperation at present is not in terms of a "final solution." It is true that during the "quiet years" one organization--the IOC itself

--had developed a focus of work that has a global scientific mandate. But this situation in which marine science is being supported on a rather small scale by Unesco with other agencies adding their piece is not a good basis for the further development of international arrangements if there were to be a large expansion of international cooperation in marine research.

I am personally completely convinced that if there is to be--as many people now believe--a large expansion in the coming years of marine exploration, of research, and the inevitable international cooperation, then the arrangement that we are just making of "broadening" the IOC will in itself be inadequate for the new needs. To expand marine science budgets of FAO, Unesco and so on to meet such needs would simply, from the point of view of bureaucrats, unbalance their overall programs. Nevertheless, the so-called broadening that we are now making will provide, I hope, a sounder base, a better base from which to develop a new structure which will be needed if there is any considerable increase in scientific interest in the ocean in the coming years. If there is not such an increase, then we shall at least have made marginal improvements in the present institutional arrangements.

While I have it in mind, I would like to say that I could not have expressed myself well, in view of Bill Sullivan's comments with respect to the legal question. My opinion that we were not engaged in the IOC with legal problems was expressed--or so I intended--only with reference to the problem of the freedom of research, the problem of vessels working on or over the continental shelf of other nations, and so on. With respect to the legal status of ODAS, yes, certainly the IOC has for years been deeply involved in that problem. I didn't intend to deny that that was a legal problem that the IOC was deeply concerned with.

What is still open is how those legal considerations will be carried through to their conclusions. As I said, the role of the IOC and the Agencies and UN Assembly is at this moment a subject of discussion.

Carroz: My name is Carroz from FAO. I would like to address three questions to Dr. Holt. My first question relates to the membership of the Intergovernmental Oceanographic Commission. Dr. Holt mentioned that a number of countries take IOC to be an instrument of the big maritime nations. As far as I know, membership in IOC does not entail financial obligations for countries that are members of Unesco. One may therefore wonder why a relatively small number of member nations of Unesco have so far chosen to become members of IOC. What are the prospects for an increased membership? It may perhaps be assumed here that the lack of experts does not necessarily prevent States from taking an active part in the work of international organizations.

My second question concerns international coordination in marine science activities. Dr. Holt referred to the Intersecretariat Committee on Scientific Programmes relating to Oceanography. There are in fact two other bodies concerned with such coordination: the ACC Sub-Committee on Marine Science and its

Application, and the ECOSOC Committee for Program and Coordination. I should be grateful if Dr. Holt could elaborate on the respective roles of these three bodies.

Lastly, is there any possibility that IOC could become the executing agency of UNDP projects?

Holt: IOC membership is now seventy states. I have just been reviewing the situation, and it appears that some countries, which in fact have marine science capability, are not yet members; but I think it will be relatively easy to correct that. Since I joined the IOC, three countries have joined, and I suspect that during the next year or so there will be a considerable influx of new members.

As you say, it doesn't cost anything to join. There is no reason why the other maritime countries--or even the land-locked ones for that matter--shouldn't join. What we have to do is to show them some good reason why they should join, and that relates to your second question, the problem of assistance. Actually, Dr. Kasahara is probably in a better position to say something about this than I am. Essentially, a problem with UNDP projects is that because of the administrative arrangements, exploratory studies become composed so that the projects more often than not become defined as in the competence of particular agencies. In cases where projects cut across the terms of reference of agencies, arrangements are often such that the weight of the project is pretty firmly in one agency or another, and I believe that over all the governments have suffered from this situation and the general development of marine science has suffered through there being no encouragement for developing nations to establish rational and appropriate scientific infrastructures.

The IOC is not an independent specialized agency and does not at present qualify to be executor of special fund programs. I hope very much that, in the future, arrangements could be made so that the IOC does so qualify that we may give assistance to States through the UN system for a balanced development of their marine science activities.

That doesn't mean that one would exclude specific mission-oriented development programs as well, but there would at least be a possibility in particular circumstances for a more general approach. Dr. Kasahara might have some ideas as to the possibility of the development along these lines.

This reminds me of a comment that Bill Sullivan made concerning the attitudes of States, members of the IOC, whose delegations behave as if the IOC were an independent organization when it is not. This is true, and it can have embarrassing consequences. A problem is that the IOC has talked about problems of developing countries, and we have also begun to be involved in a program of a broader scope. Then the governing bodies of the agencies, especially of Unesco, will pay a great deal more attention to its activities; this worries me. We are already finding that consideration is given, in some detail, to the same marine science problems at intergovernmental level, by essentially the same governments,

successively under a number of hats--the IOC, Unesco Executive Boards and Conference, WMO bodies, FAO bodies, and so on. Thus, moves toward integration and avoidance of overlap and competition are defeated. Then, internally the IOC has even shown tendencies to bureaucratize itself, to start developing "heavy" internal procedures not entirely in keeping with its actual status.

The oceanographers' illusion that the IOC could be treated in effect as "their" separate body held only so long as it didn't do anything that other higher level bodies might become particularly interested in.

Your second point concerned the different mechanisms of interagency coordination. You mentioned the ACC. Many people aren't very clear about this. The ACC business referred to as Sub-Committee on Marine Science and its Applications is a committee of agency representatives at secretariat level. The other body referred to is the new one (ICSPRO) concerned especially with the broadened IOC. The difference between these is that this new body has more teeth in it. There is a "membership fee," as it were, for an organization to participate in this committee: it has to undertake to contribute to the secretariat of the IOC and to support it in various ways, to present its marine science program to the IOC for review, and to use the IOC as appropriate as an instrument for implementation of items in its program.

The other Committee on Coordination (of ECOSOC) referred to is an intergovernmental body. This body will naturally continue to look at the general problem of structures and arrangements between agencies, but I cannot see that a body such as that, in the UN system, can ever pay the attention to the specific problems of marine affairs that we need to bring about an integrated development.

W. Sullivan: I would just like to add two comments, One, as far as the relationship between Unesco and IOC is concerned, while it is true that Unesco has formed an IOC and continues to be the legal guardian of IOC, it should be borne in mind that under IOC statutes it is possible for countries which are not members of Unesco to be members of IOC; and in fact at least one such country is a member of IOC.

As far as the question of coordination is concerned, in Washington we have pretty much the same situation with respect to the ocean business as we have in the UN family, a host of agencies which have to be coordinated. While I can't excuse what the gentleman in the back of the room said about the general failure of such coordination, it seems to have worked much better with regard to the ocean than in virtually any other field that I have encountered, both in Washington and on the international scene.

McKnight: I don't think anybody mentioned about the decade of exploration initiated by the United States and United Nations. I wonder if this isn't worth comment. Is this program being related to IOC, and if so, what stage is it in? What are the prospects?

Wooster: I can comment briefly on that, sir. The International Decade has in a sense been absorbed in the so-called Long-term and Expanded Program of Ocean Exploration and Research (LEPOR). IOC documents refer to the Long-term and Expanded Program "of which the International Decade of Ocean Exploration is an important element." One reason for this is that the Russians have been strongly opposed to the International Decade while contributing some support for a ten year program. As a consequence of this apparent semantical difficulty, the general treatment in the UN has emphasized the Long-term and Expanded Program rather than the Decade. But these vast programs can be implemented in bite-size pieces, and an appropriate bite-size piece of the Expanded Program may well be the first Decade.

Knauss: I would like to make a comment with respect to the IOC and its ability to be involved in programs. I think I attended the first meeting of the IOC. I didn't attend any after that until the last meeting, and there was a tremendous difference between that first meeting and the most recent one.

In the first meeting it was really as people said before, a rich man's club to get on with the business of ocean science. Obviously the IOC has become highly politicalized. I don't think the IOC is in a position to initiate scientific programs. I think it might be in a position to facilitate scientific programs that were initiated by others. The IOC can take some credit for the international Indian Ocean position, the tropical Atlantic, and other things; these programs were initiated by other groups, and the IOC has facilitated their carrying out. This seems apart from the way IOC was several years ago. I say this with respect to the long-range and expanded program which was being developed through the IOC. In some sense, I think the way in which this program was put together, in terms of what was said in the documents, is a travesty of how science programs should be developed; and I would think that there are a continuing set of problems that the IOC must have to face up to with respect to its problem of initiation versus facilitation of scientific programs.

It is true that in the past one or two countries would come in with a program which they said they would like to do under IOC sponsorship, and IOC would raise its hand and say "O.K., this is an IOC program." Some of these made better scientific sense than others. I would think that in some way IOC will lose its credibility in the scientific community if it does not develop some better mechanism for reviewing what kind of programs it gives its blessing to. This is an extremely difficult problem because of the fact that there is national prestige behind certain programs which are being suggested. I don't have any solutions as to how this can be handled, but it seems to me that it is a problem which the IOC must address itself to some time in the future.

McKernan: I would like to comment a little bit on this subject which is interesting to me and I'm sure to most of the people here. I did attend the first meeting of the IOC, and I also attended the last meeting of the IOC, with others in this room, and I see it developing something like this. There is certain relevance to the programs of the IOC and practical views of the ocean. I think that some of the activities of the Indian Ocean--fisheries production, for

example--have improved because of the Indian Ocean Expedition; this Expedition did not originate in the IOC, but the Commission took over the management after non-government scientists organized this program. I believe the same thing is true in the tropical Atlantic program that Austin started, as many of you will remember. This has stimulated a great production of fish. Production might have increased anyway, but it probably would have cost more money and been less economical.

I want to talk about a subject that I think was touched upon by Warren Wooster, and I think is the most important aspect of the IOC, namely, how does the IOC involve developing nations, and how does it do this successfully? I agree with Dr. Wooster that it has failed up to the present time in involving the developing nations. I think it has failed primarily because it was a club of scientists of the developed world, a kind of gimmick, although now it no longer is. It has now turned out to be what is very possibly an important international organization. I think it has become a core of Unesco and something of a world international organization. The last meeting was an eye-opener to me because the organization became of age; Dr. Holt says there are now 70 members.

So there is a great difference in the organization today. I presume that the majority of the member nations now are developing countries. It was just the opposite when IOC started, and the organization now is in a struggle to reorganize itself to be responsive not only to scientists on the one hand, but also to the representing governments on the other hand.

The scientists probably didn't intend this when they started, but this is what they got. it doesn't seem to me that this necessarily means that the importance to this organization of scientists will end with the coming of age of IOC as a truly international organization. Quite the contrary; I think that perhaps the input by scientists, organized properly, will now be very important not only to the members of the IOC itself but also to the UN in the subsidiary body.

I look forward to the development of the IOC or its successor because I see the present organization as in the stage of development of some international independent ocean-oriented organization. It seems to me that IOC has in the past failed in accomplishing one of its goals, that of bringing in a lot of nations who don't have very much capability in the ocean. It really hasn't addressed itself to this problem. In its early years, IOC organized some pretty good programs--the Indian Ocean, the tropical Atlantic, the Kuroshio, the North Pacific Drift programs, for example--but now it is going to have to address itself more to the question of broadened participation. The trust fund that was set up at the last conference, for example, provides a mechanism for a nation such as the United States to contribute funds which will provide some training to developing nations to build up their expertise in the field of oceanography.

I am convinced, as most scientists are in the room today, that the full use of the ocean for resource development is going to depend upon the development

of good science for coastal areas, as well as upon understanding the mechanics of great ocean systems.

The IOC isn't doing too badly in terms of its evolution. It is developing the means for handling science programs; however, in these programs it is not the governments, but the scientists, it seems to me, that still have the greatest impact. We have the sea coming out of our ears with governmental and non-governmental committees, and now we are organizing another one that is going to be a combination of both. We will still have the Advisory Committee on Living Resources, and FAO, SCOR, and ACMRR, so there is a great deal of scientific advice that is being made available to the governmental representatives, administrators, international politicians, and such. It seems to me that IOC still remains a very good mechanism for ocean scientists to get across their points of view, and to have an impact in the decision-making process of international ocean affairs in the future.

Wooster: I don't think it is fair to say that the IOC has initiated programs. There is only one occasion I know of where IOC took the first steps, namely the program in the Mediterranean. It is clearly not fair to say that the IOC initiated LEPOR. The United States initiated LEPOR in the sense that it initiated the International Decade of Ocean Explorations, which became transformed into LEPOR in the UN. The IOC was assigned the task by the UN of preparing what is called the "comprehensive outline of the scope" of LEPOR. This was a thankless task, but the outline was developed. I don't like the outline, as I have said many times, but we can't put all the blame on IOC.

Considering that IOC programs are initiated by one or more member States, it is difficult for the organization to say, for example, that an idea which the US or Japan or the Soviet Union puts up isn't very good science. IOC tried to do that one time and didn't succeed. But mechanisms have been developed to review these proposals and to slow them down until they acquire some kind of scientific support. Still in all, IOC has a very difficult time screening programs proposed by its sovereign members. Perhaps the strongest protection is that countries that don't like programs don't participate in them, so they may die a natural death.

Nanda: Dr. Holt referred to combating pollution. Do you see the IOC playing a very important role in it? Who might effectively solve this problem? I would also like to find out how you feel about an international ocean agency that might keep oceans as one unit and deal with its various problems in a multi-faceted fashion. I consider marine pollution an exceedingly important area to work with. Recently, the United Nations Secretary General has been asked to prepare a comprehensive report on the pollution of the seas, and I believe his answer was that in consultation with the various concerned organizations he would prepare and present a report to the General Assembly. I'm curious--how does he go about doing it? Do you and IMCO and others cooperate in this?

Holt: I refer first to the question about an ocean agency. I share your views to a certain extent, though I am not quite certain that science should be locked

up with other aspects of ocean affairs. The only difference I perhaps have is that my view is qualified by our uncertainty as to the intentions of States. If ocean research and its international aspects evolve at the present rate, then I think there is barely justification for a new, solely scientific organization. It would be nice if we were handed it, but considering the difficulties we should have in obtaining such an organization, I'm not sure that it would be worth the effort. But if there is substantial growth, then the case for a single organization becomes very much stronger.

On the question of pollution, the IOC has not involved itself in the non-scientific problems of pollution, but it has involved itself at least in the identification of the scientific problems; it has been the organization taking the lead in this matter. In fact, as I said, in LEPOR there is an entire chapter identifying cooperative research programs that are needed to provide a scientific basis for action with respect to pollution.

It isn't really a question of whether IOC will cooperate with IMCO. Insofar as we are speaking of the scientific program, as IMCO is one of the agencies which is supporting the IOC, it is involved with the IOC. The IOC is an organ which IMCO could use if it wishes for developing relevant cooperative research activities. IMCO itself, in fact, has very little scientific competence. It has a high technical competence in relation to one specific aspect of it, and that is pollution from ships. As to the control of pollution, there are several agencies interested in this. IMCO is one of the main ones, certainly.

May I just make one further comment concerning the remarks on the development of the science program which Warren Wooster made. I think there has been a fundamental difference between the activities to define the comprehensive outline of the Long-term and Expanded Program on the one hand and the planning of specific projects on the other. When the IOC--or, before that, the scientists through ICSU--planned the Indian Ocean Expedition essentially they came together and said, "We have certain facilities with which we want to carry out particular investigations." But in developing the outline of the Long-term Program, the scientists were placed in a different context. They were really saying what needs to be done without paying too much attention, initially, to existing facilities. This is part of present difficulties from the discrepancy between what is described or outlined under LEPOR and what the actual scientific facilities and manpower are to conduct such a program.

An important development which has not been mentioned and which Warren is deeply involved with is the parallel changes in the non-governmental arrangements; the idea of broadening SCOR in a way parallel with the broadening of the IOC. This should give a substantial strengthening of the non-governmental machinery in the field of marine science. He might like to say something about it.

Wooster: We are meeting in Tokyo in September in what is called the Joint Oceanographic Assembly. There is an intent to develop a new kind of horizontal structure within the International Council of Scientific Unions in which all of the

marine-oriented societies are related by using SCOR as a connecting mechanism. This new kind of organization should be able to serve both the scientists and the intergovernmental organizations better.

G. Sullivan: You mentioned the outline of the Long-term and Expanded Program, in biology perhaps in terms of fisheries predictions, and in geology and geophysics in terms of mineral exploration. The latter two terms seem to be more emphasized than the others. I wonder if you anticipate that this could pose any problem in terms of your scientific credibility for the IOC?

Holt: Do you mean that we are getting outside the area of science? I am not particularly worried, no. Certainly, on the biological side, exploration for fishery resources still is essentially to my mind a scientific activity carried out by technical means; it is quite definitely a scientific activity.

There has been much more debate on the question of geological survey and exploration, but I think that the governments will keep us in line in this respect, and I don't really expect any serious problem. The problems arise when you talk about these things in general and abstract terms; but when you come down to the specific projects that we shall now be doing, I think it will be relatively easy to determine that which is scientific and that which is not, and put aside that which is not scientific.

Special Report: THE US POSITION ON THE SEABED
Introduction - Francis T. Christy, Jr.

As you heard this morning, one of the latest and most important developments has been the President's announcement on the position--or perhaps better stated, the proposed position--of the United States with respect to the policies of the seabed. This late development required us to scurry around a bit to organize a program to bring to you for discussion of the announcement and of some of the reactions to it. This morning we had some of the reactions from some of the interest groups; this was, in a sense, putting the cart before the horse because tonight we have the horse, or if Bernie will excuse me, the horse's mouth, the one responsible for many of the decisions and aspects of the position.

In thinking about the announcement of the President, some of us I guess have had negative reactions and some of us have had positive reactions, but I suppose most of our reactions have been questioning in nature. What, for example, is the meaning of the term "international trusteeship zone," what is the meaning of the term "common heritage"? In part, these questions stem from the fact that the words which are used have different meanings for different people, particularly the lawyers. I think it possible to make a constructive suggestion here, and that is that we invent new terms to describe the things we're talking about so we don't have this confusion over the different meanings of the old terms. So I'd like to propose that instead of "international trusteeship zone," we call it the "intertrustee national ship zone." And instead of "common heritage," we refer to it as "hermon comitage." Now, in this way we can define these terms with a great deal of precision and all be speaking the same language.

I think that the person who should be given the first whack at making these definitions is our speaker this evening. He should have this for two reasons: first, because he is one of the most knowledgeable people about the issues of the sea. He has written one of the most comprehensive and thorough analyses of the discussions leading up to the Geneva Conventions; and second, because of his position as the expert on the law of the sea in the office of the Legal Advisor to the Department of State.

Bernie has gone through a great deal of trouble to be with us tonight. He is playing hookey from the UN meetings on the seabed in New York, and we are extremely grateful for his willingness to come here and to discuss the current position or proposed position of the United States and to answer questions. So without any further talk, may I present Bernard H. Oxman.

REPORT ON THE PRESIDENT'S PROPOSAL

Bernard H. Oxman
Office of the Legal Advisor to the Department of State

It is always a pleasure to be introduced by Frank Christy. As I arrived here this evening, not without some advanced trepidation I must say, I ran into a few people who started describing this morning's session. It raises some interesting implications as to my position here. I couldn't quite decide if I was to cast myself in the role of the warrior who had arrived too late for the war, or the diplomat who had arrived too early for the peace.

The subject tonight is the statement by President Nixon of May 23, 1970 on the United States' oceans policy. I am sure that most of you have seen the statement and many of you, at any rate, have seen the elaboration on what the President said contained in Acting Secretary Richardson's testimony before the Senate Interior Committee some days after the announcement. I know that a number of you were present to hear the question and answer session thereafter, which has not been reproduced in the records as yet.

I do think it is important in examining these issues to try--because none of us really can succeed in this--to look at the issues which concern most of us in great detail every day; to achieve some perspective of the President of the United States whose responsibilities, whose field of consideration, is substantially broader, I dare say, than any one of us in this group. I think this factor is reflected in particular in the first three paragraphs of the President's statement--the paragraphs I suspect many people skimmed over. I would like to read those in an attempt to give some perspective of how the President of the United States, indeed how the United States of America as a whole, might look at everything that's happening with respect to the ocean today. It begins:

> The nations of the world are now facing decisions of momentous importance to man's use of the oceans for decades ahead. At issue is whether the oceans will be used rationally and equitably and for the benefit of mankind, or whether they will become an arena of unrestrained exploitation and conflicting jurisdictional claims in which even the most advantaged States will be losers.
>
> The issue arises now--and with urgency--because nations have grown increasingly conscious of the wealth to be exploited from the seabeds and throughout the waters above, and because they are also becoming apprehensive about ecological hazards of unregulated use of the oceans and seabeds. The stark fact is that the law of the sea is inadequate to meet the needs of modern technology and the concerns of the international community. If it is not modernized multilaterally, unilateral action and international conflict are inevitable.
>
> This is the time then for all nations to set about resolving the basic issues of the future regime for the oceans, and to resolve them

in a way that redounds to the general benefit in the era of intensive exploitation that lies ahead. The United States as a major maritime power and a leader in ocean technology to unlock the riches of the ocean has a special responsibility to move this effort forward.

I would like, if I might, just to outline the proposal which follows. While I think it might be possible to anticipate some of the questions, I'll try not to anticipate too many of them and to get through this initial stage rather quickly.

The United States has proposed that all nations join in a treaty renouncing all claims over the natural resources of the seabed beyond a depth of 200 meters. I think the people assembled here are well aware of the origins of the figure 200 meters; it is a more or less standard figure used by geologists for the continental shelf. It is a figure used in the Continental Shelf Convention beyond which the exploitability test and its various aspects would begin to operate. It is also a figure which I understand is relatively easy to locate on existing marine charts.

The renunciation would take place in a treaty which would establish an international regime for the entire area of the seabed of the high seas. Now this raises another aspect of the question. This proposal is intended to apply only to the seabed and subsoil of the high seas; to the extent that areas deeper than 200 meters are within the territorial sea they would not be included within the proposal. Indeed, later in the same statement of policy, the President's statement refers to the initiative currently under way to achieve widespread international agreement on a twelve-mile territorial sea and on related matters of straits and fisheries.

There are other aspects of that 200-meter line which arise. One is (as a number of people have pointed out) that there are technical aspects to determining the location of the 200-meter line which should be taken into account. People have mentioned trenches, and areas of high irregularity, landward of the continental slope. I think that the competent experts are fully aware of those technical problems and I don't think that anyone would expect to see a wholly unreasonable solution to these kinds of technical problems.

In addition, the question has come up regarding the possible effects of the proposal on bilateral settlements under Article 6 of the Continental Shelf Convention relating to median-line and lateral-line kinds of problems. It is not the intention in this proposal to prejudice one way or another any agreements already affecting delimitation of seabed areas. There are two aspects--two very important aspects--of the international regime proposal. One is that there would be rules applicable to the entire area, and the other that there will be substantial mineral royalties to be used for international community purposes--and in particular, economic assistance to the developing countries.

The proposal goes on to refer to machinery, which as most of you know is a term that has acquired somewhat of a sense of art in its use in the United Nations. Two forms of machinery are proposed. In that portion of the continental margin seaward of the 200-meter line or boundary, the coastal State would operate under the international regime. Beyond the continental margin, international machinery would be established with respect to exploration and exploitation of seabed resources.

The term "trusteeship" doubtlessly will raise a number of questions. I would like to try and dispose of one at this point. It is not used--nor do I think it could properly be used in this context--in the sense of Anglo-Saxon concepts of trustees. This is not an attempt to lift out the full body of Anglo-American law on trustees established for totally different purposes and suddenly apply it to a settlement under international law. The content of what is meant by a trustee, the legal rules affecting that trustee, should properly be set out in the treaty establishing the trusteeship.

The President went on to express his hope that agreement on these issues could be reached quickly. He recognized, as we all know, that the issues are very complex and that agreement may take some time. Accordingly, he proposed an interim policy. First, all authorization for exploitations beyond 200 meters should be issued subject to the international regime to be established. Second, the President called on other nations to join us in contributing a substantial portion of the revenues gained by States from the area beyond 200 meters depth to international community purposes, and he indicated willingness to take steps in this direction if a sufficient number of other States were willing to do likewise.

There was a further suggestion which I shall comment on at this point. I have very little expertise on the adjustments in our tax and import laws which would be necessary in order to prevent any inequities from arising as a result of this proposal. I don't think that anything earthshaking is intended in the proposal, but rather the logical extension and application of existing approaches to American tax and import regulations.

Finally, the President referred briefly to United States activities with respect to breadth of the territorial sea, to straits, and to fisheries. These had already been spelled out in somewhat greater detail in a speech by Mr. Stephenson on February 8 in Philadelphia.

That having been said, I'd like to emphasize that the United States cannot, any more than any other member of the international community, determine the final decisions of the community regarding community problems. It makes proposals, other people make proposals, negotiations take place, and the end result is a decision by the community. the President's statements, accordingly, should be regarded as our policy, our proposals--proposals which doubtlessly we feel can provide the basis for substantial progress on these issues.

Oxman: Before I open the floor for questions, I would like to make as much of a disclaimer as might be credible under the circumstances. The statement of United States policy was made by the President; a further elaboration was made by the Acting Secretary of State. I do not pretend to speak with the authority of either of those gentlemen. I'll take questions now.

Orlin: Hyman Orlin, and, unless I missed something in this morning's newspaper, I'm still with the Environmental Science Services Administration. I can agree wholeheartedly with the President's statement, and I can agree wholeheartedly with the intent of his proposal. I would like, as a comment, to read about 50 words of something I said last year:

> A consideration in determining boundaries should be the rate at which the parameter that defines the boundary changes. If this parameter changes slowly with distance, it poorly defines the boundary. Depths of 200 meters, plus or minus two meters, may exist over tens of miles. Needless to say, a depth could be a most inappropriate boundary parameter.

Now, if we adopt this 200-meter depth, and the earlier speaker has indicated that the experts can do this, I'm an expert that can't. I would like to ask a few questions.

You made a disclaimer for some of the things. I like the intent; I just don't like the parameter. How, for example, would we handle submarine canyons? Would we have to define the outer limit of the continental shelf by submerged straight baselines? What about the tides? What about sedimentation and deposition and erosion at the sea floor? Would the baseline be defined in terms of the 200-meter isobath depicted on charts recognized by the coastal States? Do those sound like some of the familiar questions that have been plaguing us with the baselines along the shoreline? What about monumentation to establish this 200 meters? Would this interfere with the military--would this have military significance? I'm just afraid that a boundary based upon depth would raise more questions than it answers. You're not expected to answer those questions I asked.

Oxman: I think, sir, that particularly those in this room who are very much my elder would say that a boundary based on distance might also raise more questions than it answers. I don't think that. I don't pretend to be a geologist. I have personally discussed this with some people who are geologists. There are a number of geologists who have looked at this question time and again and have said that they felt the determination of the boundary was essentially a political and legal problem; and that what was required was not so much geologic exactitude as political and legal exactitude. There are a variety of institutions and means available in the international law field for assuring that this be done. No doubt a boundary based on distance could involve some degree of arbitrariness, but that arbitrariness would be substituted by the degree of certainty which would not be present if geologic criteria are used. Lawyers are inclined to believe geologic boundaries are exact but we must recognize that they are not

that exact. I'm afraid I can't give you a more definitive answer except that there are an awful lot of people who looked at this problem and have said that once the general parameters are stated, one should come up with a system for arbitrary and permanent determination of precise locations. If I'm not mistaken, the Marine Commission itself made such a recommendation.

Hedberg: Hollis Hedberg, Princeton University. I'm going to touch on two questions. I raised them this morning, and got not too satisfactory answers. I would like to pose them for Mr. Oxman. I think the President's statement presented some very fine sentiments and goals on which I think we can all agree; however, I take it that he would like us to make suggestions and constructive criticisms regarding the means of obtaining these goals.

My first question is quite similar to that of Mr. Orlin, and I think Mr. Oxman touched on this to start with and dismissed it a little too hurriedly, for me, at least. This is, why does the President's statement propose an outer boundary for national jurisdiction at 218.8 yards, or 200 meters, if you prefer? To me, this is a meaningless figure. Two hundred meters falls in the middle of the continental shelf on some countries; halfway down the slope for others; it lies in the midst of national concessions granted all over the world; it is completely outmoded and erroneous as a concept of the natural boundary of anything that I know of. The average water depth at the edge of the continental shelf is about 130 meters and even the Geneva Convention on the Continental Shelf, to which the US has subscribed, explicitly indicates that the limits of the legal continental shelf are beyond 200 meters.

The best natural geomorphic feature on which to base any offshore boundary is the base of the continental slope which approximately coincides with the separating line between continents and ocean basins and is the most outstanding feature of the ocean bottom. I would submit that a boundary based on straight lines and geographic coordinates of longitude and latitude within a zone, approximating the base of the continental slope, or the insular slope as the case may be, is a far more natural and acceptable boundary than what is to me an impossibly impractical boundary that is based on 200 meters of water depth. I ask Mr. Oxman if he has ever heard of an international boundary on land that was drawn on a topographic contour?

My second question is, why was it necessary to the high objectives of the President's statement to prescribe an intermediate or trusteeship zone with all the headaches involved in drawing two submarine boundaries instead of one? And both based on the impractical consideration of water depth, which is constantly changing due to natural processes, as Mr. Orlin has mentioned, or could be changed overnight by a man with a shovel. And think of the resulting headaches that are involved in three types of jurisdictional regimes instead of two! Wouldn't it have been infinitely better and more practical instead of willing to future generations all these complications, to have simply opted for a single boundary at the natural contact between the continents and ocean basins, approximately the base of the slope, thus leaving 80 percent of the ocean bottoms with

their resources to international jurisdiction but leaving with each coastal nation full jurisdiction over the area which it is particularly and appropriately constituted to control, without the infinite complications and uncertainties of the proposed trusteeship? Why wouldn't it have been better to have proposed such a solution which, I believe, most coastal nations would have favored instead of one which conflicts with their activities everywhere. Incidentally, I notice that the outer boundary of this trusteeship zone is the outer edge of the continental margin. I don't know how to define a boundary marking the outer edge of the margin and I'd like to hear how you think it should be defined.

Oxman: There is probably a very longwinded answer I could give, but the real answer is that we felt if we drew two boundaries that had to be geologically determined, we would employ more geologists. I somehow feel that the future of lawyers in this field is going to be secured.

I would like to address myself to Dr. Hedberg's questions in all candor. First, let me say that I don't think that geology or law, as Acting Secretary Richardson made quite clear in his testimony, can be the sole determining factors as the international community, including the United States, undertakes decisions regarding future disposition of seabed resources. Two hundred meters may not be very good to a geologist, continental margin may not be very good to a geologist; of course the distance criterion from the geologist's point of view would be totally arbitrary. The 200-meter figure was chosen for a variety of reasons, and I would not discount the mere fact that it has been used in the past. It represents a point of departure. It is the point of departure for the exploitability test of the Continental Shelf Convention which has been so widely and differently interpreted. It is a figure that some geologists have pointed to when talking, albeit casually I understand, about the continental shelf.

Going a bit further, I don't think that President Nixon would have wanted to propose that there be substantial mineral royalties for developing countries and then propose a boundary of national jurisdiction over the seabed which made such royalties essentially impossible for the foreseeable future. And I think that that's a factor which has to be taken into account as well.

As for why the trusteeship area, I think that most people in this room are well aware of the different attitudes toward the Continental Shelf Convention, toward national jurisdiction, toward division of administration over single resource pools. Accordingly, the proposal for a trusteeship zone was an attempt to accommodate the views of different people of different countries--an attempt to say that we need not get into a head-on clash over narrow shelves or broad shelves--and the compromise need not be one that would settle between 200 meters and 3000 meters by dividing the difference and choosing 1500 meters. Rather, let's take account of the different aspirations, the different arguments; and for the arguments over the exploitability test and where the boundaries should be, see if we can't substitute a trusteeship area which meets and accommodates and of course compromises the various desires and the various interests of divergent people all around the world.

Blake: This is Gil Blake. This time I have an honest-to-God question. It appears from conversations at lunch today that some of us came away from Mr. Stephenson's briefing for industry on May 25 with slightly different impressions of what he actually said on a certain topic, and I hope that you can clarify it for us. I asked Mr. Stephenson whether the omission of the minimum distance criterion was deliberate, and I understood him to answer yes, that it was, but that this proposal was to be read in conjunction with the concurrent proposal for the 12-mile territorial sea upon which acceptance of this one would be conditioned, and vice versa. It seems that some of the other people at the meeting got the impression that the 12-mile territorial sea in this proposal was considered to be completely independent and one could fly without the other. I wonder if you could clarify that point.

Oxman: The reference to the 12-mile territorial sea was made in the context of close inshore 200-meter depths. This would happen in some areas off the west coast of the Americas. And what we were saying is that there is a concurrent United States proposal for a 12-mile territorial sea which we know would give the coastal State complete sovereignty over the seabed within that 12-mile limit. Accordingly under that proposal there would be no possibility of the coastal State having any less than 12 miles of seabed. I don't think anything further was intended than the answer to that specific problem.

Kasahara: I'm Hiroshi Kasahara from the University of Washington. I wanted to ask three questions but the first one was asked by Mr. Blake, and I want to be sure that my understanding is correct. The United States is going for the seabed proposal regardless of what might happen or might not happen to the question of the territorial sea?

The second question is a bit complicated. I can foresee a situation in which this seabed proposal might be supported by a two-thirds majority at the next Law of the Sea Conference; but the majority consisting of mainly developing nations, land-locked nations, but excluding most of the technologically advanced nations other than the United States. Now that would mean that the nations who are not parties to the Convention would be able to exploit the seabed resources without being bound by the provisions of the treaty. Has this been taken into account?

My third question relates to this interim policy. It is mentioned that as soon as a sufficient number of other States also indicate their willingness to join this interim policy, the United States will take measures to turn over a substantial portion of the revenues to an appropriate international development agency. My question is what would be considered a sufficient number; and also whether it is the question of number only or the composition of the nations, in terms of their stages of development.

Oxman: First of all, the seabeds and territorial sea are concurrent and independent proposals. Now, if one looks a little more deeply into the problem of the territorial sea, then Mr. Stephenson's statement, his February 18 speech in Philadelphia, becomes relevant. That is, unless an agreement is reached on the

breadth of the territorial sea, the entire seabeds question could well become moot. As to the second question you raised, it is of course our hope--and I think that we have some basis for this--that our proposal will have widespread appeal. It is not an ideal proposal from the point of view of the technologically advanced States. It is not an ideal proposal from the point of view of the State with a long and exposed coastline. And it is not an ideal proposal from the point of view of a developing country with no long and exposed coastline, or which is land-locked. It is a recognition, as Acting Secretary Richardson indicated in his testimony, that all of these interests must play a part in reaching a general international accommodation. Personally, I believe that if there is a will to achieve such an accommodation, that the accommodation can be achieved, and that the President's proposal can provide the framework for such an accommodation. If there's no will to achieve the accommodation, then we're left with what was said in the opening paragraph of the President's statement.

As to the third point which you made, I really wouldn't want to speculate on what would be a sufficient number. I think that when the moment came to determine whether the number were sufficient or not, that question would be looked into with greater detail.

Schaefer: I simply want to get a clear answer to the question the last two speakers asked. The real question is with respect to Paragraph 13 of the statement that says it is equally important to assure unfettered and harmonious use of the oceans as an avenue of commerce and transportation, and as a source of food. Is the United States position that you will not adopt the 200 meters and the intermediate zone unless the rest of the countries buy this paragraph, or is it your position that in case they turn you down on the 12-mile territorial sea and the freedom of transit, you won't go for the 200 meters and the intermediate zone?

Oxman: Benny, the answer is that they are concurrent proposals. We were called upon by the Secretary General of the United Nations to respond to his inquiry regarding the question of whether a new Law of the Sea Conference should be held. In that response to the Secretary General, we indicated our feelings which we have expressed regarding the proper way to handle the outstanding issues. The outstanding issues were identified (and it's very easy to see them from the two statements) as the breadth of the territorial sea, straits, fisheries, the seabeds regime, the seabed boundary, and of course the question of pollution which has to be taken into account in reaching and resolving all of these issues. And what we said at that time is that our feeling had been that the best way to handle this was to treat it in manageable packages. Accordingly the General Assembly might call a conference to deal with the breadth of the territorial seas, straits, and fisheries as soon as possible; simultaneously it could instruct the United Nations Sea-Bed Committee to prepare the work for the regime and boundaries, and call a conference to resolve the regime and boundaries as soon as possible. The reason for that, as was stated, is that the seabed issue is an extremely new and complex one, particularly the question of regime and machinery. The other issues have been gone over before; they are understood by

an awful lot of people, and accordingly it was our feeling that it would take more time to prepare a resolution of the seabed regime and machinery.

Schaefer: Or to put it in other terms then, is it a package deal where you buy both things, or is it a deal where you can buy each package separately?

Oxman: They are concurrent proposals; they have not been lumped together in a package.

Mills: I'm Hal Mills from Bishop's University in Quebec. The now forgotten Stratton Commission made its report well over a year ago. The President's proposal has a number of similarities to it, but I'd like to question you about one of the differences. The Stratton Commission recommended that the outer edge of the shelf should be 200 meters or 50 nautical miles, and they went into considerable detail as to why they felt that this proviso of 50 nautical miles was necessary. This has not been adopted in the President's proposal, and I wonder if you could explain why.

Oxman: Needless to say, the Stratton Commission Report was one of the many documents and proposals which were studied very, very carefully in the government's consideration of the matter. And, as is evident, the President's announcement does not contain a mileage alternative. I think the most apparent reason is that a mileage alternative in this case would have been totally and completely arbitrary, bearing really no rational relationship to the distribution of resources in the seabed. It is my understanding, and I am neither a mathematician nor a geologist, that most statisticians would argue that it is essentially incorrect to speak of an average breadth of the continental shelf because it varies so widely. If one looks to the purpose of the 50-mile alternative, it was an attempt to achieve certain accommodations of different interests and aspirations. This, in part, is the function of the trusteeship zone and indeed, given the geological distribution of different types of resources on the margin and beyond the margin, it really didn't seem to some people at least that one was affecting more than an illusory accommodation if one used a mileage alternative for areas which were unlikely to hold certain types of resources.

Wooster: As far as I can see from this statement, scientific research is lumped in with other uses of the ocean. This was referred to earlier today by Gil Blake, and I would appreciate clarification from Mr. Oxman as to the position of the United States on scientific research in the trusteeship zone, and the freedom of other countries to work within this zone off the US shores as well as of the US to work off other shores.

Oxman: As you know, Dr. Wooster, it has been the consistent aspiration of the various officials of the United States government who work in this field to secure the maximum possible range of unimpeded activity; for scientists you might say the fewest possible impediments to the freedom of scientific research. This would surely carry over to the accommodation in the international trusteeship area. I think there is no doubt that it would be the feeling of the United States that scientific research is for the benefit of all mankind, and that

impediments in the form of obstructions arising out of national control should be avoided.

Knauss: Bernie, like you I'm neither a statistician nor a geologist and unlike you I'm not a lawyer. I'd like to return to the continental shelf definition of 200 meters or 50 miles which we proposed on the Stratton Commission. As you indicated, this definition is in some sense arbitrary. It seems to me, however, with the State Department's two concurrent proposals for a 12-mile territorial sea and a trusteeship for the resources of the continental shelf beyond 200 meters that you have also made an arbitrary decision. It seems to me that it's not reasonable to expect other nations to buy the 12-mile territorial sea and the 200-meter continental shelf without giving some indication of what is an acceptable fisheries limit. At the moment, it might be said that we have a "floating" contiguous zone for fisheries.

Is the US position then that the nature of the contiguous zone for fisheries is negotiable in some manner? As of the moment we have suggested a 12-mile territorial sea and a 200-meter continental shelf. The other important resource is the fisheries. Are we going to take a new position concerning fisheries and a fisheries zone?

Oxman: First of all, let me say that arbitrariness is really a function of the point of departure. Surely from the geologist's point of view a three-mile line, a 12-mile line, or any other line is entirely arbitrary. From the point of view of trying to achieve agreement on the breadth of the territorial sea, 12 miles does not seem arbitrary at all when one looks at the practice and the position of the overwhelming majority of States. And if agreement is one of the objectives, as it surely is, then one has to take practice into account. Dr. Knauss, I know you are aware that shelf areas vary greatly both in wealth and in extent. I think it's important when we talk about the seabed proposals to look at the resources and not to think in abstract terms about boundaries. We know that in certain areas of the world there are continental shelves, continental slopes, and continental rises which extend hundreds of miles from the coast that are possibly very rich in hydrocarbons. We know that in other areas of the world there are virtually no continental shelves, slopes, and rises, or if they exist they are extremely narrow. I would submit that it is really very small compensation to a developing country which has no continental slope or margin, or very little, to know that it's going to get some kind of abstract figure in mileage which may well amount to much ado about nothing when compared with other areas of the world where a substantial shelf and margin exist. It is this problem that the revenue aspects of the President's proposal are designed to resolve. And I think it is this problem that the revenue aspects of the President's proposal can resolve.

Turning to your last question and bearing in mind that Ambassador McKernan is in the room, let me say that what the President said on fisheries is that our proposal would accommodate the problems of developing countries and other nations regarding the conservation and use of the living resources of the high seas. These problems concern first of all, conservation, and second of all, the

real economic problems which we all know the coastal fishermen have. It seems that it would be entirely possible to address those economic problems, and provide for a balanced accommodation of economic interests in the fisheries, rather than have a decision based on another arbitrary line which in some cases might not take enough account of a coastal State's interests in a fishery and in other cases might not take enough account of the need to assure that to the maximum extent possible the oceans remain an increasing source for food.

Ely: I am Northcutt Ely, of Washington, D.C. Mr. Oxman, I will try to phrase my statements with a rising inflection on each one so as to qualify it as a question. First, I may say that the points I'm going to inquire about are related to this general problem. I have a feeling that many of the imaginative ideas that were in the President's statement are endangered by rather unnecessary words that have a ring to them that may not be truly borne out by the function they serve. I would like to direct your attention first to the suggestion that all nations adopt a treaty under which they would renounce, I underscore that word renounce, all national claims beyond 200 meters. Compare that, if you please, with the statement about three paragraphs later on that the coastal nations shall act as trustees for the international community in this same area of 200 meters out to the edge of the continental margin. It isn't truly a renunciation of all national claims, because they are going to be, two breaths later, revested with some sort of national function. What puzzles me is what this revesting, this status of trusteeship, is intended to mean.

The statement in the paragraph that deals with the trustees refers only to money. The trustee's functions, his powers, are not described in the statement. He is going to keep some of the revenues and turn some over to an international fund of some kind. My problem about the contrast of the word "renounce" and the word "trustees" is simply this: what are the powers of the trustee to be--for example, the power to refuse to permit development at all?

Bear in mind that this proposal would renounce the national claims of the United States in the Santa Barbara Channel, for example. That is an area of the high seas beyond the three-mile line, much of it beyond the 200-meter isobath. Our national claims would be renounced. Does this mean that we renounce the right to prohibit drilling in Santa Barbara Channel? Do we become the trustees in the sense that someone else, the beneficiary of the trust, can somehow compel the trustee to develop and exploit the resources to produce a maximum of money? Who's going to decide what the optimum rate of production is, to obtain the maximum ultimate recovery of the resource? What's the function of the "trustee"? I would think that it is a totally unnecessary word that gets you into trouble. You've already disclaimed the connotation of the Anglo-Saxon meaning of the word "trustee." From what jurisprudence is the word selected, then? If this means that we truly renounce a power to prohibit drilling, and we accept the function of a trustee, but a trustee in a Pickwickian sense which you can't find in a lawbook, what is the exchange we have made?

I might suggest that if you can enlighten us on what the trustee's powers are to be, we may discover that what you really mean is that we are just agreeing

to dedicate part of the revenues. If that is true, there is no reason to go through the elaborate minuet of renunciation, and, before losing breath, revesting the trusteeship. Why not just say that we're prepared to give up some of the money, and retain the right to prohibit drilling if we want to preserve the resources. Now, I am going to put a rise in inflection on that; it was a question. I would like light on the comparison of the words "renounce" and "trustee."

The next question I want to ask relates to the interim legislation that is proposed. It's planned, apparently, to seek congressional action as soon as a sufficient number of other States indicate their willingness to join us in this interim policy. The interim policy, as I understand it, says that all permits and leases beyond 200 meters are subject to the international regime to be agreed upon. The coastal State is going to guarantee the integrity of investment. The revenues derived by a State beyond 200 meters are to be turned over, in part, to an international development agency. I take it this means a rather wholesale amendment of the Outer Continental Shelf Lands Act. I'd like to be enlightened on that. Can you indicate whether it is planned that the United States will go ahead with the presentation of this proposal in the next meeting of the Sea-Bed Committee, without any assurance from the Congress that it will enact such interim legislation. The Outer Continental Shelf Lands Act took a good many years to pass. I would ask you whether the accomplishment of interim legislation of this kind may not be a protracted process. Do you tend really to submit this international proposal to the Sea-Bed Committee in advance of determining from Congress whether it is prepared to adopt this interim policy? If Congress won't adopt this interim policy, are you going right ahead anyhow with the proposal of the international agreement?

As a final point, let me say that despite the critical character of my questions, I regard the President's statement as a very carefully organized one. The fact that we may not agree with all of it does not mean that it isn't a carefully thought out document. As bearing on that, I want to ask you about the paragraph that deals with what I assume to be a second treaty dealing with the 12-mile limit. May I ask what is intended by the interesting sentence at the end about the accommodation of problems of developing countries and other nations regarding the conservation and use of living resources of the high seas? Does this imply that we're going to propose some sort of a revenue sharing basis, or arrangement, with respect to the fishery resources? Revenues from that source are far larger than from minerals at present. And when it talks of accommodation with the developing countries, does this indicate a willingness to consider, for example, the west coast of Latin America. Those countries think they have a particular geographical resource in the upwelling of the Pacific in their areas, constituting a sort of particular relationship that entitles them to control fishing out beyond the territorial sea, 100 miles, 200 miles, whatever it may be. So with that I leave you and thank you very much for your attention. I'll appreciate whatever help you can give me on these questions.

Oxman: Mr. Ely, turning to your first question which was on renunciation, I had occasion on the weekend the President's statement was issued to show it to a friend of mine, also an attorney, who was totally unfamiliar with these issues.

I asked him to read the President's statement and tell me what he thought of it. He read it, and looked up, and he read it again, and then he looked me square in the eye and said, "The Lord taketh away and the Lord giveth."

I think there is an essential difference and a very important difference between claims of sovereignty and sovereign rights to a part of the seabed by a coastal State or by any nation, and the exercise of delegated functions by a coastal State or any other nation which have been delegated to it for administrative convenience and for purposes of attempting to accommodate the desires and interests of a whole variety of States in an international agreement. The essential point is that the area beyond 200 meters will, as the President's statement indicated, be subject to international rule, but will include, for the reasons I've indicated in answering a number of questions, a delegation of functions to the coastal State. I don't think this turns entirely on revenues, although revenues are clearly an important part of it. I think it turns on the essential judgment that the international community should decide what happens beyond 200 meters, and it is our proposal that they decide that the most sensible way to handle the question of machinery for exploration and exploitation of resources in that part of the margin beyond 200 meters is to let the same State handle it that is handling it within 200 meters. In part this is true because there are single resource pools.

You asked a number of specific questions regarding the powers of the trustees. I don't think that I really am in a position to give definitive answers to those questions at this time, Mr. Ely, and I hope that you and others will bear with me. You will recall, however, that Acting Secretary Richardson, when he testified before Senator Metcalf's committee, made an allusion to precisely the problem you raised when you used the Santa Barbara example. Now, addressing ourselves to Santa Barbara for a moment, just based on my own quick look at the map, most of the Santa Barbara Channel, but not all, would be included within a 12-mile territorial sea. There would be some parts that would not. It is my understanding that all of the leases involved in the Santa Barbara situation are within 12 miles of the coast. In addition, geologists whom I've talked to since the President's announcement have said that that area off California is one of those that is going to have to be looked at in order to see how to handle the technical problems of the 200-meter boundary in order not to produce ridiculous results of little trusteeship areas surrounded by continental shelf. And I'm sure that this will be done.

You asked from what jurisprudence is the trusteeship concept derived. I think the answer to that would be from no existing jurisprudence. The word trustee has some meaning in the English language in general. It has some meaning in the United Nations system in general. I don't think it was the intention to use either as the legal precedent, but rather to convey an idea that the coastal State is acting pursuant to the functions delegated to it in an international treaty. The law books will describe the jurisprudence underlining trusteeship concept in terms of what is written in the treaty establishing the trusteeship area and the trusteeship function. I don't think they will examine

it in the light of the Trusteeship Council of the United Nations or Massachusetts Trust or British Trust Law.

Insofar as the interim policy is concerned, the Executive Branch is currently examining those aspects of the interim policy which might or might not require legislation. It's rather clear that under the interim policy should a sufficient number of States agree to devote a portion of revenues, congressional action would be necessary. Insofar as the leasing aspects are concerned, there are lawyers far more expert in this than I am who are looking at this at the present time, and I don't know what their conclusions are regarding the necessity for additional legislation.

Insofar as your questions regarding fisheries are concerned, you will notice that the President's proposal with respect to the seabed spoke of mineral royalties. By and large, although there are exceptions, it is not the custom of States to charge royalties on renewable resources--particularly fish--but rather on non-renewable resources, or minerals. It would seem logical to look to this practice in determining what international arrangements should be in this field as well. In addition, sentiment has been expressed that it would be unwise to place additional economic burden on securing the food supply which the world needs from the ocean.

Insofar as the accommodation of economic interests is concerned, I think what is in mind is in general that there are real economic interests in fisheries going beyond any arbitrary line that one might reasonably fix. They're based on the fisheries, they're based on what the fishermen have done, they're based on how big their boats are, they're based on how easily they can move around, they're based on what can happen to the livelihood of a small coastal fishing village if a big fleet comes in and sweeps up all the fish for which the village fishes throughout the year to sustain itself and to sustain its economy. There are examples. You mentioned the west coast of Latin America. I think there's a very fine example of this situation down there off Peru. The Peruvian fishermen have developed a very substantial anchoveta fishery off their coast. Looking at it not from the point of view of law, but solely from the point of view of equities for a moment, I think it is difficult to conceive of the situation in which all of a sudden that fishery on which the coastal State is dependent disappears. And I think that economic interests of that sort should be protected. That, at least, is my conception of what the United States is attempting to do; but I would like to say that Ambassador McKernan is here and I am sure he would be happy to discuss this further with you in private and far more expertly than I could.

Ely: Might I add one postscript to my question. I thank you very much for what you said about the function of the trustee; perhaps I can turn the question around a little to make it more clear what I was trying to ask. One of the arguments for a narrow shelf has been that this would make more readily and fairly accessible to American industry the continental margins off some nations which may have unstable or intractable governments. As you know, I personally never throught much of that, as an argument for giving up our own continental

margin to buy that advantage for American industry overseas. Putting that to one side, is it contemplated that the trustee (this is a foreign nation now, a small nation overseas) would have the right to bar the nationals of countries with whom it may disagree, such as the United States? Or is every trustee, to use that word, going to operate under the control of some international regime so it is really nothing more than a naked administrator? An answer favorable from our viewpoint on the foreign nation's continental margin implies the same loss of control by our own government over our own continental margin. So this question of what powers are vested in the trustee becomes absolutely essential, and I don't discover the answer in the President's proposal. All I find is a reference to money.

I might say that this word "renounce" is an effort to deal with the troublesome words "exclusive sovereign rights." But you don't have to throw the baby out with the bath water; you don't have to renounce anything. All you have to do is translate this concept into more acceptable wording, something like that which is common in British practice of speaking of nations having a "special relationship" with the British Government. You can talk of the coastal nations as having special relationship, a special responsibility, a particular concern (some of Truman's language) and convert these words "sovereign rights" into something truly more representing the degree of control of the single resource you're talking about. That is why I said earlier I think some of the imaginative features of this proposal are rendered unnecessarily controversial by the choice of words that perhaps were chosen for their cosmetic value.

Oxman: Mr. Ely, I might say that I entirely agree with you that the word "trustee" more clearly indicates the role rather than the function of the coastal State, and I think that that is the difficulty. I don't think it would be reasonable, and Acting Secretary Richardson said the same thing, under a trustee system, given the purposes it is designed to accomplish, to create a situation in which North Vietnam could be compelled to issue a license to an American company, and I dare say vice versa.

Bilder: I am Richard Bilder, University of Wisconsin. I'd just like a clarification, Mr. Oxman, on this phrase in the statement: "This treaty would establish a 12-mile limit to the territorial seas and provide for free transit through international straits." My understanding is that that "free transit" means something more than "innocent passage." If this is true, I was wondering if you could clarify what this difference is.

Oxman: Yes, certainly. The regime of the Territorial Sea Convention establishes a right of innocent passage through the territorial sea and then goes on to provide that innocent passage in international straits cannot be suspended. Experience has demonstrated that there are difficulties with this formulation. First of all, it is only innocent passage that cannot be suspended. Some governments have indicated the view that the coastal States can consider the flag of the vessel, the cargo of the vessel, or the destination of the vessel as relevant factors in determining innocence. Others have indicated that they can consider the nature of the vessel--for example, whether or not it's an oil tanker or a

warship--as factors in determining whether or not it is innocent. In reality, if you move to a 12-mile territorial sea, except for very restrictive movements over the ocean you would have to use one strait or another in order to fully exercise your freedom of the high seas. In addition, the Territorial Sea Convention does not speak of aircraft. Aircraft are a relatively recent phenomenon, unlike ships, and the degree of air transport at the time that the Territorial Sea Convention was being prepared in the 1950's was nowhere near what it is today. Accordingly, it is our proposal to provide for transit for both vessels and aircraft, as a logical adjunct and a necessary adjunct of any real freedom of the seas and any real right to exercise this freedom.

Alexander: There is a second point on which the President's proposal disagrees with the Marine Science Commission's proposal, and that has to do with the seaward limits of the trusteeship zone, or as the Commission calls it, the intermediate zone. In this case, where is the seaward edge of the "continental margin"? Does it correspond with the seaward limit of the rise, or is it the point of contact of two different types of rocks, as the Petroleum Council once suggested it should be?

Oxman: The answer is, I don't know. I think my earlier comments to Dr. Hedberg are relevant here. As a lawyer, my concern would be not so much how elegant the determination was from a geologic point of view, as two things: first, reducing to the extent possible complete administration of single resource pools; and second, preventing conflict by providing a necessary degree of certainty. A lot of papers have been written on various ways to go about doing this. I know that they are under study by geologists in the government. I think it's going to take some time before the geologists themselves, combined with the lawyers and the politicians, can reach some conclusion regarding the best way of doing this.

Gorove: I am Professor Stephen Gorove from the University of Mississippi Law School. I would like to focus on a couple of points for purposes of clarification. I note that both the President's statement as well as some of the discussions that we heard yesterday from the United Nations people made several references to the somewhat mystic concept of the common heritage of mankind. One of the speakers suggested that this was not a legal concept, which it seems to me it is not, at least at the present time. Another statement made was that even if this concept were void of any legal connotation nonetheless it will have legal implications in the future.

The other clarification I would like relates to the renunciation of national claims. I note the words "all national claims." The meaning of this phrase may not be entirely clear, however. Does the phrase refer to the claims of nation States as such, or does it include the claims of nationals as well? What about the claims of international organizations? Are they to be included or excluded? Furthermore, are we talking about the United Nations when we speak of an international regime or are we talking about any international organization? In the latter case, two or more States could get together and form an international organization, perhaps an ad hoc international organization, and bypass any provisions pertaining to the renunciation of national claims. I think some

clarification would be needed if there is a treaty to include such renunciation. I might also add that in another context the phrase used was the prohibition of "national appropriation," rather than renunciation of all "national claims." For instance, the Outer Space Treaty uses that language. The reference to national claims is more reminiscent of the Antarctic Treaty. I would appreciate clarification of the points raised.

Oxman: Correct me, sir, if I'm mistaken. I'm unaware from my own readings in international law, which are not as extensive as those of many people in this room, of common heritage as such being a term of art under international law. You suggested that it had implications, and I think that it does have clear implications. The decisions regarding the area are international decisions which have to be made internationally. They are not national decisions which any one State can decide and say to the rest of the international community, "That's the way it's going to be."

Regarding your second point on national claims, when we speak of claims of sovereignty or sovereign rights, I think we have to be speaking of States. It would seem to me that if an individual attempted to make a claim of sovereignty or sovereign rights, the individual would somehow have to convert himself into a State. Now there are some incidents which were in the newspapers regarding some attempts to do precisely that in recent times; they didn't succeed for one reason or another. I understand informally from friends of mine in the Department of Justice that there would be difficulties involved in an American citizen attempting to do that. Certainly it was not our intention to say that a State can't claim sovereignty but an individual can or an international organization of two, three, four, ten, twenty, thirty States can. The point is that there will be no claims of that sort; decisions will be made by the community in the treaty.

The third point of prohibition of national appropriation is quite correct, and the draft of the seabed legal principles which have been worked on for quite some time now by the Seabeds Committee contain provisions of that sort while no definitive draft of those provisions or those principles has been produced as yet. That is a subject matter of discussion which does appear in a wide number of proposals made by a widely different group of countries who are members of the Committee.

McCracken: I'd like to know what you can tell us about the problems up north. While the good boys down in Washington were presiding over the May decisions, the bad boys up in Ottawa were raising hell. And maybe they're looking out for the common heritage of the Eskimos, but they've locked up everything north of 60° all the way across and straight on up. Now you certainly don't have a good road with that in front of you, and I'd be very interested in hearing a little of the sidelights.

Oxman: The United States did issue a statement regarding the Arctic which followed the announcement of plans introduced into legislation by the Canadian Government. In that statement which was a general statement of our policy,

we indicated that we did not regard the unilateral establishment of a 100-mile pollution zone as consistent with international law. We invited the Canadian Government, despite its reservations to a compulsory jurisdiction of the International Court of Justice to submit the question on a voluntary basis to the International Court of Justice. We also--and perhaps most significantly--proposed that an international conference be held to address the environmental problems which are involved. We are, I can say, pursuing such proposals. I really don't think I'm in a position to say much more than that.

McNichols: I'm Walter McNichols, University of Miami. My question is directed to the terms "resources," "seabed resources," "natural resources of the seabed," all of which are used herein and bearing in mind the interpretation of the Fifth Circuit Court of Appeals in the recent raid case on these types of terms. Under the proposed treaty, would the new international regime have the right to authorize someone to build islands in shallow places such as the Cortez Bank off of California?

Oxman: First of all regarding the question of natural resources, I wouldn't want to prejudice what would occur, but in references to natural resources of the seabed the general concept, it seems to me, has been essentially the same as the Continental Shelf Convention's definition of natural resources of the seabed. Regarding your second question, there is discussion going on in the United Nations Sea-Bed Committee about precisely how ambitious one should be in the initial stages of constructing an international regime. There is one school of thought that all problems which could conceivably be anticipated should be dealt with now; another that those which are more likely to arise which have greater economic significance should be dealt with now, but that one shouldn't attempt to do too much. To put it in another way, I heard recently that the best should not be made the enemy of the good. Further, I think development on that question will be necessary, but precisely how ambitious an undertaking would be wise at this point--bear in mind that if it becomes too ambitious, one may not be able to accomplish anything at all.

Wolf: Atwood Wolf, New York. Mr. Oxman, I was a bit confused by one sentence in your opening statement, and I was going to ask for clarification. Mr. Ely presented some rather interesting questions. I must admit that I'm somewhat more confused having heard your responses to those questions, so with your permission I'd like to try another stab at it. As I read the President's statement, he proposes the creation of an international regime with respect to the seabed beyond the 200-meter limit, and in particular, a regime which would deal with such problems as pollution, conflicting or multiple uses, integrity of investment, and of course peaceful settlement of disputes. It seems to me that outside of the context of the seabed regime, all of those items are the subject of either existing or developing international law. In fact, outside of this context, it seems to me, the freedom of action, or if you please, the untrammelled sovereignty of the United States, is in the process of being more and more restricted. The President then turns, in the statement, to the idea of the creation of international machinery which would regulate and authorize, or perhaps I should reverse that, authorize and regulate the activities of States

beyond the edge of the continental margin. Now, in your opening statement you suggested that with respect to this intermediate zone, the coastal State would operate the machinery seaward of 200 meters to the edge of the sea. I think subsequently you made reference to a sentence to the general effect that the coastal State would have delegated to it the administrative functions of the international machinery. Now, are you suggesting that a rule-making body of an international variety, a regulatory agency either within or without the UN system, would be created that would have the power and the jurisdiction to create rules for the exploitation of the natural resources on the shelf, and that the role of the coastal State would be to enforce those rules or regulations, or is the dichotomy in the President's statement with respect to international imposition of general rules for the coastal area, and of a more comprehensive type of machinery authorizing and regulating activities in the deep seabed to be maintained?

Oxman: Insofar as authorization to explore and exploit is concerned, I think that the outline of the President's proposal is rather clear. The coastal State will operate the machinery for authorizing exploration and exploitation; there will be international machinery to authorize exploration and exploitation beyond the trusteeship zone. The question you raise beyond that is one which obviously has infinite permutations. I really can't go through what all the possibilities there would be. I would suggest that it is not proposed that the coastal State act as a mere functionary ordered to do this or that. One must consider, for example, that while there is an interest in the entire international community in assuring that pollution of the seas from activities on the seabed does not occur, that this is a general interest. The United States is concerned not only about pollution from activities off its own coast, but off other people's coasts as well, particularly if they are neighbors, for example. It may also be that some coastal States would feel that they needed particularly high or rigid standards, that their population was perhaps more concerned about pollution than someone else's, or that the danger of pollution were greater in areas where there were beaches, for example. One of the functions of a trusteeship system is to allow the trustee State to make those kinds of adjustments in order to meet the special circumstances which may or may not pertain to this particular area.

Question: My first question relates to paragraph 11 of the statement regarding the interim period, and I'm wondering whether the intention is really that during this interim period permits should be issued subject only to the international regime to be agreed upon. In fact, State practice might vary so much during this period that any international agreement subsequently might be extremely difficult to reach. So my question is do you envisage perhaps that guidelines, at least, should be devised for the benefit of the coastal State?

My second question relates to paragraph 5, I believe it is. Will licenses in your view to explore and exploit the resources in specific areas be issued to States parties to the treaty or directly to individual operators? In the same paragraph, I see no reference to exploration of the resources but only to exploitation. So my question is, will royalties be levied only in respect of exploitation?

My last question is rather simple, but difficult to formulate. At the beginning of the meeting tonight you read out the first three paragraphs of the statement thinking that we might have skipped over them. On the contrary I went over them rather carefully, and I was rather startled by them for the following reasons: They are couched in extremely general terms--the first paragraph refers to man's use of the oceans in general, and to the fact that the resources in the oceans should be used for the benefit of mankind. The second paragraph refers to the fact that nations have become conscious of the wealth to be exploited from the seabed and throughout the waters above. Again reference to the oceans and all the resources. The same thing in the third paragraph where you have reference to the general benefits in the area of the densest exploitation. After reading these three paragraphs, one would expect that the same regime would apply to all the oceans and to all the resources; in fact the opposite is true. You have short zones off the coast subjected to the sovereignty of the coastal State and beyond for the mineral resources; you have the notion of common heritage of mankind, you have royalties for the leading resources; you have freedom of the seas. My question is why the first three paragraphs were drafted in this way.

Oxman: I'm not sure I fully understood the first question. Might I rephrase my understanding of it to see if I'm correct. It was that during the interim period prior to agreement on definitive arrangements, the process of exploitation in itself might create difficulties which would therefore make agreement more difficult to achieve; and thus did we perceive that there would be guidelines operating regarding the interim period which were agreed in order to prevent this from happening. It's a question of what you mean by agreed guidelines. The President has called on other nations to join with us in the interim policy. As I indicated earlier, the interim policy regarding exploitation beyond 200 meters is designed to permit exploitation to continue beyond 200 meters, but to continue in a way which doesn't prejudice the options available to the international community. In addition, it is designed to try and get an understanding under which revenues could start flowing to developing countries should this take a substantial period of time. I don't think that this meant or necessarily excluded the possibility of an interim agreement. It would seem to me that the difficulties involved in attaining a formal interim agreement might be so similar to the technical problems involved in achieving a formal definitive agreement that that might not be the wise course to take.

Insofar as the issuance of licenses is concerned, the trustee State as conceived might issue them to States, but it is conceived that it would normally follow the practice which coastal States do on the shelves of issuing licenses to individuals. The problem insofar as the international machinery is concerned has been debated rather widely. There are some who feel that licenses should be issued to States, others to States on behalf of their nationals, and still another school of thought, that the licenses should be issued directly to companies. I really can't say what the result of this is going to be. I think it's obvious that an international organization cannot perform all of the functions that a State is capable of performing and that one would really be attempting to do altogether too much if one tried to create an organization which

could. Accordingly, I think it could be expected, from a practical point of view, that States would have some role to play in the mechanism under the international machinery.

Third was your question, why only exploitation? Basically, exploitation is what everybody is worried about. The Shelf Convention deals with exploration and exploitation. There are many people who feel that the regime should also; in all probability it would. On the other hand, I think there was some feeling that one didn't want to get into the nuances of distinguishing between exploration and scientific research, which have totally different objects in a paper of this sort.

The question of oceans versus the seabed gets us back to what is arbitrary and what is not. Everyone agreed for quite some time that somewhere on the seabeds there was in essence a new world waiting. There was an area awaiting new and definitive international agreement which could be based on all the experience we had gained, an area where substantial activities had not been undertaken, an area with respect to which substantial positions, and hardened positions, had not been taken. Therefore, I think it's rather clear from a practical point of view that the range of options available is very broad. When one talks of the waters, one has not only a great deal of law which is in dispute, but one has a great deal of practice in regional arrangements which have been developed. I think from a pragmatic point of view the range of options isn't as great, and that is as it should be. The world has been using the waters for millennia, and it has only just started to use the seabed. I don't think one can simply develop a concept and erase what's happened during those millennia quite as easily as one can say we have a new problem, let's solve a new problem in a new way.

Gerstle: Margaret Gerstle, attorney, New York. What are the procedures for seeking agreement with other nations to join us in the interim arrangements that the President mentioned in his proposal?

Oxman: We have already invited other people to join us in it; I would assume that we will use normal diplomatic channels in an attempt to see if others are willing to join us in the interim arrangements.

Christy: I'm going to terminate the discussion now. I think that many of the questions that have been raised tonight have been raised as if the President's two-page announcement were a gross myriad of errors, or a 1200-page McDougal and Burkian Public Order of the Oceans. The task of responding to the questions and describing in more detail the President's announcement has been an extremely difficult one, and I think that Bernie Oxman has responded to it very splendidly.

STATEMENT BY THE PRESIDENT ON U.S. OCEANS POLICY

The nations of the world are now facing decisions of momentous importance to man's use of the oceans for decades ahead. At issue is whether the oceans will be used rationally and equitably and for the benefit of mankind or whether they will become an arena of unrestrained exploitation and conflicting jurisdictional claims in which even the most advantaged States will be losers.

The issue arises now--and with urgency--because nations have grown increasingly conscious of the wealth to be exploited from the seabeds and throughout the waters above, and because they are also becoming apprehensive about ecological hazards of unregulated use of the oceans and seabeds. The stark fact is that the law of the sea is inadequate to meet the needs of modern technology and the concerns of the international community. If it is not modernized multilaterally, unilateral action and international conflict are inevitable.

This is the time, then, for all nations to set about resolving the basic issues of the future regime for the oceans--and to resolve it in a way that redounds to the general benefit in the era of intensive exploitation that lies ahead. The United States as a major maritime power and a leader in ocean technology to unlock the riches of the ocean has a special responsibility to move this effort forward.

Therefore, I am today proposing that all nations adopt as soon as possible a treaty under which they would renounce all national claims over the natural resources of the seabed beyond the point where the high seas reach a depth of 200 meters (218.8 yards) and would agree to regard these resources as the common heritage of mankind.

The treaty should establish an international regime for the exploitation of seabed resources beyond this limit. The regime should provide for the collection of substantial mineral royalties to be used for international community purposes, particularly economic assistance to developing countries. It should also establish general rules to prevent unreasonable interference with other uses of the ocean, to protect the ocean from pollution, to assure the integrity of the investment necessary for such exploitation, and to provide for peaceful and compulsory settlement of disputes.

I propose two types of machinery for authorizing exploitation of seabed resources beyond a depth of 200 meters.

First, I propose that coastal nations act as trustees for the international community in an international trusteeship zone comprised of the continental margins beyond a depth of 200 meters off their coasts. In return, each coastal State would receive a share of the international revenues from the zone in which it acts as trustee and could impose additional taxes if these were deemed desirable.

As a second step, agreed international machinery would authorize and regulate exploration and use of seabed resources beyond the continental margins.

The United States will introduce specific proposals at the next meeting of the United Nations Seabeds Committee to carry out these objectives.

Although I hope agreement on such steps can be reached quickly, the negotiation of such a complex treaty may take some time. I do not, however, believe it is either necessary or desirable to try to halt exploration and exploitation of the seabeds beyond a depth of 200 meters during the negotiating process.

Accordingly, I call on other nations to join the United States in an interim policy. I suggest that all permits for exploration and exploitation of the seabeds beyond 200 meters be issued subject to the international regime to be agreed upon. The regime should accordingly include due protection for the integrity of investments made in the interim period. A substantial portion of the revenues derived by a State from exploitation beyond 200 meters during this interim period should be turned over to an appropriate international development agency for assistance to developing countries. I would plan to seek appropriate Congressional action to make such funds available as soon as a sufficient number of other States also indicate their willingness to join this interim policy.

I will propose necessary changes in the domestic import and tax laws and regulations of the United States to assure that our own laws and regulations do not discriminate against US nationals operating in the trusteeship zone off our coast or under the authority of the international machinery to be established.

It is equally important to assure unfettered and harmonious use of the oceans as an avenue of commerce and transportation, and as a source of food. For this reason the United States is currently engaged with other States in an effort to obtain a new law of the sea treaty. This treaty would establish a 12-mile limit for territorial seas and provide for free transit through international straits. It would also accommodate the problems of developing countries and other nations regarding the conservation and use of the living resources of the high seas.

I believe that these proposals are essential to the interests of all nations, rich and poor, coastal and land-locked, regardless of their political systems. If they result in international agreements, we can save over two-thirds of the earth's surface from national conflict and rivalry, protect it from pollution, and put it to use for the benefit of all. This would be a fitting achievement for this 25th anniversary year of the United Nations.

COMPARISON BETWEEN RECOMMENDATIONS OF PRESIDENT NIXON AND THOSE OF COMMISSION ON MARINE SCIENCE, ENGINEERING AND RESOURCES ON THE MINERAL RESOURCES UNDERLYING THE HIGH SEAS

Carl A. Auerbach
Professor of Law, University of Minnesota

1. The Commission recommended that no coastal nation claim sovereign rights beyond the 200 meter isobath or 50 miles from "shore," whichever limit gives the coastal nation the larger area of "continental shelf" for purposes of mineral resources development, and that the international regime begin where the applicable limit ends.

President Nixon, in his statement of May 23, 1970, accepted this basic concept, but rejected the idea of a width limit, stated in miles, as an alternative to the depth limit. It is a good guess that the Defense Department feared that any such width limit might prejudice its effort to obtain a 12-mile territorial sea limit.

2. The Commission recommended an "intermediate zone"--extending from the outer limit of the "continental shelf" to the 2500 meter isobath or 100 miles from "shore," whichever limit gives the coastal nation the larger area of "continental margin" for purposes of mineral resources development. Only the coastal nation would have access to the intermediate zone. But claims to explore or exploit mineral resources in the intermediate zone would be registered with the International Registry Authority and a percentage of gross revenues from operations in this zone would be paid to the International Fund.

President Nixon adopted the essentials of this proposal, though again he rejected the alternative width limit of the "intermediate zone."

a. Instead of an "intermediate zone," the President speaks of "an international trusteeship zone" comprised of the continental margins beyond the 200 meter isobath and in which the coastal nations would act "as trustees for the international community."

b. The President did not make explicit that only the coastal nation would have access to this zone. But in light of the President's proposal with regard to the areas beyond the outer limits of the "continental margins," it is implicit that the coastal nation would authorize and regulate exploration and use of seabed resources in the international trusteeship zone.

In his testimony before the special subcommittee on the Outer Continental Shelf of the Senate Committee on Interior and Insular Affairs, May 27, 1970, Elliott L. Richardson, then Under Secretary of State, explained that the coastal nation would administer the international trusteeship zone "pursuant to its own laws and regulations." It would thus "decide on who would be granted leases and for how long." But the terms of the leases, after an international regime is agreed upon, "would be consistent with and in addition to the general rules specified in the regime treaty."

All this, of course, is consistent with the Commission's recommendations. Yet the Commission's explicit creation of a right in the coastal nation of exclusive access to the intermediate zone for purposes of mineral resources development is a clearer basis upon which a coastal nation might, if it wished, bar all such mineral development in a particular area in order to prevent pollution or to prefer some alternative use of the area or to leave the area completely undisturbed.

c. The President proposed that "each coastal State would receive a share of the international revenues from the zone in which it acts as trustee and could impose additional taxes if these were deemed desirable."

There is ambiguity in this statement. Under the Commission's recommendations, the coastal nation would derive revenues from the intermediate zone by auctioning bids to explore or exploit in this zone. In addition, of course, companies subject to US tax laws would pay taxes on profits derived from operations in this zone. But the coastal nation would not share in the percentage of gross revenues that would be paid to the International Fund.

The President's proposal seems to assume that the "international revenues" from the zone would first be fixed and then the coastal nation would get a "share" of this amount. It would be difficult to have either the treaty creating the international regime or any international authority established thereunder determine how much of the international revenues should go to the coastal nation. It would be preferable, as the Commission recommended, to separate the fixing of international revenues, which should be the province of an international authority acting in accordance with agreed-upon international rules, from the fixing of coastal nation revenues, which should be in the province of the coastal nation alone.

d. The Commission envisaged that the arrangements for the intermediate zone it recommended might not be permanent. Claims in this area would be registered with the International Registry Authority for limited periods of time. It is not clear whether the President contemplates permanency of the international trusteeship zone.

3. The Commission recommended the outlines of an international regime to be applicable beyond the outer limits of the continental shelf. The President proposed an international regime which should (a) "provide for the collection of substantial mineral royalties to be used for international community purposes, particularly economic assistance to developing countries"; and (b) "establish general rules to prevent unreasonable interference with other uses of the ocean, to protect the ocean from pollution, to assure the integrity of the investment necessary for such exploitation, and to provide for peaceful and compulsory settlement of disputes." These provisions would also apply to the international trusteeship zone. Furthermore, the President proposed that "agreed international machinery would authorize and regulate exploration and use of seabed resources beyond the continental margins."

These general recommendations of the President are completely consistent with the more detailed proposals of the Commission. It is clear from the President's proposal that the international authority would have important regulatory functions in the international trusteeship zone as well as the areas beyond. Presumably it could prohibit development of the mineral resources in a particular area to prevent pollution, or to prevent some alternative use of the area or to leave the area completely undisturbed. The Commission's recommendations did not deal with this matter explicitly, though it is implicit in its recommendations that the International Registry Authority could exercise similar regulatory authority.

4. The Commission recommended that exploration and exploitation beyond the 200 meter isobath continue while negotiations take place looking toward a treaty dealing with the development of the mineral resources underlying the high seas.

The President adopted this recommendation.

a. However, the Commission recommended that the Outer Continental Shelf Lands Act be amended to make it clear that US companies must obtain permits from the Department of the Interior to explore or exploit at any point beyond the 200-meter isobath. The President was silent on this matter.

b. The Commission recommended that all interim permits to explore or exploit beyond the 200-meter isobath be issued subject to the international agreements eventually negotiated. The President accepted this proposal.

c. The Commission added a recommendation that Congress enact a law guaranteeing private enterprise against any loss it might incur if the international regime agreed upon was less favorable to it than the terms upon which it proceeded to engage in interim exploitation beyond the 200-meter isobath.

The President rejected this recommendation. Instead he proposed that the new international regime should "include due protection for the integrity of investments made in the interim period."

It is not clear precisely what the President has in mind regarding this matter. The President's statement may be taken to mean that the international regime must make provision for protection against loss of the investment or must allow continuation of exploitation in accordance with the terms of the original lease. In his statement previously referred to, Under Secretary Richardson explained: "What we have in mind are grandfather arrangements similar to those which were made with respect to areas in the Gulf of Mexico at a time when it was unclear whether particular areas were under the jurisdiction of the states or the Federal Government." From this, it would seem that the latter meaning of the President's statement is intended. The Commission feared that the recognition of such "grandfather rights" might confront the international community with so many faits accomplis as to prejudice the ultimate definition of the outer limits of the continental shelf.

d. The President suggested that a "substantial portion of the revenues derived by a State from exploitation beyond 200 meters during this interim period should be turned over to an appropriate international development agency for assistance to developing countries."

The Commission made no such proposal, which is generous indeed.

5. The Commission's recommendations pertained only to the mineral resources underlying the high seas. The President's proposals cover all "natural resources." This means that sedentary living resources would be included in the arrangements for an international trusteeship zone. The Commission doubted the wisdom of such an inclusion.

INTRODUCTION

Thomas A. Clingan, Jr.
University of Miami School of Law

This morning's panel is entitled "The Role of United Nations Agencies in Environmental Monitoring." It is a new subject for the Law of the Sea Institute. The whole question of environmental monitoring, control and survey, of course, has received great national attention. We have had such recent innovations as the Environmental Council established by the National Environmental Quality Act, the President's recent message on pollution by oil in the seas, the program sketched out in that message, and many other developments which have drawn a lot of attention.

What we need to concern ourselves with here is that the general problem of environmental monitoring, pollution, and related subjects cannot be considered solely national, although there are certainly national aspects that can be carved out and handled independently. Dr. Pardo and others have referred to the global nature of the problem. So we have many basic questions and problems to approach.

We have to sort out what problems are global rather than national, so that they can be handled on the appropriate level. We have to take a look at the institutions that are available for monitoring, and how well they function in this particular area, and where the gaps, if any, may be. We have to think also in terms of the side effects or spin-offs, and in terms of failures to deal with environmental issues on an international scale; and perhaps in terms of unilateral action of coastal States and what the results may be if we don't come to grips on a more cooperative basis with these problems.

This morning's panel is a very distinguished one. Our speakers will be Dr. Robert White, familiar to you all, Administrator of the Environmental Science Services Administration; Dr. N. L. Veranneman, World Meteorological Organization in Geneva; Thomas S. Busha from IMCO in London, and Professor Richard Bilder of the Law School of the University of Wisconsin.

GLOBAL ENVIRONMENTAL MONITORING--A TIME TO TAKE STOCK

Robert M. White, Administrator
Environmental Science Services Administration
U.S. Department of Commerce

It is an honor to be invited to talk at the Law of the Sea Institute. It is also a special pleasure to be here, since it has enabled me to renew many old acquaintances: first with Dr. Werner Baum, President of the University of Rhode Island and my former colleague as ESSA's Deputy Administrator; second with Dean John Knauss, Provost for Marine Affairs at the University, with whom I burned a great deal of midnight oil as a fellow member of the President's Commission on Marine Science, Engineering and Resources. It was during the Commission's lifetime also that I met and learned to appreciate Lew Alexander, who is largely responsible for these sessions.

I am also pleased to be speaking to you about environmental monitoring, which happens to be one of my favorite subjects, and a major activity within the Department of Commerce. Internationally, environmental monitoring has been with us for quite a long time. Many people might have different dates for its beginning but I favor 1853, at the Maritime Conference in Brussels which dealt with monitoring the weather over the oceans and, interestingly enough, was led by an oceanographer, Lt. Matthew Fontaine Maury, USN.

The world's nations have been exchanging geophysical data, then, for more than a century. It has been a period of rapid, revolutionary change, and the degree of change from this time forward can only accelerate and intensify.

Many different kinds of environmental monitoring systems have grown in clear response to the urgent needs of society. We have seen these needs change and multiply. At first, they were for many kinds of warnings of severe weather over the land and at sea. Others grew as science and technology demonstrated they could provide important information to support and increase the efficiency of marine transportation and agriculture, and that they could give essential weather data for aviation, or provide ionospheric forecasts for telecommunications, or ocean condition forecasts for fishing interests.

It is evident that most of the systems now in existence were created to protect life and property or to support commerce and industry. Justifying them took no deep study of costs and benefits; the needs were so great and the means so reasonable.

Our systems have grown along with our society's needs--almost continuously. We have found, too, that when new needs arise, old ones do not disappear. We need to monitor stratospheric conditions to support supersonic flight over global distances, but we still need to provide tropospheric monitoring of ceiling and visibility to support piston aircraft operations. We need to provide new kinds of ocean forecasts to support deep-ocean resource development, but we still need to provide daily information on tides, as we have done for many years.

Now, however, we are at the point of a change which can only be described as fundamental, because, I believe, there has been a basic change in human environmental outlook and priorities. We have always been concerned with protecting man from his environment; now we are becoming concerned, and vitally so, with the overriding problems of protecting the environment against man. Inevitably, this leads to a change in our view of environmental monitoring. We are moving from an almost exclusive preoccupation with the monitoring of our physical environment and its natural fluctuations to a new dimension--the additional monitoring of biological systems and the unnatural, man-made characteristics of the environment.

Fortunately, the birth of the new priorities has been preceded, although by a relatively narrow margin of time, by a science-and-technology explosion. I would cite the globe-girdling satellite with its enormous ability to observe the earth, the atmosphere and oceans, and for collecting and delivering data from previously inaccessible places. Its handmaiden, the high-speed computer, has radically advanced our ability to process data. Mathematical modeling has tremendously widened the environmental scientists' theoretical horizons, and almost literally doubled his vision.

The impact of these advances has been far more than scientific and technological; it has served to alter the nature of the traditional interdependence of nations for international monitoring by making the many more dependent upon the few. It has changed the arrangements between States for the production and exchange of information such as in the World and Regional Weather Centers of the World Weather Watch.

With these changes, we are beginning to encounter new and different needs, and different concepts of what environmental monitoring is, what it should be, and how it should be done. Already, there has been an enormous transformation in the ways in which we acquire and process environmental data.

The ways in which the world will use this information are changing almost as we meet here today. We can see its beginning within nations as our measurements of atmospheric, river and ocean pollution begin to exert a new and powerful influence upon the conduct of their activities. We can be sure that these changes will greatly affect the way we go about our tasks in the future.

As we enter this new period, we are faced with many agencies--international, national, state, and even local--which have an interest in the field. One might almost say we have an embarrassment of riches. On the international scene, I am aware of more than 20 institutions involved, and I have probably overlooked several. They include almost every one of the United Nations' specialized agencies, many of the major functions at UN headquarters, and such non-UN organizations as OECD and NATO.

It is inevitable, of course, that the profusion of people involved in this area would lead to a great many ideas for the creation and conduct of tomorrow's monitoring systems.

The multitude of proposals are only the harbingers of other proposals to come. After reading some of them, it is difficult to avoid the impression that the all-purpose, universal monitoring system which will monitor everything, everywhere, all the time, and satisfy all of society's needs forever is about to appear.

It is disconcerting to me that the term "monitoring" has come to mean all things to all people. In reality it is many things, done in many different ways for many different purposes, and it is important that we appreciate the differences as well as the similarities. Monitoring should never be viewed as an end in itself; there are times when data is valueless unless it is combined with an adequate understanding of the physical phenomena we are trying to predict or control.

Many complex considerations enter into the determination of the structures of monitoring systems. We must understand not only what information is desired but whether it is needed in real time, whether it can be assembled at a relatively leisurely pace, or whether it involves so many years that the real interest is in a slowly-changing historical record.

We must be clear about differences in the state of the technology of the measurement of various phenomena and properties we wish to observe. We must be clear about those which can be measured and communicated automatically and continuously and those which can be measured only by batch sampling and manual analysis. We must be clear about the need to adopt international standards of measurement to insure international comparability of data.

We must be sure of the nature of the time and the space scales of phenomena that we are trying to observe and measure; this is critical from a scientific and engineering view. The time and space scales and natural life cycles of environmental phenomena determine the sampling rates required of observational systems both in time, i.e. the frequency of observations, and in space, i.e. the geographic density of observations. These in turn are the principle determinants of the kinds of technology that will be required and the costs of the operation of monitoring systems.

The nature of the time and space scales and the causes of the peculiar life cycles of environmental phenomena is a problem of the underlying environmental science. Without the necessary scientific understanding we will surely design the wrong system.

The problems are apparent. They can be met only by an organized approach which will include division of the needs to be met into rational, manageable systems, a clear comprehension of just how and for what purposes these systems will be employed, a sensible determination of the institutional arrangements necessary to make them serve mankind, and some hard decisions to make those arrangements.

Today we have not only a large number of agencies involved in monitoring many aspects of the environment; we already have in existence, or being proposed, perhaps two dozen such monitoring systems. This is too many. On the other hand, I cannot conceive that our needs will be met by a single, monolithic system.

A better approach, it seems to me, would be to devise a few major categories under which monitoring systems can logically combine and within which the nations can work comfortably. In searching out these categories, we must be guided by thorough analyses of needs. We must find out, for example:

--Who will use the data, and how
--What aspects of the various systems have scientific or technological homogeneity
--Which lend themselves to joint and simultaneous deployment
--What are the logical interfaces between parts of the systems, and
--What kinds of managerial and coordinating structures are needed.

A major issue will, of course, be the ways in which these activities are grouped into manageable entities. I am fully aware that there are many possible approaches and many points of view on this score. I am equally sure that we can agree that some kind of definition must be made, and soon. Once decided upon, these groupings would form the basis for monitoring man's total environment.

When I consider this question, I ask: Does a particular grouping make scientific sense? Is the information gathered through several activities essential to the comprehension and understanding of the phenomena that must be described? After all, the physical world is the real world, and to separate it artificially can lead only to grief. Monitoring the ocean-atmosphere interface is essential to the understanding of both ocean and atmospheric phenomena.

I would ask also whether a particular grouping of monitoring activities was technologically sound and efficient. It makes no sense to send a separate satellite to monitor solar proton events when, at small cost, an additional sensor can be placed on a weather satellite.

I ask also whether various sets of monitoring activities lend themselves to joint, simultaneous measurement-communication and processing--so that significant efficiencies and economies may be achieved. The mathematical modeling of the joint ocean-atmosphere system is a good example.

Finally, and perhaps more importantly, I ask: Does what we propose to do make sense from a user's point of view? For instance, should a fisherman be supplied with a total environmental forecast of weather and ocean conditions? This is an important point: we must really understand who wants the information and why, how quickly, and how critical it is to them.

After studying many proposals for environmental monitoring, I can distinguish clearly four broad types of monitoring activities which have key elements of homogeneity and which meet most of the criteria I have just mentioned.

I would propose for consideration the following:

--a health monitoring system
--a monitoring system to describe and define the earth's living and non-living resources
--a monitoring system for the total physical environment, including pollutants of a physical nature, and
--I would suggest that, because of the highly differentiated and specialized nature of marine biological problems, a separate system be considered for marine biology and fisheries.

I see a global health monitoring system as a meaningful grouping because the issue of health is vital to every living thing. The technology and techniques for gathering information for such a system differ totally from those used for monitoring, say, the physical environment. The analysis techniques and informational uses of the recipients are also totally different. Some of this work is under way in the WHO.

Information on planetary resources is also susceptible to systematic and unified treatment. Our satellite technology may enable us to scan conditions in our land, our forests and our crops; our living and mineral resources.

Monitoring of the physical environment--to which I will address myself principally--is similarly a logical grouping of effort. The atmosphere, the oceans, and the solid earth must be viewed as a single system and many of their phenomena must be monitored simultaneously. Techniques and devices of measurement and communication are very similar; many of them are extremely advanced; processing and analysis of their data are much alike. And, of equal importance, the users of such information, while including almost every conceivable aspect of our society, all require it to protect themselves against the environment and to use that environment as efficiently as possible in their day-to-day pursuits.

There is, and must be, considerable interaction between all these types of environmental monitoring systems. We must examine these concepts carefully, so that however many are established, all are properly tied together and non-duplicating.

If we were starting fresh, with no prior institutional arrangements, no networks of monitoring stations in being, the task would be simpler. And the thought is tempting. But environmental monitoring systems already exist and so, of course, do the management structures which operate them. Our challenge, given this set of circumstances, is to build on what we have--to preserve the good, eliminate the bad, and add what is necessary, not only to the science and technology of monitoring but to their supporting institutions as well.

To accomplish this, we must understand what each nation is doing, and what nations are doing collectively, not only governmentally but non-governmentally as well. If this conference does no more than give recognition to that fact, it

will represent significant progress. For we have large problems of meaningful definitions and mutual understanding. I am convinced, for instance, that none of us knows all of the organizational proposals which have been made. The World Health Organization has been considering environmental health monitoring problems and a possible international system to solve them. The ICSU Special Committee for an International Biological Program has been examining the possibilities of a global network for monitoring biological as well as physical aspects of the environment. The WMO maintains environmental monitoring systems encompassing many facets of the weather and ocean conditions. The Intergovernmental Oceanographic Commission of Unesco has proposed a global ocean monitoring system. Many global monitoring networks, such as the Worldwide Seismic Network, answer to no specific international organization.

It is clear that what we have is a global patchwork. It is also clear that most knowledge by any of us of the monitoring activities of others is, at best, superficial. One is led to the belief that our major problems are as much institutional as they are technological. If this sounds like an indictment, let us remember that an indictment is not a conviction, and there is still a chance to change things.

The responsibility for the international planning and coordination of our monitoring systems must, of course, be assigned to specific institutions. Today, in the case of the physical environment, there are a number of organizations competing for one piece or another of the system. This is natural, but when it is carried too far it is also damaging.

There are many honest organizational questions to be answered. For instance, what will be the role of the non-governmental international bodies such as the subsidiary groups of the International Council of Scientific Unions vis-a-vis such intergovernmental bodies as the WMO, the Food and Agricultural Organization, Unesco and its subsidiary bodies, and the International Maritime Consultative Organization?

I look to ICSU and its subsidiary bodies as the forum for bringing together the world's scientists, whether they work in or outside of government, to provide the scientific rationale and design for the creation and operation of any monitoring system. On the other hand, the actual operation and maintenance of such a system is probably best handled by governments, because it is in the intergovernmental forums where nations do business--where they commit resources and agree on the exchange of data.

It is vital that the closest and most amicable of relations be established between ICSU and the various intergovernmental bodies with monitoring responsibilities. It is encouraging that certain pioneering activities in this direction are being attempted both in the IOC, using ICSU's Scientific Committee on Ocean Research as an advisory body, and within the WMO, where even closer working arrangements with the ICSU have been developed toward the joint execution of the Global Atmospheric Research Program.

This, however, is only a beginning. We must start to think in terms of both types of organizations moving ahead in the definition, development, establishment and operation of monitoring systems--together. We can no longer afford the standoffish attitude which has been traditional between the ICSU, scientific, non-governmental groups, and the intergovernmental, international organizations.

Sooner than we realize, we must decide to create the institutional mechanisms for various aspects of the global environmental monitoring system. A hard look must be taken at present arrangements, with a view to better definition of many institutional responsibilities.

The problems of institutional manifest destiny are not simply the results of differences within nations; they are fed by the very drive of the managements of international groups to insure the vitality and growth of their own organizations. The attitudes are honest, and they spring from the natural conviction that the world is best served if their groups take on certain jobs. But the net result is crippling.

If we can agree that we must agree, we can then take a fresher, more objective look at the problems facing us.

More than a year ago President Nixon, addressing the 20th anniversary celebration of the signing of the North Atlantic treaty, turned from the issues of war and peace to that of the quality of life. He said there is

> "no challenge more urgent than that of bringing Twentieth Century man and his environment to terms with one another--of making the world fit for man and helping man to learn how to remain in harmony with the rapidly changing world."

A first step toward this goal can be the establishment of comprehensive environmental monitoring systems to meet the urgent needs of mankind.

It can be done, and it must be done. This is an exciting and stimulating time. A tremendous opportunity to serve all mankind is within our reach. Let us move forward, and let us move now.

COMMENTARY

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After Dr. White's talk, you must realize the predicament in which I am--I have to speak after Dr. White. When I was approached in Geneva a few months ago about this panel, I received a letter saying, "You will act as commentator." I didn't know what this meant, so I asked many of my American friends, but nobody could tell me. I therefore decided I would have to guess at what Dr. White would say, and this is very difficult. I took a guess and decided to expand on the question of an approach to monitoring systems under the theme, Are we still justified in speaking about marine science, solid earth science, and atmospheric science as separate entities.

Dr. White came to the conclusion that we need an overall global monitoring system; but he cannot see, and I agree with him there, an all-encompassing system that would be a monolithic system. He does, however, see a small number of systems which are inspired by affinity in scientific considerations, and in technological capabilities; and he goes on to give a number of criteria for conceiving such monitoring systems, arriving at four classes of systems.

To define these groupings of monitoring systems, we must look, in my view, at three main things: (a) the sciences which you try to serve through a given system; (b) the user or users which you try to serve through that system; and (c) from the technical point of view, the feasibility of combining in a given system the necessary sensors.

It so happens that as a result of development of the various branches of geophysical science in the course of time, some branches have developed more quickly than others. We therefore gradually reached the stage where we divided our earth into three broad geographical areas: the solid earth, the atmosphere, and the oceans. There is where I think is the challenge for us today--to realize that this division, which is a geographic division, has become an artificial division. This historical separation, in my view at least, must go. It must go both at national levels and at international levels; and as Dr. White pointed out, it is at these two levels that the problems arise. We must see how we can break this geographical separation, and set up different groupings.

With respect to the oceans, we heard yesterday that there are at present two schools of thought. One school is to consider the ocean as a separate entity; the other school of thought is to consider the ocean as part of the environment, and it was accompanied by a word of warning to marine scientists that this may be a damaging development. I must say I jumped in my chair when I heard this. From where I sit, I think that scientifically the first position --that is, the ocean as a separate entity--can no longer be defended.

For example, how will the scientific community tackle in that hypothesis such problems as marine pollution, which I think is a perfect example of

cooperation or interrelation between the earth, the atmosphere and water? How could coastal engineering or coastal erosion problems be tackled if the world were considered in isolation? How would air-sea interaction problems be tackled, air-sea interaction problems which are fundamental to the study of the circulation of the ocean and the circulation of the atmosphere, and hence, the use of these two physical media in support of a great variety of users? In this air-sea interaction phenomena, well-known to people here, I mention only one example. It is the relation between large-scale atmospheric circulation systems and ocean upwellings which are, I was told--I'm not a fishery man--fundamentally important to the development of new fishing undertakings on an industrial basis.

In my view, one of the reasons for the confusions that exist at the international level in ocean matters and also at many national levels is the lack of a thorough analysis of the relation between the different scientific disciplines involved in oceanography and their relation with other so-called non-ocean disciplines. It's an expression which I don't like, and I hope that soon enough we won't have to use it any more.

Oceanography today comprises such disciplines as geology, sedimentology, chemistry, hydrography, biology, fishery science, physical oceanography, and so forth. The question is, which of these disciplines are very closely related and which of them are loosely related? Which of these disciplines, after they are looked at from the point of view of the ocean, are very closely related to disciplines which are being handled in the solid earth or in the atmosphere? Rather than looking at the disciplines within each geographic area, I think we should look at these disciplines within the environment and see where there are real links that cannot be broken and links which are loose enough so that an occasional interaction is sufficient.

I feel that if we can find an answer to these questions, we will have assembled the necessary elements for fundamental recast of the United Nations system in its dealing with the ocean--in its dealing with the ocean not as an isolated entity in itself, but as part of the overall human environment. I feel that the analysis of the monitoring systems presented by Dr. White in his paper is based on such an analysis of the affinity between what I call scientific disciplines not geographically qualified. It may also lead to a more orderly conduct of international affairs and lead to a regrouping of international bodies, thus decreasing their numbers, which I think many people feel to be a most desirable feature.

I have purposely abstained so far from speaking about my organization, WMO, because I wanted to look at the problem from a scientific point of view and not from an institutional point of view. With what I have said above I think I can now say that I feel the very minimum basis for a monitoring system of the physical environment, including the pollutants of a physical nature, have been laid by the agreement of governments to develop the Integrated Ocean System and existing World Weather Watch and other meteorological monitoring systems in conjunction. I say it is a minimum basis. It is only a starting point to a geophysical monitoring system.

As Dr. White explained, monitoring is not limited to observing. It includes exchange of information, and, more important, it is not an end in itself. It also includes the processing of the data, whether it is in real time in the form of forecasts, or whether it is in the form of statistical data, according to the need of the users and the needs of the science. I hope we will not forget that we must do science not only with a view to applications, but also science for the sake of science; a human being is a person who is curious, and he wants to know, and history has shown that in the long run even so-called non-mission-oriented science does, one way or another, give very important results.

Since I mentioned that monitoring is not an end in itself, but leads to processing, I think that this leads us to the question of scientific study which goes outside the monitoring field but which is the backbone of monitoring; and there, also, I think we should break down the geographical boundaries and look again at the scientific affinities.

You heard yesterday about the plans for LEPORE, the Long-term Expanded Program for Oceanic Research and Exploration. You have heard about the cooperation established between IOC, FAO and WMO to execute that program, to plan it. Here also those geographical barriers must be broken down, and I can see many cases where the LEPORE program could be developed in close cooperation with other major international programs. Being a meteorologist, there is, of course, one that comes immediately to my mind; that is the Global Atmospheric Research Program. This program is in fact the realization of the meteorologist that he has today tremendous new observational capabilities through meteorological satellites; that he has a slave at his disposal, the computer; and that he can no longer look at the atmosphere as something which goes from the sea surface up. He realizes that he must start looking down into the problem of ocean-atmosphere interaction.

I think this is one point I wanted to tackle. I have done it at some length, and I'll make one last word on Dr. White's speech.

Dr. White referred to the crippling effect of competition between international organizations. I can but agree. The effect is crippling, but I'm still an optimist. As I said this morning to somebody, when you get into the jungle, you have hope because you want to get out of it, and you will get out of it. I feel that the arrangements we have made now are only temporary arrangements, but if we will really look at the problem from a scientific point of view, from a user point of view, from a technological point of view, we will find arrangements which will, I believe, completely change the present setup which dates, shall I say, to the previous century; and we will come up with a system which responds to modern developments.

THE ROLE OF IMCO IN ENVIRONMENTAL MONITORING

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It is the first time a lawyer from the IMCO Secretariat has had the pleasure of taking part in a Conference of the Law of the Sea Institute, and, as the new boy, I am both very gratified and considerably abashed to be asked to wade into a subject which, as you have seen, is much more in the domain of my scientific colleagues from WMO and the IOC as well as IMCO.

The term "environmental monitoring" means to most of us at IMCO something which a lawyer must approach obliquely if he approaches it at all. My colleagues on the technical side briefed me somewhat on the scientific approach as they see it, and I am prepared to torture the term to mean something else. I gather that in the marine sphere the key concept of monitoring has been described as the preparation of regular--and I quote here--"reports on the health of the ocean." By "health" is apparently meant the absence of the sickness called pollution, and "ocean" means the ocean as an object of scientific enquiry in itself.

As many of you know, IMCO has been involved in the international side of pollution control since the Organization set up shop in 1959, and I hope later to expand on that topic--and perhaps to produce an added fact or two.

If my approach is not only oblique but incorrect or misleading, I assume the blame. Like others here in relation to their clients, I speak not for IMCO or its Secretariat, and I am going to take these words "environmental monitoring" in a general sense and perhaps enlarge the simplest dictionary definition of "watching or checking on a person or thing" by referring to several widely separated aspects of surveillance and regulation of ocean activities. Naturally all this will be somehow connected with IMCO's work, but you must remember that I am <u>not</u> an ocean scientist or maritime technocrat.

First, let me read you the key opening phrase from Article I of the IMCO Convention which defines the purposes of the Organization. The first purpose is given as:

> "to provide machinery for cooperation among Governments in the field of governmental regulation and practices relating to technical matters of all kinds affecting shipping engaged in international trade and to encourage the general adoption of the highest practicable standards in matters concerning maritime safety and efficiency of navigation."

Nothing here about science; nothing about the environment or its use or misuse. And I need not weary you with added quotations from the Convention because it helps us no more than the phrase I have quoted.

But in ten years IMCO has evolved and broadened its work or "role" (to use the metaphor of our topic heading) as the sea or ocean-oriented specialized agency of the United Nations system. Clearly it is the maritime specialized agency because it is a specialized agency, not because maritime matters do not concern other bodies. It stands in the hierarchy as par inter pares with Unesco, FAO, ICAO and WMO, to mention four others, but its membership is only slightly more than the IOC and, like the IOC, it has only begun to enjoy the favour of the developing States. It has remained small in size of secretariat also, and yet it has established or revised the ground rules of numerous ocean activities. It is the forum of consultation for upwards of a dozen multilateral instruments --conventions at one end, regulations, codes and recommendations at the other. In the IMCO forum the speed of progression to the decision-making stage is variable; it has been getting faster in recent years.

Now, what is the element of monitoring in these activities? Let us first clear away the scientific aspects of oil pollution, since environmental monitoring in that sense is a cooperative effort in which the legal element is very small and my knowledge even smaller. The Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP) is the first inter-agency scientific body in this field made up of experts nominated by the Sponsoring Agencies which were (as listed in the title of the report of its second session early this year) IMCO, FAO, Unesco, WMO and the IAEA.

The Group had only begun its work, a significant part of which is intended to implement part of United Nations General Assembly Resolution 2566(XXIV) promoting effective measures for the prevention and control of marine pollution. The task envisaged is to "review the harmful chemical substances, radioactive materials and other noxious agents and wastes which may dangerously affect man's health and his economic and cultural activities in the marine environment and coastal areas."

As Dr. Holt mentioned yesterday, a special section of the Long-term and Expanded Program of Ocean Research deals with research into environmental pollution. In that context, the Group of Experts foresee monitoring programs undertaken by national institutions and related initially to near-shore waters (including tropical areas generally near developing countries) where processes in the sea relating to the transport and effects of pollutants may be of a different nature or proceed at a different pace from those in the better-known temperate zones. Particularly vulnerable environments exist in these areas (e.g. coral reefs) and human populations are particularly dependent on the products from a healthy sea for sustenance.

IMCO, as a sponsoring agency, is of course a participant in launching such programs and equally a beneficiary of their accomplishment. For example, we are particularly needful of the Expert Group's advice on the identification of pollutants other than oil; the effect of pollutants, including oil, on marine organisms; and the use and effects of chemical means for absorbing, precipitating and removing such pollutants from the sea.

In the Group of Experts, emphasis was placed on the gravity of the problems of monitoring the sea and of registering deliberate and accidental additions of substances to the sea and reporting environmental changes related to pollution. There is a need to monitor all ocean areas, and for all significant acts of ocean pollution to be recorded and reported, irrespective of the State involved (e.g. whether or not a member of the UN system) or of the origin of the pollutant (e.g. military or civil industrial activity).

As a complement to monitoring, the Group called for registering of discharges and spillages. In their words, the need in this area is for more international action rather than further scientific advice. It is necessary to know what is put into the sea, either deliberately, accidentally or incidentally to other activities. Registration would be for States to enforce, but information would be exchanged internationally.

A differing problem is pollution from ships and other equipment operating in the marine environment which is peculiarly in IMCO's domain and on which its Sub-Committee on Marine Pollution is at work. In October 1969, the IMCO Assembly, desiring to improve the detection of offences under the 1954/1962 International Convention for the Prevention of Pollution by Oil, called for a review of existing arrangements for reporting of such incidents involving oil. It is intended to compile and centralize records of such incidents and extend the reporting in time to noxious substances other than oil.

The Joint Group I have mentioned has thus set out the scientific basis for a monitoring system in the area of marine pollution. I have more detailed written information on that for those of you who would rather not listen to a lawyer attempting to edify you about scientific phenomena.

One could talk all morning about pollution alone, but before leaving it may I first mention that it is typical of IMCO's approach to the problem of control that it not only doesn't neglect, but emphasizes, the preventive side of the matter: measures to limit the risk of collision or stranding of tankers and avoiding escape of oil into the sea; routing of ships and creating prohibited areas to forestall hazards, and improving shipboard communications.

The International Convention of 1954 has once been amended and is again in the course of amendment to base it on the concept of total prohibition of oil discharge from tankers.

The detection and penalization of deliberate marine pollution is another preoccupation of IMCO. But lest it be thought that only oil from ships concerns the Organization, it is well to mention that the bulk carriage of dangerous substances, particularly liquids, in bulk carriers and large portable tanks has engaged our attention. Even pollution of the air caused by ships falls within our technical studies of combustion processes and techniques of boiler operation and control.

May I take it for granted that many of you realize that the Organization has also dealt with legal questions of large-scale oil pollution in two conventions signed last November at Brussels? They do not strictly speaking involve monitoring, although the one we call the public law convention does very definitely concern State intervention on the high seas.

Here let me take up IMCO's concern in the marine environment in a more legal sense, and "monitoring" in perhaps a non-scientific meaning of surveillance and control of activities in that arena. Every lawyer here must, I think, be fascinated by the concept of freedom or freedoms of the high seas. Its formal symmetry has a comfortable sound and a mediaeval absolutism. And like some mediaeval institutions (of which it is certainly not one), it risks revolutionary rather than evolutionary change. In reality the concept encompasses but obscures the exercise of rights and duties which do not greatly differ from land-based activities in the way they are exercised. It is the place that counts here--a place where no claim of right or imposition of duty by a State has any more exclusive power by reason of geography than could be asserted by any other State. And yet the seas teem with activity as carefully regulated and monitored as any in the world, if you consider that much of it is taking place on ships.

I have always been fascinated by the absolute power of the Master over his ship. My friend Commander Scott of the Royal Navy has a story of the young British naval office of the war years who was for the first time, and very reluctantly, faced with a need to wield the Master's authority. He had the wrongdoer brought to his cabin, paused while they both wondered what he would say and then said: "You've heard of God?" "Yes, sir." "You've heard of King George VI?" "Yes, sir." "Well," said the young officer, "I come next."

Perhaps that form of benign absolutism has a long lease of life, but the day is undoubtedly at hand for a reshaping of the freedoms--or perhaps one could turn the other side and say the duties--of the sea. Michael Hardy of the UN Secretariat has nicely focussed the problem in a recent essay of his. He made it clear that the piecemeal approach to the regulation of ocean uses is a dubious offshoot of preoccupation by States with immediate or particular economic interests and entrenched rights. This process hides, of course, behind the comfortable and broad concept of freedom of the sea. Both may have to be drastically modified as the wide concern for the ocean environment as a whole compels more comprehensive steps. The "total scheme of future marine affairs"--the phrase is Michael's--will more and more demand an overall approach from IMCO and from the international community and its organizations.

The principal non-military shared uses of the ocean other than waste disposal are:

i. shipping;
ii. fishing in all its forms;
iii. scientific research including ocean data collecting;
iv. commercial exploration and exploitation;
v. communications, in the widest sense of submarine cables, broadcasting of one kind or another and even pipelines.

I should like to refer to one or two of these uses and to the monitoring of them in this maritime area where rights are enjoyed in common by all States--the high seas.

In looking at surveillance and control of shipping one perceives immediately that a pattern of international practice has emerged. It is a pattern of what one writer calls enforcement from on land. Take the prevention of collisions at sea and generally the safety of life and property in the environment as an example. IMCO is the forum for concerted revision and up-dating of international law and regulations in this matter. Seaworthy ships are inspected and certified under the 1960 International Convention for the Safety of Life at Sea. The great majority of ships are frequently surveyed in ports by private classification societies, but the certificates they carry are issued under the authority of governments. Non-conformity to international standards carries diverse penalties unspecified in the treaties which create those standards. But not the least sanction in this area will be availability of the insurance coverage which a shipowner must have.

The manning of ships is subject to less elaborate international specifications but there again the inspections and the sanctions imposed largely depend on the flag State. The preservation of social order on ships is subject to surveillance and control by land-based inspectorates. Codes dealing with safety, welfare and working conditions of ships' crews are enforced by the threat of delay of the ship.

Lastly, in the field of safe navigation, there is the sanction of the contravention itself which is, perhaps ironically, almost always a matter of self-control. I refer to the consequences of ignoring the Rules of the Road by, for example, the taking of the wrong channel. It may surprise some of you to know that perhaps the mariner's most important set of internationally standardized rules is not a treaty. The International Regulations for Prevention of Collision at Sea are based not on the rights of States and their correlative duties, but on the individual mariner's self-interest in observing a set of safety prescriptions.

In this important field of navigation, then, the high seas are not a jurisdictional void, and the common agreement of States is enforced by those States, as we see, without policing in the actual area.

I should remark that the prevention of deliberate pollution from ships exhibits similar mechanisms of control and monitoring, with a tendency toward increasing surveillance. Basically, however, control is exercised by requiring a log book of oil discharges, subject to land-based inspection. It is not, however, easy to use the limited right of inspection of oil log books as an effective measure of control. But pollutors are being subjected more and more to aerial surveillance by States, not as a result of international regulation, but mostly on the basis of encouragement to military and civil aircraft, vessels, and lightships to keep watch for and report infringements.

Even this does not result in easy prevention. A French pilot detected an oil discharge two or three years ago in the English Channel. The photo he took was then sent with his report to the UK Government. The Board of Trade Marine Survey Service then inspected the tanker's log book and the ship itself. The trial resulted in a fine of the owners and captain (inter alia for failure to make an entry in the oil log book), but it was necessary to prove that the oily mixture discharged contained 100 parts of oil per one million parts of water, and this took heavy scientific testimony.

All of these measures of control, I repeat, are based on the sanction-imposing power of the flag State or the State of the territorial sea in which an offender is detected, and the monitoring is organized if and as such States see fit.

The other uses I mentioned do not all fall into IMCO's competence, and I have spoken long enough. Suffice it to say that on-site policing, even of fisheries, is at a primitive stage of evolution. Submarine cables, to give an example, are frequently damaged and the few measures taken to protect them are privately arranged by the International Cable Protection Committee.

On the question of ocean data collection, however, IMCO is engaged in what we hope will be a forward-looking international initiative for protection of property at sea.

Willful damage and removal of ocean data acquisition systems is a constant concern of oceanographers, and policing is extremely difficult. As Dr. Holt and Mr. Sullivan mentioned yesterday, the IOC and IMCO are working on this matter now. It is also worth noting that IMCO has created the rules and guidelines for assuring that these data-collecting devices can be placed on the seas without interfering with or being taken for navigational buoyage systems.

Let me conclude by returning to our old friend the freedom or freedoms of the high seas. It is clear to me that monitoring of human activities on the oceans is accomplished to a limited extent without disturbing the general features of that concept. It may even be that no great advance in the control of anti-social conduct would result if stopping and boarding of ships, and other measures of enforcement, were institutionalized. Sometimes, however, the presence of a policeman on the seas may be helpful; an oceanographer hates to stand by helplessly and see his equipment borne away by a thief.

In any event, the international community may predictably derive from its experience in the field of pollution control, fisheries policing and the suppression of pirate broadcasting,some new motivation towards cooperative machinery to monitor and more effectively control the increasing number of activities in the marine environment.

THE CANADIAN ARCTIC WATERS POLLUTION PREVENTION ACT

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On June 5, 1970, the House of Commons of the Canadian Parliament approved legislation asserting Canada's jurisdiction to regulate all shipping in contiguous zones up to 100 miles off its Arctic coasts in order to guard against pollution of the region's coastal and marine resources.[1] Final enactment of the measure should occur shortly. Related legislation will extend Canada's territorial sea from a previously claimed breadth of three miles to twelve miles and authorize the establishment of exclusive Canadian fisheries on the high seas beyond the twelve-mile territorial sea in the Gulf of St. Lawrence and the Bay of Fundy.[2] While the present Pollution Prevention Act will apply only to Canada's Arctic coasts, the government has made clear in the course of Parliamentary debate that similar legislation will probably soon be introduced to protect against pollution of Canada's east and west coasts as well.[3]

Canada's action is of interest in several respects. It opens a new round in the historic and multi-faceted struggle over freedom of the seas. It further illustrates the perception by at least some coastal States that existing international law and international arrangements are inadequate to protect their legitimate interests. It suggests, in particular, that the growing concern of coastal States regarding pollution is likely to exert especially strong pressures on traditional doctrines of ocean law. It raises complex questions of international law and policy regarding the legal regime of Arctic waters, the concept of contiguous zones, the status of waters within archipelagoes, and the doctrine of international straits and innocent passage. Finally, it offers an instructive study of the international legal process in action.

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[1] Bill C-202, 2nd. Sess., 28th Parl., 18-19 Eliz. II, 1969-70. The bill was submitted on April 8, 1970. 114 H. Comm. Deb. 2nd Sess., 28th Parl. (April 8, 1970). (Hereafter referred to as Hansard.)

[2] Bill C-203, 2nd Sess., 28th Parl., 18-19 Eliz. II, 1979-70, "An Act to Amend the Territorial Sea and Fishing Zones Act." See also, Bill C-204, 2nd Sess., 28th Parl., 18-19 Eliz. II, 1969-70, "An Act to Amend the Fisheries Act." For an explanation of the Territorial Sea and Fishing Zones Act, see statement of Secretary of State for External Affairs Mitchell Sharp, Hansard, p. 6012 ff. (April 17, 1970).

[3] Reply by Minister of Transport Mr. Jamieson to question by Mr. Barnett, Hansard, p. 5893 (Apr. 15, 1970). See also remarks of Mr. Chretien, Hansard, p. 5938 (Apr. 16, 1970). One of the stated purposes of the bill in providing a 12-mile territorial sea was to "provide the comprehensive jurisdictional basis which Canada requires to enforce anti-pollution controls outside Arctic waters off Canada's east and west coasts." Hansard, p. 6012 (Apr. 17, 1970).

The immediate stimulus for the Canadian legislation was the historic voyage in the summer of 1969 of the United States tanker S.S. Manhattan through the waters and ice of the Northwest Passage north of the Canadian mainland. The voyage was intended to demonstrate the feasibility of utilizing ice-breaking super tankers on this route as a means of large-scale transportation of oil from the developing oil fields of Alaska's north slope to the markets of the US eastern seaboard. The 1967 Torrey Canyon incident, the 1968 Santa Barbara oil spill, and a succession of similar incidents had earlier dramatically highlighted the environmental hazards posed by the possibility of maritime tanker or oil drilling accidents.[4] The Manhattan's feat gave warning that Canada's Arctic environment might soon be subjected to similar threats. The risk was underlined in Canadian public consciousness by the grounding of the Liberian tanker Arrow in February 1970 in Chadabucto Bay off Nova Scotia, with consequent oil pollution of the waters and adjacent coast.

Canadian concern over potential oil pollution of its Arctic waters and coasts is heightened by a number of factors. The Canadian north and the Arctic region above the Canadian mainland have long been a particular object of Canadian nationalistic sentiments. The area is regarded by Canadians as one of the world's few remaining natural reserves and as a treasured part of their national heritage, and has been referred to as Canada's "last frontier" and a touchstone of the Canadian identity.[5] More materialistically, great hopes are held as to the potential mineral resources of this vast region, which are only beginning to be explored and exploited. The dangers posed to this unique environment by utilization of the Northwest Passage are felt by the Canadians to be particularly great. The hazards of Arctic navigation substantially increase the risk of maritime accidents, as compared with other shipping routes. Moreover, in view of the peculiar ecology of the Arctic region--an environment in which life exists only precariously--coupled with the slow rate of hydrocarbon decomposition in frigid areas and the difficulty of dispelling oil in Arctic waters and conditions, even small amounts of oil pollution could be extremely damaging and any major oil spill might have disastrous and irreversable ecological consequences.[6] Canada takes the view that it has both a special interest and a particular responsibility to protect its Arctic environment from these hazards.

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[4] See Nanda, "The Torrey Canyon Disaster,: 44 Denver L. Rev. 40 (1967); Note. "Continental Shelf Oil Disasters: Challenge to International Pollution Control," 55 Cornell L. Rev. 113 (1969).

[5] Notes for an Address by the Prime Minister to Annual Meeting of the Canadian Press, Toronto, Ontario, April 15, 1970, O.P.M. Press Release April 15, 1970 (hereafter referred to as "Prime Minister's Press Speech").

[6] Ibid., pp. 6-7. This idea is stressed throughout the Parliamentary debates.

Canada's right to establish regulations aimed at preventing such pollution, however, was--and remains--less than clear.[7] The Northwest Passage comprises not one route, but rather several possible routes through the archipelago north of the Canadian mainland. The most feasible route for international navigation is likely to be that commencing in the east in Lancaster Sound, running west through Barrow Strait and Viscount Melville Sound, then southwest through Prince of Wales Strait between Banks and Victoria Islands, and finally west again along the north coast of the mainland towards Bering Strait. Canada has long asserted territorial claims to the islands constituting the archipelago north of its mainland and these claims do not appear to be challenged.[8] It has also made clear its claim of the right under general principles of customary international law to exclusive exploitation of the continental shelf north of the mainland.[9] On the other hand, while there seems fairly broad international agreement that the waters of the Arctic Ocean itself are "high seas," the status of the various other waters north of the mainland has not been established.

The Canadian position as to waters within the Arctic archipelago was long ambiguous. Prior to its recent legislation, Canada claimed only a three-mile territorial sea which would, except for Prince of Wales Strait, leave a narrow strip of "high seas" throughout most of the Northwest Passage. With its present claim of a twelve-mile territorial sea, more of the channels--Barrow Strait and Prince of Wales Strait in particular--become wholly territorial waters, but substantial portions of the rest of the Passage would presumably remain high seas. The Canadian claims appear now, however, to rest on an archipelago basis. After many years of official ambiguity, recent statements indicate that Canada considers all of the waters within the Arctic archipelago, without regard to the breadth of the territorial sea, as "Canadian waters,"[10] apparently subject at most to such rights of "innocent passage" as determined by Canada. The government has also indicated that it will reject claims that any part of the Northwest

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[7] For legal discussions of Canadian Arctic claims, including the "sector theory," Canadian claims to the waters of the Archipelago, and the status of the Northwest passage, see Pharand, "Innocent Passage in the Arctic," 1968 Can. Yrbk. Intl. L. 3; Head, "Canadian Claims to Territorial Sovereignty in the Arctic Regions, 9 McGill L.J. 200 (1963); Cohen, "International Law: A Canadian Perspective," 1 Can. Yrbk. Intl. L. 15 at 23-24.

[8] See articles cited in n. 7.

[9] Remarks of Secretary of State Sharp, Hansard, p. 6014 (Apr. 17, 1970).

[10] See "Summary of Canadian Note Handed to the United States Government on April 16, 1970," Hansard, p. 6027 ff. (Appendix) (Apr. 17, 1970) (hereafter referred to as "Canadian Note"), p. 6028-29. See also, Secretary of State Sharp's remarks that "we claim these to be Canadian internal waters," Hansard, p. 5953 (Apr. 16, 1970), and that "we regard the waters between the islands as our waters, and we always have." Hansard, p. 6015 (Apr. 17, 1970).

Passage through these islands constitutes an "international strait."[11] Indeed, there are indications that Canada may also regard the Beaufort Sea as something less than "high seas."[12]

Canadian sovereignty over key straits, coupled perhaps with its archipelago claims, might have provided its own basis for assertions of Canadian jurisdiction in the Passage. However, the Arctic Waters Pollution Prevention Act, as submitted by the government to Parliament on April 8, 1970 and adopted by the House of Commons with almost no opposition earlier this month, is based on a broader and more far-reaching contiguous zone theory.[13] A brief summary of the Act may make this clear.[14]

The Pollution Prevention Act deals with the prevention of pollution arising from shipping, from land-based installations, and from commercial activities such as oil drilling carried out on the Canadian continental shelf. It begins with a

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[11] Ibid., p. 6028. See also "Prime Minister's Press Speech," p. 10.

[12] "Prime Minister's Press Speech," p. 10.

[13] It is interesting to note that considerable controversy developed in the Parliamentary debates as to whether the government's decision to base controls on a contiguous zone theory rather than a specific claim of sovereignty over the waters, coupled with its extension of its territorial claims to only twelve miles, amounted to a weakening or abandonment of the Canadian archipelagic claim. See remarks by Mr. Stanfield, Hansard, pp. 5941-3 (Apr. 16, 1970). This issue was emphasized by Prime Minister Trudeau's press interview of April 16 in which he said of the new bill: "It is not an assertion of sovereignty; it is an exercise of our desire to keep the Arctic free of pollution..." Hansard, p. 5955 (Apr. 16, 1970). Secretary of State Sharp took the position that none of these actions weakened Canadian claims to sovereignty, citing the decision of the Permanent Court of Arbitration in the 1910 North Atlantic Coast Fisheries case between the U.S. and Canada (11 U.N.R.I.A.A. 167) as holding that a State may, without prejudice to its claim to sovereignty over the whole of a particular area of the sea, exercise only so much of its sovereign powers over such part of that area as may be necessary for its immediate purposes. But he noted that, while Canada would "not back down one inch from its basic position on sovereignty,...there is no interest on the part of the Canadian government in the exercise of chauvinism." Hansard, pp. 6014-15 (Apr. 17, 1970). See also, Hansard, p. 5949 (Apr. 16, 1970).

[14] The Bill itself is some 23 pages long. Its provisions are conveniently summarized in the Canadian Government's "Background Notes on the Arctic Waters Pollution Prevention Bill and the Territorial Sea and Fishing Zones Bill," April 8, 1970, and in Mr. Chretien's presentation of the Bill on second reading, Hansard, p. 5939-40 (Apr. 16, 1970).

preamble reciting the potentially great international and domestic significance of the exploration and transportation of Arctic resources, and the obligation of Parliament to ensure that Canadian Arctic resources are exploited and the Arctic waters navigated "only in a manner that takes cognizance of Canada's responsibility for the welfare of the Eskimo and other inhabitants of the Canadian Arctic and the preservation of the peculiar ecological balance that now exists in the water, ice and land areas of the Canadian Arctic." Its provisions apply to "Arctic waters," which are defined as frozen or liquid waters "adjacent to the mainland and islands of the Canadian Arctic within the area enclosed by the 60th parallel of north latitude, the 141st meridian of longitude and a line measured seaward from the nearest Canadian land and a distance of 100 nautical miles."[15] In addition, the "Arctic waters" include waters adjacent to those in the area described above where such adjacent waters overlie "submarine areas that Her Majesty in Right of Canada has the right to dispose of or exploit" (i.e. waters above the continental shelf) insofar as the Act applies to exploring for, developing or exploiting natural resources in submarine areas.

The Act prohibits and prescribes penalties for the deposit of "waste" in Arctic waters or on the islands or mainland under conditions where such waste may enter the Arctic waters. The definition of waste is comprehensive and covers any substance which would degrade or alter the Arctic waters to an extent detrimental to their use by man or by any animal, fish or plant that is useful to man.

As regards shipping, the legislation will be brought into force by the prescription of shipping safety control zones. The Governor General in Council may make regulations relating to navigation in such zones and prohibiting any ship from entering such a zone unless it meets regulations which may relate to hull and fuel tank construction, navigational aids, safety equipment, qualification of personnel, time and route of passage, pilotage, icebreaker escort, and so forth. At certain times of the year, or when certain ice conditions prevail, ships may be banned from entering the zone. The Governor General in Council may exempt from the application of such regulations any ship or class of ship that is owned or operated by a sovereign power other than Canada--for example, foreign naval vessels--where the Governor General in Council is satisfied that such ships comply with standards substantially equivalent to those prescribed by Canadian regulations and that all reasonable precautions will be taken to reduce the danger of any deposit of waste.

The Act provides for Pollution Prevention Officers who will have authority both to board a ship within a safety control zone for inspection purposes, or to order a ship in or near the safety control zone to remain outside it if they suspect that the ship does not comply with the standards applicable within the zone. Pollution Prevention Officers will also be given power to enter any land

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[15] An exception is that the line of equidistance between the Canadian Arctic islands and Greenland is substituted for the 100-mile line where the equidistance line is less than 100 miles from the Canadian coast.

based operation undergoing construction, alteration or extension, that may result in the deposit of waste in the Arctic waters, to determine whether adequate standards are being complied with, and the Governor in Council may issue instructions requiring any necessary modifications to the work, or may prohibit it entirely. Pollution Prevention Officers will perform similar functions with respect to commercial operations carried out on the continental shelf.

The provisions of the Act respecting violations are particularly far-reaching. A Pollution Prevention Officer may, with the consent of the Governor General in Council, seize a ship and its cargo anywhere in the Arctic waters or elsewhere in the territorial sea or the internal or inland waters of Canada when he suspects on reasonable grounds that the ship, or ship or cargo owners, have contravened the provisions of the Act. Where a ship is convicted of such an offense, fines may be imposed and the court may order the forfeiture of both the ship and its cargo. The Governor General in Council may order the destruction or removal of ships in distress which are depositing waste or are likely to deposit waste in Arctic waters.

The Act also provides for civil liability resulting from the deposit of waste by persons engaged in exploring for, developing or exploiting the natural resources on the land adjacent to the Arctic waters or in the submarine areas below the Arctic waters, or by persons carrying on any undertaking on the mainland or the islands of the Canadian Arctic or on Arctic waters, or by the owners of ships navigating within the Arctic waters and owners of the cargo of any such ship. Such civil liability is absolute and does not depend upon proof of fault or negligence. The Act sets out procedures for resolving such damages in Canadian courts. The Act, however, provides that the Governor General in Council may make regulations respecting the manner of determining the limit of liability of persons listed above, and, in respect of ship and cargo owners, the limitation of liability shall take into account the size of the ship and the nature and quality of the cargo carried. The Governor General in Council may require evidence of financial responsibility adequate to cover the costs of clean-up and damage resulting from any pollution, to be provided by persons exploiting the natural resources in the land adjacent to the Arctic waters, and by owners of ships (and their cargo) navigating within any "shipping safety control zone" specified by the Governor General in Council.

At the same time that the new legislation was introduced, Canada acted to remove the possibility of a legal challenge to its action in the International Court. On April 7, the Canadian representative presented to UN Secretary General Thant a declaration amending Canada's long-standing acceptance of the compulsory jurisdiction of the Court, under the "optional clause" contained in Article 36(2) of the Court's statute, by adding a reservation that Canada retains jurisdiction over:

> "...disputes arising out of or concerning jurisdiction or rights claimed or exercised by Canada in respect of the conservation management or exploitation of the living resources of the sea, or in respect of the prevention

> or control of pollution or contamination of the marine environment in marine areas adjacent to the coast of Canada." [16]

The Canadian government was well aware of the unfavorable international reception the Pollution Prevention Bill was likely to receive, particularly by the United States,[17] and its expectations were realized. The U.S. response was prompt and legalistic. On April 9, a State Department spokesman stated that:

> "We regret the introduction of this legislation by the Canadian Government which, in our view, constitutes a unilateral approach to a problem which we believe should be resolved by cooperative international action.
>
> The United States does not recognize any exercise of coastal State jurisdiction over our vessels in the high seas and thus does not recognize the right of any State unilaterally to establish a territorial sea of more than three miles or exercise more limited jurisdiction in any area beyond 12 miles."[18]

He added, however, that the United States "is prepared promptly to seek either bilateral or multilateral solutions to these problems in the framework of international law."

In a further statement on April 15,[19] reflecting an official note to the Canadian Government, the Department developed its position:

> "International law provides no basis for these proposed unilateral extensions of jurisdiction on the high seas,

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[16] See N.Y. Times, April 9, 1970, p. 13, col. 5-8.

[17] Since at least the summer of 1969, Canadian officials had made known their position on Canadian responsibilities over the Northwest Passage, and the probability of legislation was presaged in the Prime Minister's speech from the throne on October 23, 1969. See Hansard, p. 3 (Oct. 23, 1969). The issue was a subject of discussion at a Canadian-U.S. Ministerial Meeting in June 1969, N.Y. Times, Sept. 19, 1969. See also N.Y. Times, Sept. 19, 1969, Nov. 12, 1969, and Nov. 26, 1969. It was the subject of further U.S.-Canadian high-level conversations on March 11 in Washington and March 20 in Ottawa. Hansard, pp. 5952-5953 (Apr. 16, 1970).

[18] Statement of Robert J. McCloskey, N.Y. Times, April 10, 1970.

[19] Dept. St. Press Rel. No. 121; April 15, 1970; N.Y. Times, April 16, 1970, p. 6, col. 1-2.

> and the United States can neither accept nor acquiesce in the assertion of such jurisdiction.
>
> We are concerned that this action by Canada if not opposed by us, would be taken as a precedent in other parts of the world for other unilateral infringements of the freedom of the seas. If Canada had the right to claim and exercise exclusive pollution and resource jurisdiction on the high seas, other countries could assert the right to exercise jurisdiction for other purposes, some reasonable and some not, but all equally invalid according to international law..."

The U.S. asked the Canadians to defer making their proposed legislation effective until an international agreement was reached. However, if the Canadian Government was unwilling to wait, the U.S. urged that the issue be voluntarily submitted to the International Court.

The Canadian Government in turn promptly rejected the U.S. position and suggestions. In a note delivered to the U.S. Government on April 16,[20] it stated its view that the Pollution Prevention Bill was justified as "based on the overriding right of self-defense of coastal States to protect themselves against grave threats to their environment"; that such extensions of jurisdiction for limited protective purposes outside the territorial seas had ample precedent, particularly in U.S. practice; and that, while the Canadian Government was prepared to participate in international efforts to deal with this problem, it was not prepared to await the development of such international rules. Indeed, it viewed its own unilateral action as a positive contribution to the development of such rules, since it is a well-established principle that customary international law is developed by State practice. Moreover, the Canadian Government could not accept the suggestion that the Northwest Passage constituted high seas, that it was an international strait, or that the waters of the Arctic archipelago were other than Canadian. Finally, Canada could not agree with the suggestion to submit the dispute to the International Court. As more fully explained by Prime Minister Trudeau in a speech the day before,[21] while Canada was prepared to have its territorial sea legislation adjudicated, in the case of pollution control it was "not prepared in this matter of vital importance to risk a setback." Pointing out that there was as yet little law and virtually no practice in this area, Prime Minister Trudeau indicated that there was a:

> "...very grave risk that the World Court would find itself obliged to find that coastal States cannot take steps to prevent pollution. Such a legalistic decision would set back immeasurably the development of law in this critical area.

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[20] "Canadian Note."

[21] "Prime Minister's Press Speech."

> "...where we are only attempting to control pollution, we will not go to court until such time as the law catches up with technology." [22]

Canada proceeded with the new legislation and the United States on its part has proceeded with plans for the convening of an international conference on Arctic pollution problems.

There are many aspects of this situation which merit extended discussion. Time permits me here to comment briefly on only a few.

Of chief interest, of course, is the question whether the Canadian legislation is in accord with existing international law, particularly in its assertion of jurisdiction to regulate shipping in a contiguous zone up to 100 miles off its northern coasts in order to prevent pollution. There appear to be no precedents in terms of practice by other States directly supporting the Canadian assertion of a 100-mile contiguous zone for pollution control purposes.[23] The best evidence of the present state of international law in this respect would seem to be the provisions of the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone.[24] Article 24 of that Convention recognizes that, in a zone of the high seas contiguous to the territorial sea, a coastal State may exercise the control necessary "to prevent infringement of its customs, fiscal, immigration or sanitary regulations within its territory or territorial sea." Paragraph (2) of Article 24, however, specifically provides that: "The contiguous zone may not extend beyond twelve miles from the baseline from which the breadth of the territorial sea is measured." While the inclusion of "sanitary regulations" as a recognized basis of jurisdiction within the permitted 12-mile contiguous zone could probably be read to include pollution prevention regulations, the assertion of pollution control jurisdiction beyond twelve miles would appear expressly prohibited.

Any argument that pollution problems were not contemplated by the Law of the Sea Conventions, and thus Article 24(2) perhaps not applicable to contiguous zones established for pollution prevention purposes, seems refuted by the express

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[22] Ibid., p. 9.

[23] See McDougal and Burke, Public Order of the Oceans (New Haven: Yale University Press, 1963) pp. 848-9; "Very few States have sought protection from this type of [oil] pollution by extending authority to ocean areas beyond the territorial sea. There has rather been clear recognition of a need for inclusive prescriptions."

[24] 15 UST 1606; TIAS 5639; 416 UNTS 205. While Canada is not a party to the Geneva Law of the Sea Conventions, it apparently recognizes many of their provisions as codifying customary international law. See Pharand, op. cit., p. 59.

reference to pollution questions in Articles 24 and 25 of the High Seas Convention.[25] Article 24 provides that:

> "Every State shall draw up regulations to prevent pollution of the seas by the discharge of oil from ships or pipelines or resulting from the exploration of the seabed and its subsoil, taking account of existing treaty provisions on the subject."

The reference in Article 24 to "existing treaty provisions" is to the 1954 International Convention for the Prevention of the Pollution of the Sea by Oil,[26] since amended in 1962, which does not confer any authority on coastal States to assert jurisdiction for pollution purposes beyond the 12-mile contiguous zone. Moreover, neither of the two conventions adopted by the recent International Conference on Marine Pollution Damage, held in Brussels in the fall of 1969 to deal specifically with such problems,[27] purport to extend the jurisdiction of coastal States generally to regulate shipping for pollution purposes beyond the 12-mile contiguous zone. One of these conventions, the Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties,[28] would permit parties to take limited anti-pollution measures, such as bombing or towing, against vessels on the high seas involved in maritime casualties involving "grave and imminent danger to their coastlines or related interests." However, the exceptional nature of even this limited right is evident from the fact that the Brussels Conference considered the drafting of such a specific and detailed convention necessary to its establishment for the parties.

The Canadian Government's awareness of the weakness of its legal position with respect to the assertion of jurisdiction on a contiguous zone theory is evident in its withdrawal of jurisdiction from the International Court to deal with this issue. Indeed, Prime Minister Trudeau conceded that the Court might well rule against Canada if the matter were submitted to it. It is further apparent in the Canadian Government's assertion that it is by its unilateral action breaking new ground and creating new law in this respect.[29]

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25 13 UST 2312; TIAS 5200; 450 UNTS 82.

26 12 UST 2989; TIAS 4900; 327 UNTS 3. Documents and international agreements concerning oil pollution are conveniently collected in the May 1969 issue of International Legal Materials.

27 See Final Act of the International Legal Conference on Marine Pollution Damage, 1969 and attched Conventions.

28 Ibid.

29 See also "Prime Ministers Press Speech," p. 8, where he notes: "Our pollution legislation is without question at the outer limits of international law; We are pressing against that frontier..." See also ref. in n. 49 below.

The Canadian claim to sovereignty over at least substantial portions of the Northwest Passage is more complex and less easily disposed of. Given that some 57 countries presently claim territorial seas of twelve miles or more, it seems difficult to contend that Canada's assertion of a 12-mile limit is contrary to international law.[30] Thus, as indicated, the new limit would in itself enclose several important straits in the Passage. As to the broader Canadian claim to the waters of the entire archipelago, international law provides few guidelines.[31] It is true that Indonesian and Philippine archipelagic claims have won little support.[32] However, the Canadian position that the Arctic archipelago is distinguishable from these other situations--in its geographic contours, its geologic continuity with the mainland, its unique oft-frozen condition, and perhaps in the absence of historic patterns of conflicting interests or use by other States--is at least arguable.[33] Several Canadian commentators have suggested that the International Court's treatment of the "Skjaergaard" in the Norwegian Fisheries case[34] is analogous to and supports their claim.[35] It is not clear where the baselines of such an archipelagic claim would lie,[36] what the precise

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[30] The figures are given by the Prime Minister in his Press Speech, p. 9. For a convenient recent compilation see 8 Intl. Leg. Mat. 516 (1969). The US has recently indicated that it would support a convention setting the breadth of the territorial sea at 12 miles, so long as there were guaranteed rights of free transit through and over international straits. See Secretary of State Rogers, "The Rule of Law and the Settlement of International Disputes," 62 Dept. St. Bull. 623, 625 (May 18, 1970).

[31] See McDougal and Burke, op. cit., pp. 418-19, where they comment: "It is clear that no consensus has evolved for any particular system of delimiting the bounds of authority over the waters of archipelagic islands." See also Sorenson, "The Territorial Sea of Archipelagoes," Varia Juris Gentium, 6 Neth.Intl.L.Rev. 315 (Spec. Issue 1959). Article 4(1) of the Territorial Sea Convention provides that the method of straight baselines may be employed in delimiting the Territorial Sea, inter alia, "if there is a fringe of islands along the coast in its immediate vicinity," but this provision, reflecting the Norwegian Fisheries case, is hardly broad enough to cover major archipelagoes.

[32] See 4 Whiteman, Digest of International Law (1965) pp. 282-5.

[33] "Canadian Note," p. 6028. The argument is developed by Head, op.cit., pp. 218-19.

[34] [1956] I.C.J. Rep. 111.

[35] Head, op.cit., pp. 218-19. Prof. Head's article is of particular interest as he is presently serving as Legislative Asst. to Prime Minister Trudeau.

[36] The government was not prepared to table maps of the zones and indicated they would be defined only later. Remarks of Mr. Chretien, Hansard, p. 5941 (Apr. 16, 1970).

status of the waters enclosed would be and whether there would be innocent passage within them,[37] or how such a claim will affect the drawing of Shipping Safety Control Zones under the new Pollution Prevention Act. A number of comments by Canadian spokesmen may be read as going so far as suggesting that tanker passage, by virtue of its potential for pollution, may per se be "non-innocent," in which case the question of whether the waters of the archipelago are internal or territorial becomes moot.[38]

The dispute as to whether the Northwest Passage constitutes an international strait again has no clear answer. Article 16(4) of the Territorial Sea Convention provides a right of innocent passage "through straits which are used for international navigation between one part of the high seas and another part of the high seas," in effect confirming a similar right under customary international law recognized by the International Court in the Corfu Channel case.[39]

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[37] Article 14(1) of the Territorial Sea Convention provides that "all States... shall enjoy the right of innocent passage through the territorial sea" and Article 15(1) provides that coastal States must not hamper such passage. However, Article 14(4) defines passage as "innocent so long as it is not prejudicial to the peace, good order and security of the coastal State," and Article 16(1) provides that "The coastal State may take the necessary steps in its territorial sea to prevent passage which is not innocent." Moreover, Article 17 provides that "Foreign ships exercising the right of innocent passage shall comply with the laws and regulations enacted by the coastal State in conformity with these Articles and other rules of international law, and, in particular, with such laws and regulations relating to transport and navigation."

Article 5(2) of the Territorial Sea Convention provides that where the establishment of a straight baseline in accordance with Article 4 (e.g. to enclose a fringe of islands) has the effect of enclosing as internal waters areas which previously had been considered as part of the territorial sea or high sea, a right of innocent passage, as provided in Articles 14 to 23, shall exist in these waters. Pointing out that the difference between internal and territorial waters was not as clear-cut as sometimes alleged, Secretary of State Sharp commented on this point:

> "There is a school of thought, for example, that the status of the waters of the Arctic archipelago fall somewhere between the regime of internal waters and the regime of the territorial sea. Certainly Canada cannot accept any right of innocent passage if that right is defined as precluding the right of a coastal State to control pollution in such waters. The law may be undeveloped on this question; but if that is the case, we propose to develop it." Hansard, p. 6015 (Apr. 17, 1970).

[38] Statement by Secretary of State Sharp, ibid.

[39] [1949] I.C.J. 4.

In view of the extremely limited use of the Northwest Passage to date--in all recorded history there have been only about a half-dozen transits, none of which were commercial--a U.S. argument that the Passage is one "used for international navigation" or that it constitutes an "international highway" within the scope of this doctrine would not appear very persuasive. It may be recalled that, in the summer of 1967, the U.S. was unsuccessful in persuading the Soviet Union that Vilkitski Strait, connecting the Kara and Laptev seas, was such an international strait, thus requiring the grant of innocent passage by the Soviets to the U.S. Coast Guard icebreakers Edisto and Eastwind, then attempting to circumnavigate the Arctic Ocean.[40] Again, the practical significance of this issue is affected by the apparent Canadian position that it alone has the right to determine whether passage is in fact "innocent," and that tankers not complying with Canadian regulations may properly be denied such a right.

The question arises as to why the Canadian Government chose to assert extremely broad jurisdiction on an extremely controversial contiguous pollution control zone theory when it might well have satisfied at least some of its stated objectives in a less controversial way. The U.S. objection to Canada's extension of its territorial sea was pro forma, and, as indicated with this extension several of the principal straits through the passage are clearly subject to Canadian sovereignty. Thus, even without the Pollution Prevention Act, Canada would in practice seem to have broad authority to establish reasonable pollution control regulations and requirements for all ships transiting such straits, and thus in effect, for all vessels utilizing the Passage.[41] Even jurisdiction based on Canada's archipelagic claim seems less controversial than the contiguous zone concept on which the Pollution Prevention Act is based.[42] Of course, such jurisdiction would be geographically more limited than under the present legislation, and vessels might conceivably discharge oil or act contrary to Canadian desires in other respects outside of territorial straits or even the archipelago. Moreover, this type of approach would do little to solve the problem of pollution of the Canadian east and west coasts, which could only be dealt with on some broader pollution zone theory. The unique Arctic situation may possibly have been considered to provide a relatively favorable case for the introduction of the new contiguous zone concept, which could then later, when the dust had somewhat settled, be used as a precedent for its more general application on other coasts.

It is also interesting to ask why the Canadian Government chose to act unilaterally rather than awaiting international action as the U.S. requested. The introduction of the Canadian legislation had clearly already served a purpose in spurring the U.S. to a commitment to seek rapid international agreement on

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[40] See Bilder, "Emerging Legal Problems of the Deep Seas and Polar Regions," 20 Naval War College Rev. 34 (Dec. 1967) pp. 38-39.

[41] See remarks of Mr. St. Pierre, Hansard, pp. 5966-7 (Apr. 16, 1970).

[42] Remarks of Mr. Crouse, Ibid., pp. 5960-61.

effective measures, and the practical problem of tanker transit through the Passage is, at the very least, several years in the future.[43] The Canadian note, statements and Parliamentary debate indicate that the answer lies in good part in an increasing and profound Canadian disillusionment and frustration with international processes concerning the Law of the Sea, based, inter alia, on Canada's experience with the defeat of many of its principal proposals at the Geneva Conferences of 1958 and 1960 and the Brussels Conference of 1969.[44] The documents reflect the Canadian Government's view that international discussion would, at a minimum, have produced long delay and might well result in what it viewed as simply another sacrifice of coastal State interests to those of ship-owning States.[45] Internal politics and nationalism--perhaps a desire by the Liberal Government to establish its independence of U.S. policy--may also have played a role.[46] Finally, Canada may well have seen its best strategy as confronting the U.S. and other nations, as quickly as possible and before strong international counter-pressures could be mobilized, with a fait accompli.[47] This would at least have the effect of forcing quicker international action and might strengthen Canada's hand at any eventual bargaining table. Were Canada to agree to the U.S. request and then ultimately adopt unilateral measures only later after such negotiation had failed--indeed, possibly in the fact of contrary international opinion expressed at such negotiations--its position might be considerably weakened. On the other hand, given Canada's enactment of this legislation, its

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[43] Wall St. J., Dec. 17, 1969, p. 8, col. 2-3.

[44] See"Canadian Note," pp. 6027-28, and references in note following. At Brussels, the Canadians wished to place liability on the cargo-owner up to a limit of $400 million per vessel per incident. They alone voted against the Liability Convention.

[45] Sec. of State Sharp commented that "Canada has tested the climate for international action against pollution and...the climate has been found seriously wanting..." Hansard, p. 5951 (Apr. 16, 1970). For further indications of this attitude, see Secretary Sharp, Ibid., pp. 5949-50 (Apr. 16, 1970); and, suggesting a particular Canadian distrust of the sincerity of US appeals for multilateral action, Secretary Sharp, Ibid., p. 6013 (Apr. 17, 1970).

[46] But Prime Minister Trudeau, in his Press Speech (p. 9) took pains to expressly deny that the measure was "jingoistic" or anti-American.

[47] The Canadian action was in this sense similar to its successful unilateral action in 1964 to establish a 12-mile fishing zone, at first protested but subsequently imitated by the United States. See, particularly, the extracts from Parliamentary debates on that occasion quoted by Castel, International Law (1965) pp. 790-4; and, generally, Gotliev, "The Canadian Contribution to the Concept of a Fishing Zone in International Law," 2 Can. Yrbk. Intl. L. 55 (1964).

many protestations of commitment to the concept of international measures ring somewhat hollow. Unless Canada is prepared to rescind or limit its existing far-reaching legislation, there seems comparatively little left for an international conference to negotiate.

Certain aspects of the Canadian position justify brief comment in terms of their bearing on the workings of the international legal process. Particularly interesting is the Canadian attempt to justify its unilateral action as a positive and laudable contribution to international law--in the words of some of its proponents, "a current initiative of striking importance and relevance in the context of the dynamic, creative development of international law."[48] Pointing out the accepted role of State practice in the development of customary international law, and noting the many examples of unilateral action leading to the development of law--such as the 1945 Truman Proclamation of jurisdiction over the continental shelf, the Canadian and then U.S. unilateral establishment of exclusive fishing zones, and the gradual extension by unilateral action of the territorial sea beyond three miles--Canadian spokesmen have attempted to portray the new legislation as a demonstration of Canada's commitment to, rather than departure from, the principle of respect for international law.[49] While it is clearly true that State practice is an important component in the development of international law, the contention that unilateral action, even action contrary to accepted norms, thus becomes somehow justified and appropriate--perhaps even a matter of international duty--is not convincing. Clearly, every State acting contrary to accepted law could so justify its position. One might perhaps so argue in the context, for example, of a situation such as that at the time of the Truman Proclamation on the Continental Shelf, where relevant international

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[48] See Statement by Professors of International Law at the Faculty of Law, University of Toronto, on "The Canadian Initiative to Establish a Maritime Zone for Environmental Protection: Its Significance for the Multilateral Development of International Law," presented at the Annual Conference of the American Society of International Law meeting in New York City on April 24, 1970, and signed by Professors MacDonald, Morris, and Johnston, p. 1.

[49] "Canadian Note," p. 6027. This point of view is also reflected in the "Prime Ministers Press Speech, the University of Toronto Professors' Statement (n. 48), and throughout the Parliamentary debates. See, for example, the remarks of Sec. of State Sharp that "The bill we have introduced should be regarded as a stepping stone towards the elaboration of an international legal order which will protect and preserve this planet," Hansard, p. 5949 (Apr. 16, 1970), and "We are...determined to act as pioneers pushing back the frontiers of international law..." Ibid., p. 5951, and of Mr. Allmand that "what we had done actually was a spur to the development of international law in connection with pollution control. I firmly believe that by introducing and passing these bills we shall be developing international law relating to pollution." Hansard, p. 5997 (April 17, 1970).

law was undeveloped and international arrangements for dealing with such questions less common. The Canadian action, however, is one which appears to run contrary to relatively clear and established international norms, and occurs in a context in which international fora and procedures are obviously available and indeed being currently utilized to discuss possible changes in such norms.

A second interesting aspect is Canada's extensive use in defending its action of U.S. practice respecting exercises of jurisdiction on the high seas. The Canadian government and parliamentarians cited, inter alia, the Truman continental shelf and fisheries proclamations, U.S. customs enforcement practices, U.S. ADIZ zones, the U.S. establishment of an exclusive 12-mile fisheries zone (after strong objection to Canada's prior establishment of such a zone), U.S. atomic tests and the Cuba Missile quarantine.[50] Canada also made clear its view that any U.S. criticism of the Canadian withdrawal of jurisdiction over this subject from the International Court could only be regarded as highly hypocritical in view of the United States' own Connally Reservation.[51] This illustrates again the potential "mirror-effect" of national decisions in the international legal arena--that national policy on such matters should be made with a sort of international categorical imperative in mind, recognizing that a State is in no position to complain if other States imitate its actions.[52]

Finally, the Canadian withdrawal of jurisdiction over this matter from the International Court demonstrates again the weakness of international adjudicative processes and some of the reasons for this weakness. The Canadians were simply not prepared to risk losing a case in which they felt vital interests to be so involved. They saw the Court as having an inherently conservative and legalistic bias, and as thus unlikely to approach the matter creatively or

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[50] "Canadian Note," p. 6027. The Cuban Missile quarantine precedent was specifically referred to in remarks by Mr. Neilsen, Hansard, p. 6003 (April 17, 1970), and the ADIZ zones were referred to in remarks by Mr. Douglas, Ibid., pp. 5944-45 (April 16, 1970) and Mr. St. Pierre, Ibid., p. 5965 (April 16, 1970).

[51] "Canadian Note," p. 6029. For other more pointed comments to this effect, see remarks of Secretary of State Sharp, Hansard, p. 5949 (April 16, 1970) and of Mr. Douglas, Ibid., p. 5945 (April 16, 1970).

[52] That the United States is learning this lesson, and would like to induce a "freeze" on further assertions of coastal State contiguous zone jurisdiction, is suggested by its new willingness to accept a firm twelve-mile territorial sea and narrow limits of the continental shelf, and by the careful limitation of its own assertion of contiguous zone pollution prevention measures.

with sufficient flexibility to take account of developing needs or practical interests.[53]

It may be too early to attempt to pass ultimate judgment on the Canadian action. On its face, it appears contrary to the existing international law of the sea and not helpful as regards hopes for the orderly development of that law through international community processes. The precedent established is clearly capable of widespread abuse by other, perhaps less responsible States, with very harmful potential consequences for the principle of freedom of the seas. If a nation of the international stature of Canada may establish 100-mile contiguous

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[53] Prime Minister Trudeau explained the Canadian filing of the new reservation to the Parliament in the following terms:

> "Canada is not prepared to engage in litigation with other States concerning vital issues where the law is either inadequate or non-existent and thus does not provide a firm basis for judicial decision...
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> "It is well known that there is little or no environmental law on the international plane and that the law now in existence favors the interests of the shipping States and the shipping owners engaged in the large scale carriage of oil and other potential pollutants. There is an urgent need for the development of international law establishing that coastal States are entitled, on the basis of the fundamental principle of self-defense, to protect their marine environment and the living resources of the sea adjacent to their coasts." Hansard, p. 5623-4 (Apr. 8, 1970).

The Prime Minister's explanation elicited some opposition criticism. See remark of Mr. Lewis: "What nonsense it is to say, 'Canada strongly supports the rule of law in international affairs,' when in the next breath he says he does not intend to be bound by it. We should stop this hypocrisy in international affairs." Ibid., p. 5625.

See also the comments of Secretary of State Sharp:

> "Where the law is deficient any action undertaken to remedy its deficiencies cannot properly be judged by the existing standards of that law. Such a proceeding would effectively block any possibility of reform. Canada remains firmly attached to the rule of law in international affairs and has the highest respect for the International Court of Justice and the part it plays in the maintenance of the rule of law. At the same time,however, we are not prepared to litigate with other States on vital issues concerning which the law is either inadequate, non-existent or irrelevant to the kind of situation Canada faces, as in the case of the Arctic. It is no service to the court or to the development of international law to attempt to resolve by adjudication questions on which the law does not provide a firm basis for decision." Hansard, p. 5952 (Apr. 16, 1970).

zones to control pollution, other coastal States may seek to do so as well, and the range of regulation that may be justified under the rubric of pollution control may in practice differ little from that asserted under claims of sovereignty over such zones. The Canadian legal justification of its action under principles of "self-defense" seems particularly harmful and capable of introducing new confusion into this already murky area of law. Similarly, its suggestion that tankers may enjoy only some more attenuated right of innocent passage could lead to further constrictions on an important principle of the law of the sea. Indeed, there is much to suggest that the U.S. concern, and its strong diplomatic response, arose more from fears of this precedental effect than from specific objection to Canadian control of the Northwest Passage itself.[54] In this view, the Pollution Control Act is a further large step in the gradual process of contraction of the high seas that has continued since 1945.

On the other hand, the Canadian action cannot simply be dismissed as irresponsible, nor can the real pressures it reveals be ignored. Canada's commitment and contributions to international law and processes have been well recognized, and are indeed in many respects outstanding. Its concern with the problem of pollution is justifiable and its frustration with the slow pace and uncertain results of international action understandable. As the Canadians point out, after almost 50 years of international discussion of ocean oil pollution problems, including the recent 1959 Brussels Conference, very little to actually prevent such pollution has been accomplished.[55] Canada's position that the development of the law of the sea has been dominated by ship-owning nations, and has tended to reflect their interests--perhaps disproportionately so--seems historically justified. Moreover, the very concept of a contiguous zone implies the legitimacy of coastal State action on the high seas where necessary to protect certain accepted State interests. While the 12-mile limitation is ample to deal with more traditional needs, it has become increasingly obvious that legitimate pollution prevention interests may not be able to effectively be met within so

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[54] See Dept. St. Press Rel., No. 121, April 15, 1970.

[55] See "Prime Minister's Press Speech," p. 6-7 quoting from Kennan, "To Prevent a World Wasteland: A Proposal," 48 Foreign Affairs, 401 (April 1970), to the effect that oil spillage into the oceans is estimated at a million tons per year, is steadily increasing, and effective measures to deal with this problem have not been forthcoming. The failure of the international community to deal with oil pollution problems was emphasized in remarks by Secretary of State Sharp, Hansard, p. 5949 (April 16, 1970), Mr. Douglas, Ibid., p. 5945 (April 16, 1970), and Mr. Murphy, Ibid., p. 6006 (April 17, 1970).

narrow a zone.[56] In this view, Canada's unilateral adoption of such measures demonstrates not its lack of commitment to law, but rather the continued failure of that law and of international institutions and processes generally to meet the real and pressing concerns of coastal States.[57] It suggests also that the price of inflexibility or delay on the part of shipping nations in seeking effective international action to deal with legitimate and pressing coastal State interests, such as the interest in preventing pollution, may well be to invite such unilateral action by coastal States. In the long run, this may leave ship owning States worse off than if they had earlier agreed to lesser concessions to these coastal State interests.

The final outcome remains to be seen. It is anticipated that an international conference of some 20 countries, called by the U.S. in response to the Canadian action, will convene sometime this summer. The conference will apparently seek to establish at least navigation and ship construction standards applicable to Arctic tanker voyages, but it may not be able to meet fully broader

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[56] McDougal and Burke, Op. cit., p. 849, seem to suggest that general community policies would support such an extension of jurisdiction:

> "Since the impact of pollution is usually upon coastal residents, the coastal State has an understandable interest in preventing the discharge of oil and other substances in such a way that harmful pollution results. If it were practicable for the coastal State to enact and enforce prohibitory regulations applicable in adjacent seas, there would seem to be sufficient justification for considering this permissible under general community policy. To the extent, therefore, that a coastal State could exercise sufficient effective control it would be appropriate to permit it to prohibit the discharge of oil that would, or could reasonably be thought to, damage marine life and property in the vicinity."

[57] See "Canadian Note," pp. 6027-28. And see, particularly, the criticism by the Toronto International Law Professors, in their statement, Op. cit., pp. 8-9, of the role of IMCO in terms of its domination by shipping State interests. See also remarks of Mr. St. Pierre, Hansard, pp. 5963-4 (Apr. 16, 1970); Secretary of State Sharp, Ibid., p. 5951; Mr. Douglas, Ibid., p. 5945; Mr. Allmand, Hansard, p. 5997-8 (Apr. 17, 1970).

This attitude was summarized by Secretary of State Sharp, as follows:

> "The pioneering venture upon which we are embarked is a measure of our serious concern at the failure of international law to keep pace with technology, to adapt itself to special situations, and in particular to recognize the right of a coastal State to protect itself against the dangers of marine pollution.
>
> "Existing international law is either inadequate or nonexistent in this

Canadian concerns, and whether Canada will attend is still in doubt. A number of other proposals for more general international measures to control pollution through UN or other specially-established international agencies have also been made. It is clearly preferable from an international legal standpoint that high seas pollution control measures be established by international consensus rather than unilaterally. Perhaps the Washington meeting or these other proposals may ultimately produce some agreement on a legal regime for high seas pollution control which will prove satisfactory to the Canadians and permit withdrawal of at least some of the more troublesome features of their legislation. However, the conflicts of interest in this area are real and it is difficult to be optimistic. The prospects may well be for a continuing U.S.-Canadian dispute over this question and a gradual broadening of the arena of conflict as other coastal States follow Canada's lead.

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respect. Such law as does exist... is largely based on the principle of freedom of navigation, and is designed to protect the interests of States directly or indirectly involved with the maritime carriage of oil and other hazardous cargoes.

"A new 'victim-oriented' law must be created to protect the marine environment and those rights and interests of the coastal State which are endangered by the threat to that environment. The Arctic waters bill is intended to advance the development of that law. It is based on the fundamental principle of self-defense, and constitutes State practice, which has always been accepted as one of the ways of developing international law." Hansard, p. 5951 (April 16, 1970).

DISCUSSION

Clingan: It appears that the panel moved very swiftly from the general to the specific and from the scientific to the legal. On the broad end of the spectrum we have a variety of institutions that are not clearly coordinated and perhaps not clearly identified. This variety of existing structures makes the development of a monolithic system of environmental monitoring impossible as well as undesirable, and makes the organizational problems more difficult than if we were starting with a clean slate. The types of data ought to be characterized and grouped; and in doing so we ought to break old ties, such as geographical, as opposed to disciplinary, approaches to problems. Reorientation of the sciences will either produce or require new mechaniams and a reduction in organizational conflicts.

We have heard how an existing control agency, namely IMCO, has need for specialized monitoring inputs. We are told that sea regimes risk revolutionary rather than evolutionary change. This relates, I believe, directly to what Dr. White said about the reaction of institutions to rapid technological change. Mr. Busha pointed out that there are some existing rules with regard to surface uses of the seas, as well as existing institutions, to be taken into consideration in the re-evaluation process. The Canadian-American problem discussed by Prof. Bilder is directly related to the preceding discussion. I think his points were that we are already facing environmental legal problems that existing mechanisms are inadequate to handle, where technologically competent nations have failed to anticipate the difficulties. His example highlights the consequences of institutional failures in terms of unilateral coastal States' action.

Moving into the question period, may I suggest that specific questions with respect to the Canadian-American problem be kept in the context of environmental monitoring. There will be a detailed consideration of other aspects tomorrow.

Sokolski: Adam Sokolski, U.S. Bureau of Commercial Fisheries. I have one brief question for Dr. White. In your very comprehensive paper on the activities in the area of monitoring, you neglected to discuss one item that may be relevant. Your agency is preparing to be a part of a reorganization along the general lines of NOAA. I wonder if you could add some additional comment on how this may affect the activities of your agency in the area of environmental monitoring?

White: Yes, I also read the reports in the New York Times and the Washington Post. If such a reorganization takes place it will have a significant effect on environmental monitoring. Indeed, one of the major thrusts of the Marine Commission's recommendations was in the area of environmental monitoring. The Commission proposed the establishment of a National Environmental Monitoring and Predicting System.

Schaefer: I would like to address a question to Prof. Bilder on the Canadian legislation. I am particularly sensitive to encroachments of governmental authority on freedom in scientific research; and as a biological oceanographer,

I am also sensitive to the extension of contiguous fishing zones, since this interferes with freedom of fisheries research. Admittedly we need more environmental research and monitoring in Arctic waters. One thing that surprised me, however, was that Prof. Bilder expressed some astonishment that the United States objected to Canada's recent action.

In addition to the 12-mile territorial sea, the Canadian legislation has two other features that are of considerable interest. For one thing it strongly suggests the possibility of drawing base lines which may be rather longer than those provided for by the Convention on the Territorial Sea. But even more important, it establishes a legal basis for contiguous fishery zones extending to an indefinite distance from the base lines as determined from time to time by the Government of Canada. I believe that perhaps part of the US objection to the Canadian legislation was based on the contiguous fishing zone rather than just the 12-mile territorial sea. I'm very much concerned about the effect of this indefinite extension of jurisdiction over a resource in that it may handicap the people who are carrying out any scientific research in the waters affected by the legislation. I would appreciate a commentary on that particular subject.

Bilder: I'm afraid I can't add much on the fishery zone issue, and would prefer to turn your question over to Ambassador McKernan or one of our Canadian participants who might have comments. My emphasis, of course, was on the Pollution Act rather than the other acts. I didn't intend to express astonishment at the US protest of the 12-mile sea, and if I did in fact convey any such impression, it was certainly not warranted. As you know, this has been our traditional position. All that I hope I said was that it seems to have been a fairly pro forma objection; I do not think our objection in this case, for the same sort of reasons that Mr. Oxman referred to last night, was as forceful as we have made in some other cases.

McKernan: I found the principal speaker very authoritative and very interesting. I won't comment on some of the conclusions he reached, but rather speak on what Benny Schaefer mentioned, the problem of fisheries and the possibility of extending the contiguous zone. Canada specifically has in mind the possibility of rather extreme closing lines, closing off such bodies of water as the Gulf of St. Lawrence and Hecate Strait. As Dr. Schaefer said, these closing lines would be quite extensive and far beyond that now recognized as permissible under existing international law. The United States has objected to this. It means we have a serious problem, partly political and partly practical.

Quite a number of the Canadian provinces border on the Gulf of St. Lawrence; these Provinces look upon the Gulf as territorial waters. I believe the Canadians think that by establishing closing lines across the Gulf for fishery purposes they have gotten around part of the problem with the United States. We really don't look on this as much help; even though it isn't a claim for internal waters in a sense, it is a new kind of a jurisdiction that they are asserting. These will be fishery closing lines, making, in my judgment, the waters inside the lines Canadian internal waters from a fisheries point of view. Exactly how

this is going to be interpreted is not at all clear to me. It looks to me as if Canada is going to have to establish some new kind of regulations with respect to foreign nations; and among the problems that they are going to have will be that of research in these waters.

With respect to the 12-mile territorial sea, it is perfectly clear that Canada will control research. Incidently, the United States does have informal arrangements with Canada with respect to research carried out in each other's waters. These extend back many years. Ed Allen might remember how it began. It arose particularly during the War; on 24-hour notice Canadian research ships were permitted to come within US waters including US territorial waters, and vice versa. Recently, we have reactivated these arrangements by permitting certain Canadian research vessels to come within the United States' territorial waters to carry out research, and the clearance was very simple. Incidently, we expect to reciprocate by sending one of our research vessels into Canadian waters and we understand there will be no trouble. On the other hand, the new Canadian legislation does pose research problems, and I can't say exactly how the Canadians intend to deal with it.

Wooster: We have heard about two systems being established for monitoring the physical environment, one of these being the World Weather Watch (WWW), which is the elaboration of an existing system, and one of them the Integrated Global Ocean Station System (IGOSS), which is a concept that might eventually evolve into a system. These two systems are being developed by different agencies within the UN system, WWW by the WMO and IGOSS by IOC in cooperation with WMO. I wonder if Dr. White could comment on the relation between these two systems, the extent to which they overlap or are redundant, whether there should be only one system for monitoring the physical environment, and whether it makes sense for these systems to be developed separately.

White: This is a topic that Warren and I have discussed in Paris and Geneva. I think that my talk indicates which way I would go. The earth has a single fluid envelope comprised of the air and the ocean. They interact. You cannot study one without the other. You need observations from both systems, and in many cases simultaneously. The technology required for many of the observations is common, and the people who use the information generally want the information about both the atmosphere and the oceans. Because there are great areas of commonality in the science and the technology of ocean and atmospheric monitoring, this is not to say there are not elements of difference. There are significant elements of difference both in the science and in the technology and in the use.

My view is, however, that the features which are common are so numerous that I would come down in favor of treating the oceans and atmosphere together. You have to treat them both as a single system and observe them together and deal with them together. I recognize the validity of a view which says, "treat them separately." I believe, however, you encounter many significant problems. The elements of difference are interesting to comment on. One of them is that the time and space scales of many phenomena of interest in the atmosphere are

different from the time and space scales of phenomena of interests in the oceans. So there are differences of that kind.

There are differences in the kinds of technology you use to get deep ocean information from the kinds of technology you use to get information from the surface of the ocean and the atmosphere. But after weighing all these factors, it seems to me that it becomes more efficient, more effective, more economical to do these things together, recognizing the differences and making sure that the differences are taken care of in the course of designing the monitoring systems.

I think we have taken some good steps internationally between IOC and WMO to try to get these two organizations together to plan and implement both the World Weather Watch and IGOSS. The mere fact of having them in separate organizations, whatever the goodwill, does give rise to difficulties. This doesn't mean that we can't resolve the difficulties, but it is going to take a lot of goodwill, and it is going to take understanding on the part of both groups. I think it can be done if we have that. I find there is a lack of understanding on both sides sometimes, and sometimes a lack of goodwill, but these instances are becoming fewer.

Rorholm: I am Niels Rorholm from the University of Rhode Island. I would like to address a question to Dr. White. The premise for the question is that the ultimate purpose of environmental monitoring is the improvement or the maintenance of some aspects of the welfare of man, man today or man in a thousand years. I believe that time span permits even the pure science of today to become applied science in the long run. The question is this: Would Dr. White be willing to consider a fifth system, namely, the socio-economic system? The conventional answer to that is, I believe, "Yes, this is fine, but that is not for the scientist to worry about; let someone else do this." The reason I believe this answer would be inadequate today is that the competence to define subsystems and to combine these with other systems is rapidly approaching the real world interaction among the various systems. Unless we change the type of monitoring that we now do in the socio-economic subsystems to take account of environmental factors and social costs and permit these measures to interact with the technical subsystems, our analysis will not have any predictive value for it will have missed an important link with the real world. I realize this is not just a domestic problem, but I think ESSA is uniquely situated in the US for accomplishing this.

White: I certainly would not consider any of the groupings in the environmental monitoring systems as exhaustive in any way. I can conceive of many other kinds of monitoring systems. The word "environment" is now receiving such broad connotations that it can mean almost anything. I'm reminded of a situation about a year and a half ago when both the Senate and the House decided to hold a joint symposium on "A National Policy for the Environment." Many of you perhaps remember it. I was privileged to attend this symposium. They had various cabinet officers there at the time, and each one was asked to make a statement.

The Secretary of the Interior gave his view of the environment. He was worried about the beer cans there in the national parks and other kinds of pollution. He was worried about the kind of things people think about when they think of environmental deterioration. The Secretary of Housing and Urban Development talked about the social environment of the city, how it was decaying, and how something had to be done about it. A representative of the Secretary of Transportation talked about the environment of the highways and how traffic safety was something we really had to come to grips with.

I came away from this symposium suddenly aware that everybody had his own environment. I think what I was trying to do in my talk was to ask, "Please define what you mean by environment." Once you define it, I think you can discuss it rationally and intelligently. Do we need and should we have a system to monitor our social and economic situation? I believe so, and we do have elements of this. Should we have a more comprehensive one? My view is yes. Something like this is inevitable and must come about. Will it have to interact with a health monitoring system, a physical environmental system? Obviously, yes. All these things are going to have to interact. I have no objection.

Nanda: Obviously, the freedom of the seas was never an absolute concept. We do know that the appropriation of the sea is not permitted. We do know that closing of the regional historic waters is not permitted, and we do know that a nation cannot prescribe and apply its own law to any other vessel but its own on the sea. But still, as lawyers and non-lawyers, I think we ought to be cautious in using the concept "freedom of the seas" as if it were an absolute concept. I won't elaborate on this.

A comment on IMCO. I think it was after the Torrey Canyon disaster, if I'm not mistaken, that the flurry started in London headquarters, and then the studies and then the amendment to the Convention, and finally the 1969 Brussels Conventions. I think the provisions of the 1969 Conventions are good. They are desirable; in their own limited way they are going to be useful, but then the question arises, "What next?" I have just a couple of questions for Mr. Busha. I will preface those by saying that last night it was mentioned since we do not know what constitutes pollution or what is pollution, and since the scientific and technological aspects of marine pollution are still unknown to us, therefore we cannot at the present time take any positive action. I am crudely summarizing what the speaker said, but it presents a dilemma. If the argument is that since we don't know something we shouldn't take action, and no action is therefore taken, what is the outcome? The outcome is likely to be what Canada has done at the present time. It is generally accepted that a coastal State ought to have the competence to take certain measures, and the 1969 Conventions did say that in a limited way.

My questions to you are: one, could you tell us what measures are necessary to prevent pollution from non-oil bodies? The tankers' pollution is there, but what about the non-oil bodies we have been recently discussing? Second, what next steps do you anticipate in seeking further cooperation from the industry?

The Tanker Owners Association has taken some steps. Perhaps an international trusteeship fund might be created. National, regional, and international regulations are all needed. I must say that along with many others I'm very happy that IMCO is gaining the confidence of the developing countries, but I would like to know what next does IMCO have on its agenda in cooperation with other organizations or alone, or in cooperation with industry, to prevent and combat pollution?

Busha: It's a fairly large order, Mr. Nanda. I want to deal with it briefly because I see a number of questions at this time. I'll start with the last one, what is on the agenda to prevent pollution--or maybe I should expand that a bit and say what is on the agenda in relation to pollution; certainly it varies.

At the time I left London, the next step being taken was to examine the creation of a compensation fund. This arises from a decision of the Brussels Conference, a resolution made in November 1969 to give attention in IMCO to the next step which was completing the convention; that is what we call the private law, or liability convention, by the anticipated creation of a fund which would fill two needs. It would meet situations in which the pollution was not compensated by the provisions of the Convention itself (when it enters into force, of course), and secondly, where the amount available was not sufficient. Cooperation with the industry is very central to this. The tanker industry, for carriage of oil which is largely a matter of the large oil companies, has created a system of provision for government funds to compensate for large-scale pollution and damage. This is still in operation, and indeed one can say for some time it will be the only thing in operation providing money if another Torrey Canyon kind of incident should occur. This cooperation is continuing within the organization in the working group which has been set up to deal with this compensation of funds.

The question relating to measures for pollution other than oil is very interesting, and I could enlarge very broadly on that, but I won't. I do want to say that two things seem to me important in this. It seems curious that a Convention which in effect established a framework of international law for intervention--that is to say, measures of self-defense in the area outside the territorial sea on the high seas--that such a Convention which in effect limited the freedom of a State, should be itself limited in terms of the pollution damage anticipated. It is largely in effect an anticipatory matter. The State confronted with a Torrey Canyon incident is certainly going to act, no matter what that tanker or large bulk carrier has in its tanks. If it acts under the 1969 Convention, it acts within the framework of international law. It acts with safeguards, and to some of us it seems unnecessary to limit that to oil pollution. That is, however, very much a personal opinion.

In terms of extension to other pollutants, the organization has been asked to examine this possibility. Prof. Nanda has pointed to the answer, I think, in stating that we do not know either what pollution is or what pollutants are. This is the link with the question of monitoring the environment. My references to the joint Group of Experts on the Scientific Aspects of Marine Pollution were

intended to explain that this question is to be answered in that body on a scientific basis. It proves once again that one cannot move in an area of technology or even in commerce without a sound scientific basis in this whole question of environmental protection and control; and when we get that answer, presumably either other conventions will be contrived or the present Conventions will be amended. It is unfortunate, I think, that the procedures for amendment are not more simple in that respect. There was some effort at Brussels to assure this, but the protocol, or additional act, as it was called, was not accepted by the Convention on the public law side.

Vernon: Manfred Vernon, Professor of Political Science from Western Washington State. I address myself to Prof. Bilder in terms of taking for granted the intention of the Canadian Pollution Prevention Act. Is it not feasible that the word "pollution" in reality might have something of the quality of political expediency just in order to extend Canadian sovereignty or control over large bodies of water? In other words, might much of the reason for such legal arrangements not be found in the fear of newly developing American interests close to the Arctic zone? Could there not be an interest to interfere with such developments?

In order to make my point more clear or perhaps stimulate your imagination, Professor Bilder, I shall read a very short statement from the Seattle Post-Intelligencer of last Saturday. It is entitled "Canada to Establish Arctic Sovereignty" and is described as a scientific report from Vancouver:

> Scientific studies to be undertaken this summer in the Arctic will do much to establish Canadian sovereignty in the north, Energy Minister J.J. Greene said yesterday aboard the Canadian scientific ship Hudson.
>
> He said the fact that Canada has sent the Hudson, along with seven other scientific and support vessels, to do research in the area will emphasize the fact that the Arctic is under Canadian jurisdiction.
>
> The Hudson docked here yesterday, about two-thirds of the way through a voyage from its home port of Halifax, around South America. It will return to Halifax via the Arctic.
>
> "Major resource development is under way in Canada's Arctic with the promise of oil and natural gas discoveries which could add substantially to Canada's reserves and enhance the economics of production now beginning in Alaska," Greene said.
>
> "The Hudson's studies of our Arctic coast will add basic scientific knowledge which should be of considerable importance, not only to our scientists, but to those working in the area of exploration and development." He also said that the Hudson's findings would "assist the government to control, direct and advise in exploitation" of oil and gas reserves in the Arctic.

So my question is, should we expect that the new Canadian Act on pollution prevention will also have to deal in the future with Canadian pollution created by their own people in waters that are now brought under control against foreign interference, or might it be more acceptable and tolerable to have national rather than international pollution?

Bilder: Professor Vernon's general point speaks for itself. However, let me make several comments. One is that I mentioned in my talk that the definition of waste in the Act is very comprehensive. It covers any substance which would degrade or alter the Arctic waters to an extent detrimental to their use by man or by any animal, fish, or plant that is useful to man. Thus, the Act does attempt a specific definition of pollution.

Your other point, if I understand correctly, is that there may well be an economic motivation to the Canadian action. Of course, no one knows what the precise motivations, or more likely the mixture of motivations, of the Canadian actions are. There may well be an economic motivation among others. However, I have been very impressed in reading the debates, and more so in talking with some of our Canadian friends here, how strong the internal political and nationalistic factors entering into this decision seem to have been. The Canadian people and government, as I understand it, really feel extremely strongly about these Arctic regions and keeping them free of pollution. Thus, the legislation has an emotional as well as perhaps some practical motivation behind it, and it seems in error to approach this simply dollars-and-cents-wise. One should not discount the Canadian feeling about what they regard as this frontier of theirs which has such a strong part in their identity and heritage.

Gorove: Professor Stephen Gorove, University of Mississippi School of Law. First of all, I would like to make some general comments. I am in agreement with Dr. White that we need more clarification regarding definitions; particularly I would have liked to hear some definitions with respect to the subject matter, environmental monitoring, even though, as Dr. White indicated, the matter has been with us since about the middle of the 19th century. More specifically, I would like to know what is meant in this context by "environment"? Perhaps environment means everything around us, but I would like to know from what angle is the subject matter approached. What is our basic purpose? What are we trying to accomplish?

I have a similar question as to "monitoring." I don't know whether this is a very good term in the first place, or whether it is a very significant one from the viewpoint of what we are trying to do. It seems to me that initially it may convey the idea of collection of data, but perhaps this is not the only connotation. Also, there may be dissemination of data involved. Furthermore, what kind of data are we talking about? In addition, I think it may be out of place to make reference to prediction in this context. Is prediction necessarily involved in monitoring? Perhaps some other things may be involved. I would very much like to see a further clarification of the term "monitoring" in relation to this subject matter.

Moving on to Professor Bilder's very excellent presentation, I would like to raise two very brief questions. One relates to the international reaction. We heard about the United States' reaction, but I would also like to know about other international reactions to Canada's action. The second question is, what are your expectations, Mr. Bilder, at the present time that other countries might follow Canada's example?

Bilder: I'm only aware of the American reaction to the Canadian legislation as demonstrated in our statements and notes. I have not seen any hard information as to the position other countries have taken. I understand that a representative of the Department of External Affairs will be here tomorrow, and you might wish to put that question to him.

Your second question, I believe, is what is the likelihood that other States will copy the Canadian action. Again, to my knowledge, no State has as yet specifically indicated that it will follow the Canadian lead. My own feeling--it is only a hunch based on my own experience--is that such precedents often have a tendency to be followed fairly quickly. We have seen this in a number of situations of jurisdictional extensions, such as the continental shelf proclamations, the fishery zones' extensions, territorial sea extensions, and so forth. The whole record of the years since World War II, it seems to me, suggests that, once started, such a ball tends to keep rolling. I think this is why the US Government is so concerned with the Canadian actions, wishes to stop it very quickly, and, indeed, might perhaps be prepared to make some fairly substantial concessions to avoid the establishment of such a precedent.

This is another aspect, I take it, of what may well be a factor in the President's declaration that Mr. Oxman was telling us about. The United States seems prepared to make concessions in its law of the sea position in order to put some sort of brakes on other States' expansions of national jurisdiction into what has traditionally been high seas.

White: My only comment on the questions is that this, I think, is one of our problems. We are not talking to one another in the same terms.

Clingan: I want to express my personal thanks to our extremely capable panel, who have come a long way to share their thoughts with us today. I am very grateful for you gentlemen having done so.

A COOPERATIVE FLORIDA-COAST & GEODETIC SURVEY BOUNDARY PROGRAM

Hyman Orlin
Special Assistant to the Director for Earth Science Activities
Coast and Geodetic Survey
Environmental Science Services Administration
U.S. Department of Commerce

In prior years I have discussed in general terms the methods adopted by ESSA's Coast and Geodetic Survey for demarcating coastal boundaries and for determining the vertical datum upon which these boundaries depend as defined in Sec. 2(c) of the Submerged Lands Act of 1953 and in the 1958 Geneva Convention on the Territorial Sea and the Contiguous Zone. Such boundaries take on greater and greater importance as more emphasis is placed upon resources from the sea. Still another dimension was added to the boundary problem by the announcement on May 23, 1970, of President Nixon's proposal for nations to renounce claims to the seabed deeper than 200 meters. In comment I would like to repeat the statement I made last year:

> A consideration should be the rate at which the parameter that defines the boundary changes. If this parameter changes slowly with distance, it poorly defines the boundary. Depths of 200 meters, plus or minus two meters, may exist over tens of miles; needless to say, a depth could be a most inappropriate boundary parameter.

If this proposal is finally adopted much clarification would be required. For example: How would we handle submarine canyons? Would we define continental shelf "inland waters" and submerged "straight baselines"? Would we have to consider the tide? Would the baseline be defined in terms of the 200-meter isobath depicted on charts recognized by the coastal State? Would it be necessary to monument this line with bottom markers and if so, what would be the military significance? I'm afraid that a boundary based upon depths would raise more problems than presently exist.

Today, I would like to present some of the details of a "Florida-C&GS Cooperative Program for Coastal Boundary Mapping." This agreement was entered into by the State of Florida and the Coast and Geodetic Survey on April 18, 1970, for the establishment of tidal datum planes and to prepare about 450 shore and sea boundary type maps (Figures 1, 2, 3) for the entire tidal area of the state which will display both the mean low-water line and the mean high-water line, the former for determining the zero sounding line for the Atlantic and Gulf Coasts and the latter for delineating the shoreline. Except for modifications noted in the Lands Act and the Convention, this shoreline marks the boundary between state and private ownership, while the zero sounding line is the basis for defining the normal baseline from which the seaward jurisdictional boundaries are delimited (Figure 4). A generalization of the baseline where neither offshore islands nor rocks awash are involved is shown in Figure 5.

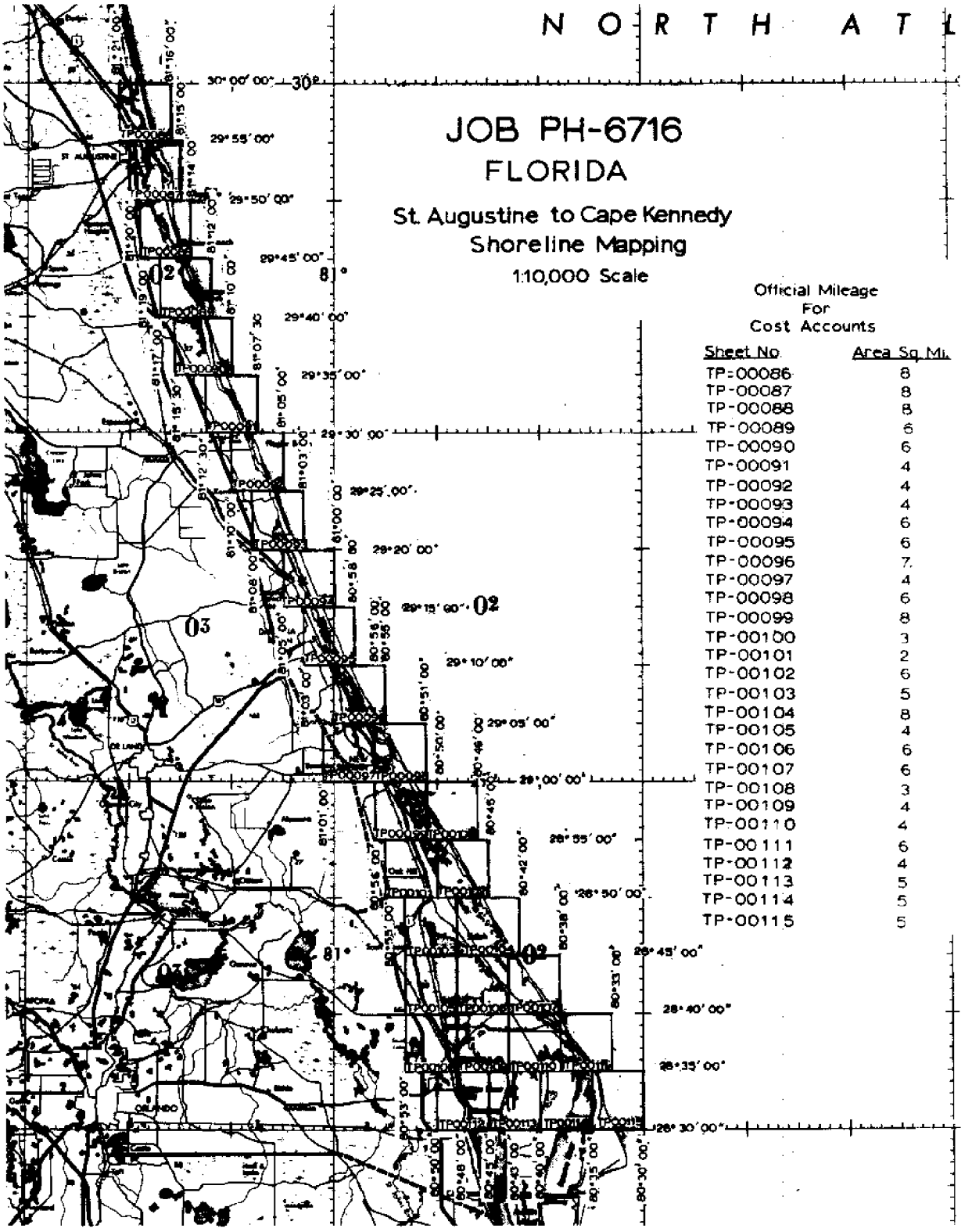
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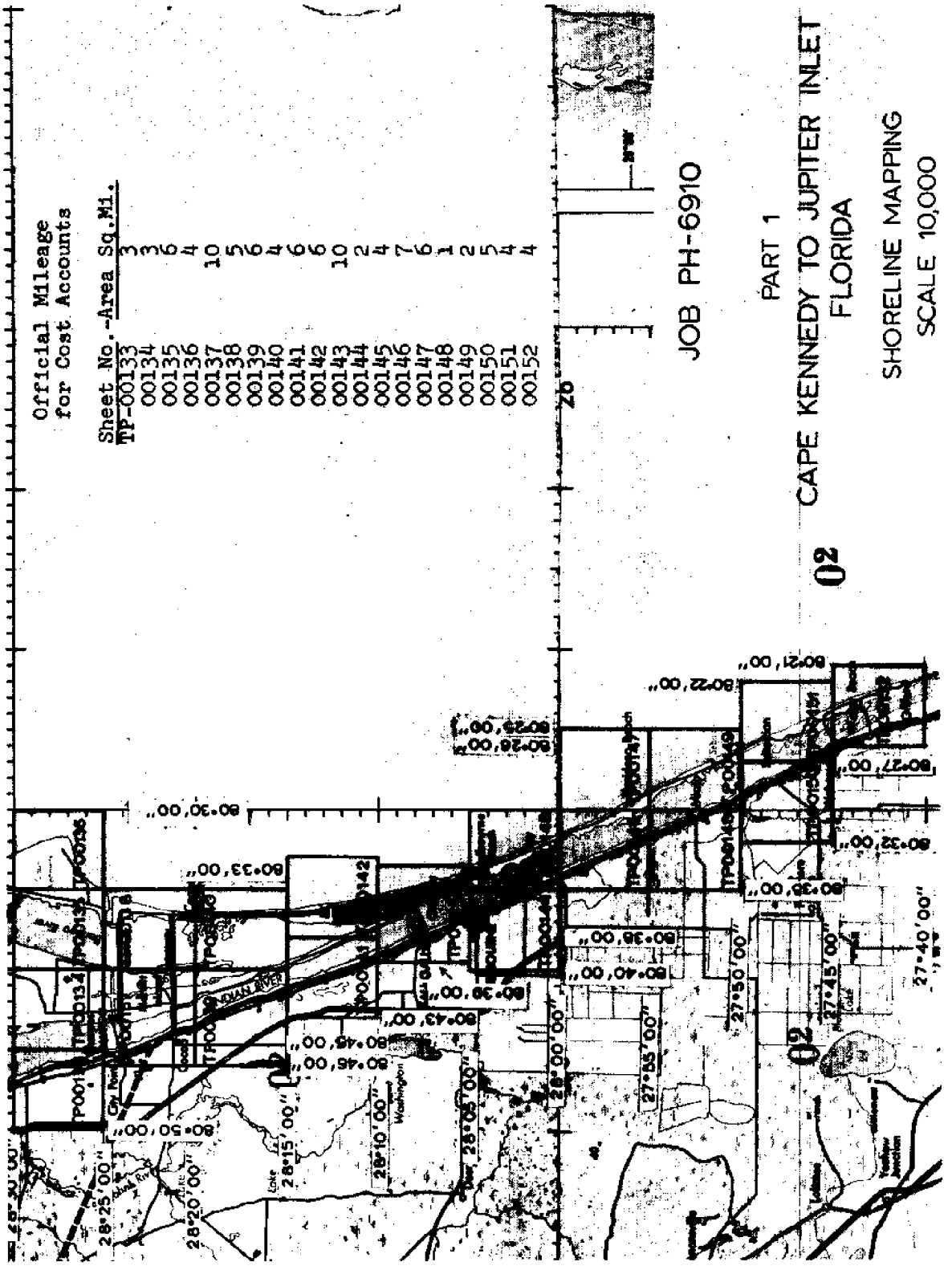
Figure 1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00146 7-6
00147 1
00148 2
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SHORELINE MAPPING
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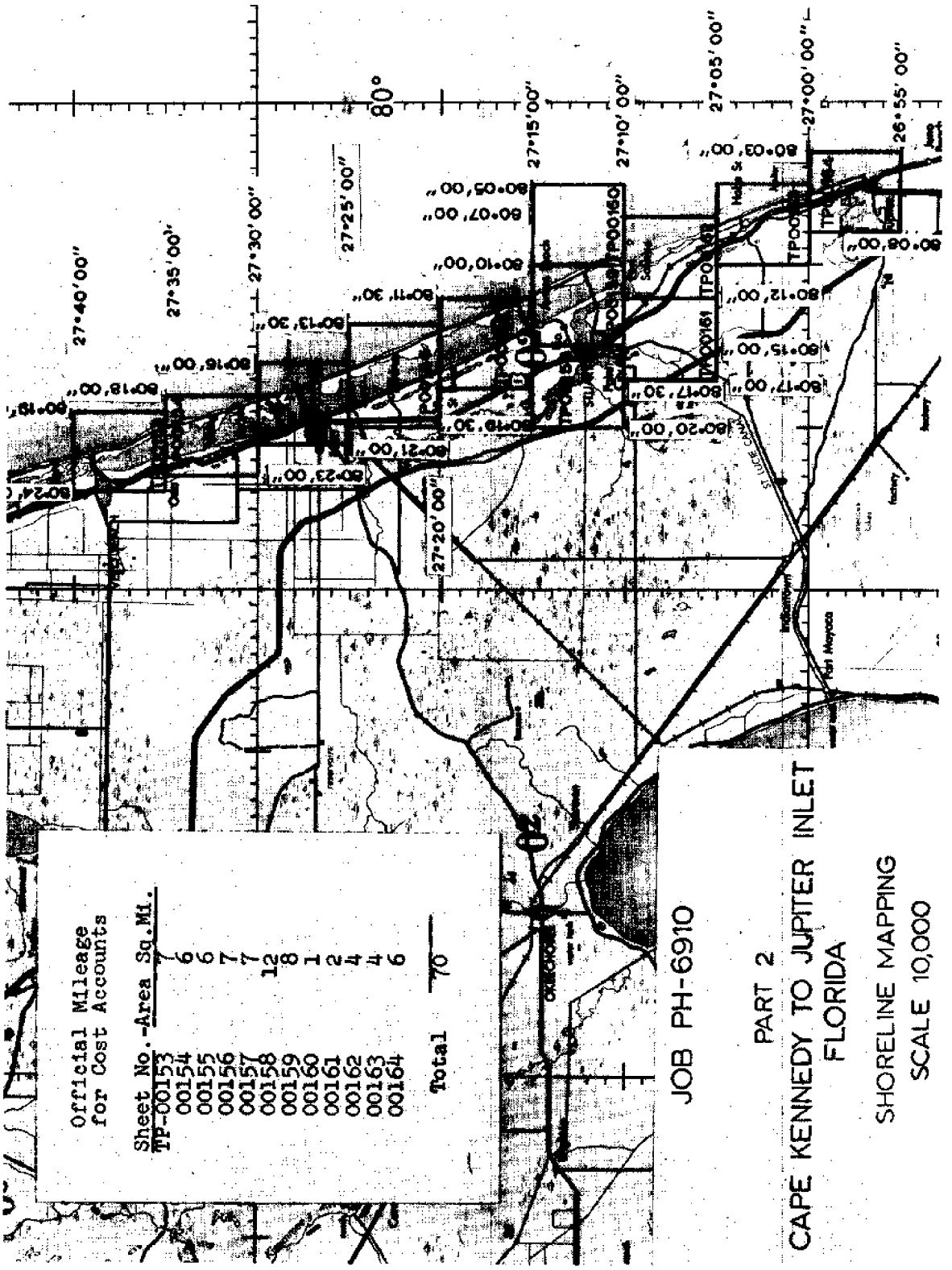
26

Figure 2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CAPE KENNEDY TO JUPITER INLET
FLORIDA
SHORELINE MAPPING
SCALE 10,000

Figure 3

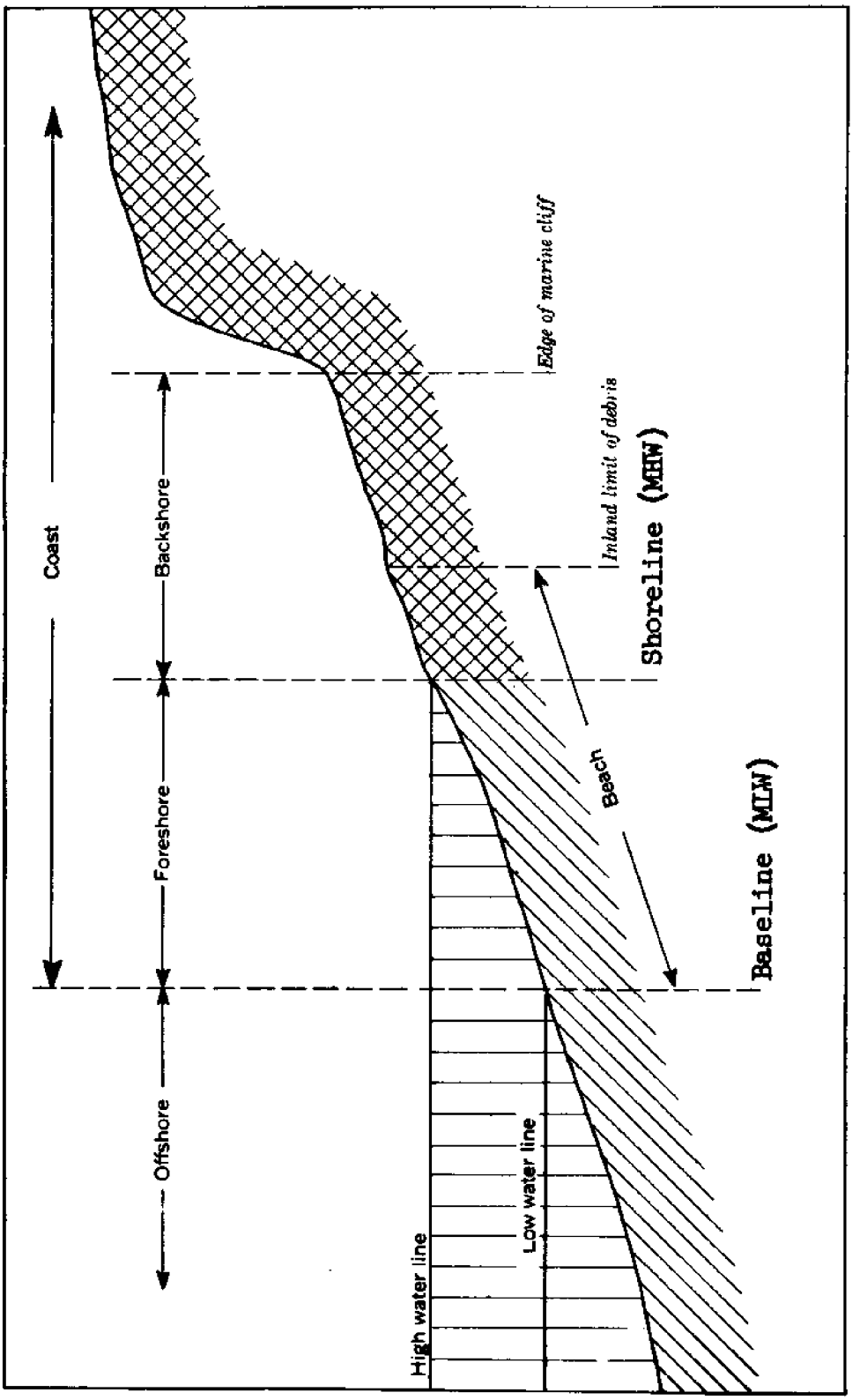
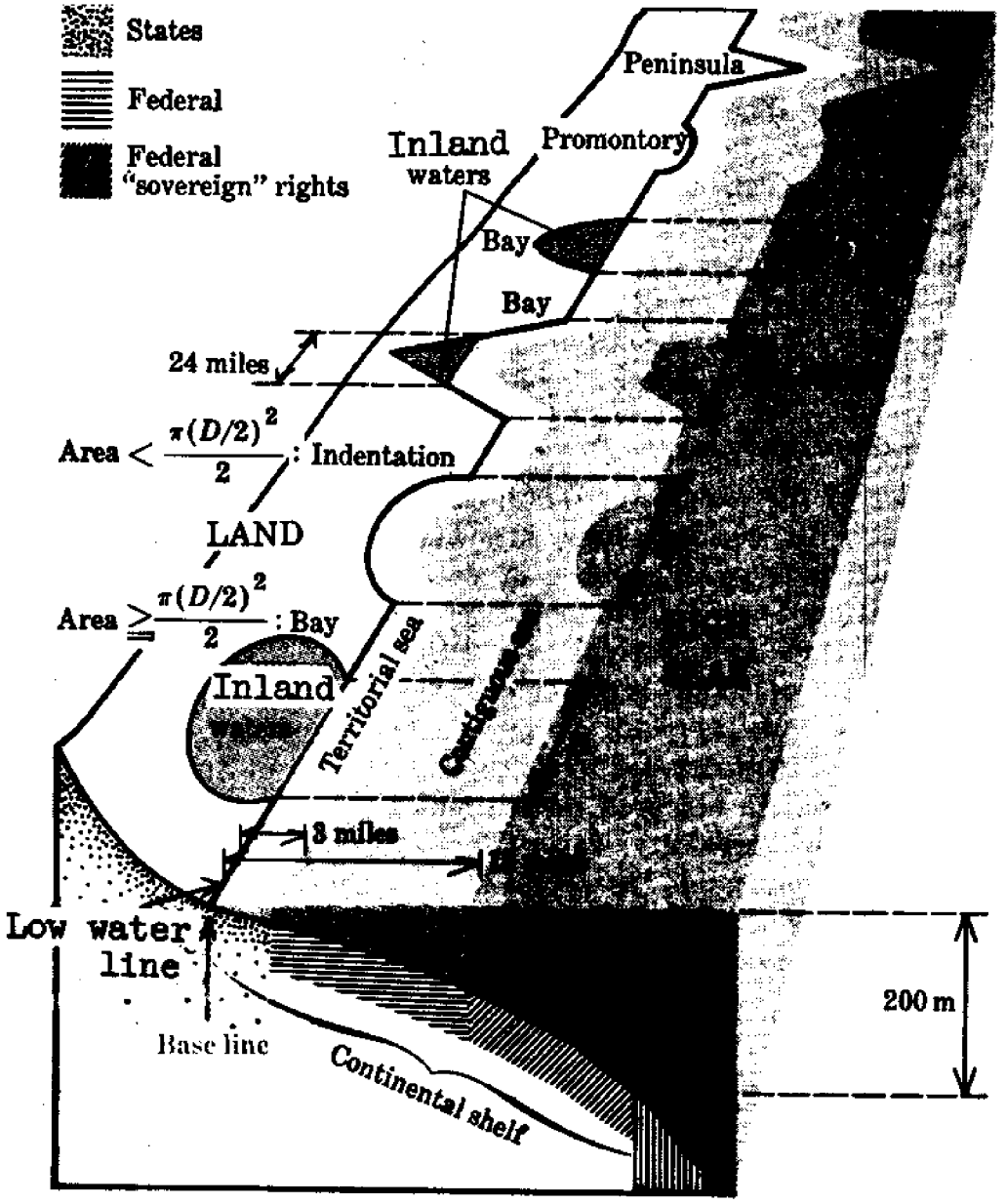


Diagram defining the limits of coastal features.

Figure 4



Generalized Application of the Principles of Seaward Boundaries

Figure 5

The Geneva Convention defines the baseline as the low-water line marked on large-scale charts officially recognized by the coastal State. Thus, the zero low-water line of U.S. Coast and Geodetic Survey nautical charts has been adopted as the basis for determining the baseline. I wish to point out that nautical charts are primarily used for purposes of safety in navigation. Consequently, in the face of any uncertainty in boundary delineation data, the nautical chart will reflect considerations of safety rather than adherance to the stricter standards of a boundary survey.

This definition posed significant engineering and cartographic problems.

1. The determination of the position of the zero low-water line degrades as the distance from the tide gage increases.

2. Mean low-water must be determined to a greater accuracy as the slope of the foreshore decreases.

3. The line on the chart has a thickness of approximately 0.01 inch. Therefore, the accuracy with which the position of a line can be determined is a function of the scale of the chart. On a chart at a scale of 1:10,000 this line width represents about 8 feet on the ground. Therefore, the charts are suitable for planning boundary surveys but probably not acceptable for precisely locating the mean high-water line for private property boundaries.

4. Coast and Geodetic Survey standards of map accuracy require the horizontal position of all well defined points of detail to be located within 0.5 millimeter (0.02 inch) of the correct geographical position as measured on the manuscript. For a 1:10,000 scale chart well defined points would be located within 5 meters or 16 feet. To improve this accuracy, larger scale photographs would have to be taken and larger scale maps compiled; this would require additional geodetic control and would increase costs.

Thus, the engineering challenge was to provide more data points by either increasing the number of tide gages or refining the interpolation procedure between tide gages or both, and to adopt a map scale both adequate for planning purposes and economical.

To achieve these objectives, portable tide gages were established at 31 stations from Titusville to Miami (Table 1). These stations will be in operation for at least 13 months. Control stations, for detecting long-period trends, have been in operation at Mayport since 1938, at Miami Beach from 1932 to 1951 and since 1955, and at Daytona Beach from 1943 to 1952 and since 1967. The tidal characteristics evidenced from these short series (Table 1) at the portable stations compare favorably with those at the control stations. However, though the phase of the tide is markedly similar, it should be noted that there exists a variation in tidal range from Miami to Mayport. This general agreement should permit the Coast and Geodetic Survey to determine the mean low-water mark and mean high-water datum planes to 0.1 foot at each tidal station. In the event

Table 1
FLORIDA COASTAL BOUNDARY MAPPING PROJECT
Tide Gage Operation Report - April, 1970

Gage Installed Location and Date		Cumulative Days Operation	Serviced During April	Date Leveled to TBMs and Remarks
Titusville	8/15/69	258	1	8/20/69, 1/19/70
Orsino Causeway	8/24/69	249	1	8/14/69, 10/7/69, 1/19/70
Port Canaveral	6/11/59	323	1	6/11/69, 10/7/69, 1/12/70
Eau Gallie	8/18/69	249	1	8/18/59, 10/7/69, 1/12/70
Canova Pier	2/09/70	80	1	2/ 8/70
Sebastian Inlet	6/12/69	322	1	6/14/69, 10/8/69, 1/22/70
Sebastian Inside	6/16/69	318	1	6/14/69, 8/13/69, 10/9/69, 1/22/70
Fort Pierce Inlet	6/17/69	317	2	6/17/69, 10/9/69, 1/21/70
Fort Pierce Inside	6/16/69	318	1	6/16/69, 1/21/70
Sewall Point	6/20/69	314	1	6/20/69, 10/8/69, 1/21/70
Stuart	6/17/69	317	1	6/17/69, 10/8/69, 1/21/70
Hobe Sound	6/18/69	294	1	6/20/69, 1/21/70
Tequesta	4/07/70	23	3	4/08/70
Jupiter Inlet	4/07/70	23	4	4/08/70
North Palm Beach	4/16/70	14	3	4/16/70
Palm Beach	4/16/70	14	2	4/16/70
Lake Worth Pier	4/14/70	16	4	4/25/70, Gage disturbed by vandals 4/18, and again on 4/28
Boynton Beach	4/15/70	15	2	4/15/70
Boca Raton	4/15/70	15	3	4/18/70
Hillsboro Inlet	4/09/70	21	4	4/14/70
Hillsboro Ocean	4/10/70	20	4	4/14/70
Bahia Mar Yacht Club	4/21/70	7	2	4/25/70
Andrews Ave. Bridge	4/20/70	10	2	4/20/70
Port Everglades	4/17/70	13	2	4/19/70
Biscayne Creek	4/21/70	9	2	4/25/70
Miami Biscayne Bay	4/22/70	8	2	4/22/70
Cutler	4/22/70	7	2	4/22/70
Turkey Point	4/23/70	5	2	4/23/70
Card Sound	4/28/70	2	1	4/28/70
Barnes Sound	4/23/70	7	2	4/23/70
Manatee Creek	4/28/70	2	1	4/28/70

that later observations at the portable stations indicate significant differences in tidal characteristics, it will be necessary to prolong the observing program beyond the planned 13 months.

To detect any instability of the tide staff, five bench marks have been established in the vicinity of each of the tidal stations. The relative elevations of these marks with respect to the tide staff is being checked periodically (Table 1).

To provide sufficient information for the local surveyor to determine the seaward boundary of private property, level bench marks are being established at approximately one-mile intervals along the coast (Figure 6). From the geodetic elevations and the heights above mean low-water and mean high-water observed at consecutive tidal stations, the elevation of each bench mark above local mean low-water and local mean high-water will be determined. From these bench marks the local surveyor can then trace out the contour of the particular tidal datum plane by means of the plane table, or transit and tape, or transit and stadia, or by spirit leveling.

Applying proper surveying techniques, a local mean high-water line can be surveyed to 0.2 foot tolerance by leveling from the bench marks established between tidal stations. Of course, the horizontal distance uncertainty is a direct function of the slope of the foreshore. Thus, if the foreshore rises one foot in one hundred feet, a 0.2 foot error in determining the datum plane will produce an error of 20 feet on the ground in the determination of the boundary. Where the slope of the foreshore is less than 1% in the vicinity of a tide station, the datum plane would have to be determined to a much smaller tolerance than 0.1 foot. In such regions the tidal series would have to be longer than 13 months.

However, even if the tidal datum plane were accurately determined at the tidal stations, very small slopes could exist in the vicinity of some intermediate level bench marks which could make the demarcation of the boundary by leveling from these marks difficult to achieve. To assist the local surveyor in establishing the mean high-water line and the State of Florida in locating the mean low-water line, ESSA/C&GS will take color and infrared photography at or near mean high-water and mean low-water. These 1:30,000 or 1:20,000 scale photographs will permit the cartographer to depict the mean high-water and mean low-water lines on a map with an accuracy of 16 feet or within double the distance equivalent to 0.01 inch line width on a 1:10,000 scale map.

To insure that each photograph has been properly interpreted, the maps will be field edited. It is evident that the shallower the foreshore, the more significant is this field edit. The final maps will serve as excellent reconnaissance tools for locating mean high-water line by the local surveyor and will adequately depict mean low-water line for baseline purposes.

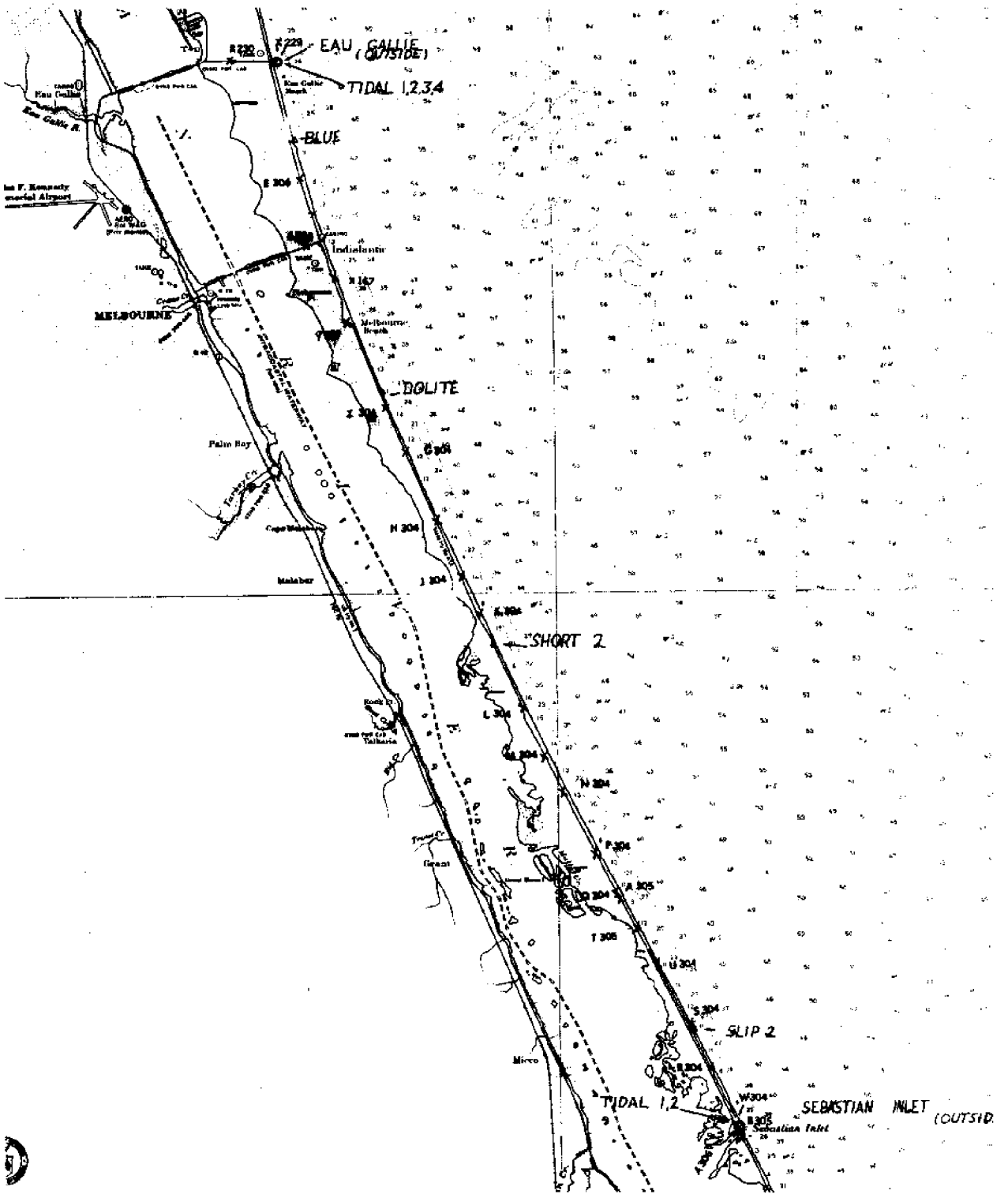

EAU GALLIE (OUTSIDE)
TIDAL 1,2,3,4
BLUE
DOLITE
SHORT 2
SLIP 2
TIDAL 1,2
SEBASTIAN INLET (OUTSID
MELBOURNE
Palm Bay
Melbourne Beach
Indialantic
Malabar
Micco

Figure 6

Continuing Report on Boundaries

Wednesday, June 17, 1970 Orlin

As interest increases in shoreline property and as development of the coastal zone accelerates, there will be additional demands upon federal and state agencies for demarcating boundaries. The present Florida-Coast and Geodetic Survey Cooperative Boundary Program is an excellent vehicle for satisfying this demand on a cost sharing basis. Similar programs should be undertaken with all coastal states.

ESSA recognizes the critical need for action on a Seaward Boundary Determination Program and concurs with the finding of the Commission on Marine Science, Engineering and Resources in Volume 1 of their Panel Report entitled Science and Environment that:

> "management and development of the shoreline and Continental Shelf requires that state and shoreline boundaries be precisely determined based on geographical coordinates. This should be accomplished by a Seashore Boundary Commission working in conjunction with the U.S. Coast and Geodetic Survey, other affected Federal agencies and the coastal state. Authority of such a commission should include making proposals for clarifying whether artificial structures should affect offshore boundaries; the impact of natural and artificial coastline changes caused by erosion, accretion, storms and other processes; and how best to resolve conflicts that will arise."

The Commission in its final report Our Nation and the Sea recommends:

> "that the Congress establish a National Seashore Boundary Commission to fix the baselines from which to measure the territorial sea and areas covered by the Submerged Lands Act of 1953 and to determine the seaward lateral boundaries between the states. The boundary lines should be described in terms of geographic or plane coordinates for each state. The determinations of the Boundary Commission should be subject to appropriate judicial review."

JURISDICTIONAL, ADMINISTRATIVE, AND TECHNICAL PROBLEMS RELATING TO THE ESTABLISHMENT OF CALIFORNIA AND OTHER STATE COASTAL AND OFFSHORE BOUNDARIES

F. J. Hortig
State of California - State Lands Division
Los Angeles, California

"CHAPTER V"

Following the sequence established in prior reports on this subject,[1] the current status of the components reported upon is summarized in the following. Again, there has been no final resolution of any of the components and new dimensions of complexity have developed in some of the problem areas.

The continuing boundary location problems which have been reported and the current status are:

1. Jurisdiction over intra-state air carrier operations where the flight routes are within the historic boundaries of the state but have segments outside the limits of territorial waters as defined in the Convention on the Territorial Sea and the Contiguous Zone.

This question was rendered moot in 1967, but only for the action in which it was raised, because the Civil Aeronautics Board declined to rule on the matter. As reported previously, the fundamental questions therefore remain unanswered and could come into issue again at any time.

2. The precise location (more properly the precise and accurate location) of the mean lower low-water mark as the coastal base line as defined by the U.S. Supreme Court in United States v. California, January 31, 1966.

This subject has become critically important with relation to the third problem area reported on as:

3. The precise (and accurate) identification of low tide elevation boundary base points as defined in the Decree and the Convention, and termed "rocks awash" by the U.S. Coast and Geodetic Survey and "drying rocks" by State Department geographers.

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[1] Hortig, F.J., reports in Proceedings of Annual Conferences of the Law of the Sea Institute, ed. Lewis M. Alexander (Kingston, R.I.: Univ. of Rhode Island): Offshore Boundaries and Zones, 1967, pp. 230 ff.; The Future of the Sea's Resources, 1968, pp. 143 ff.; International Rules and Organization for the Sea, 1969, pp. 294 ff.; National Policy Recommendations, 1970, pp. 409 ff.

The need for precise (hereinafter used to include "and accurate") identification of low-tide elevation with relation to rocks offshore Carpinteria, Santa Barbara County, California was discussed in 1968 and 1969.[2] If the rocks are "awash" at low-tide, at least 500 acres of valuable offshore oil lands are owned by the state, whereas if the rocks are not "awash" then the area is under the jurisdiction of the United States.

Hyman Orlin of the Coast and Geodetic Survey reported in 1969:[3] "I know of no engineering operation, and position and boundary determination are engineering problems, which does not allow for an error budget. Yet the legal and political definitions of offshore boundaries are stated in terms of exact quantities and have been so interpreted by the courts."

"...It is unlikely that the error in determining MLLW at Rincon Island can be greater than 0.1 foot (probable error)." ...and "simultaneous reciprocal spirit level observations...(was the) method used in California, increasing our error budget by 0.1 foot" for the determination of the elevation of the offshore rocks at Carpinteria. With a total error budget of 0.2 foot and preliminary favorable (to the state) measurement reports of +0.16 ft., the rocks are either 0.04 ft. under water at low tide or 0.36 ft. above water. The results of a June 2, 1969 Coast and Geodetic resurvey have not yet been reported. The struggle to achieve greater precision than in the tenths of a foot range make it extremely difficult to reconcile the emphasis in a footnote in the Supreme Court Decree of 1966 that the prescribed geographic mile is to be measured at 1852 meters or 6076.1033...U.S. Survey feet or 6076.11549 International Survey feet--a calibration difference of five ten-thousandths of a foot between the two units of measure. Also, Orlin's Figures 2 and 3 showing a secular increase in the elevation of Pacific Ocean datum planes attributed to glacial-eustatic and tectonic effects illustrate dramatically the instability of the basic reference criteria which was not recognized when the criteria were specified in the Convention and by the Courts. Orlin has stated, "Fortunately, for boundary determinations, except for special situations, this judgment (on the reasons for the secular trend) need not be made as the level of the water surface, regardless of the cause, is what is wanted."

"Rocks awash" are a special situation in boundary delimitation. Rocks minimally "awash" off San Francisco today (which are points on the coastal baseline) projected 0.02 foot higher in 1953--the date of the Submerged Lands Act which "quitclaimed" the territorial seas and underlying lands to the coastal states. Therefore, any current elevation measurement of a rock minimally below the level of "awash" requires an adjustment for the secular rise in the level of the water surface, which factor, in most instances, is not known with precision. The known technological inability to achieve a precise measurement of the parameters prescribed by the Convention and the Courts necessitates an

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[2] Ibid., 1969, pp. 295-303; 1970, pp. 410-412.

[3] Ibid., 1970, p. 416.

enthusiastic second to Orlin's and Dr. Emery's suggestion on the implicit need for interdisciplinary discussions prior to the establishment of marine boundaries by lawyers and politicians. Finally, Orlin's caution in his 1969 conclusions that "...in active crustal regions the spirit levelling should be accomplished over a short time period" (in transferring the tidal datum to geodetic level bench marks) is given emphasis particularly for the Pacific Coast in recent publications of oceanographic surveys reporting that segments of the California crust are drifting in the direction of Japan 5 centimeters (2 inches) per year relative to the adjoining segments.

4. What structures or elements are contained within the "...outermost permanent harbor works that form an integral part of the harbor system within the meaning of Article 8 of the Convention"?

The qualification of a pier at Carpinteria as a specific example of a permanent harbor works is still under discussion because of a U.S. Solicitor General and State Department interpretation that "harbor works" is limited in application to solid structures such as breakwaters which create or extend harbors of sheltered waters.

5. How is the continuity of the baseline to be accomplished where a transition is required from a mainland coastline to an offshore end-of-a-breakwater coastline?

This question has not yet been discussed but will be at issue whenever the Department of Interior proposes to conduct Outer Continental Shelf lands operations seaward of the Los Angeles-Long Beach harbor area.

6. What criteria are applicable for the establishment of boundaries for division of the territorial sea in negotiations with adjacent nations which are not signatories to or have not ratified the Convention?

The International Boundary and Water Commissions of the United States and Mexico are currently in consultation on the bases for establishment of a US California and Mexican boundary in the territorial sea and the Fisheries Zone in the Pacific Ocean. A territorial sea boundary under contemplation would be a projection seaward from the International boundary monument on the coast (established pursuant to the 1848 Treaty of Guadalupe Hidalgo) in a direction normal to the prevailing direction of the coast.

7. What is the extent of state political jurisdiction within its constitutional boundaries beyond the outer limits of the territorial sea as defined in the Convention?

Again, this question has narrowly missed being at issue in at least two instances and will inevitably require analysis and final adjudication.

8. Can an agency of the Federal government preclude the use and development of state-owned tide and submerged lands without any consideration or compensation to the state?

This issue arose from a proposal by the Air Force Western Test Range (Vandenberg Air Force Base) that the U.S. Army Corps of Engineers establish special navigation control regulations seaward of the Base under which the Base Commander could exclude any navigation over, or occupancy of, the state-owned offshore lands. This proposal is still under consideration by the Corps of Engineers.

9. The Supreme Court Supplemental Decree of 1966[4] provides that the three-mile seaward boundary of the submerged lands is measured from the actual location of the low-water line whether existing naturally or influenced by artificial factors. What limitations may be imposed on unilateral state action to move the low-water mark seaward by artificial fill (and thereby move the three-mile boundary seaward correspondingly) in view of the language of the Court in Supreme Court Opinion of May 17, 1967: "Arguments based on the inequity to the United States of allowing California to effect changes in the boundary between Federal and State submerged lands by making future artificial changes in the coastline are met, as the Special Master pointed out, by the ability of the United States to protect itself through its power over navigable waters."

A 1969 proposed placement of a new state shoreline highway route over state-owned tide and submerged lands required a U.S. Army Corps of Engineers analysis and permit that navigable waters of the United States would not be affected adversely by the proposed construction. The Department of Interior objected to the issuance of any permit unless the state waived any claim to extension of the seaward limit of state submerged lands by reason of the seaward relocation of the low water mark by the highway construction. By Chapter 1044, Statutes of 1969, the California Legislature authorized the State Lands Commission to consider the relative values of the lands which would be required to be waived and the public benefits resulting from the highway project and if in the best interests of the state to issue a waiver of the offshore boundary relocation with the approval of the Governor. The recommendation for a waiver was transmitted on February 19, 1970 and the objection of the Department of Interior was thereupon withdrawn.

An outstanding demonstration of the complications which can result from using an arbitrary depth specification to limit national jurisdiction on the continental shelves is furnished by the May 1970 Presidential proposal to relinquish exclusive national rights outside the territorial sea where the water depth exceeds 200 meters (656 feet). Established precisely and accurately the 656 ft. isobath (the contour on the ocean floor at exactly 656 feet) would not be

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[4] United States v. California 382 U.S. 448.

technologically possible currently. If this isobath were located entirely seaward of state offshore boundaries precision might not be so critical. However, as shown in Figure 1, in a segment of the California offshore near Big Sur, the 650 foot isobath lies principally shoreward of the territorial sea limit, the location of which is not known and cannot currently be established with the precision required by the economic values involved. In the event that a 12 mile territorial sea can be established internationally as is under State Department consideration, even more intercepts of the 656 foot isobath with the 12 mile limit would have to be identified, at least on the Pacific Coast. In the Santa Barbara Channel area (a segment of which is shown in Figure 2) where there are only four intercepts of the 3 mile territorial limits, most of the area bounded by a 12 mile limit has water deeper than 200 meters and the major portion of this area is already under Federal oil and gas lease.

The current status of other states' coastal jurisdictional problems, reported on previously, follows:

Louisiana: The Supreme Court appointed a Special Master in accordance with an opinion of March 3, 1969.[5] The Special Master is to "make a preliminary determination, consistent with this opinion, of the precise boundaries of the submerged lands owned by Louisiana in the Gulf of Mexico." The State of Louisiana is scheduled to make its presentation on September 21, 1970, followed by the U.S. Department of Justice presentation. It is anticipated that the Supreme Court will not be able to consider a decision until the Fall term of 1971.

Maine: Despite the U.S. Department of Justice challenge in April 1969 to the Eastern Seaboard States' claims to offshore lands,[6] geophysical exploration surveys have been conducted under a State of Maine grant for non-living resource exploration in a 3,300,000 acre area extending from approximately ten miles to 80 miles offshore Maine.

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[5] United States v. Louisiana, et. al, No. 9 Original.

[6] United States v. State of Maine, et al.

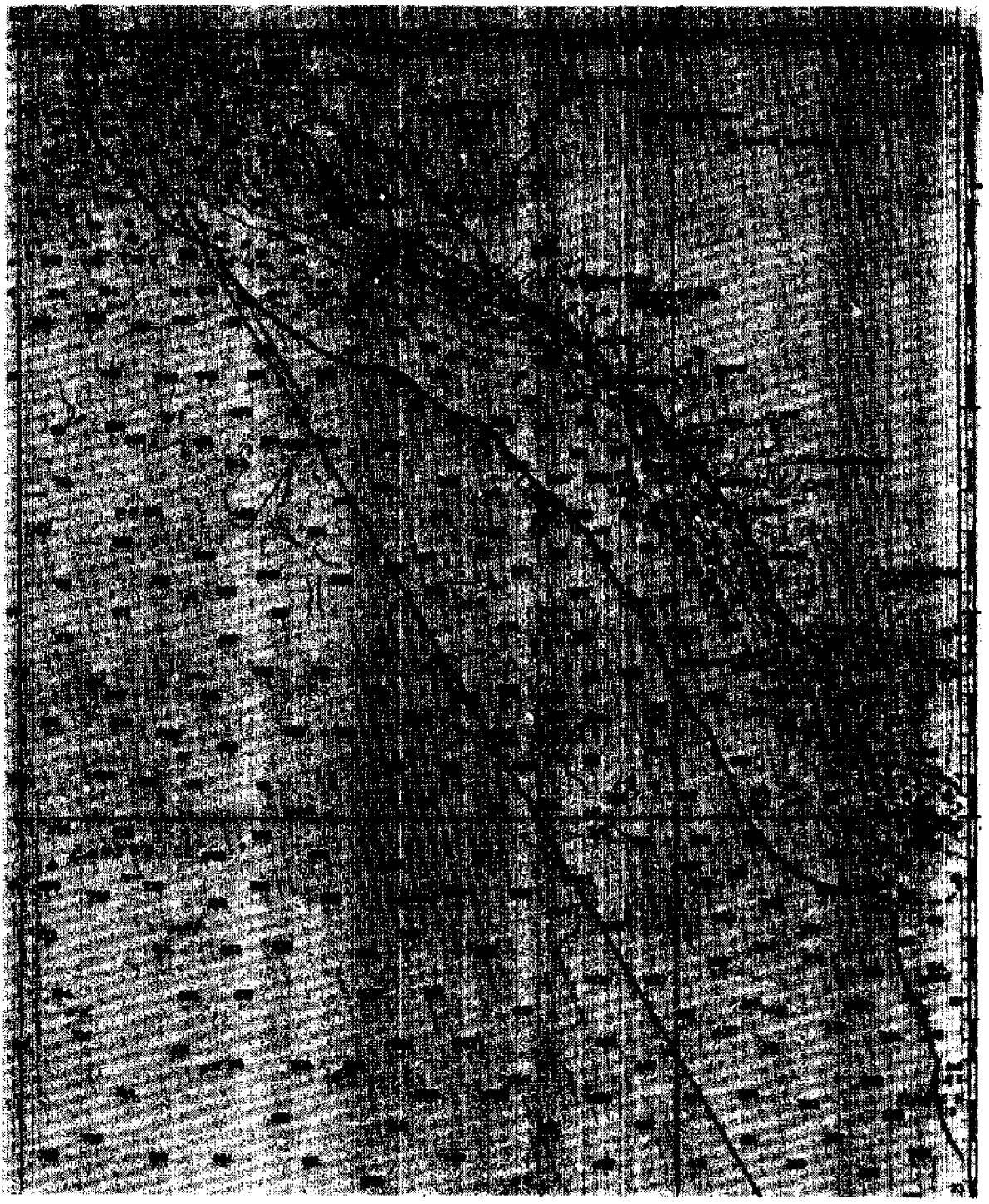
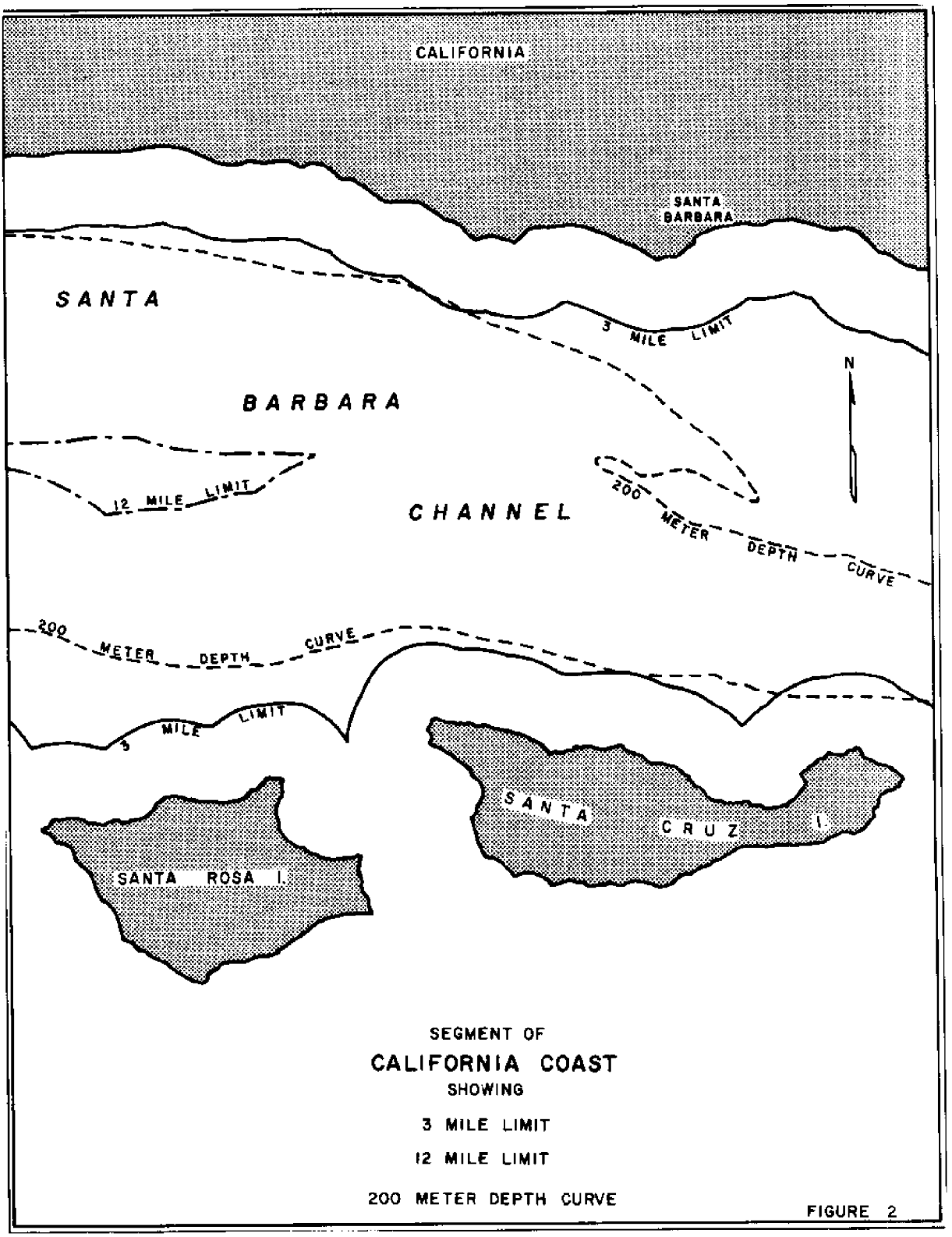


Figure 1



SEGMENT OF
CALIFORNIA COAST
SHOWING
3 MILE LIMIT
12 MILE LIMIT
200 METER DEPTH CURVE

FIGURE 2

INTRODUCTION

William L. Griffin
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The first marine planner in recorded history was Christopher Columbus. When he started out, he didn't know where he was going. When he got to the new world, he didn't know where he was. When he finished his project, he didn't know where he had been. And he did it all on a government grant.

In the Victorian era, people often didn't realize they had choices regarding planning. This is illustrated by the Victorian father who said to a young man courting his daughter, "Young man, are your intentions honorable?" The young man replied, somewhat taken aback, "But sir, it never occurred to me that I had a choice."

Since our conference topic this afternoon is the North Sea as a case study in choices with regard to regional management, it seems appropriate to open the discussion with remarks which I have entitled "Introduction to the Regime of the North Sea."

In the North Sea, as elsewhere, economic considerations, modern science, and technology have created and will continue to create new factual and legal situations of interest and complexity calling for new rules of law and/or extrapolations of existing rules. It seems therefore appropriate to refer briefly to the nature of the international lawmaking process with special reference to semi-enclosed seas such as the North Sea.

One no longer asks an economist whether he is a Keynesian; one asks him how much of a Keynesian he is. In the same vein, one no longer asks a lawyer whether he is a legal realist; one asks him how much of a legal realist he is, and where does his legal realism take him. One frames the question that way because there is now general acceptance of the central idea of legal realism, namely, that formal legal rules are often inadequate for predicting solutions to problems of social interaction, and therefore choice on the part of decision-makers is an inescapable part of the decisional process.

An example of legal realism in international law is found in the writings of Brierly, and particularly in his observation that "international law, like any other system of law...can provide a solution for any issue...because it accepts the practice by which the judge is required to 'find' a rule of law which is applicable to the case before him."[1] Such realistic description of legal method and legal system, especially when taken out of context, is sometimes interpreted to mean that the law is what decision-makers say it is, and that their discretion to find the law is largely free, because it is subject to no external restraints.

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[1] J.L. Brierly, The Law of Nations, 5th ed.(1955) p. 68.

To interpret legal realism as suggesting that decision-makers' discretion is largely free badly misses the mark. Their discretion to freely find the law is in reality surprisingly small.

A more precise description of the realistic law-making process in terms of our conference subject matter, the law of the sea, has been written by McDougal:

> "The international law of the sea is not a mere static body of rules; it is a process of continuous interaction, of continuous demand and response, in which the decision-makers of particular nation-states unilaterally put forward claims of the most diverse and conflicting character to the use of the world's seas, and in which other decision-makers, external to the demanding State and including both national and international officials, weigh and appraise these competing claims in terms of the interests of the world community and of the rival claimants, and ultimately accepts or rejects them. The authoritative decision-makers put forward by the public order of the high seas to resolve all these competing claims include, of course, not merely judges of international courts and other international officials, but also those same nation-state officials who on other occasions are themselves claimants. These authoritative decision-makers, projected by nation-states for creating and applying a common public order, honor each other's unilateral claims to the use of the world's seas not merely by explicit agreements, but also by mutual tolerances--expressed in countless decisions in foreign offices, national courts, and national legislatures --which create expectations that effective power will be restrained and exercised in certain uniformities of pattern."[2]

Decision-makers' discretion to make new law is restrained not only by the system of claim and response, or claim and counter-claim, so well described by McDougal; it is also restrained by a deeply ingrained sense of responsibility, mental attitude, and working habits of the professional decision-makers.

Decision-makers are, in the main, principled men, professionally trained and experienced, deeply committed to their professional traditions; and, like all of us, they live within a value system from which they cannot escape. They are like the thrown stone which, coming to life while descending, announces, "I have decided to descend."

The decision-makers' art distills the basic values of rules of law inherited from the past, so that solution of new problems will be in harmony with the essence, the spirit, of existing rules. Their membership in society, their training and experience so condition and restrain them that even if they believed themselves to be free, they are not able to discard these restraints even in small degree, especially in the case of the decision-maker who consciously

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[2] M. McDougal, "The Hydrogen Bomb Tests and the International Law of the Sea," 49 Am. J. Int'l. Law (1955) p. 356.

recognizes that his duty as an interstitial legislator is to adapt the legal system to existing needs.

To say that law is made by the choices of decision-makers is to say no more than that the value systems internalized within them are likely to tip the legal scales one way or the other. To the extent that decision makers' value systems are congruent with the value systems of the community within which new problems arise, the law of their solution is in reality made by community decision.

World ocean space contains a number of relatively small and semi-enclosed areas which are not geographically counted as oceans, but which do include high seas, seabed and subsoil areas beyond the territorial sea of their littoral States--for example, the Red Sea, the Persian Gulf, the Gulf of Mexico, Arctic areas, and the Baltic Sea. The view that such areas, because of their distinctive geographic configuration, can be subject to a regime prescribed solely by the littoral States as against the wider community has a limited currency in the literature of international law and relations.

In particular, this regional sea concept was used by Czarist Russia and was revived by the USSR after 1948. At the Geneva Conference of 1958, for example, Romania and the Ukrainian SSR proposed to add to the Convention on the High Seas, Art. 26, that "For certain seas a special regime of navigation may be established for historical reasons or by virtue of international agreements."[3] This proposal was withdrawn by its sponsors when it became apparent that it would be overwhelmingly defeated.

The particular problems concerning such semi-enclosed seas are not different in kind and no easier to solve than those referring to the six major oceans. The littoral States of semi-enclosed seas form a regional community of primary interest in regard to the particular problems of their adjacent semi-enclosed sea, but they still are also within the world community which has actual or potential interests in that semi-enclosed sea.

There is a double parallel here with the familiar jurisprudence of the Anglo-Norwegian Fisheries Case, that while unilateral acts delimiting sea areas are primarily a matter for the littoral State in the first instance, the legality of such acts cannot be dependent solely upon the decision of the littoral State, but always have an international aspect: first, any measures in a region such as a semi-enclosed sea, taken exclusively under the municipal law of a particular littoral State have an international aspect, both vis-a-vis the other littoral States and the world community. Second, measures taken collectively but exclusively by the littoral States of any particular semi-enclosed sea have an international aspect vis-a-vis the world community. It is for this reason, it seems to me, that the concept of regional international law, which has gained some limited currency from time to time, is specious if the concept is meant to

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[3] IV Off. Rec. U.N. Conf. on Law of the Sea (1958) p. 123.

suggest that regional measures or application of international law can be of no proper concern to non-regional States.

The regime of the North Sea is composed of the claims, counterclaims, and resultant regional and world community-wide law concerning it. Examination of that regime encompasses the question what new measures have been or may be taken in fact. But the crucial question, as far as international law is concerned, is the extent to which the littoral States singly or collectively can exercise regulatory control over the activities of others. If measures cannot be based on general treaties, they must be based on general rules of law. Before our speakers turn to consideration of some of the questions, it will be helpful to review very briefly the geographical, geologic, economic and general multilateral treaty background of the North Sea regime.

In the North Sea Continental Shelf Cases,[4] the International Court of Justice described the North Sea, basing its description on Article IV of the North Sea Policing of Fisheries Convention of May 6, 1882:

> The North Sea, which lies between continental Europe and Great Britain in the east-west direction, is roughly oval in shape and stretches from the Straits of Dover northwards to a parallel drawn between a point immediately north of the Shetland Islands, and the mouth of the Sogne Fiord in Norway, about 75 kilometers above Bergen, beyond which is the North Atlantic Ocean. In the extreme northwest, it is bounded by a line connecting the Orkney and Shetland island groups; while on its north-eastern side, the line separating it from the entrances to the Baltic Sea lies between Hanstholm at the northwest point of Denmark, and Lindesnes at the southern tip of Norway. Eastward of this line, the Skagerrak begins...Round its shores are situated, on its eastern side and starting from the north, Norway, Denmark, the Federal Republic of Germany, the Netherlands, Belgium, and France; while the whole western side is taken up by Great Britain, together with the island groups of the Orkneys and Shetlands.

As to geologic background, the bed and subsoil of the North Sea form part of the European continental shelf. In the words, again, of the Court in the North Sea Continental Shelf Cases,

> The waters of the North Sea are shallow, and the whole seabed consists of a continental shelf at a depth of less than 200 meters, except for the formation known as the Norwegian Trough, a belt of water 200-650 meters deep, fringing the southern and southwestern coasts of Norway to a width averaging about 80-100 kilometers.

Early in legal continental shelf definition discussions the question was raised and answered negatively whether the landward rim of the Norwegian Trough

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[4] I.C.J. Reports, 1969.

is a true geological shelf edge. That answer is based on two considerations: (1) the trough is an integral part of the shelf from the morphogenetic point of view; and (2) its northern end is separated from the North Atlantic basin by a geological rock sill formation.[5]

The principal economic considerations involved in the North Sea are fishing, shipping and fossil fuels. For centuries the North Sea has been noted for heavy exploitation of its rich fishing grounds. These fisheries are of importance both as an industry and as a source of food to the littoral States.

The North Sea littoral States being densely populated and highly industrialized, the North Sea shipping lanes and ports handle an immense volume of export and import traffic, vital to their well-being. The same population and industrial density also creates a need for new, convenient, and reliable sources of fuel. Beginning in 1962, prospecting for oil and gas under the North Sea has steadily proceeded and a number of producing wells have been established.

The resulting situation was very succinctly described by Richard Young in 1965:

> "All three of the present principal uses of the sea, fishing, navigation, and the exploitation of submarine resources, promise to meet for the first time on a large scale in an area where all are of major importance. The process of reconciling the various interests at stake will provide the first thoroughgoing test of the adequacy and acceptability of the general principles laid down in the 1958 Geneva Convention on the Continental Shelf, and should add greatly to the practice and precedents available in this developing branch of the law."[6]

Our speakers this afternoon bring to this discussion backgrounds in fisheries economics, in North Sea oil-gas operations, in North Sea transport, and the melding and reconciliation of these activites and general economic aspects of the area. Mr. Paul Adam is an economist with the Organization for Economic Cooperation and Development in Paris. Mr. A.F. Fox is Operations Manager for British Petroleum for the United Kingdom and the Netherlands. Dr. Gerhard Breuer is Deputy Head of the Maritime Division, Federal Ministry of Transportation of the Federal Republic of Germany. Mr. Albert W. Koers, currently with the Law of the Sea Institute, is a Research Associate at the Institute of International Law, University of Utrecht, the Netherlands.

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[5] I Off. Rec. U.N. Conf. on the Law of the Sea (1958) p. 39.

[6] Richard Young, "Offshore Claims and Problems in the North Sea," 59 Am. Journ. Int'l. Law (1965) p. 505.

NOTES ON THE MANAGEMENT OF NORTH SEA FISHERIES

Paul Adam
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The North Sea is perhaps the most prolific stretch of water in the world, and certainly one of the most heavily exploited for its diversified species of fish--herring, cod, whiting, mackerel, sole, shrimps, and so on.

The bordering countries--United Kingdom, France, Belgium, Germany, the Netherlands, Denmark and Norway--all regularly fish the North Sea, together with Sweden, Eastern Germany, Poland and the USSR. In order to serve the very different markets in all those countries, the fleets comprise many different types of vessels and gear.

Taken together all these factors present the most intricate problem of fisheries management that can exist. Does this mean that the North Sea case will be the last to be solved or that its solution will be used as the best possible reference for less difficult cases? Only future developments will tell.

Being exploited for many centuries by the nearby heavily populated nations, it is only to be expected that overfishing first appeared in North Sea waters. A map of the North Atlantic produced by John Gulland[1] and giving, by species, the date of the first appearance of cases of overfishing lists the following for the North Sea:

1890 - Plaice
1905 - Haddock
1920 - Cod
1950 - Herring

Other cases of overfishing in the North Atlantic start from 1920, which gives the North Sea an unwelcome start of 30 years.

But although it is now many years since overfishing of the various species was first recorded, there are still profitable fisheries in the North Sea, and the overall catches of today are far bigger than those of 80, 70 or even 50 years ago. Such a contradiction leads first to a short survey of what could be called the self-management of a fishery and to consider afterwards the case when an imposed management becomes necessary.

1. Self-management

Before explaining the mechanism of the self-management of a fish stock, it is necessary to define overfishing. The now classic graph of the biologists

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[1] "The State of Food and Agriculture," F.A.O., Rome, 1967, p. 124, fig. V.4.

(see Graphs I and II) show the average curve of the weight of catches obtained according to the levels of fishing effort (the averages are computed on a number of years so as to erase the year-to-year fluctuations in abundance of the stock).

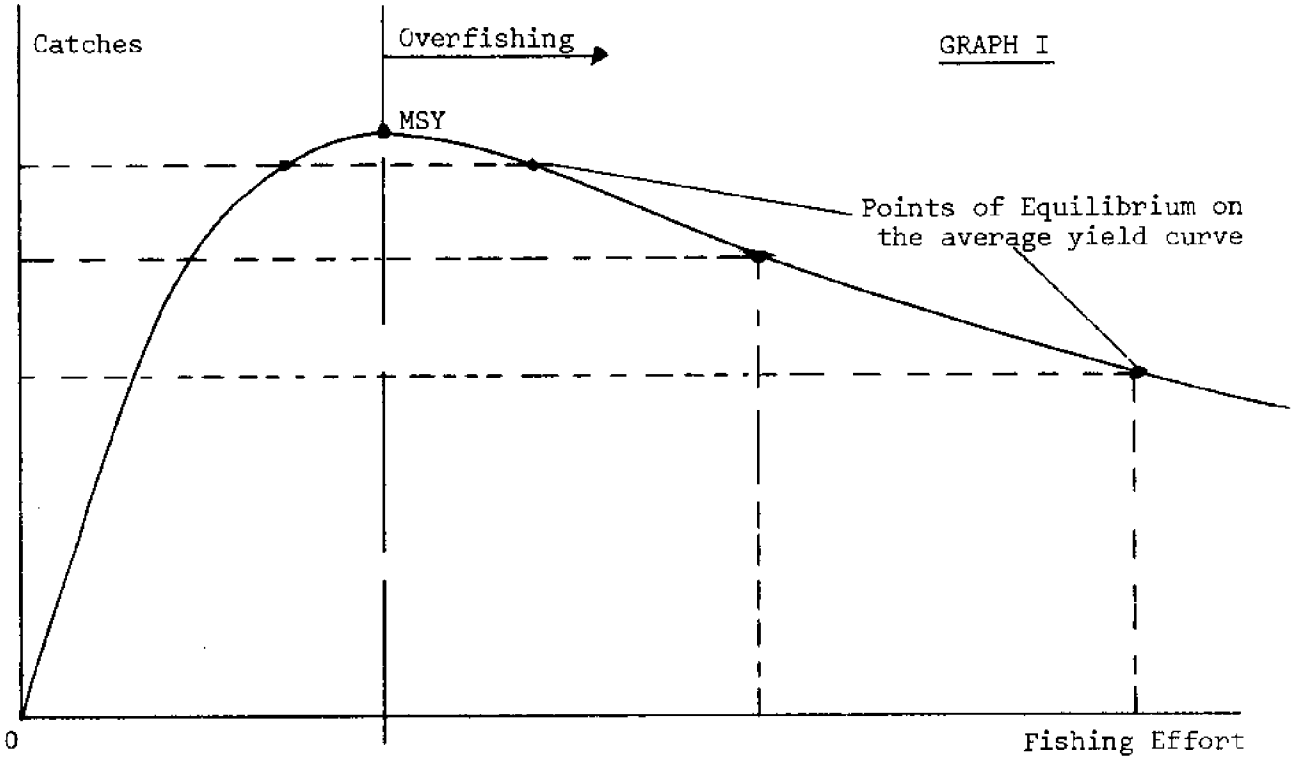
It is seen that the catches increase with the fishing effort until a maximum (called the maximum sustainable yield) is reached and afterwards decrease more or less regularly with further increases of the fishing effort; this catch decrease coupled with the greater effort, after the point of maximum sustainable yield, is overfishing.

Although the expression "economic overfishing" has been sometimes used, it is preferable to avoid it. Overfishing is a purely biological concept which should be kept in its original scientific meaning even more when it is used in another context. But overfishing, understood as it should be in the biological sense of the word, has two economic consequences which should be examined in isolation: (1) The catches are taken at unduly high costs; a horizontal line drawn from any point of overfishing would indicate the magnitude of these surplus costs compared with those sufficient to take the same amount of fish. (2) After the point of MSY the catches are below the possible maximum. In other words, overfishing gives higher costs for lower returns but there is no linear relationship between the decrease of catches and the increase in fishing effort.

All depends on the behavior of the particular stocks which may vary tremendously, even for the same species. By and large there are two extreme cases represented by Graphs I and II. In Graph I the reproduction of the fish is not linked with the size of the stocks which might be partly explained by the large number of eggs laid down by the females; the number of survivals is then due to the ecological conditions prevailing each year; with good conditions overfished stocks of certain species can recover very rapidly indeed. In Graph II the recruitment is more closely linked with the size of the stock and overfishing has quick and very detrimental consequences.

It happens that, as far as is sufficiently known, the behavior of many of the North Sea fish stocks corresponds to Graph I. In such a case, it is easy to understand how the self-management of a fish stock works. In Graph I the point of equilibrium P shows a fishing effort double that which would be sufficient for getting the same catches, but a catch loss of less than 10 percent compared to the possible maximum. The loss therefore is negligible and the fishery is not impeded; the fishing effort could only be built up to this excessive level because the market was ready to pay for it or because of outside subvention. In fact, being given the market which allowed the stock to be overfished as far as point P, a stabilization on the point P with a much lower fishing effort would have required a monopolistic situation and would have created huge rents for the producers.

Most of the fish stocks of the North Sea have been self-managed this way, with the help of the two world wars which allowed quick recoveries of the overfished stocks.


Catches
Overfishing
GRAPH I
MSY
Points of Equilibrium on
the average yield curve
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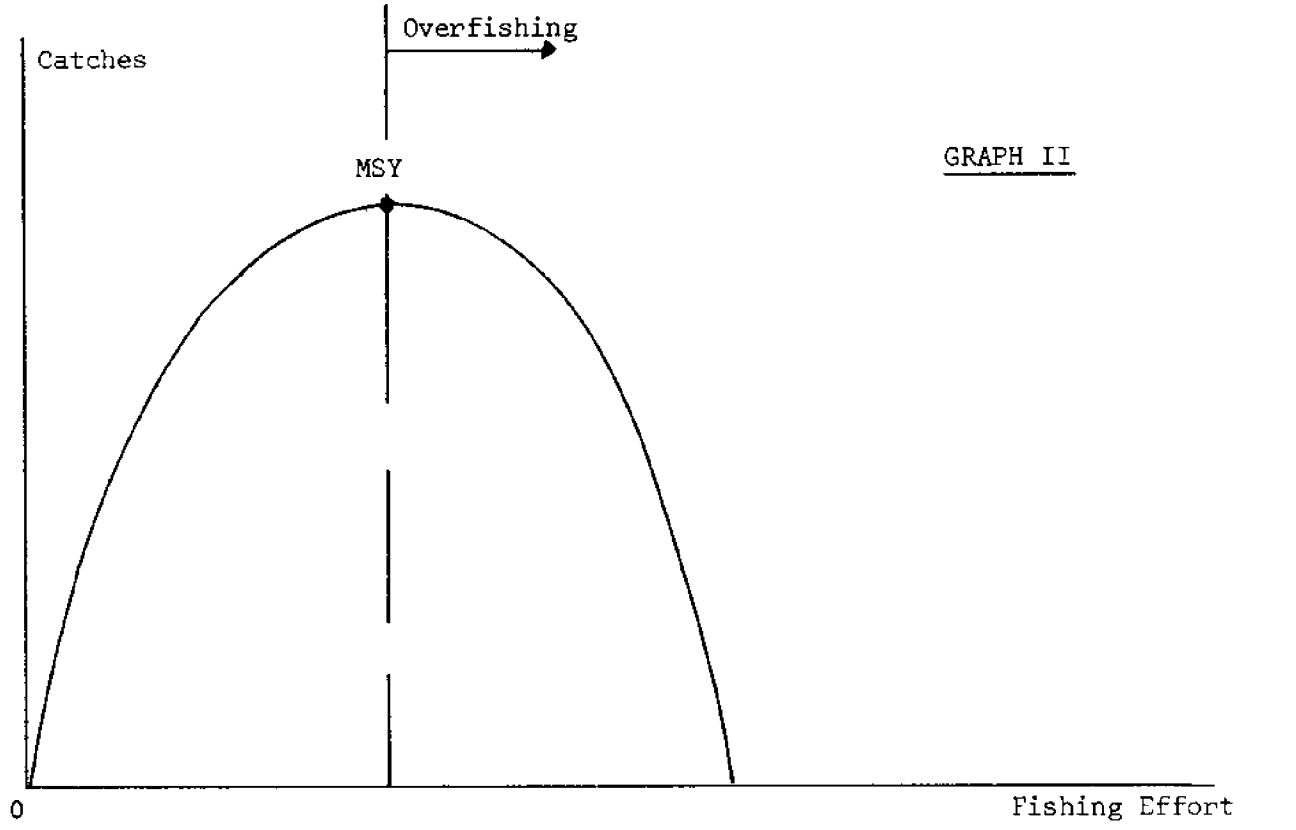
Fishing Effort


Catches
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Of course a "sentimental" economist may complain that such a self-management is not rational inasmuch as it increased the costs considerably. But such a complaint is relevant from an ethical rather than from an economic point of view. Whether it is desirable or not, many sectors in the present economic world are succeeding in growing by increasing their costs more than the increase of the satisfaction offered to the consumers' needs. A small economic sector like fisheries would meet enormous difficulties if it wished to depart from the common practice and assumed that it only has to care about its individual growth or survival.

In any case the self-management of fish stocks by the free interplay of economic factors can allow an equilibrium to be achieved at costs which can be high, but which can be paid for if demand is sufficiently high. But such a situation can become unacceptable when conditions are worsening, which may arise from two different changes:

--if the slope of the yield curve after the point of MSY is more pronounced than in Graph I;

--if even with a favorable yield curve the fishing effort increases so much that the loss of natural resources becomes significant, as shown by the following table (drawn on an example taken outside the North Sea):

	Fishing Effort	Catches	Costs per unit of Catch
a	100 MSY	100	1
b	200	95	2.1
c	300	50	6

From a to b the costs are multiplied by about two, but from b to c by almost three; the progression is not linear.

2. The necessity of an imposed management

Before examining how to organize and impose management, it is important to see how the situation can worsen to the point where management becomes necessary.

The present case of herring in the North Sea gives a perfect illustration of, and also confirms, the pessimism which has been expressed by some members of the panel dealing with fisheries. The biologists basing their findings on data for 1968 concluded that in order to allow the North Sea herring stocks to recover, the catches should be cut by 50 percent and the catches of immature fish should be completely stopped. The decision taken by the regulatory body (North-East Atlantic Fisheries Commission) to be applied in 1971 was only to ban herring fishing during 40 days, representing 20 percent of the catches according to the last year's statistics; no provision could be made as regards immature fish and, if the depletion of the stock is not more advanced than is at present

feared, it is quite possible that the fishing intensity will be increased before and after the period of interdiction. In other words, the recommendation of a cut of 50 percent results in a cut of less than 20 percent imposed four years later.

This is quite unsatisfactory and the relevant Commission is conscious of the limits of its present restrictions. It is therefore working on improvements to the conservation measures, perhaps by introducing quotas allocated for the endangered stocks. This approach is logical enough and it can only be hoped that the delays before putting these projects into practice will not be too long.

Nevertheless it should not be thought that the imposing of quotas could by itself solve all problems. The whale example could be examined as an unfortunate case where quotas have not been successful.

In spite of the biological differences between whales--which are mammals and lay down only one baby whale per year--and fish having so many eggs that a depleted stock may quickly recover, the basic economic problem is the same. There is overfishing (or overwhaling) because too many boats have exerted too strong a fishing effort on the stock. By fixing a quota too high with the idea of keeping the fleets active enough, the depletion of the whale stock can be lengthened but not avoided; by fixing a quota at the right level from the economic standpoint you may condemn vessels to scrapping and fishermen to unemployment. In other words, the biological necessities can contradict the economic necessity of improving the fishermen situation.

The danger in the system of quotas allocated according to biological evidence is that it takes into account the fishermen's needs only with respect to conservation of the resources. It completely neglects the ways of exploiting the resources which is an economic problem.

3. The economic aspect of fisheries management

Surely, when envisaging the imposition of management on a given fishery, it is reasonable to keep as much as possible of the economic self-management because it is the less troublesome way of dealing with the problem. But the economic consequences of establishing quotas should be well understood.

When a quota is established in a fishery which is exploiting a single fish stock, it destroys the free interplay between supply and demand. The supply being fixed at a level which can practically never correspond to the level of the demand, the producers will try to maximize their returns and quickly fish their quotas leaving only the possibility of remaining idle until a new quota is opened. This will lead to extra measures which are bound to have little effect on improvements to the economic situation of the industry if no account is taken of the economic criteria.

A licensing system recently adopted by Canada for the Pacific salmon fishery may be adequate inasmuch as it favors the most successful vessels and gives less satisfactory conditions to the non-successful vessels; the fleet should therefore be gradually reduced but modernization and efficiency of the remainder would at the same time be encouraged. Unfortunately very few, if any, other examples can be quoted of such systems taking into consideration the economic factors of exploitation.

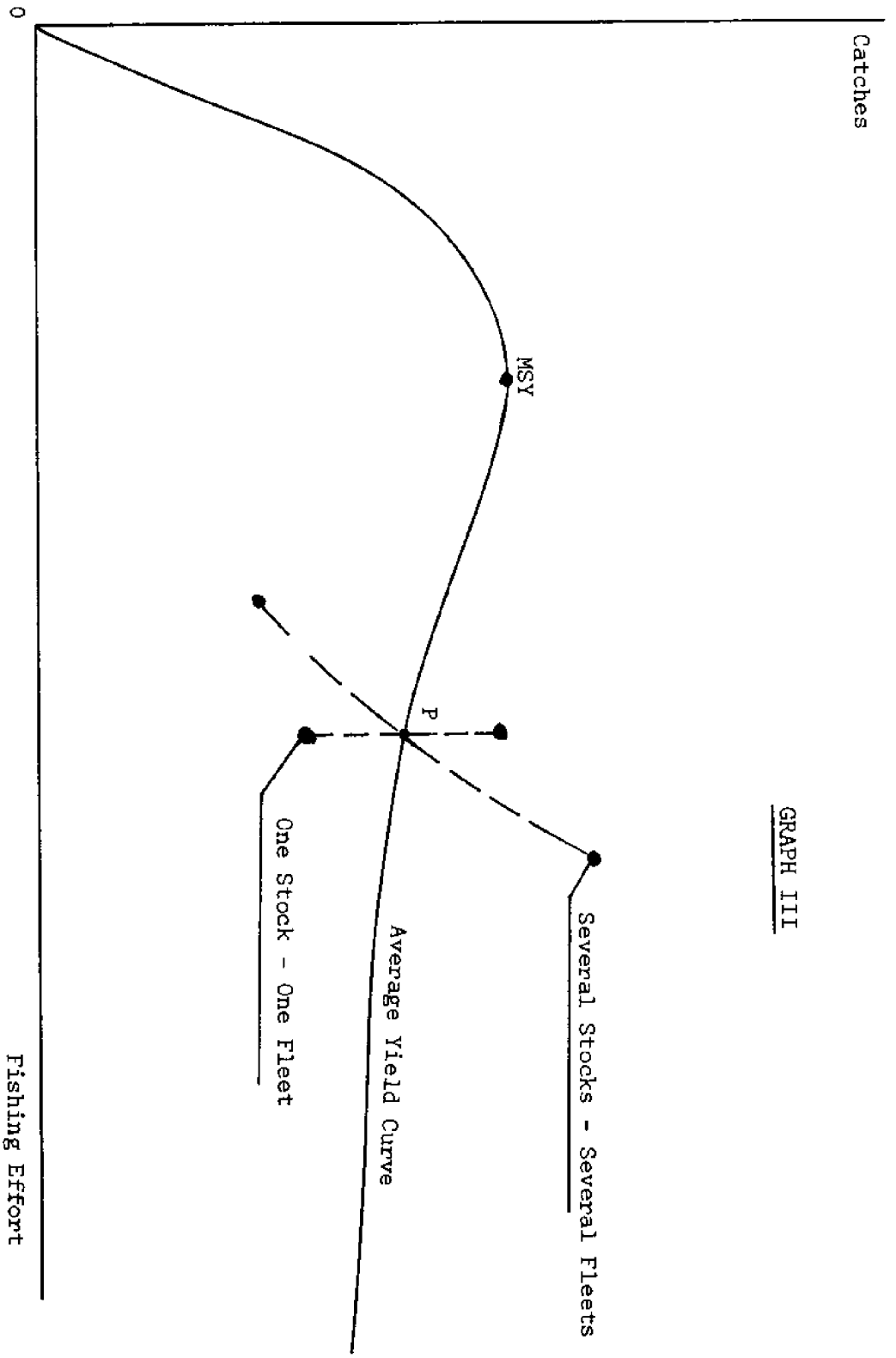
The above remarks would apply to the North Sea fisheries as to any fishery in the world. But complexity of the North Sea fisheries--different stocks and fleets--brings about other problems which must be emphasized:

--From the biologists' assessments of a fish stock in a one-stock-one-fleet situation, it is possible to derive forecasts for the deployment of the fleet in future years. It is not so in a case like the North Sea. When a stock shows a poor abundance, the vessels which can switch to other species or grounds select any other stock which can give a better profitability. The result is that the actual fishing effort exerted on a given stock rarely coincides with the average fishing effort shown on the biologists' yield curves (see Graph III). So the operations of the fleets cannot be predicted according to the average yield curves but only with the help of all the average yield curves plus the corresponding abundance forecast for the years to come. Forecasts of actual fishing effort would be a very difficult task; it is not at present undertaken by the biologists at the international level and could not be achieved without the help of some techno-economic data. Furthermore, the biologists' data are presented in such a way that they cannot be used by the economists when trying to project future conditions or developments.

--The possibility of switching from one ground to another or from one stock to another is obviously an incentive towards concentrating the effort on the stocks which are abundant or less overfished, thus accelerating the progress of overfishing. This is a good thing from the economic standpoint as it gives more regularity to the exploitation, but if at the same time overfishing is going too far it also increases the irregularity of the stock sizes; the more overfishing is pronounced, the less numerous are the year classes making the bulk of the stock.

--The above developments could well lead to the imposition of quotas on more and more stocks. If these quotas were to be fixed only according to biological evidence, this would be perfect for conservation purposes, but the fishermen would suffer from the fact that the different levels of quotas would not correspond to a sound balance from the demand standpoint.

All the remarks made in this note lead towards the desirability of taking into consideration the economic factors. It would be logical enough considering that fisheries is a commercial activity. Technical progress and the relatively high demand for animal protein lead in many cases to over-exploitation. When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Catches
MSY
P
One Stock - One Fleet
Average Yield Curve
Several Stocks - Several Fleets
Fishing Effort

GRAPH III

a sea like the North Sea is over-exploited, or likely to be over-exploited, its potential yields and the intricacies of the fishery may hide the relationship which exists between the situations of the different stocks; only economic factors would allow this relationship to be revealed.

In other words, when imposed management should be recommended on the basis of the biological findings, these biological findings are the essential bases for the type and the nature of the management to be adopted. But if the economic considerations are not also taken into consideration, it is most likely that the economic situation of the fishermen will not be improved. Because of its bitterness, the biological pill would be difficult to swallow. With some economic coating, which will have a bitterness of a different nature, it could perhaps be swallowed more easily.

OIL AND GAS OPERATIONS IN THE NORTH SEA

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This afternoon I am going to try to run through operations in the North Sea in a very abridged way. First I would like to show a few slides which put you in the picture as to where the place is and what it looks like.

The first slide shows the water depths; the main part of the southern North Sea is relatively shallow, and so far most of the exploratory and development work has been concentrated in the shallow areas. They are only just now moving up to the deeper waters of over 200 feet. The next slide shows the nature of the sea bottom; most of it is a clean sand bottom with patches of stone, gravel, and mud. The fishing grounds are mostly concentrated on the mud bottoms, and these do have a habit of changing from place to place.

The next slide shows shipping lanes, together with the main gas fields and new discoveries. You can see that by luck very few of the main arteries of commerce do pass through that little concentrated area where most of the gas fields have been found. Lastly, the communications network across the North Sea of telegraph lines do not affect many of the operations, except that there is a vast concentration going from eastern England to the Netherlands, and this does become difficult, particularly in Netherlands waters.

In general, as you heard, the fishing activity is diminishing in the North Sea and England at least. There are large parts of the fishing fleet which are now unemployed, and some have been able to find new employment in the oil business. A new development is mining sand and gravel from the undersea. Up until a few years ago, most of the sand and gravel came from onshore or beach deposits. Lately the supply has been insufficient to meet the demands, and now there is quite a lot of dredging going on underneath the deep sea.

The areas of the North Sea which have been opened to exploration for oil and gas are indicated in the next slide, which shows that the whole of the German and Danish waters have been allocated. In the Netherlands and in the United Kingdom waters, the allocation has been on the basis of square blocks of about a hundred square miles in area each, and in Norway two hundred square miles. A number of blocks are aggregated into a license, and licenses are allocated to a particular company or a particular consortium of companies. Just to quote an example, in United Kingdom waters, up until the allocation which has just taken place in the last month, there were seventy companies operating, combined into about twenty-five separate groups, and they had licenses covering some 100,000 square miles of seabed.

The first gas found anywhere in the province was in 1938 at Eskdale. It was followed in 1939 by an oil discovery in the Midlands at Eakring. These and other fields on land were known before the offshore fields were found. North Sea interest was sparked off by a land discovery after the last World War in the Netherlands at Gronigen, which proved to be the first truly economic gas find.

In 1959, the reserves were quoted as 64 x 10^{12} cubic feet of gas. The Gronigen gas accumulation occurred in a rock formation known as the Rotliegendes sandstone of Permian age which overlies the Coal Measures; gas is prevented from escaping upwards by a bed of salt which overlies the Rotliegendes. The presence of this bed of salt makes discovery of gas fields in the Permian very difficult, because salt masks seismic reflections from the lower bed, and until the thickness of the salt is known, the structure underneath cannot be determined.

The oil industry itself has used the normal shipping available to supply the operations offshore, and here is a picture of a typical supply vessel, so arranged that it has plenty of clear deck space. This is very necessary in transferring cargoes from the ship to a floating rig under conditions which are not very often ideal.

Next is a picture of a seismic survey vessel during a survey, with a dynamite charge exploding to create a shock wave which is picked up by recording instruments after being reflected from the layers of rock beneath the sea. The dynamite method is now largely superseded for technical reasons, and also because it caused damage to fish over quite a large area. The most favored method at present is the gas gun, which while it provides adequate energy for a seismic record, does not injure the fish.

Of course the greatest use which anybody attaches to the oil industry is drilling. This is our major engineering and economic activity; and I will just run through a few of the types of rigs which are used in the North Sea, because they all have slightly different characteristics.

The first one is a multi-leg jack-up. This is the Sea Gem, the rig that made the first discovery in the North Sea on the West Sole Gas Field, and which subsequently suffered a wreck. The advantage of this type of rig is that it is relatively cheap to make, and therefore the amortization costs are relatively low. Once established on a location, it suffers very little interruption because of weather. The weather has to be very bad to stop operations on a jack-up rig because it is firm on the sea bottom. However, it suffers limitations because the depth of the water in which you can drill is naturally limited by the legs. It can't go where it hasn't enough leg length to reach the bottom. Also, in some locations the penetration of the legs into the bottom is abnormal. Under usual conditions the legs act as piles, and the further they penetrate, the greater the resistance. Eventually they get to a position where the resistance of the sea bottom against the leg exactly balances the downward weight of the rig, and there you are set. Now and again you get penetration which simply continues. We had a case of this last year in Dutch waters where we were completely unable to locate the jack-up rig.

Another type of jack-up, which has only three legs, is the cheapest. It is not a particularly popular type since it becomes completely unstable if one leg should be damaged. There are also four-leg jack-up rigs, some with exceptionally long legs which can drill in water about 280 feet deep.

The great vulnerability of the jack-up is in putting it on and taking it off location where you have to jack the platform up or down the legs. This means that you have to have a large period of good weather; and also when the rig is on the tow the amount of leg above the deck will mean that the center of gravity of the structure is very high. The slightest sea will cause the thing to turn over. If you think that you can lower the legs so as to provide a keel, you get into a situation where the water movement on the deck structure, or the ship structure of the rig, is completely different from the water movement at the bottom of the legs, and you then get a bending movement on the leg where it enters the bottom. The leg breaks off, and you are back where you started.

The rig Constellation a few months back was lost in the North Sea under exactly these circumstances. They were being towed with 80 feet of leg below the deck, ran into bad weather, the legs oscillated below the deck, broke off, and the whole thing turned over.

The next type of rig is a floating one. This is the E.W. Thornton, which is a catamaran rig. We haven't employed this type of rig in the North Sea, although some of the simpler ship-type rigs have been used. The advantage of this type is that, being a ship, they have a tremendous amount of storage space. You can hold in a ship enough pipe, chemicals, fuel, to drill one or sometimes two wells without any recourse to outside suppliers; and the great advantage of the ship is in drilling exploratory wells in remote locations. The North Sea really isn't so remote. The ship has very bad drawbacks in that it is difficult to keep it headed to weather, and the ship movement is not very easy for continued drilling; so it suffers from great weather loss of time.

The third type of rig is the semi-submersible, and it is this type of rig which is the most versatile. Most of them can drill either sitting on bottom or floating. They have to be towed from location to location, but by the use of a sub-sea wellhead--a wellhead which actually sits on the bottom of the sea and is remotely controlled from deck--the only limit to the depth of water at the moment is the depth to which we can get divers to work. At the moment the economic depth for diving is about 300 feet. This isn't the absolute depth to which divers can go by any means; but by the time the diver has got down and back up again, it only leaves him about 20 minutes to half-an-hour working time on the bottom, which isn't very much, and that is the limiting factor.

This particular rig is the Ocean Prince, which also was lost last year in a storm. It was sitting on bottom location, the sea bottom fluidized and caused the rig to become semi-bouyant; it bounced on the bottom and broke up. The last one, Sea Quest, is a 135 design. A large number of these rigs are being built and are operating on the west and east coasts of the States, in far eastern waters, in Australia, and in the North Sea. They can drill in waters sitting on the bottom up to about 120 feet and over about 130 feet they can drill floating.

The advantage of the floating types is that they are easy to move; the moving can be started under anything but the worst conditions of sea. The only

limitation is that you can't get their anchors up when the sea is really bad; of course these can always be abandoned and collected later. The floating rigs can operate in vastly different depths of water up to, as I said, about 300 feet. They are expensive to build, and therefore expensive to run. They require a wellhead which is situated on the sea bottom for most of their wells. This has to be controlled by remote hydraulic operation. It is expensive, and it is difficult to mount, and the rig does suffer from the limitation that if bad weather blows up at the time you are changing sizes of wellhead, you can well be sitting on the location for a week, a fortnight, or a month without being able to do any useful work, simply waiting for the sea to subside.

So far we have dealt only with extractive work. When the exploration is finished, you decide to develop an oil or gas field, and normally do it by building a fixed platform from which a number of wells are deviated and on which you place the production apparatus which will separate water and condensates which are produced with the oil.

One design of production platform is really a double platform on which the larger part contains the wells and the drilling rigs, and the small and separate part contains all the production equipment. It was originally thought that this would be a safer arrangement because if any accident happened, either to the production equipment or to the wells, one half would be isolated. In fact, it was found to be a very expensive type of structure to put up and the danger has so far never materialized; it is doubtful that you are really better off by the short separation achieved by the bridge that runs from platform to platform. On one side of the larger platform are living quarters with a helicoptor on top. Then there is the well deck with space for storing drill pipe, casing, chemicals and so on. The engine house has the rig and derrick above it. The walkway connecting it to the small platform has a radio mast, which I shall refer to again later on. There are three separators for taking up water and condensate, and various other equipment on board.

A later type of platform is the single one, much more compact with drilling rig, living quarters and all the production equipment concentrated there. The supply boats back up to the platform and are unloaded by a crane. It is necessary to have the deck completely clear. Sometimes we have to unload vessels in seas up to fifteen feet. Recently we had an unfortunate accident where one of the drilling contractors employed a boat which was not made with a clear well deck. He employed a special survey vessel that had quite elaborate wireless ariel erections as a supply vessel and tried to unload people from it onto the platform. They were taken up in a cage by crane, but unfortunately the cage became fouled in one of the masts because the ship was loaded, and we had rather a nasty accident.

When the production platforms have been completed, we have to lay a pipeline. The Hugh Gordon is a pipeline laying barge which stores the pipe in its hold. The pipe is made in sections which are precoated with corrosion-resistant coating and with concrete. They are then welded together on the barge and

along a conveyor belt to a chute, and down a special guide onto the sea bottom. The ship moves along steadily, winching itself forward on its anchors. I think it can lay about five kilometers of pipeline in 24 hours.

Well No. 44231 is an exploratory well which found gas, but not in sufficient quantities to be worth developing. The rig was forced to move off the location because of bad weather, and before we could get back on to it, the wellhead started to leak. It was two years before we managed to get a rig over the well and kill it and recover the wellhead. When we did, we found that the damage had been caused by a trawling gear from a fishing boat which had caught around the wellhead, which in fact had been rotated on the casing by 90 degrees--or 360 degrees or any multiple of 360 degrees, shall I say, plus 90 degrees. This is one of the hazards which we do have to be very careful about. Any metal resting directly on the seabed appears to attract fish, the fish attract the fishermen, and the fishermen get their equipment tangled up with the metal. They are reluctant to admit it, and in this case we don't know who or when the damage was done, or even how. Even after the gas was blowing up through the sea, we still found boats trawling across it because of the concentration of fish attracted by the gas movement in the water.

Lastly, the onshore terminal brings the pipeline ashore. Before the gas can be used by domestic or industrial users it has to be dehydrated, condensates have to be taken out of it, pressure has to be adjusted, and this is the production terminal where that is done to the gas.

I'd like to add a word or two about the legal environment in which we work. The oil industry in the North Sea had to fit into a legal framework which has been constructed with quite other industries and objectives in view. The Geneva Convention in 1964 was really the major legislation which allowed the oil industry to operate in the North Sea. It is interesting to see how the different countries which are affected by that have used their powers. In the United Kingdom, the legislation which has control of the oil industry is largely very general in character, and the particular operations are controlled by regulations which are hammered out between the oil industry and the Ministry concerned, and all the other interests--the Chamber of Shipping, the various conservation interests, the fishing industry, and so on.

In the Netherlands they adopted a different approach. They waited until they had been able to thrash out comprehensive legislation to control all the operations. This meant that they were about three years behind all the other countries in starting up their exploration, and also tremendous difficulty was encountered in getting into operation, because if you wanted to use a rig in the Netherlands, you found that it had to have certain safety equipment on board which nobody else in the world ever required. It had to obey certain rules and regulations in operating which were very difficult sometimes to comply with.

In Germany and in Denmark, the concessions were given on blocks. Nearly the whole of the shelf area was allocated consortia, and this has tended to

restrict the amount of activity. In the countries which have allocated smaller blocks to a number of companies, of course, the exploration activity has tended to accelerate because of the competitive nature of the number of concession holders. In those which have given larger areas to single groups, the spur of the chap next door to you getting ahead of you isn't there, and operations have tended to lag.

I can quote you a few figures to illustrate that point, on the number of wells drilled up to the first of May, 1970. In the United Kingdom and in Norway, both of which allocate areas in much the same way, the United Kingdom had 282, and Norway, in a much smaller area of course, 35. Holland, with a late start, had 33; Denmark, 13, and Germany, 12.

Our operations, particularly those in the United Kingdom, have shown the tremendous advantage of cooperation. In the very early days of the operation, we set up a North Sea Operations Committee, which has just changed its title to the Offshore Operations Committee because we may have to consider the Irish Sea as well. This Committee has met monthly and is composed of the managers of the various oil companies. We have made it our business to try and meet the representatives of other industries and other interests before anything was done which could interfere with their particular activities. We found this approach has paid off handsomely. Where new legislation or new regulations were required, we were able to go to the Ministry with an agreed suggestion which simplified their work very considerably, and, of course, smoothed ours even more.

CASE STUDY ON TECHNICAL MANAGEMENT OF THE NORTH SEA

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Federal Republic of Germany

After these economic and technical remarks, I wish to touch now on some more or less legal aspects. As the high seas lie outside areas of national jurisdiction, their regime--especially for ocean shipping--requires multilateral agreements. The nations concerned must try to solve their problems by general world-wide conventions, but this often involves considerable difficulties. Compromises must be found between the interests of the participating governments --interests which sometimes are rather controversial. Very often, the agreements which have been concluded are followed by reservations on the part of one or more governments. Finally, world-wide conventions often require many years before they come into force.

These difficulties can be kept to a minimum if it is possible to solve high seas problems by regional regulations. The North Sea is an area where many questions could be solved by the adjacent nations on such a regional basis. The North Sea is, therefore, an ideal example for regional management, because the sea area concerned is not very large and the coasts of the surrounding States are not very far from one another. In addition, the economic interests of these States are similar to, or at least interrelated with, one another.

There are several methods by which regional management can be achieved:

A. There are, of course, multilateral conventions.

B. Another method is to base a regional regulation on a recommendation prepared by an international organization such as IMCO.

C. Then we have some cases where the administrations of the countries concerned, without the formal basis of a convention but working in their common interests, procede to administrative agreements.

D. Lastly, there are private organizations working on behalf of governments, and regulating their efforts by special agreements.

Let us look now to the various methods in more detail.

A. In several cases, the North Sea States have concluded regional conventions. Some of these will interest lawyers particularly, because the governments in these conventions agreed to build up an international police supervision. I will give you two examples.

1. On May 6, 1882, Belgium, Denmark, France, the United Kingdom, the Netherlands, and Germany concluded The Hague Convention; this Convention related to the policing of fisheries and was amended in 1955. The following provisions

for fishing craft should be mentioned: First, the prohibition to hamper each other during fishing, and to damage the fishing gear of vessels. Second, the obligation to recover and deliver floating craft and fishing gear. The exercise of the obligations is controlled in common by warships or other public vessels of all contracted States, representing an international police force.

2. Five years after the conclusion of the North Sea Fisheries Convention, the same States concluded in the Hague on the 16th of November, 1887, another convention concerning the abolition of trading of liquor in the North Sea among fishermen. This Convention prohibits the sale of liquor to persons aboard fishing vessels or belonging to the crew of fishing vessels for personal use. Only to people having a special license may it be sold. The license shall include, inter alia, the following conditions: (1) The vessel is not allowed to have more liquor on board than necessary for the consumption of the crew; (2) Any exchanging of liquor for the results of fishing, ship fittings, or fishing gear is prohibited.

The control over the application of these provisions is exercised jointly by the cruisers of the contracting States responsible for the control of fishing. Resistance against the orders of the masters of these vessels shall be regarded as resistance against the executive power of the flag State regardless of the nationality of the cruiser. In case of necessity, the master of a cruiser is authorized to escort the contravening vessel by force to a port of the flag State. Based on these authorizations, the controlling organs are provided with supranational police power.

These are two of the very rare examples of international policing. Sea lawyers will perhaps know of only three other examples: the 1884 Paris Convention on submarine cables, the regulations on slave trade, and the regulation in the High Seas Convention of Geneva, 1958, on piracy. The examples I gave you stemmed from the years of the last century. Lawyers will know that it is difficult to come to some sort of international policing, and we should be encouraged by the endeavors and the good results of our forefathers ninety years ago.

I come now to other regional conventions providing for obligations on the part of the member governments only. There are three major examples of this.

3. One convention has been concerned with the increasingly serious problem of marine pollution. The North Sea is regarded as an area of current concern to all countries bordering it, and pollution control requires the closest possible cooperation among them. The International Convention on the Prevention of Pollution of the Sea by Oil, 1954-62, to which all North Sea countries adhere, has declared the North Sea a prohibited zone for the discharge of oil.

The coastal States of the area solved one special problem by an additional convention. A significant step towards regional cooperation was carried out by an agreement for cooperation in dealing with pollution of the North Sea by oil,

which was concluded by Belgium, Denmark, France, Germany, Netherlands, Norway, Sweden, and the United Kingdom, and which came into force on August 9, 1969. The agreement is in line with a decision adopted by the IMCO Council in 1967 which called for regional cooperation of States to provide manpower, supplies, etc. to deal with discharge of oil and to ascertain the extent of such discharge. The text of this decision in fact became part of the Preamble to the North Sea States Agreement.

The agreement provides for active cooperation between North Sea countries whenever the presence of oil polluting the sea within the North Sea area presents a grave and imminent danger to the coast or the related interests of one or more contracting parties. For these purposes, the North Sea has been divided into zones, each of which has been entrusted to one country for making the necessary assessments of any casualty involving oil pollution, and for keeping the others informed. Any country which is aware of a casualty or the presence of oil slicks in the North Sea has to inform any other country likely to be threatened. A contracting party is entitled to call on the help of other contracting parties for the disposal of oil floating on the sea or polluting its coasts. Moreover, the North Sea countries inform each other of their national organization for dealing with oil pollution, about the competent authorities for oil reports and mutual assistance, and also about new methods to deal with or prevent oil pollution. Masters of ships and pilots of aircraft registered in the North Sea countries are asked to report casualties and major oil slicks.

The agreement has already proved very useful. A list of addresses of competent authorities has been provided, and oil reports are being exhanged regularly. The agreement has also served as a stimulus for national arrangements against oil pollution. The North Sea countries expect that their machinery for regional cooperation will be even more effective in connection with the 1969 Brussels Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, which will enable the countries to take certain measures on the high seas in serious cases.

4. Another example of regional conventions concerns pirate radio transmitters. The increasing number of radio transmissions by radio stations located beyond the territorial waters of North Sea countries caused some of the European States in 1965 to conclude an agreement, which was ratified shortly after by the North Sea nations. Under the agreement, these States pledged themselves to prosecute the installation and operation of transmission stations on board marine craft and aircraft, or on board other floating gear beyond territorial waters, if these transmissions are received in whole or in part within the territory of one of the contracting States.

Collaboration in these acts is prosecuted as well. The following actions are considered as constituting collaboration: supply, maintenance or servicing of gear; supply of material; provision of means of transport or transport of persons, equipment or material; ordering or performing any transmission, including advertising; production of services in connection with advertising for the benefit of the transmission stations concerned.

5. Lastly, I should mention as a convention for regional management the Fisheries Convention of 1964. The region covered by this Convention is not only the North Sea, but also the whole western coast of Europe; but the principal countries involved are, once again, the North Sea States. The Convention gives all member States a right to enlarge their national fishery zones up to 12 miles. This means that the other members concerned are not allowed to fish in that zone; but the Convention does contain some regulations which acknowledge existing historic fishing rights. The Convention covers the North Sea area to France and the west coast of Europe, and has been ratified up to now by Belgium, Denmark, France, Ireland, Italy, Poland, Portugal, Spain, Sweden, United Kingdom, and the Federal Republic of Germany. Some of these States have already enlarged their fishing zones up to 12 miles; among these are Denmark, France, Ireland, Portugal, Spain and Sweden. My country has not enlarged its fishing zone, but we are prepared to do so.

B. Regional management is sometimes supported or initiated by recommendations of inter-governmental organizations. The case of the North Sea should draw your attention to two matters which were furthered by recommendations of import.

1. The increase of size in vessels, as well as traffic congestion in certain sea areas, made it appear necessary to introduce regulations in order to minimize the risk of collisions. Within the framework of IMCO, the Maritime Safety Committee dealt with these problems for the first time in 1963. In 1964 it adopted the traffic separation scheme in the Straits of Dover, and since then approximately 50 traffic separation schemes have been examined and recommended by IMCO for areas of high traffic density or of converging traffic.

On November 8, 1969, the traffic separation scheme in the German Bay was inaugurated. There are two one-way systems, one for shipping from west to east and the other for east-west shipping.

I have included this scheme among the topics of regional management because States concerned in this region have to provide the buoyage. The Federal Republic of Germany has provided such buoyage, and the Netherlands will follow in the near future in the western part of the scheme. In the period between January 1 and January 20, 1970, it was observed that 4,500 vessels followed the routing, and only 196 vessels proceeded outside the separation area. This means that in the above-mentioned period, 95.5% of all vessels followed the recommended traffic lanes. These lanes were made known to the international shipping by means of notices to mariners.

2. A second recommendation of IMCO I should mention in this context is the recommendation No. 53 of the Safety of Life at Sea Conference of 1960. This recommendation reads as follows:

> "The Conference, recognizing that, while the local rules referred to in Rule 30 of the International Regulations for Preventing Collisions at Sea must necessarily take into account particular

> circumstances and conditions prevailing in the waters in which they apply, such rules should, so far as is practicable, not be confusing to mariners, recommends that contracting governments should endeavor to bring all special local rules which prescribe lights, shapes, and signals for vessels in as near agreement as may be practicable with those in the International Regulations for Preventing Collisions at Sea."

IMCO is invited to initiate a study into further unification of special local rules.

The Federal Republic of Germany, for its waters--especially for the broad rivers flowing to the North Sea--has for a long time maintained special traffic regulations. We are amending them and we are discussing the amendments with our neighboring States, Netherlands and Denmark; and following these discussions we hope to be able to devise a regional system for national traffic regulations. The Netherlands hope that they too will reach the same result by further contact with Belgium.

C. Sometimes regional management is put up by national administration without the formal basis of a ratified convention or international recommendation. I shall give you three examples: the direction-finding stations of the North Sea, a weather and rescue ship in the North Sea, and the hydrographic service of the North Sea area.

1. Direction-finding stations in southern and eastern North Sea countries of Netherlands, Germany, Denmark, Norway, are closely cooperating in a direction-finding network. In distress cases, for instance, joint evaluations of separate bearings are carried out, enabling officials to locate a distress as exactly as possible. Corrections of up to 60 miles have been made as compared to the distress positions given by the vessels concerned. There are two of these direction-finding stations in Norway (Rogaland, Farsund); two in Denmark (Skagen, Blaavand); three in Germany (St. Peter-Ording, Altenwalde, Norddeich); and two in the Netherlands (Boulogne, Goes).

2. My second example is a weather and rescue ship. Since 1958, the North Sea countries have maintained a jointly financed weather and rescue ship located in the middle of the North Sea. Its regular weather forecasts for the North Sea and the western part of the Baltic are covering the adjacent littoral region as well. Unfortunately, Great Britain and the Netherlands have not contributed to this service as yet, but we hope that they will be ready to do so in the near future.

3. The hydrographic services of all North Sea countries cooperate on a regular basis in the North Sea Hydrographic Commission regulating hydrographic survey and search for wreckage of the region, marine charts, fishery charts, nautical publications, and tidal service for the North Sea.

D. Another illustration of regional management are the private organizations working in fields which are of interest to governments. Here I mention only two examples:

1. In Germany and in the Netherlands, we have private organizations for the salvage and rescue clauses. These private organizations are working very closely and very effectively together. The German Association for the Salvage of Ships Persons is also by special agreement very closely connected with the Danish authorities.

2. The pilots of the North Sea region founded a European Maritime Pilots Association, for the discussion of individual and regional affairs.

These are my examples; but I should not finish my paper without mentioning one case in which a regional solution could have been advisable, but was not carried out. This is a dividing of the continental shelf under the North Sea. Since the exploitation of minerals, oil and natural gas beneath the bed of the North Sea became technically feasible, the coastal States concerned took an increasing interest in dividing the shelf--which is practically the whole geographical area known as the North Sea--among themselves. When in the course of negotiations between the Netherlands, Germany and Denmark it became obvious that the parties would not agree on the basic legal principles to be used for drawing the dividing lines, it was decided to bring the case before the International Court of Law in the Hague.

The Court ruled that in the course of further negotiations, the factors to be taken into account are to include: (1) the general configuration of the coasts of the parties, as well as the presence of any special or unusual features; (2) so far as known or readily ascertainable, the physical and geological structure, and natural resources, of the continental shelf areas involved; and (3) the element of a reasonable degree of proportionality, which a delimitation carried out in accordance with equitable principles ought to bring about between various geographical factors.

Based on the Court's ruling, the three governments drafted an agreement on delimitation that seems to be almost satisfactory to each of them. They are dealing with oil or gas structures which extend across the dividing line and the settling of questions arising out of exploitation by one of the parties. I do not know up to now how the parties have decided last week on the formal aspects; whether they ended up with a trilateral agreement, or with two bilateral agreements between Germany and Denmark on one side, and Germany and the Netherlands on the other side.

When the Continental Shelf convention was concluded in 1958, some had hoped that in the North Sea area the countries could perhaps pool their efforts, and have only one regional continental shelf regime. Others had the idea of making

a circle, whose center was in the middle of the North Sea, and giving to each country a sector of this circle. But these suggestions were only theoretical, and not effective.

Let me finish by mentioning one matter which may in the near future perhaps be solved on a regional basis. This is the pollution by radioactive waste and other obnoxious substances which are retained but not needed by industries. This is, for my country and for the other North Sea countries, one of the biggest problems today. Industry daily pumps enormous quantities of industrial waste into the North Sea, and this becomes more and more of a danger to the coasts and to the fisheries.

In the absence of an international convention on this topic, we have only the hope that on the basis of Article 25 of the High Seas Convention, all the States will sit down together as soon as possible and prepare a convention. If a new Law of the Sea Conference should not take place until 1973, this is a long time away; added to this is the time in which we will have to wait for the coming into force of any new conventions. Therefore, we should think seriously of the possibility that this question might best be resolved in the North Sea area on some form of regional basis.

THE EUROPEAN ECONOMIC COMMUNITY AND THE SEA

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1. Introduction

In this paper attention will be paid to those activities of the European Economic Community (hereinafter referred to as the EEC) which relate to the sea. It should be made clear from the outset that this subject does not deal exclusively with the North Sea. The actions of the EEC with respect to maritime affairs affect other ocean areas as well, such as the Mediterranean and the Atlantic. Some actions have no geographical limitation at all. However, the North Sea plays an important role in the EEC activities. Four of the six member States have a substantial interest in that area and if Great Britain, Norway and Denmark join the Common Market, the importance of the North Sea to the EEC will increase drastically. Moreover, the EEC is an excellent example of a regional approach to management. It has certain characteristics which make its study extra worthwhile, especially the well-known element of supranationality.

For the sake of completeness a few general remarks on the EEC are in order. In 1957 six European countries--France, West Germany, Luxembourg, Italy, Belgium and the Netherlands--signed in Rome a treaty to establish the European Economic Community. This agreement became effective on January 1, 1958, together with the agreement to establish a European Atomic Energy Community. At that time the European Coal and Steel Community had already been operating for more than five years.

Article 3 of the EEC Treaty provides that the activities of the community must include, inter alia, (1) the elimination among member States of customs duties and quantitative restrictions, (2) the establishment of a common external tariff and a common commercial policy with respect to third countries, (3) the abolition among member States of obstacles to the free movement of persons, services and capital, (4) the inauguration of a common agricultural and transport policy, and (5) the coordination of the economic policy of the member States, e.g., with respect to anti-trust legislation and tax harmonization. It is clear that such a program is also of great importance to the management of maritime affairs. The Rome Treaty provided for an institutional framework to carry out the above objectives. The four most important bodies of the EEC are: (1) the Council of Ministers, the body with the decision making power, consisting of the national ministers of the member States who are in charge in their home States of the question under review; (2) the Commission, the policy formulating and executing element with members performing their duties in complete independence; (3) the European Parliament, not a real parliament but it must be consulted by the Council and the Commission on a number of decisions; its only real power being a very draconian one, namely to dismiss the Commission as a whole; (4) the European Court of Justice, the supreme judicial body, ensuring the observance of law and justice in the interpretation and application of the Rome

Treaty. There are many other EEC bodies. Most of them have advisory functions, e.g., the Economic and Social Committee.

2. The customs union

As mentioned above, one of the objectives of the EEC is the removal of internal trade barriers and the establishment of a common external tariff. Since July 1, 1968, the EEC has been a complete customs union. This also affects trade of the products of the sea and in sea-related industrial goods. This is not, however, based on a special policy but is one of the consequences of a more general series of decisions.

The following story illustrates clearly the results of the existence of a customs union among the six EEC States. Under EEC regulations Germany could import a certain quota of fish products free of import duties. In 1967 the Commission took the decision to decrease this tariff-free quota. This decision was taken against the wishes of Germany which feared that the reduction would increase the market price. There was another country which disliked the decision: Iceland, which exported the products in question to Germany. The radical departure by the EEC from the traditional state of affairs is demonstrated by the fact that it was the Icelandic Ambassador to the EEC--and not the Icelandic Ambassador in Bonn--who lodged a protest and asked for a reversal of the decision. It should be realized that it is the EEC which represents the Europe of the six in the international trade of maritime and sea-related products, and not the six individual States. It is now a routine procedure, for instance, for the Commission to set import quotas for fish products.

The other side of a customs union--freedom of customs duties and quotas in internal trade--also applies to products which are sea-related. Fish products, for instance, have been subject to the gradual elimination of internal tariffs.

3. The continental shelf

Many provisions in the Rome Treaty deal with subjects which are in principle relevant to the exploration and exploitation of the continental shelf, e.g., rules concerning the free movement of persons, services and capital, rules concerning the customs union, and rules concerning competition. Therefore, the question must be asked whether the Rome Treaty is applicable to the continental shelf of the member States.

Article 227 of that Treaty provides that it applies to the Kingdom of Belgium, the Federal Republic of Germany, the French Republic, the Italian Republic, the Grand Duchy of Luxembourg and the Kingdom of the Netherlands. It is well known that article 2 of the Geneva Convention on the Continental Shelf provides that coastal States exercise over their continental shelf sovereign rights for the purpose of exploration and exploitation. It is also generally accepted that the coastal State does not have full sovereignty over its shelf, comparable to that over its land territory and its territorial sea. If States

had full sovereignty over the continental shelf, the EEC Treaty would be applicable to the continental shelf of the member States beyond any doubt. Now it raises the question whether this Treaty applies to the exercise of sovereign rights by the EEC member States over their shelf for the purpose of exploration and exploitation.

This question has been discussed in the organs of the EEC on several occasions. A first case arose in 1964 in connection with financial aid given by Germany to its oil industry. This country gave certain credit facilities for exploration outside its territory. Germany argues that, since the continental shelf is not a part of the territory of a State, it could grant these credit facilities for the exploration of its continental shelf without violating the general EEC prohibition of aid which distorts competition. The German position was accepted by the EEC Commission.

The question was also discussed in the context of the formulation of a common energy policy. On February 16, 1966, the Commission submitted a first memorandum to the Council on the oil and gas aspects of this policy. The Commission simply noted that it studied the question whether or not the oil and gas resources of the continental shelf were subject to the provisions of the Rome Treaty.

A third area where the question of the applicability of the Treaty to the continental shelf arose was that of the freedom of establishment of the nationals of a member State in the territory of another member State. In the Regulation of July 7, 1964, of the Council the member States undertook to abolish certain restrictions on this freedom of movement and on the free supply of services in the field of the extraction of mineral resources. A similar Regulation was adopted by the Council on March 13, 1969, with respect to the exploration of oil and gas. In the discussion of the latter Regulation, the European Parliament paid much attention to its applicability to the continental shelf. The Parliament asked the Commission to include a clear answer to that question in the Regulation. The Economic and Social Committee went a step further and specifically requested that the Regulation be made applicable to the shelf. However, in its definitive form the Regulation is still vague. It merely states that its geographical area of applicability is the same as that of the Regulation of July 7, 1964. This Regulation, in its turn, is silent on this point.

In the Regulation of September 27, 1968, concerning the definition of the customs area of the community, the question of the applicability of the Treaty to the continental shelf was again avoided. After defining this customs area, it states in article 4 that the Regulation does not bear in any way on a possible future regulation with respect to the customs regime of the continental shelf. However, in another Regulation agreement was reached with regard to one aspect of this future regime. In Regulation No. 802/68 (1968) the Council included products extracted from the continental shelf of a country in the products which were considered as originating in that country. However, oil was not included.

It must be clear by now that the Treaty itself is not very precise and that the position of the EEC bodies is also vague. The EEC is aware of the problem but has not yet solved it. The best procedure would be to conclude a special protocol which explicitly provides that the Rome Treaty is applicable to the continental shelf of the member States. But even in the absence of such a protocol there are several arguments to support the applicability of the Treaty to the continental shelf. The authority of States has many facets. One is that it extends for a number of purposes beyond the territory over which States have full sovereignty. Sovereign rights over the continental shelf are just one example. Others include the jurisdiction of the flag State over its vessels on the high seas, and the rights of the coastal State derived from the concept of the contiguous zone. If States conclude international agreements, they accept obligations which must be fulfilled by them within the full sphere of their authority. There is no reason why this should not apply to the extra-territorial aspects of that authority. Thus, the EEC States must accept the provisions of the Rome Treaty if these refer to their authority over the continental shelf.

Another important argument is that in many cases the economic necessity for measures with respect to certain activities exists regardless of whether these activities are carried out on land or on the continental shelf. For instance, if it is deemed desirable to introduce freedom of establishment with respect to mining operations on land, there seems to be no reason why this should not extend to mining operations on the continental shelf. Thus, in this respect there is no a priori argument why the Rome Treaty should not include the continental shelf in its area of applicability.

4. Maritime navigation

Article 75 of the Rome Treaty requires the Council to lay down common rules applicable to international transport effected to or from the territory of a member State or crossing the territory of one or more member States. The following articles give a number of general principles on which this common transport policy must be based. These include rules with respect to non-discrimination, rates and conditions of transport and aid and protection measures. Prima facie it appears that these provisions are of great importance for maritime transport. However, article 84 stipulates that the provisions of the section of the Treaty on transport apply to transport by rail, road and inland waterway. Paragraph 2 of that article provides that the Council may decide whether, to what extent, and by what procedure appropriate provisions may be adopted for sea and air transport. Thus, maritime transport has been excluded explicity from the common transport policy unless the Council decides otherwise.

What are the reasons for this exclusion? A first factor may have been the important role of third countries in the regulation of maritime navigation. This extra-community aspect is much stronger in maritime transport than, for instance, in transport by rail. In the second place, the international regulation of maritime navigation was already a reasonably advanced system. International conferences among ship-owners fix rates and conditions of transport, and

international conventions among States regulate other aspects of maritime navigation. Agreements have been concluded, for instance, with respect to the liability of ship-owners, to salvage, to jurisdiction in matters of collision, etc. The Convention of December 9, 1923, on the international regime and status of maritime ports, for example, has virtually eliminated discrimination with respect to access and use of ports. Thus, it may be said that the international regulation of maritime navigation by the EEC member States was a less urgent task. A third factor which may have contributed to the exclusion of maritime transport from the common transport policy is the very complicated structure of the measures with which the EEC countries protect their shipping interests.

An important question is whether the other provisions of the Treaty are applicable to maritime navigation. These provisions relate, for instance, to the free movement of capital, to rules governing the competition among enterprises, to aid granted by States, etc. On this question two opposing schools of thought exist: (1) The French Government argues that maritime transport is excluded completely from the applicability of the Rome Treaty as long as the Council does not take action under article 84, (2) The Commission and the Italian and the Netherlands Governments, on the other hand, maintain that article 84 only excludes maritime transport from the common transport policy and that the other provisions of the Treaty apply to this area.

This is a very complex issue, but the most important consideration seems to be that the Rome Treaty is universal in the sense that it covers all the aspects of the economies of the member States. Therefore, it is unlikely that such an important aspect of national economies as maritime transport should be excluded a priori from the applicability of the Treaty. Moreover, in a few cases member States have taken into account the general provisions of the Treaty when they undertook to adopt national legislation with respect to maritime navigation. A last argument that the other provisions do not overlook transport by sea is that the List of Invisible Transactions, which is attached to the Treaty, includes maritime freights.

Another important question is whether or not article 84, paragraph 2, authorizes the Council not to decide and to delay action indefinitely. As mentioned, this clause provides that the Council may decide and not that the Council shall decide. It has been argued that by inserting this provision the States wished to reserve the right to study the problems involved in including maritime navigation in the process of integration. No time limit was stipulated but it should be assumed that the member States have a reasonable period of time in which to study the question. Taking into account the progress made with respect to the other areas of integration, a decision of the Council with regard to maritime transport becomes more and more urgent. Under article 152 the Council may request the Commission to study the problem. Another procedure would be that the Commission on its own initiative makes a proposal to the Council under article 155 of the Treaty.

It will be clear from this outline that the EEC has been involved in the management of maritime navigation only to a very limited extent. However, it

would be an oversimplification to say that the EEC has done nothing at all in this field. Action has been limited to the initial stages of debate. Much of this discussion was and is devoted to a common policy with respect to maritime ports. The Commission on Transport of the European Parliament, for instance, prepared in 1967 a report on this subject. In this report the Parliament was invited to adopt a resolution in which it expressed its opinion that a common maritime port policy should be formulated as soon as possible as an indispensable element of a common transport policy. A number of basic principles for such a common port policy were given. A recent development is that on April 30, 1970, the Commission decided to include the problems of maritime ports in its proposal to the Council with respect to the elimination of discrimination concerning rates and conditions of transport in general.

5. Fisheries

Article 38 of the Treaty provides that the common market shall extend to agriculture and to the trade in agricultural products. Agricultural products are defined as the products of the soil, of stockbreeding and of fisheries. Pursuant to article 39 of the EEC Treaty, members must develop a common policy for these agricultural products. It follows that this common policy must also deal with fisheries.

The first developments in the EEC with respect to fisheries centered around a conference to be held between the EEC countries and Norway, Denmark and Great Britain. The Commission of the EEC was of the opinion that it was impossible to formulate a common fishery policy without consulting these countries. Various proposals for such a conference were advanced in the years 1962 and 1963. However, France was unwilling to have non-EEC countries participate in any way in the formulation of an EEC policy. It insisted that the Community should have first a common fishery policy before taking part in any international fisheries conference. Finally, the Commission undertook in 1963 to submit proposals for such a policy to be promulgated in the first months of 1964.

In a related development, the various professional organizations of fish producers in the EEC in 1961 formed an organization named "Europeche." Its aims were to reach a common position with regard to fishery problems resulting from the EEC and to make known to the EEC bodies this common viewpoint.

In 1964 the Commission took the first concrete step. It introduced a system of administrative cooperation with respect to the origin of fish products. Fish of EEC origin--i.e., fish caught by vessels under the flag of an EEC member State --are, of course, not subject to the common external tariff. Before the 1964 decision was reached, vessels had to go to a port of their home country in order to obtain a certificate of EEC origin. Then they could proceed to the port of sale, which could be located in another member State. In 1964 the Commission simplified this procedure substantially. It worked out an arrangement under which vessels under the flag of a member State can get a certificate of EEC origin in any port of the Community.

Developments with regard to the common fishery policy slowed down after 1964. The first substantial report of the Commission dates back to June 22, 1966. It is entitled "Report on the situation in the fishing industry in the member States of the EEC and basic principles for a common policy" (translation by the author). The first part of this report reviews in detail the fishery statistics of the member States, the question of fishery limits, the structure of the EEC fleet and the financial aid, granted by the States, to the fishing industry. In the second part the trade in fish products, the market situation and the conditions in the fish processing industry are examined. The third part, finally, is the actual report of the Commission to the Council. It summarizes the previous two parts and outlines the objectives of a common fishery policy. These are: (1) to increase the productivity of the fishing industry by stimulating technical improvements and by an optimum use of the available resources, (2) to raise the standard of living of persons working in the fishing industry, and (3) to stabilize the market situation. The Commission made detailed suggestions as to how these objectives could be realized.

The report was submitted to the Economic and Social Committee of the EEC. It answered in a report of March 29, 1967. The European Parliament was also involved in the discussion. Its Committee on Agriculture submitted a report of its own on January 15, 1968, and the Parliament itself adopted a resolution in which it gave its support to the action of the Commission. The Parliament requested more specifically that the commission should establish as soon as possible the proposed Advisory Committee for social questions in the maritime fishing industry.

By a decision of June 7, 1968, the Commission established this committee. It consists of 24 persons, 12 of which represent the employers, and 12 of which are representatives of the employees in the maritime fishing industry. The Commission can ask this committee to report on the social questions in this sector.

To complete this chronological description of the formulation of a common fishery policy by the EEC: the Commission introduced on June 6, 1968, a formal proposal for such a policy to the Council. On October 24, 1968, the European Parliament approved the principles of this proposal and on March 26, 1969, the same was done by the Economic and Social Committee. Both bodies made proposals for amendments. On December 22, 1969, the Council adopted a resolution which provided that before April 30, 1960, the steps must be taken which should be necessary for the implementation of the common fishery policy. According to the most recent information this policy will finally become effective on July 1, 1970. It should be noted that the negotiations for the admission of Great Britain to the EEC start on the same day. This is not a coincidence. The EEC countries, especially France, wished to have a common fishery policy before the United Kingdom should enter the common market.

Until now the common fishery policy has been laid down in three Regulations of the Council: (1) a Regulation of the Council concerning the creation of a

common policy with respect to the structure of the fishing industry, (2) a Regulation of the Council concerning a common policy with respect to the market for fish products, and (3) a draft Regulation of the Council concerning the suspension of the common customs tariff with respect to certain species of fish.

The Regulation concerning the common-structure policy deals with the following subjects: (1) fishing in territorial waters, (2) a common policy with respect to the international regulation of maritime fisheries, and (3) the coordination of the national policies with respect to the structure of the fishing industry and the measures the Council should take for that purpose.

Ad 1: The EEC countries undertake to give equality of treatment to all vessels under the flag of member States with respect to fishing in territorial waters. The Council may limit the entrance to fishing in these waters to vessels of the coastal population of this population depends heavily on coastal fisheries. Acting on a proposal of the Commission, the Council may adopt measures to prevent overfishing of the territorial sea.

Ad 2: The Council must, based on a proposal of the Commission, lay down the principles and methods for coordinated international action regarding maritime fisheries, especially with respect to questions of access to fishing grounds and exploitation and conservation of the biological resources of the sea. The Commission must make recommendations to the Council for the purpose of initiating the negotiations with third States which are necessary for these objectives.

Ad 3: The member States must coordinate their national policies with regard to the structure of the fishing industry. They exchange all information necessary for that purpose. The Commission must report annually to the European Parliament on this subject. The Council decides on the measures which are necessary for the coordination of the national structure policies and of national policies with respect to research and technical and scientific assistance. In addition, the Council must take measures to increase the productivity of the fishing industry of the EEC and to improve the social conditions in that sector. The Regulation indicates a number of criteria on which action of the Council for this purpose must be based. Finally, the Council must decide on the conditions under which member States may grant financial aid to the fishing industry.

The Regulation establishes a Permanent Committee on the Structure of Fisheries. One function of this committee is that member States must consult each other for the purpose of coordinating their positions with respect to the conclusion and implementation of international agreements.

The second Regulation dealing with the market for fish products includes rules for (1) the trade in fish products, and (2) a system of price control.

Ad 1: A first aspect of the regulation of the trade in fish products is that the Council, on a proposal by the Commission, may lay down rules for the quality requirements of these products. Control of these quality standards remains in the hands of the member States. Another important aspect is that under certain conditions member States may give financial support to organizations of producers of fish products. The objective of these organizations must be to bring about the rational exploitation of the fishery and to improve the conditions of sale of their products.

Ad 2: The price control system, adopted for fish products, is very similar to that for agricultural products in general. In advance of each fishing season the Council must fix an orientation price and an intervention price. The intervention price is between 45 and 60 percent of the orientation price. In addition, the organizations of producers may fix a no-sale price below which they will not sell their products. If the market price drops below a price equal to the intervention price plus 15 percent of the orientation price, the Commission declares that the market is in crises. Under these circumstances member States are entitled to give financial support to producer organizations which take a part of the production off the market. If these measures are not adequate and if the price drops to the level of the intervention price itself the Commission declares that the market is in a serious crisis. Then, the member States buy the surplus production for the intervention price. Thus, the intervention price is an EEC guaranteed minimum price.

The price system also covers import and export of fish products. Here a new term must be introduced: reference price. The reference price is equal to the intervention price plus 15 percent of the orientation price. If the import price of fish products drops below the reference price, imports may be suspended or be subjected to an additional tariff. The effect of this price system will be that the EEC price may be higher than the price on the world market. Therefore, it is provided that in case of export from the EEC a subsidy may be given.

The second Regulation establishes a Committee for the Management of Fish Products.

The above outline is based on the text of the Regulations as proposed by the Commission on June 6, 1968. Since that date several amendments were made or were being discussed. With respect to the Regulation on the structure of the fishing industry, France objected to the free access of foreign fishermen to its territorial waters. The Council has discussed this problem and the Commission has introduced new proposals to overcome the French objections. Another point of discussion was the clause under which the Council should lay down principles for Community action with respect to international relations in the field of fisheries. The Commission has made new proposals which would reduce the scope of this provision considerably. The second Regulation dealing with the market for fish

products has also been amended. The general goal of these amendments is to give the ultimate responsibility for the market situation to producer organizations.

6. Final remarks

The EEC is a unique form of international cooperation. It is not an international organization in the traditional sense of that term, and it is not a federal State. It has certain characteristics of both. Its departure from the traditional international organization is especially its supranational authority. Its primary difference from a federal State is that it is basically an economic unit and not a political one. These unique characteristics underscore the relevance of developments in the EEC.

In the traditional international organization, States cannot be bound against their will. This is because these organizations decide by unanimous vote or because States are not directly bound by decisions which were reached by a majority vote. These principles do not apply to the EEC and other European communities. The term "supranationality" refers especially to this fact. Supranational authority can be found in the EEC on a number of levels. First of all is the case of the Commission. As has been mentioned, Commission members must perform their duties in complete independence in the interest of the Community. They may not seek nor receive instructions from member Governments. In addition, as individuals they cannot be removed from office except by the European Court of Justice. This guarantees an independent position for the term of their office. A second supranational aspect of the Commission is that it reaches its decisions by a majority of its members. The same applies to many decisions of the Council. This is even a more important aspect of the supranational authority of the EEC, since the Council is the decision-making body of the Community. Thus, the Council can make decisions against the will of some of its members. Moreover, these decisions can be directly binding upon the member States.

The general importance of these developments is that in the EEC the concept of State sovereignty is gradually disappearing. With regard to many decisions the member States have given up their prerogatives. In many respects they can no longer act by their own authority. This process is of a fascinating importance in our world. Until now the international community has been based on independent, sovereign States. In our time sovereignty of States becomes more and more an obsolete concept. Interdependence is replacing independence. It is highly questionable whether an international community of sovereign States will be able to solve the problems which face humanity. It may well be that the answer to that question is no. This doubt refers not only to the ultimate consequence of State sovereignty, namely war, but also to other areas. Will this world be able to solve effectively problems of pollution, environmental control, managements of resources, etc., so long as States persist in claiming supreme authority?

These questions endow developments in the EEC with an importance which is not directly related to the specific problem of economic integration. If the

EEC experiment proves to be successful--and there is not much reason to doubt that it will be--a new concept for the organization of this world has been invented. These wider terms of reference should be kept in mind when discussing the activities of the EEC with respect to the sea.

In the opinion of the author the results of the EEC concerning the management of maritime affairs until now are not very impressive. With regard to the continental shelf, the EEC has not yet solved beyond doubt whether or not the Rome Treaty is applicable to that area. Action with regard to maritime navigation is still in its very initial stages. Substantial progress has been made only with respect to maritime fishing. But even here the process of formulating a common fishery policy was difficult and time-consuming. In any case progress in this particular field was much slower than with respect to the agricultural policy in general. Moreover, the Regulations which were adopted are essentially a general framework. The further implementation of this framework may again prove to be slow and painful.

What are the reasons for these problems? First of all, there are a number of factors which are not directly related to the field of maritime affairs itself. The French veto in 1963 with respect to the admission of Great Britain slowed down progress in all fields of European integration. The activities of the EEC regarding the sea simply shared the malaise.

Secondly, there are reasons related to maritime affairs in general. The relatively small economic interest of most EEC member States in the exploitation of the sea is such a factor. To illustrate this point, the catch of fish by the EEC countries in the period 1957-1963 did not increase, while the total world catch expanded by more than 50 percent. Moreover, if there is a substantial interest, for example with respect to the exploitation of the continental shelf, management can be undertaken effectively by the member States by themselves. Another reason may be that third countries play an important role, especially in the management of maritime affairs. It is impossible for one State alone to regulate maritime transport effectively. It is also very difficult for six States. A more universal approach is necessary. This point does not apply to the continental shelf. Here the influence of third States is minimal. Finally, a general factor may be a certain lack of orientation to the sea in some member States of the community.

A third category of reasons refers to certain specific aspects of the management of maritime affairs. With respect to the continental shelf, for instance, it should be realized that its exploration and exploitation are relatively new phenomena. Many of the member States of the EEC wished first to determine their own position and to adopt their own national legislation, before they were willing to take part in the formulation of a common EEC policy. This reluctance to participate in common projects before the national policy has been formulated can be found in other areas of the European integration as well. A special problem with respect to fisheries is the wide disparity among the member

States. Some States have an interest primarily in coastal fisheries, whereas other countries are concerned mainly with large scale distant-water fisheries. Some have very inefficient fleets; others use the most rational methods. Moreover, the fishing areas covered by the fleets of the EEC countries range from the Mediterranean to the Arctic. Another problem in relation to the common fishery policy is that the European countries with a substantial interest in fishing are divided between the EEC and the European Free Trade Association. The EEC countries consume more fish than they produce, whereas the EFTA countries have a production surplus. As has been mentioned, attempts to have these countries of the EFTA--and especially Norway, Denmark and Great Britain--participate in the formulation of the EEC policy have been unsuccessful.

What is the outlook? An important factor is whether or not Great Britain, Denmark and Norway join the common market. If this happens the importance of maritime affairs in the EEC will increase drastically. But even now, the EEC is a factor which cannot be ignored in the complexity of the management of maritime affairs in Europe. It is to be expected that also in this respect the EEC will become more and more important. There is no way back.

DISCUSSION

Adam: I would like to address myself to the last speaker who dealt with the EEC. When he says the common policy of the Six in fisheries is going forward, he is perfectly right, but no definite decision or arrangement has as yet been adopted. It could be done tomorrow, or later. There is a good chance that the final decisions will be taken along the lines indicated by Mr. Koers, but until now nothing has been settled and a number of months can elapse before the common policy for fisheries is put into practice.

Koers: As far as is known now, the fisheries policy will become effective on July 1, next month. It must be realized that this fisheries policy is basically a program to bring about regulation. It needs further implementation.

(Ed. note: As it turned out, there was a further delay. An agreement was finally reached that the Common Fisheries Policy would become effective on February 1, 1971.)

McNichols: Last Autumn, in October, I believe, I read a report that British scientists had discovered oil on the Rockall Plateau. I haven't seen any more of that. I wonder if Mr. Fox could tell us more about the size and quality of that find? Particularly I would like to know if the United Kingdom is making any claim to the resources of the Rockall Plateau; if so, on what basis?

Fox: There has been a report, I think, of the detection of a small oil seepage on Rockall, but certainly there has been no oil discovery; I think its significance isn't fully understood yet. Quite a considerable amount of geological research work has been concentrated in the area of the Shetlands and west of them, and several hitherto unknown sedimentary basins have been discovered. The recent allocation of areas by the United Kingdom government for offshore exploration includes 400 square miles to the west of the Orkneys and quite a considerable amount to the east of the Orkneys. All this is new area, and at the moment we really don't know what we are going into. It is rank wildcatting, in the oil companies' term.

Griffin: For the record, Mr. Fox, is the Rockall Plateau west of the Shetlands and Orkneys?

Fox: Yes, it is out in the Atlantic. I think it is land at low water, so the British Crown probably claims jurisdiction over it, but I wouldn't be certain.

Alexander: I have a question for Mr. Fox. On the map on which you showed where the leases were in the North Sea areas that had been leased out, you show it off the coast of Germany in the region where there is some dispute concerning the boundary. This was the boundary between Holland and Germany, and also between Germany and Denmark where apparently the boundary has not yet been resolved. I wonder who issued those leases, and under what conditions. Is this all provisional?

Fox: The area was leased by the Netherlands Government and by the Danish Government, and the German Government pointed out that the division of the continental shelf under the strict terms of the Geneva Convention was not fair if one counted the length of coastline. The three governments have now reached agreement on an alteration in the demarcation lines. The one between Germany and Denmark has been agreed, I think, but has not yet been published. The one between Germany and the Netherlands has been agreed and has been published. And it's a very interesting agreement between the two governments, because the area has been allocated to various oil companies in blocks whose boundaries run along the lines of longitude and latitude; and instead of adopting an arbitrary direction for the line, they have, in fact, drawn it so that it either goes along lines of latitude and longitude, which already separate blocks, or else it runs diagonally across a block from corner to corner, sort of dividing it equally into two halves.

We don't know yet how the concessional position will be settled. We have assurances from both governments that they will respect the rights of the companies to whom the Netherlands Government has given them, but the German Government has certain difficulties in the legal aspects of their allocation of their own areas which they have to match up with the new ones.

Griffin: I have a question for you, Mr. Fox. My recollection is that some years ago before there was any actual find of oil or gas in the North Sea, the United Kingdom and Norway, I believe, and/or Denmark, or perhaps it was the Netherlands, made bilateral agreements to the effect that if oil or gas fields were found to lie astride the two countries' respective median line boundary, they would agree to agree upon unitization. Has that problem arisen yet?

Fox: It hasn't as between countries; it has between companies where fields have been discovered which cross license boundaries. It's possible that we shall have this problem with the Phillips finds in Norwegian waters where the Cobbs Field is very close to the international boundary.

Carroz: I would like to address a question to Mr. Adam. In his introductory statement Mr. Adam was rather pessimistic about the state of fisheries in the North Sea. However, he was inclined to believe that the situation could improve if more attention were paid to the advice of economists. I should refer in this connection to the extensive discussions which were held, starting years ago, within the ambit of the International Northwest Atlantic Fisheries Commission. This is only one stage removed from the North Sea, because the negotiations held with respect to the Northwest Atlantic were followed closely by the Northeast Atlantic Fisheries Commission. This is only one stage removed from the North Sea, because the negotiations held with respect to the Northwest Atlantic were followed closely by the Northeast Atlantic Fisheries Commission. In fact, the two Commissions have got very much the same member countries and, to a great extent, the same problems.

The discussions centered on a joint biological and economic assessment of possible conservation actions in the Northwest Atlantic. FAO, and I believe

OECD, took an active part in this exercise, which has not been too successful so far. I should like to ask Mr. Adam what are, in his judgement, the main obstacles to paying due heed to economic factors. Could he elaborate on this?

Adam: Certainly I could elaborate a bit on that topic, although it is possible that my personal views should be supplemented by those of other people who also participated in this venture.

This bio-economic ICNAF study started four years ago and was, I think, somewhat biased by the circumstances prevailing at the time. It was a time when there was discussion as to whether or not the Commissions should fix catch quotas; many people were convinced that they should. At the present time it is certainly agreed upon in those Commissions, but at that time it had not yet gone as far, and I think that the study was mainly used to help in this direction. It was meant to prove, through economics, that there was a need for management, and as far as I am personally concerned, I certainly did agree on this point. But I could not agree with the emphasis given to the regulation aspect. The whole study, restricted as it was, was extremely poor from the economic standpoint. By insisting upon the necessity of management by regulation, it was neglecting the fact that there is, in any case, a self-management of fisheries. Any proposal for fishery management which does not start from this self-management would be missing a most essential factor.

di Palma: Salvatore di Palma, American Embassy at the Ivory Coast. I would like to address a question to Mr. Koers. During his dissertation, he mentioned the fact that the EEC will be able to suspend imports of fishery products if the price of EEC-caught fish falls below a certain level. What I would like to ask is, do you have the reasoning or the arguments being used by the EEC to justify what seems to me a violation of trade agreements among member countries of the general agreement on trading tariffs?

Koers: I must answer this question very briefly. I simply don't know. I don't have the information which is necessary to answer that question. My own impression is that what you are saying with respect to the complete suspension of import might be right, because that is a quantitative restriction.

THE EUROPEAN ECONOMIC COMMUNITY AND THE SEA: COMMENT

A. A. Sokoloski
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In his paper on The European Economic Community and the Sea, Albert W. Koers concludes, "...the results of the EEC concerning the management of maritime affairs until now are not very impressive." Even with this observation, however, he is still optimistic regarding the future of the EEC as a form of economic integration. The question arises as to whether this optimism is wholly justified. Further, it is my contention that extending this integration to fisheries management may actually have a divisive effect on the community, especially when this community might possibly include other countries such as Great Britain, Denmark and Norway.

My comments are confined to that portion of Mr. Koers' paper which discusses the proposed Common Fisheries Policy (CFP) of the EEC. Much was happening at the time Mr. Koers wrote his paper and much has happened since.

Although the CFP was not formally initiated on July 1 as anticipated by Mr. Koers, an agreement has been reached to introduce a CFP before November 1. The principal reason for this final acceleration in what has been a protracted discussion has been the increased likelihood of the admission of countries such as Great Britain, Denmark, and Norway. Throughout the past year France has insisted that the entrance of these countries should be resolved before a fisheries policy was agreed upon. This was primarily because of provisions within the proposed policy which would result in the gradual withdrawal of national fisheries jurisdictions, a threat to France's coastal fisheries. Recently, however, the threat of entry without some universal control mechanism such as a Common Fisheries Policy has prompted a compromise. This is apparently to take the following form:

(1) EEC countries will retain 3-mile territorial limits until 1975 when fishing access will be reintroduced for discussion.

(2) Beyond 3 miles to the existing boundaries such as 12, 15, or 16 miles each country shall retain the option of excluding fishing by vessels from other member countries if this poses a socio-economic problem in fishing communities. During the period until 1975 alternative economic opportunities are to be provided within these communities so that after 1975 the contiguous fishing waters can be opened up to vessels from other nations within the Community. This is critical to the French as these other nations will include Germany and in all likelihood Great Britain, Norway and Denmark.

These provisions are critical in an evaluation of the potential of the Community as an organizational form which facilitates the management of marine resources. In this light it is highly relevant the initial steps in expanding fishing

jurisdictions beyond purely national considerations are replete with exceptions and provisions for delay. It is quite likely that future entry of Great Britain, Norway and Denmark will heighten the conflict over this question. Certainly, Norway and Denmark will insist on preserving their coastal fisheries exclusively for the use of their nationals. Great Britain will support this position, although not if it jeopardizes their membership. France's position is quite clear.

Although the interpretation of these observations is more of an art than a science, it seems reasonable to conclude that contrary to Mr. Koers' optimism there is a very great likelihood that not only will this effort fail, but also that it may do some harm to the relationships between the countries involved beyond the issues of fisheries jurisdiction.

The supranationality of the EEC does indeed suggest some intriguing possibilities for ocean management. There is, however, a host of suppositions which must be made in order to presume some success in this regard. Among these is the assumption that this supranationality is eternal. Critical here are the challenges resulting from a failing agricultural policy, the economic stress resulting from economic policies in the United States, and the question of integration with or competition from Great Britain, Norway, Denmark and selected other countries. As Mr. Koers suggests: "An important factor is whether or not Great Britain, Denmark and Norway join the common market. If this happens the importance of maritime affairs in the EEC will increase drastically."

Relevant here is that this decision must now be made, and whichever way it is made it will influence maritime affairs. If Norway enters, it will never be under a condition that its territorial waters are open to fishermen of other EEC nations. This will be a setback to the supranationality of maritime affairs. If Norway does not enter, it will be because of this objection. This means the supranationality will be confined to the six, with France finding new support for its less than enthusiastic participation. In my view neither of these alternatives provides great hope for the future.

CANADIAN ARCTIC WATERS POLLUTION PREVENTION LEGISLATION

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Canadians have an obvious and understandable interest in the Arctic. The nature of our interest, however, and its intensity, has broadened in recent years. I will try to explain why.

The planet Earth wears a white cap which has a profound effect on the vital processes that keep the planet green. The very livability of the Northern Hemisphere is determined and maintained by the presence of that huge cap of ice which embraces two-and-a-half million square nautical miles of Arctic seas in summer, and in winter expands its grip to take in another two million square nautical miles. It has been calculated that a temperature rise of only a few degrees would melt this ice cover within a decade or less, with consequences that could be disastrous for mankind.

Merely by darkening the surface of the ice we could bring about a sufficient rise in temperature to court disaster. Oil, of course, would be a very efficient darkener since it would spread quickly and widely. But the necessary darkening effect could be achieved still more simply by breaking the ice to expose either the water or bare earth beneath. Until recent years we Canadians, while aware of the special significance of the Arctic ecology to its aboriginal inhabitants, were only vaguely conscious of what might be termed the planetary importance of the Arctic waters and ice. Our consciousness has grown, however, as the search for resources has led us northwards. Today such Arctic regions as Alaska and the Canadian Arctic Islands, together with the submarine areas adjacent to them, stand on the brink of an economic development which promises enormous benefits but also involves enormous risks. Symbolic of that development, and of those benefits and risks, was the appearance in the fall of 1969 of the icebreaker-tanker Manhattan on its experimental voyage through the Northwest Passage. Under the sponsorship of the Humble Oil Company, and with the acquiescence, active support and assistance of the Canadian Government, the Manhattan had come to carry out a methodical scientific investigation of the feasibility of year-round commercial navigation through the Northwest Passage by yet larger ships, operating under their own power alone, and carrying oil from the north slope of Alaska to the eastern United States and perhaps to Europe. Other ships had been there before the Manhattan; the schooner St. Roch for instance, under the command of Henry Larsen of the Royal Canadian Mounted Police. What was unique about the Manhattan's voyage, however, was the size of the ship involved, the purpose behind the exercise, the methods employed, and the questions it raised.

What we are concerned with here is precisely those questions symbolically raised by the Manhattan's voyage--the questions raised and the responses which the Canadian Government has determined upon.

The first question raised by the Manhattan Project can be stated as follows: What would be the effect upon the Arctic environment of an oil spill from a

tanker carrying hundreds of thousands of tons of oil in the most treacherous conditions that cold and dark and ice and all the combined rigors of the Arctic can conspire to produce?

I have already given some indication of the answer to this question, but I should like to quote the view of the Canadian Government as expressed by Prime Minister Trudeau in Toronto on April 15 last. On that occasion he said:

> The Arctic ice-pack has been described as the most significant surface area of the globe, for it controls the temperature of much of the northern hemisphere. Its continued existence in unspoiled form is vital to all mankind. The single most imminent threat to the Arctic at this time is that of a large oil spill. Not only are the hazards of Arctic navigation much greater than are found elsewhere, making the risk of breakup or sinking one of constant concern, but any major maritime tragedy there would have disastrous and irreversible consequences. The deleterious effects to the environment of a major oil spill would be so much greater than those of a spill of similar size in temperate or tropical waters that the result can be said with scientific accuracy to be qualitatively different. For example, the injuries which would result cannot be measured in terms of dollars, as they can elsewhere, because the damages would not be of a temporary nature. Nor is there now known any technique or process which can control, dispel or reduce vagrant oil loose in Arctic waters. Such oil would spread immediately beneath ice many feet thick; it would congeal and block the breathing holes of the peculiar species of mammals that frequent the region; it would destroy effectively the primary source of food for Eskimos and carnivorous wildlife throughout an area of thousands of square miles; it would foul and destroy the only known nesting areas of several species of wild birds.
>
> Because of the minute rate of hydrocarbon decomposition in frigid areas, the presence of any such oil must be regarded as permanent. The disastrous consequences which that presence would have upon the marine plankton, upon the process of oxygenation in Arctic North America, and upon other natural and vital processes of the biosphere, are incalculable in their extent.
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> Involved here, in short, are issues which even the more conservative of environmental scientists do not hesitate to describe as being of a magnitude which is capable of affecting the quality, and perhaps the continued existence, of human and animal life in vast regions of North America and elsewhere. These are issues of such immense importance that they demand prompt and effective action.

The second question raised by the Manhattan Project perhaps sums up all others. It is, quite simply, what price development? The Canadian Government's

response to this question can be put with equal simplicity: Canada will not allow what has been described as the expansion of prosperity at the expense of posterity. In the speech from the throne on October 23, 1969, the Governor General of Canada said:

> With resource development, and the benefits it entails, may come grave danger to the balance of plant and animal life on land and in the sea, which is particularly precarious in the harsh polar regions. While encouraging such development, we must fulfill our responsibility to preserve these areas, as yet undespoiled and essentially in a state of nature.

This position was further elaborated by Prime Minister Trudeau in the House of Commons on October 24, 1969. He said then that the Canadian Government would never sacrifice, in the name of progress, a clean and healthy environment to industrial or commercial development. With reference to the water, ice and land areas of the Canadian Arctic Archipelago, he said:

> We do not doubt for a moment that the rest of the world would find us at fault, and hold us liable, should we fail to ensure adequate protection of that environment from pollution or artificial deterioration. Canada will not permit this to happen. It will not permit this to happen either in the name of freedom of the seas, or in the interests of economic development.

This third question raised by the Manhattan Project relates to the kind of legal and administrative framework which is required to prevent and control pollution of the Arctic waters while at the same time encouraging the economic development which is compatible with environmental preservation. The Canadian Government's response to this question encompasses its responses to the first two questions and is found in the Legislation entitled, "An Act to Prevent Pollution of Areas of the Arctic Waters Adjacent to the Mainland and Islands of the Canadian Arctic."

This new legislation has recently been adopted in the House of Commons and referred to the Senate for final approval. It makes clear the Government's intention that the waters of the Arctic Archipelago, and the Northwest Passage in particular, are to be opened for the passage of shipping of all nations, but subject to necessary conditions required to protect the delicate ecological balance of the Canadian Arctic. It seeks in essence to preclude the passage of ships threatening pollution of the environment. Commercially-owned shipping intending to enter waters of the Canadian Arctic designated by the Canadian Government as shipping safety control zones will be required to meet Canadian design, construction and navigational safety standards. These zones may extend up to 100 miles offshore. The owners of shipping and cargoes will be required to provide proof of financial responsibility and will be liable for damage caused by pollution. Their liability will be limited but will not depend upon proof of fault or negligence. In the case of shipping owned by another State the necessary safety standards will be given effect by arrangement with the State concerned.

Similarly, protective measures will apply to exploration and exploitation of the submarine resources of Canada's northern continental shelf.

In introducing the Arctic Waters Pollution Prevention Bill in the House of Commons on April 16, the Secretary of State for External Affairs, the Hon. Mitchell Sharp, emphasized that the problem of environmental preservation transcends traditional concepts of sovereignty and requires an imaginative new approach based on the objective considerations of today rather than the historical accidents or territorial imperatives of yesterday. While reaffirming that Canada has always regarded the waters of the Arctic Archipelago as Canadian waters, he made clear that the Arctic Waters Pollution Prevention Bill did not represent an assertion of sovereignty but rather a constructive and functional approach whereby Canada will exercise only the jurisdiction required to achieve the specific and vital purpose of environmental preservation. The Canadian approach separates that limited pollution-control jurisdiction out of the total bundle of jurisdictions which together constitute sovereignty.

I do not propose to dwell on the subject of Canada's sovereignty claims in the Arctic waters or elsewhere. The Arctic Waters Pollution Legislation does not make and does not require an assertion of sovereignty, any more than it constitutes a denial of sovereignty or is inconsistent with any basis for sovereignty. I only wish to add that, whatever may be the position with respect to the status of the Arctic waters, there can be and has been no question as to Canada's established sovereignty over its Arctic mainland and islands. Similarly, there is no dispute concerning Canada's sovereign rights over the resources of the continental shelf adjacent to these territories. I would also remind you that in another Bill recently adopted in the House of Commons the Canadian Government has also extended the territorial sea of Canada from three to twelve miles. An important effect of this action is that it brings two key "gateway" areas of the Northwest Passage, Barrow Strait and the Prince of Wales Strait, indisputably under complete Canadian sovereignty under any realistic and reasonable view of existing international law, regardless of differences of opinion as to Canada's claim to sovereignty over the whole of the Northwest Passage.

The Canadian Government, let me repeat, has adopted an approach to the preservation of the Arctic environment which is independent of considerations of sovereignty and is based instead on functional and scientific considerations. In the Canadian view this approach is compatible with and justified under fundamental principles of international law, properly understood. I am, of course, not forgetting that the Canadian Government has submitted a new reservation to the compulsory jurisdiction of the International Court of Justice which excludes disputes relating to jurisdiction for the control of marine pollution. I will return to this matter in a few minutes, but first I wish to explain why the Arctic Waters Pollution Legislation is considered to be compatible with international law. In the view of the Canadian Government, a grave danger to the environment of a State constitutes a threat to its security and indeed perhaps to its continued existence. Whether that threat is accidental or deliberate is, after all, a relatively meaningless question once the potential danger has materialized. Thus the Arctic Waters Pollution Legislation constitutes an exercise

of the fundamental right of self defense which lies at the heart of international order. It represents a proper extension of a limited form of jurisdiction to meet a particular danger, and, I would urge, satisfies the conditions set out by Schwarzenberger in his view on the exercise of jurisdiction beyond the territorial sea. I quote:

> In circumstances in which the rules governing the principle of self defense justify preventive action, the rules underlying the principle of the freedom of the seas, like those governing any other of the fundamental principles of international law, are correspondingly limited. Provided that the conditions on which the exercise of the right of self defense depends are fulfilled, such exceptional interference with the exclusive jurisdiction of the flag State appears fully compatible with the rules underlying the fundamental principle of international law.

Other noted authors could be cited, but extensions of jurisdiction beyond the territorial sea for varying purposes are too numerous in State practice for the principle to be reasonably challenged. The practice of the USA, for instance, has traditionally involved the enforcement of municipal legislation and the exercise of jurisdiction for this purpose well beyond the limits of the territorial sea, particularly with respect to customs and revenue. The Revenue Acts of 1799 and 1878 are cases in point, as are the Tariff Act of 1922 and the Anti-Smuggling Act of 1935. In Canada we remember, with the amusement permitted by the passage of time, the celebrated affair of the W.H. Eastwood. This vessel, registered at Lunenberg, Nova Scotia, was hit several times during a round of what was called target practice by the US Coast Guard Cutter Seneca, while lying 21 miles off the coast of Long Island with a cargo of liquor. (The destination of that particular variety of pollutant could not give rise to much doubt, it being 1926 and prohibition then being in full vigor in the USA.) The upshot of the incident was an order from the Commandant of the US Coast Guard directing that his vessels exercise greater care while engaged in target practice on the high seas. Three years later there followed the more famous case of the sinking of the I'm Alone.

Not everyone, it is known, accepts the view that the Arctic Waters Pollution Legislation is justified by the need to preserve the Arctic environment, by the overriding right of self defense, and by State practice with respect to the exercise of extra-territorial jurisdiction. Canada has been told, notwithstanding these arguments, that its legislation is objectionable because it is inconsistent with freedom of navigation and because it involves unilateral action where multilateral action should be taken.

This insistence on freedom of navigation, in Canada's opinion, ignores the unique nature of the Arctic waters and underlines the inadequacies of the existing law of the sea, particularly with respect to the special situation with which we are concerned. It ignores the fact that most of the Arctic channels are covered with heavy thicknesses of ice throughout most of the year; that there

has never yet occurred a single commercial voyage through the Northwest Passage; and that Arctic realities bear little if any relationship to the legal abstractions incorporated in such terms as "International Straits" and "the high seas." The same insistence on the principle of freedom of navigation at the same time demonstrates the inadequacies of the law of the sea in its provisions for the control and prevention of marine pollution. Those provisions, as they are found in various conventions, do not properly recognize the paramount need for environmental preservation; they do not strike a proper balance between the interests of the flag States in unfettered rights of navigation and the fundamental interests of the coastal States in the integrity of their shores. They are particularly inadequate, as the principle on which they rest is particularly irrelevant, to the special situation pertaining in the Arctic, in terms of the unique relationship between sea and ice and land, in terms of the vulnerability of the environment, and in terms of the disastrous consequences which could result from its degradation.

With respect to the assertion that the problem of marine pollution can only be dealt with by multilateral action, the Canadian Government has emphasized that it considers its legislation to be compatible with the development of internationally agreed standards of navigation safety and pollution control in Arctic waters. Indeed, the Canadian Government is consulting and cooperating with the United States and other countries on the possibility of convening an international Arctic conference which might develop such standards to complement the protective action being taken by Canada itself under the Arctic Waters Pollution Legislation.

As early as October, 1969, the Prime Minister stressed the desirability of combining an international legal regime and the exercise by the Canadian Government of its own authority in the Canadian Arctic to ensure the preservation of the Arctic environment. At the same time, however, Canada has the priority of concern for the preservation of that environment in regions adjacent to its coasts. Canada cannot abdicate its responsibility for the protection of its territory, and Canada cannot wait for the slow and difficult development of international law to afford that protection. Canada moreover has thoroughly tested the climate for international action against marine pollution, most recently at Brussels last fall, and has found it seriously wanting. The outcome of the Brussels Conference, indeed, was so little oriented towards environmental preservation and so much oriented towards the interests of ship and cargo-owning States that Canada abstained from voting on the Public Law Convention dealing with the right of intervention on the high seas, and voted against the Private Law Convention on civil liability for pollution damage.

In these circumstances, the Canadian Government determined upon a unilateral course of action which, it is hoped, will spur the development of a comprehensive system of international environmental law. State practice has, of course, always been accepted as an important source of customary international law, and the Canadian action marks a beginning for responsible State practice in this field. It is both compatible with existing law and in advance of it, both based on the most fundamental principle of the law and pressing against its furthest frontier.

It is for this reason that the Canadian Government, at the time of introducing the Arctic Waters Pollution Legislation, simultaneously terminated its declaration of acceptance of the compulsory jurisdiction of the International Court of Justice and submitted a new reservation excluding disputes related to the control of marine pollution and the conservation of the living resources of the sea. In a statement to the House of Commons on April 8, the Prime Minister reaffirmed that Canada strongly supports the rule of law in international affairs. He pointed out, however, that Canada was not prepared to engage in litigation with other States concerning vital issues where the law is either inadequate or non-existent and thus does not provide a firm basis for judicial decision. The Government has made clear that the new Canadian reservation does not apply to Canada's claim to a 12-mile territorial sea, since the Government considers that international law on the latter question, while unsettled, is sufficiently developed to permit the Court to arrive at a judicial decision in any dispute on this matter. I might mention that Canada's amended acceptance of the compulsory jurisdiction of the International Court of Justice still remains wider in scope than that of most other countries.

In concluding, I should like to quote again from a speech which Prime Minister Trudeau made in Toronto on April 15 last. This brief paragraph will, I hope, sum up for you much of what I have attempted to spell out in greater detail:

> We have told our friends and neighbors that this Canadian step, designed to protect the Arctic waters, will not lead to anarchy; it is not a step which diminishes the international rule of law; it is not a step taken in disregard of the aspirations and interests of other members of the international community. This Canadian action is instead an assertion of the importance of the environment, of the sanctity of life on this planet, of the need for the recognition of a principle of clean seas, which is in all respects as vital a principle for the world of today and tomorrow as was the principle of free seas for the world of yesterday.

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In view of the high quality of what you have already heard, and the rather complete responsiveness of it to one of the main questions before us--I refer especially to Bill C-202 with which Professor Bilder dealt so thoroughly yesterday--I have scrapped my previous plans and last night I reorganized some related background materials which I brought with me. So let me parade out before you some of the relevant and often conflicting interests that bear very directly on whatever final accommodation eventually comes out of the present effort being made by the United States to sit down with Canada and negotiate an acceptable agreement as to the regional problems which this panel is asked to discuss.

My presentation will cover quite a few different facets of the problem. There is a big oil and gas side to it. There is also a big shipping side. As to the ecological side, there is also what everyone else has called pollution, but what I prefer to limit to the oil spill problem. And, of course, it all must fit into a meaningful legal frame of reference.

The first point, of course, is that Canada is dealing from unquestioned practical strength and, I am sure, with unquestioned sincerity, in her recent unilateral initiative as to C-202. But all this is a bit of a switch, as I look at it. I wasn't there in 1958, but Canada then signed all four of the Geneva Conventions, and also the optional protocol for settlement of disputes, but she never ratified.

I think it is basic to things like the regional question we're looking at to have a map in front of you. It is interesting to see where the possible conflicts can arise in areas of common offshore boundaries between Canada and other countries, and to take a look at how much of a geographical problem each one of them involves. I have not yet heard of any intergovernmental agreement resolving the deep sea boundary problem in any of these areas of possible conflict.

I know of six such areas, excluding the Russian polar flank. Maybe I am missing somebody's rock that I don't know about, but certainly six is a pretty good number. I start out with the Maine-Massachusetts area, opposite the Nova Scotia-New Brunswick theoretical projection to seaward. This is a very difficult knot to cut. Then we go all the way around the United States to where Washington State and British Columbia share a common boundary--that is area number two.

Next move up to the Alaska-British Columbia boundary for number three. Continue from there to my fourth area--where the action is most likely to be--the eastern boundary of Alaska on the 141st Meridian of longitude with Canada's western boundary. That latter has been specifically defined in Bill C-202 by a simple statement to the effect that the boundary will continue across the 60th parallel north, which is that arch from the southern tip of Greenland, across the top of Saskatchewan and Manitoba, and all the way over to the Alaska line,

and there it proceeds northerly on the 141st Meridian of longitude "and seaward from the nearest Canadian land a distance of 100 nautical miles."

We go across to the North Atlantic side for the fifth area of offshore common boundaries, one which involves Canada and Denmark. The reason, of course, it involves Denmark is because you're looking at Greenland, and in C-202 they have covered the problem of that international boundary. In the language which I just read you concerning a line "seaward from the nearest Canadian land a distance of 100 nautical miles," there is a further provision "except that in the area between the islands of the Canadian Arctic and Greenland, where the line of equidistance between the islands of the Canadian Arctic and Greenland is less than 100 nautical miles from the nearest Canadian land, there shall be substituted for the line measured seaward 100 nautical miles from the nearest Canadian land such line of equidistance."

You then come down to one other classic example which I guess has to be mentioned at every one of these Law of the Sea Conferences. That is, there is French sovereignty and offshore limited sovereignty because of the Islands of St. Pierre et Miquelon, lying off southern Newfoundland. That area apparently is not in the news these days and I am not familiar with the official positions of either country concerning it. Perhaps it is not an active problem currently, and as I read Canada's official land map of exploration permits now outstanding, I see a respectful void of no Canadian awards in what looks like this same area. That may or may not be the answer to it. Perhaps later on there may be a comment concerning it from someone here who is closer to the source of the information.

In all of these Canadian areas there is also the fundamental legal "Commonwealth" problem. This is something legally related to and in fact corresponding in many ways to the problems that the United States has or had in determining what is State jurisdiction offshore, and what is federal jurisdiction offshore. There is a classic example of this in our Gulf of Mexico, and off California.

In Canada, however, there has been, as some of you know better than I, a recent resolution--by resolution I mean final determination--which set, for all practical purposes, the provincial rights at the low water mark, and confirmed the central authority's powers beyond that.

When you look at what is going on in Canada, you find that since this basic legal jurisdiction question has been decided, there has been a very, very active oil and gas leasing program--although it is not a true lease situation but rather a permit-issuing program--as to many, many parts of the Canadian offshore.

The map that covers this shows a huge offshore expanse all around Newfoundland, up into the New Brunswick waters and the St. Lawrence Gulf, and, of course, down off Nova Scotia where Canada seems to have recognized a de facto boundary offshore as to possible United States areas. Again, I do not mean to address myself to the technical pros and cons regarding this particular boundary. I merely call your attention to it, and perhaps if it is of interest the questions from the floor could later get to it and perhaps clarify the problem.

In this same area, and also in the area of the Labrador Sea offshore, there are now many oil and gas permits outstanding. In addition to that, if you look at the Hudson Bay area, the land map shows that probably 80 percent of this water is also now out in federal oil and gas exploration permits. It even shows a substantial number of holdings over in the Hudson Strait approaches to it, to the east. There are other areas of some activity, and substantial exploration permits are held around Vancouver Island and up into British Columbia, stopping at the putative Alaska offshore boundary to the North and correspondingly starting at the Washington boundary to the south.

The total of all these permits granted by Canada comes to 390 million acres as of early this year. Most of it is in the Gulf of St. Lawrence and the adjacent Atlantic, and the next highest concentration is in Hudson Bay and the Hudson Strait.

The interesting question of how the Nixon Proclamation might bear on these awards is one that I haven't gotten to the maps on. But there is no question but that there are substantial Canadian awards offshore beyond the 200 meter line, and I have heard it stated that some of the permits outstanding go to as much as 12,000 foot water depth.

In all that Canadian offshore there is very little drilling, and there is no production. The only production anywhere that could qualify as Arctic production, with which I am familiar, is the Cook Inlet area in Alaska. There has been drilling on the Canadian-Atlantic side at Sable Island. Mobil did a well there some years ago. I understand that Shell now has a major program in that area and is actively pursuing drilling operations.

With all of this on the land map of exploration permits, and with obligations, of course, creeping up on each one of the permittees, it is inevitable that there will be a very active farm-out program between various holders in an effort to get on with the obligations they have assumed, and to evaluate their holdings. There have been some important announcements in that direction already. A substantial Gulf-BP farm-out arrangement is of record. A few weeks ago an important Gulf-Mobil farm-out was reported. I am sure I am just touching the surface on the present situation, and I am very sure, also, that there will be a great deal more.

It might be worth going over briefly the separate point of what the promise, oil and gas-wise, is of these areas. The big story of course is the Prudhoe Bay discoveries, and the subsequent lease sale involving virtually a billion dollars in bonuses, and the play which is spreading so rapidly in that part of Alaska, well west of the Alaska-Canada border.

Some of the reports so far talk in terms of a 40-billion-barrel crude recoverable reserve in that Alaskan area. There have been lesser figures also, coming from very reputable sources. In any event, it is big oil, and it is a hot area. There is nothing like that over on the Canadian-Arctic side. You

can find only ten wells in all of the Canadian Arctic. There is, as far as published sources indicate, only one gas strike, and I guess it is still wild--it certainly was until recently--and this is the Drake Point well up in the Arctic Islands.

A figure in The Oil and Gas Journal less than a month ago said that in all of that area, the ratio on wells drilled came to one for every 187,000 miles. That is not many wells. A lot has to be done. But despite that, and because it is an area of great geological interest, there have been some very interesting positions taken concerning what is down the road in the judgement of those speaking. The Canadian Petroleum Association has talked of something as high as 120 billion barrels recoverable, but I am not clear as to whether this is solely the Canadian Arctic area. Even if they are speaking of a broader geography, there is little question that major reserves exist in the Arctic, and perhaps you can bear with me while I give you a specific quote on that point.

The Oil and Gas Journal in this article to which I referred said that "The Arctic Islands apparently are a geologist's paradise. Each new well completion, be it dry or wet, will help prove if the estimates of 50 to 100 billion barrels of oil reserves here can be substantiated." This summer, from the limited drilling programs that have been announced, will see a further step forward in just how right or wrong this is. At the same time, and assuming that these optimistic forecasts are borne out, there have been estimates to the effect that to find and develop and get out the oil that they hope is there, a figure in the area of say 13 to 15 billion US dollars is a realistic at-present cost, before C-202, as a total figure for getting the job done.

The other related point is that as Canada's crude needs stand today, and are reportedly projected for the next 10 or 20 years, there is certainly not likely to be, from present indications of what is recoverable, anything like another Middle East, or anything like a glut which will mean that Canada joins the major exporting countries as far as crude is concerned. It may be they have, as some have said, more of a trump card as to gas. But it is still much too early to go beyond that statement, too, as far as my own information is concerned.

The thing many of us are talking about here this week is simply the matter of getting the natural resources of the Arctic out and to market. As far as getting crude out is concerned, there are theoretical possibilities in only two directions. One is to pipeline it, and the other is to ship it. The pipeline project that should be farthest along is TAPS, from Prudhoe Bay, Alaska, to Valdez, which is an ice-free port on the south Alaska coast. But this project is having real trouble getting off the ground, and that is not meant to be a pun. One of the ecological problems is whether the pipe should be off the ground or buried.

The TAPS application was filed, as I recall, in the month of June, 1969, with a request that it be issued so they could proceed in the month of July because the pipe was already being landed from Japan. It didn't work like that, and the best guess from many places is that if it is in business by 1974, or

late 1973, they'll be lucky. Meanwhile the costs on it have skyrocketed. A recently published figure is well over a billion dollars, something like double the original estimates, and still there is no end in sight.

There is also a serious study under way as to moving from the MacKenzie River Delta down through Canada into Edmonton to tie into existing pipeline facilities. This is a pilot project as to practical details of operation, so it is beyond being a mere study, and it is receiving widening support from interested oil companies. This is the only Arctic Canadian pipeline project with which I am familiar.

The biggest hullabaloo about getting Arctic oil to market comes under the shipping label. It is a fair question whether any will ever be shipped east from Prudhoe Bay or elsewhere through Canadian Arctic waters on the present state of the record. One announcement said that a harbor construction project--they were looking at Herschell Island, east of Prudhoe Bay on the Canadian side--would be, just in rough figures 2-1/2 times the cost of the same facility south of the Arctic. This is only one aspect, but it gives an idea of how the cost problem affects the question of whether Arctic oil is going to be economic oil or not.

The biggest story as to ships, of course, is the story of the Manhattan and its breaching of the Northwest Passage. This is a semi-public secret which is very much the private domain of the people in Humble who have sent her up there twice now, and brought her limping back. I don't know what the answers will be, but it is a cinch that the Manhattan didn't have an easy time of it. Also, she is not what we call a VLCC, or very large crude carrier, one of the giant tankers. She is substantially smaller, substantially weaker in terms of power, and different in other respects. There is a long, fascinating story, I am sure, to come to surface some day as to the economics of the Manhattan project.

Another fascinating proposal--worth mentioning because it shows the kind of new frontier which even shipping can be capable of--was publicized last year by a company which had decided that the best way to do it was by nuclear-powered submarine tanker, under the ice. The details of that proposal included a ship of 900 foot length, about 140 foot beam, rated at 170,000 deadweight tons, and her oil cargo would come to some 1,250,000 barrels if that size submarine tanker were used. They also had a very down-the-road projection for even larger tankers. All involved an unusual engineering concept and could be loaded either on surface or under water by a seabed terminal facility. I haven't heard anything recently about where this proposal stands. It was a major presentation with what looked like a lot of hard pencil homework behind it; but the costs were staggering and possibly self-defeating.

The shipping side of things is really dominated these days by what I previously referred to as the VLCC. These are giant tankers, over 200,000 deadweight tons. The biggest of them, 326 to 328 thousand deadweight tons each, are the six Bantry tankers on long term charter to Gulf. They are a daring and very successful innovation in ship design. The economics of such large-scale marine transport is now very clear, and Mr. D.K. Ludwig's initiative in conceiving,

designing and building these Bantrys has been well substantiated.

I would like to say a word more about C-202. This is a serious proposal, and there is serious opposition to it from the shipping world. I'd like to run through what the International Chamber of Shipping (ICS) in London, which represents most of the free world's sea-borne tonnage, and what the AIMS group (American Institute of Merchant Shipping) in Washington, which is a corresponding (to oversimplify it) American organization, have said about C-202.

The London position, in the black letter law only, says that the bill is open to major objections. Their first point, without going into details, is that it sets out to legislate for an area extending seaward over 100 miles. Their second one, again just to label, is that its provisions on liability for oil pollution go beyond those adopted at Brussels in the IMCO draft Conventions.

The third point states that it interferes with the right of innocent passage. We even hear--I don't know if it's official--that it has been stated that there will be no such thing as innocent passage for any tanker in these waters. The particular complaint of the ICS is that the bill proposes that all vessels passing through designated "shipping safety control zones" in "Arctic waters" shall comply with Canadian regulations on design, manning, type of cargo, stowage, ship stores, and a substantial further list.

Their fourth point of objection, and I certainly agree here too, is that the penalties for offenses are out of all proportion to the various offenses. The fact is that in the bill, which is some 23 pages long, there are provisions for the seizure of ships even on the high sea, and they go so far as to provide for forfeiture of the ship and cargo, and make provision for where the proceeds shall be paid.

I have omitted here today, because of time, an effort to track through what the United States has been doing in the last six months with its Water Quality Improvement Act of 1970 and its implementation. Also I must pass over the submittal on May 20 by President Nixon of the two IMCO conventions to Congress, and other implementing steps, including what I consider to be the very important related National Petroleum Council action. The point to me is that the United States has been proceeding effectively as well as correctly, adhering to the accepted norms of legislative and sovereign initiative. In my opinion, the Canadian unilateral action on C-202 isn't that kind of a first act. The question is how will the play develop as we get past the first act? Perhaps the strongest thing of all is the effective date provision of Bill C-202; it is effective only under the provisions of Article 28 "on a date to be determined by proclamation." That may be the period during which the United States-Canada discussions are under way. I certainly hope there is a successful conclusion in that direction.

Leigh Ratiner
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As you all undoubtedly know, the Canadian Government has recently surprised the international community by announcing the introduction of legislation in Parliament which would establish a pollution zone extending 100 miles from Canada's Arctic coasts, a 12-mile territorial sea, and the right to draw fishery closing lines across the mouths of large bodies of water from which foreign fishermen without special treaty rights would be excluded. At the same time it took these actions the Canadian Government revised its acceptance of the compulsory jurisdiction of the International Court of Justice to exclude the pollution zone and fishery closing lines.

Canada claims that the need to protect the Arctic environment from irreparable harm is urgent and that the process of obtaining international agreement to sensible standards for navigation is too slow. In justification of her unilateral undertakings, Canada has publicly invoked a claimed right of self-defense. The hazard of pollution is real for Canada. So, too, is the danger of irreparable harm. But what was more real to the Canadian Government, I am convinced, was the ground swell of popular sentiment demanding Canadian claims of sovereignty over the entire Arctic. If it is possible to pinpoint the cause or causes for the Canadian action, and I am not sure that it is, I submit that it was this wave of nationalism, and not just the need to protect the Arctic environment from pollution, which caused Canada to make a unilateral claim of this type.

The cry of Canadian nationalists was received sympathetically by some officials of the Government. Many Canadians feel that the traditional law of the sea is the servant of the major maritime countries with global interests and that the law of the sea, as we know it, operates to the strong disadvantage of the legitimate interests of coastal States whose maritime interests are coastally oriented. Canada is very well aware that in this view she has some international support. Moreover, Canadians are also aware of the fact that pollution prevention is a popular subject, and any action to prevent or abate pollution can hardly be objected to in today's international climate of opinion. The imbalance in the law of the sea, and the popularity of pollution prevention enabled Canada to take the action she has taken with little fear of extensive international condemnation.

Canada's views are shared, for different reasons, by many Latin American countries, by island archipelago nations, by countries heavily dependent on coastal fisheries, and countries with great wealth in the seabeds adjacent to their coasts. These countries, by their dogged advocacy of the principle that coastal States may unilaterally establish the law which will apply off their coasts, have only recently brought the maritime powers to the realization that substantial modernization of the law of the sea is necessary. Historically, the United States and other countries of similar maritime interests have availed themselves of the principles of a legal system which heavily favors their extensive military, maritime, and trade interests. Not all nations benefit equally

from 3-mile territorial seas and traditional freedom of the seas. In an environment where all are free those nations which are technologically capable of mastering the environment obviously benefit the most. The major maritime powers probably never dreamed that one day their vast navies would for both political and military reasons find it difficult to enforce the law which they helped to develop and sustain. The coastal States have begun to discover this reticence of the maritime powers, and what was at one time an isolated exaggerated act on the west coast of South America has grown into a rebellion of major proportions.

Perhaps if the United States had not itself uncorked the bottle and let loose the genie with its 1945 Truman Proclamation, the maritime powers would have held off the rebellion a little bit longer--but when the United States, defender of the 3-mile limit and champion of the freedom of the seas, chose to act unilaterally it gave a license--not in a legal sense but in a power-politics sense--to every other nation to make claims of its own if it could make them stick. We tried to have it both ways and we failed.

After receiving the blessing of the international community on our unilateral claim in 1958, we thereafter tried to retreat to the pre-Truman Proclamation days. Unfortunately for us, the genie couldn't be crammed back into the bottle. And we discover now that the revolution is getting out of hand.

The revolution in the law of the sea is strikingly similar to the social upheaval going on in the United States. At what point will the domestic rebels succeed in forcing the establishment to listen to the demands and negotiate what they think is a fair and equitable solution to the social problems they see? Or have they already abandoned their intention to balance the law and do they now seek to have it all their own way? If so, don't they realize that by invading what society regards as its vital interest there can only be a counterthrust? Similarly, if the coastal State rebellion goes too far, won't the same thing happen in law of the sea? I suggest before this happens we must all come to our senses. This may in the next two years be our last opportunity for a long time to accommodate the interests of all countries, developed and developing, coastal and land-locked.

In my view, the recent proposals made by the United States with respect to the territorial sea, straits, high seas, fisheries, the continental shelf and the deep seabed offer clear evidence that the United States is now prepared to see the law of the sea modernized to suit the interests of all mankind. The US proposals are designed to protect US interests. There can be no doubt of it. But I strongly believe that in protecting those interests they simultaneously make a fair accommodation of all other interests in the sea. And indeed they were intended to do so.

Canada had ample reason to know that the US was ready to deal on an equitable basis before she took her unilateral actions. However, it is possible that Canada--and a number of countries in the world--suspect the US and other maritime powers of a conspiracy to protect the established order by making minimum concessions, coupled with a great deal of foot dragging in the hope of stemming the

revolution while continuing business as usual. If Canada believes this, it is a critical mistake in judgment. The United States is now prepared to see the law of the sea modernized and we hope Canada will seize the opportunity to join with us in working toward a new order, and not precipitate, as we did in 1945, a chain of events in which some countries may find substantial short-term gains, only to lose them in the long run.

Unilateral claims tend to exaggerate a coastal State's interest in the sea. In formulating them, nations are not restrained by any concern to accommodate the genuine needs of other nations. Rather, the tendency is to claim all a nation can, short of the point where it will risk serious conflict with more powerful nations. Inherent in that approach is the risk of miscalculation. Ultimately, coastal State unilateral claims may be pushed so far that maritime nations will have to react strongly to protect their most vital interests. As maritime nations, consistent with these interests, become less able to respect the unilateral claims of other nations, there will be conflict in the world and we will all share in the blame if we miss this opportunity right now for international agreement.

Canada argues that pollution in the Arctic presents novel risks of irreparable harm and that the international community, weighted heavily by the maritime interests, would not have agreed with Canada on sensible measures to protect the Arctic environment. I do not agree that the problem of pollution presents greater hazards for Canada than it does for the other Arctic States in the world. Oozing black oil presents just as ugly a picture on the white snow and ice in Alaska and Siberia as it does in the Canadian Arctic. And it should be prevented promptly. The single question is can we prevent it without damaging world order? Could Canada have persuaded potential users of the Arctic environment to abide by internationally agreed rules? Could Canada have tried the multilateral approach for six months to find out whether the potential users of the Arctic would seriously subscribe to a treaty which would prevent Arctic pollution?

The fact is that Canada did not try and she did have the time. The only contemplated tanker passage in Arctic waters was Humble's The Manhattan, and as Canadians well know, it meets their pollution standards. Can anyone doubt that the US would have been willing to agree with Canada on sensible pollution regulations knowing the US attitude toward unilateral claims on the high seas? What other nations who are potential users of the Arctic with tanker fleets would have been prepared to refuse to bargain with Canada in the face of Canadian national sentiment on the question of pollution in the Arctic? How difficult would it have been for Canada to prepare her pollution legislation in the form of an international treaty instead of a domestic statute?

One can only conclude that Canada took this action not only to prevent pollution but also to satisfy nationalistic sentiments and in the process sacrificed some international order. The question, I suppose, that we must now face as practical people is what to do next. The answer, it seems to me, is clear. We ought to give international law a chance. We ought to prove that we are capable

of coming to our senses and accommodating the serious and substantive interests of coastal States who are concerned about pollution, fisheries developments and seabed exploitation.

Canada has said her most urgent problem is potential pollution of the Arctic ecology. We should promptly obtain an international agreement which will effectively prevent pollution of the Arctic and, having obtained that agreement, rely on it to protect Canada. We need to negotiate a solution to the problem not because Canada threatens us with unilateral action, but because we have an obligation to protect Canada and any other member of the family of nations from damage which we may cause, just as other nations of the world have a right to be protected from damage to their coasts by the activities of others. Indeed, we are not negotiating with a Canadian guillotine over our heads as some may think. Prime Minister Trudeau described the situation quite aptly when he addressed a group of students. On February 6 at Carleton University, he said, in response to a student's question:

> You are saying, "Let's grab it and say 'It's mine.'" And if you go to court and lose, you grab a bit of air. And they don't take it to the court, and they send, you know, an atomic submarine up there and say, "Challenge us, Buster." Then what? Then what? Well, should we start a war? Sure, we send the Canadian Navy but, you know, you are telling us to limit our expenditures in defense... When you talk about international law, the only basis on which it rests is the acceptance by the nations of the world as represented in their courts or as represented in a certain consensus which is developing between civilized nations. You cannot just grab and say, "It's mine." You have to make sure that after you have grabbed it, people say "You were right to grab it and that it belongs to you and we approve this and we won't go to war over it, and we won't take you to court." This takes a little bit of time and it takes a little bit of finesse, I suppose.

He continued:

> You know, there's one theory that says Canada should own it up to the North Pole. Well, why not? But I can say, "Why not," but the other government can say, "Why?" You know, what makes law, [is it the law that it is the] first possessor or strongest army? You know there are nations which are stronger than us which are interested in the North Pole. It is not satisfying, eh? But this is what government is: it is trying to find the best possible solutions to sometimes worst possible situations and it isn't always as easy at it looks.

As you all know, when Canada made her claims, she withdrew her acceptance of the compulsory jurisdiction of the International Court with respect to her pollution zone and fishing claims. Thus, in the Prime Minister's own words,

the options are either to go to war to enforce the claim or to get it approved. War is unthinkable. An Arctic conference is therefore the only solution if Canada is to have the protection she needs.

It is crucial to Canada's interests and to world order that a conference on Arctic pollution convene, produce a sensible treaty and that that treaty be ratified by all who some day plan to use the Arctic environment. The treaty must be negotiated. The treaty simply cannot rubber-stamp Canada's unilateral claim. And it should be the obligation of every nation which plans to use the Arctic to abide by that negotiated treaty. We must prove to the family of nations that when legitimate interests are threatened we will join together to protect them. In short, we must prove to every coastal country, indeed to every country in the world, that we are sufficiently responsible as to offer an alternative to unilateral action.

If we do not offer an alternative, we will perpetuate conflict, and if there is any goal the nations of the world should have in common today it is to make all possible sacrifices to achieve a world governed by international law, but an international law which is so fair that it does not lead to the dissatisfaction which has brought us to near chaos in the law of the sea today.

THE ARCTIC MARINE ENVIRONMENT: A MANAGERIAL PERSPECTIVE

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1. Introduction: The Arctic as a managerial concept

The Canadian government's recent initiative in introducing the Arctic Waters Pollution Prevention Act has already provoked a wide variety of reactions outside Canada. It is a moral certitude that this was not unintended, that the legislation was indeed designed in part as an experiment in diplomacy. For international lawyers it raises important questions about appropriate policy objectives and decision-making methods in the world community. Since these are complex issues that cannot be explored at length this morning, I should like to use most of my allotted time to argue for a broad managerial perspective on the Arctic.

As a Canadian resident I am easily convinced that there are real and imminent dangers of pollution in the Arctic and confess to sharing the Canadian government's view that a bold national initiative is justified by the element of urgency in the need for protective standards and procedures and by the lingering deficiencies of decision-making in the international community. As an international lawyer I am convinced--unlike Professor Bilder who spoke more critically yesterday morning--that the substance and formulation of the Canadian pollution legislation is compatible with current trends in international law. In a changing world international law grows through evolution and development. It does not pass down a vertical pipe.

Yet it is not my purpose to defend every letter of the Canadian pollution legislation, much less that of the amendments to the Canadian Territorial Sea and Fishing Zones Act introduced at the same time. Even if it were, no complete defense of the pollution legislation is yet possible for the same reasons that preclude a fatally wounding attack upon it. The legislation has three aspects that must be distinguished and in none of these aspects has the official Canadian rationale been fully articulated. The statute is, at the same time, an aspect of Canadian Arctic policy, an aspect of Canadian maritime policy, and an aspect of Canadian policy on environmental protection. Only when Canadian policy on all three has been more explicitly formulated will it be possible to make a thorough analysis of the Canadian measures in the light of international law. We are told, for example, that new closing lines will be drawn in or around the Canadian Arctic archipelago; that new Canadian claims may be made to exclusive fishing rights beyond the 12-mile limit; and that additional legislation will soon be introduced for the protection of the marine environment adjacent to Canadian waters in the Atlantic and Pacific Oceans. In all three aspects--regional, oceanic, and environmental--Canadian foreign policy is in the process of reformulation.

It is difficult, moreover, to infer the Canadian government's full intentions in this process of reformulation. Members of the Canadian press are anxious to put words into the mouth of reluctant federal ministers, such as the

Prime Minister, the Minister of External Affairs, the Minister of Transport, and the Minister of Energy, Mines and Resources. What usually comes out is a flow of calculated ambiguities chiefly intended to repudiate or qualify politically dangerous positions. There is no doubting the existence of a strong nationalist current in Canadian popular attitudes, but its impact on Canadian political behavior is difficult to measure. There is an impressive significance in the unanimous approval given to the Arctic pollution bill at its second reading in the House of Commons. Unanimity in the passage of a major bill of unprecedented character is a rare parliamentary phenomenon in a multi-party chamber with a normal ratio of mavericks. But there are divided views, both in Parliament and among the electorate, on the need for direct or indirect Canadian sovereignty claims to extensive areas of Arctic waters lying between the Canadian Arctic islands. This division of views is certainly reflected in Canadian government circles and apparently in the Cabinet itself. Most of those participating in the nationwide debate realize that it is not entirely a national affair and that the outcome will be affected by the reactions of foreign governments and Arctic-related interests. It is therefore in Canada's interest as well as in the interest of the international community that the debate should not be conducted in an unrealistically narrow, nationalistic framework of reference.

Looked at broadly, the Canadian pollution legislation is an attempt to introduce a national system of management for limited purposes in a hard-to-define area of the world. In managerial perspective, Arctic waters should be regarded, as suggested above, as region, as ocean, and as environment. Authority over this unique area--the Arctic region-ocean-environment--is shareable, but the precise question is whether it is consistent with international principles that a substantial part of the whole area should be regarded as severable from the rest for limited purposes of good management, at least until a more satisfactory system of management can replace it or be conjoined with it.

2. The Arctic as a Region

If we think regionally about the Arctic, we are bound, I think, to have some misgivings about the acceptability of an exclusively national system of pollution control as a final solution. The definition of "region" as a political concept rests on the assumption of shared or complementary interests that would serve as the basis of internationally negotiated agreements. It should be stressed that Prime Minister Trudeau and other Canadian ministers and officials have given frequent assurances that the enactment of this Canadian legislation does not at all close the door on negotiations with other governments on aspects of pollution control in the statutory waters. One might go further and acknowledge that the next stage of managerial development for Arctic pollution control is most likely to be reached through bilateral negotiations with Canada's closest Arctic neighbor, the United States.

But the regional approach might suggest that even the North American Arctic sector--in a rough geometric sense--is too limited an area for effective management of Arctic pollution problems confronting Canada and the United States. To the physical and natural scientist the notion of a single, all-encircling Arctic

region may make more sense, if the problems of pollution control in ice-bound and frigid waters are highly homogeneous and likely to be managed most effectively by a single scheme of functional authority. It remains to be seen whether all the Arctic countries can be persuaded to form a single regional scheme with the express or implied consent of all non-Arctic users of the Arctic region and of all interested non-Arctic non-users. At present the US government is preparing to convene a multi-national conference on Arctic pollution control problems which would throw some light on this question, but the number of invitations issued--over 20--suggests that the US does not regard these problems as exclusively regional in character.

Most criticisms of the Canadian legislation focus on the unilateral form of the Canadian action, voicing realistic fears that it might encourage other countries to embark on new policies of unilateralism at sea. Other criticisms deplore the Canadian initiative as further disquieting evidence of the modern trend in expansionism curtailing the freedom of the seas. Yet the real danger is not so much that the Canadian action will be copied by others as that it will be cited speciously as a justification for much less reasonable expansionist claims by others. To the extent that others might regard the Canadian initiative as a legal precedent, the danger is that it might be abused, a danger that must be weighed against the reasonableness of the original initiative. Nor does it follow necessarily that a claim is more easily negotiable by virtue of its reasonableness, or that a bilaterally negotiated initiative is inherently superior to a unilateral initiative in the making of international law.

Whether Canada should, in the first instance, have persisted in serious attempts to negotiate with the US a bilateral regional or subregional system of Arctic pollution control depends on one's interpretation of Canadian and US national interest in the first instance. The American interest, in my view, is wholly economic and therefore potentially negotiable; the Canadian interest in Arctic waters at present seems more social than economic. The US anticipates economic gain; Canada anticipates economic losses with social consequences that cannot be assuaged through any kind of indemnity arrangement. But this is true only at the present stage of a swiftly developing technology. As soon as we have the technological means of confining or congealing spillage in frigid waters before it can spread and of recovering it in manageable form, the problem of oil pollution in the Arctic becomes soluble and potentially negotiable on a regional basis. The kind of technological breakthrough envisaged could in effect virtually eliminate the social consequences to Canada that at present accentuate the national aspect and deaccentuate the regional aspect of the problem.

Pending a crucial technological change, then, the national interest in self-defense--that of the nearest adjacent State in direct line of danger--outweighs the regional interest in cooperative development and use, as well as the self-defense interest of more distant States in less direct line of danger. Moreover, the reasonableness of self-help precautions taken by the nearest adjacent State confronted with serious pollution dangers should be assessed in the light of technology. Once the pollution problem becomes technologically soluble, the national interest in self-defense can be subsumed under a regional or subregional

system of management designed to accommodate conflicting claims to inclusive and exclusive uses. In negotiating a regional scheme of authority the nearest adjacent State in direct line of pollution dangers would presumably press for treaty provisions that spell out its special privileges in environmental protection.

The details of such a scheme would vary with the region. In some regions, for example, the number, identity and ideology of the users might make unworkable a system of recovery from individual shipowners deemed to be absolutely liable. In these cases some kind of regional users' idemnity scheme might have to be devised. This too may depend on the state of technology. For instance, if an oil slick in Arctic waters could be confined or congealed after spillage only with the help of aircraft, then perhaps only the nearest adjacent State could ensure that the technology is applied quickly enough, and in this event the scheme might be acceptable to that State only if it had immediate access to a fund reserved for that contingency.

3. The Arctic as an Ocean

The Arctic is an ocean because people have thought of it as such for a long time. More exactly it is a unique geographical area with some important oceanic properties. We are all slaves to the tyranny of geographical conventions. Greenland by arbitrary usage is only an island but Australia is a continent. It may be unnecessary to demote the Arctic or to create a new category for it, if we are willing to concede that it is at most quasi-oceanic. The Arctic Ocean is largely hypothetical, a peculiar combination of hypothetical waters and hypothetical islands, the distinction mostly covered over by large masses of ice. If international lawyers are prepared to give full weight to the ice factor in the treatment of sovereignty claims to hypothetical islands, they should be ready to question the mechanical application of the freedom of the high seas to hypothetical waters.

Yet for most international jurists the propriety of the Canadian Arctic Waters Pollution Prevention Act is to be judged solely by the oceanic criteria already established in the international law of the sea, especially those parts of it restated or progressively developed in codified form at Geneva in 1958. Canada signed all four of these conventions but has so far ratified only two: the Convention on the High Seas and the Convention on the Continental Shelf. It seems, however, that Canada is willing to accept the widespread view that the principles stated in the other two--the Convention on the Territorial Sea and the Contiguous Zone and the Convention on Fishing and Conservation of the Living Resources of the High Seas--have acquired or are rapidly acquiring the character of customary international law. Ironically, perhaps, it is in customary rather than conventional international law that the most telling, most contemporary arguments are found to justify the Canadian action. Logically, the most appropriate reference would be to the old but ill-developed doctrine of self-help, now to be interpreted as entitling a coastal State to take reasonable precautions when faced with serious pollution dangers. The equally old doctrine of the

freedom of the high seas was never intended to deprive the coastal State of its right to protect itself against threats to its security and well-being.

But even if the oceanic perspective is adopted, a convincing case can surely be made for the Canadian legislation solely by reference to oceanic principles in the customary and conventional law of the sea. In this area of international norms there are three primary principles of the highest relevance and all three are almost universally acknowledged.

First, the 1958 Convention on the Territorial Sea and the Contiguous Zone confirmed the general acceptance of the concept of a contiguous zone, within which the coastal State may exercise exclusive authority for limited, designated purposes in a zone within modest limits and contiguous to a narrowly conceived territorial sea. The concept was accepted, no doubt, not only because the limits of the contiguous zone were modest but more specifically because they were appropriate to the problems and functions envisaged. It may therefore be argued that a pollution zone is no less acceptable because of spatially less modest limits if these limits are wholly appropriate to the problems of pollution and the function of environment control. In these days of ecological awareness it is difficult to believe that a 100-mile zone is excessive, especially in Arctic conditions where severe pollution could extinguish entire species of plant and animal life and require generations of environmental rehabilitation.

Even more relevant perhaps is the concept of fishery conservation zones. This concept is more easily accepted by the international community if access to conservation authority is shared between the coastal (or nearest adjacent) State --even though a non-user--and all non-coastal users of the fishery resources in the area. However, the rationale is not merely that user interest and adjacency interest create a right of access to conservation authority but also that the responsibility for the conservation of the living resources of the sea is universal. The 1958 Convention on Fishing and Conservation of the Living Resources of the High Seas provides that all States have a responsibility to cooperate in appropriately sponsored efforts to establish and develop international norms, institutions and procedures to safeguard the marine environment. This universal responsibility rests on noncoastal as well as coastal States, non-user as well as user States, non-shipping as well as shipping States, non-industrial as well as industrial States, and non-governmental as well as governmental institutions.

Equally impressive in its relevance to the problem of marine environment protection is the Geneva concept, also enunciated in the Fishing Convention, that the coastal State has a special interest in the maintenance of the productivity of the living resources in high seas areas adjacent to its own waters. By extension it might be allowed that, with serious pollution hazards now in evidence, the coastal State has a special interest in the maintenance of the quality of the entire marine environment adjacent to its own waters, mainland and islands.

It is worth noting that two of these three principles--universal duty and special interest--are conservation principles first enunciated in a context that

limited their application to oceanic environments. Their historical origin in a convention concerned with the protection of fisheries is unlikely to retard their development as science and technology move toward the elaboration of systems for the management of man's total environment. In short, the principles of universal duty and special interest are environmental principles; only their present setting is oceanic.

4. The Arctic as an Environment

Environment is a difficult concept, and it is not made any easier by the mere coming together of different disciplines. What may be needed is a number of managerial concepts of environment, each given operational significance by specific reference to the objectives of an existing or emerging system of management for environmental protection or monitoring. Since these objectives and systems will change with the state of technology it may be unnecessary for international lawyers to thrash around for a universally acceptable, scientific definition of environment.

The purposes of scientific investigation are already global. It may not be long before the global scope of environmental monitoring is translated into a global scheme of overall authority for the protection of man's total environment: solid surface, atmosphere, and water. This total environment can already be shown, quite plausibly, to be a seamless web, and the future history of separate regimes for environmental management may prove to be brief, through the combined force of logic and efficiency. In the long-range perspective suggested by science, our present concern with a national initiative to exercise environmental authority in a vulnerable part of the Arctic may be trifling and ephemeral. Whether the authority exercised is national or international is peripheral to the central scientific issue, whether it is futile to establish a separate regime for the protection of the Arctic marine environment or even for that of the global marine environment. Already scientists warn us of the need for a worldwide scheme of environmental authority to insure man's survival through continuous recycling of all unused, spoiled and wasted resources within the parameters of enlightened population policies. Within such a scheme one can perhaps envisage the usefulness of a separate panel on the Arctic region through which the environmental policies of the Arctic countries would be coordinated.

Towards the establishment of such a scheme the Canadian Arctic Waters Pollution Prevention Act is a modest contribution indeed, but it does provide useful guidelines for scientifically informed management of Arctic waters. If an environmental view is taken of the Canadian legislation, we should be favorably impressed with the news of impending Canadian legislation for environmental controls in adjacent areas of the Atlantic and Pacific Oceans, and we should welcome news of other conscientious restraints by the Canadian government on all forms of pollution on Canadian land and in Canadian airspace. It would also be reassuring if the Canadian government were to acknowledge more explicitly the need for stricter environmental controls on Canadian companies licensed to investigate and exploit mineral resources on Canadian Arctic islands and on the Canadian continental shelf in the Arctic Ocean.

5. The Challenge to the United Nations

In my view, then, the international community has sufficient concepts suitable for application to environmental problems in general and to those of the Arctic area in particular. Even within the limits of the international law of the sea the Canadian initiative is easily justified if one is prepared to adopt a progressive or prospective view. But the dilemma for the Canadian government was whether there was any international agency ready and able to adopt such a view. The International Court of Justice is certainly able to do so, but recent decisions of the tribunal fail to encourage hopes that a majority of the Court stands ready to engage in the progressive development of international law in controversial areas. The Intergovernmental Maritime Consultative Organization (IMCO) has primary direct responsibility for the elaboration of international standards and procedures to combat pollution by oil from ships, but the conventions signed under IMCO auspices so far contain the basic defect of not providing for meaningful preventive regulation. At the IMCO conference held at Brussels in November 1969 the Canadian delegation argued in vain for the adoption of an effective regime of environmental protection.

The Canadian government has made no secret of the fact that its initiative was provoked by its conviction that IMCO, dominated as it is by shipping interests, is not suited for the elaboration of such a regime, and that the majority of the ICJ are not yet ready to develop the international law of the sea remedially in what they would regard as an area of legislative deficiency. But the most serious institutional deficiency lies outside IMCO and the ICJ. In listing the shortcomings of the UN apparatus as a whole, in its 25th year, we should include the need for improvement on the definition, allocation and supervision of responsibility within the United Nations for continuing study and appraisal of developing international legal issues. Such a body should be authorized to recommend appropriate procedures for resolving such issues through better coordination of existing agencies or the establishment of new ones. Predictably, the fault lies at the heart of international organization. We may already have the means required for introducing effective managerial schemes for protecting man's environment. All we lack, perhaps, is the will to use them.

DISCUSSION

McCracken: In the top-grade paper we have just heard, I thought there was a statement that it is clear that Bill C-202 in effect provides that the Arctic shall be open to the shipping of all nations. The only thing I want to say is that I don't find that anywhere in the Bill, as far as the English goes; I tried to read the French also, but perhaps there is a provision therein that I missed. I don't raise a quarrel on the point; I merely wonder if I missed something.

LeGault: The legislation nowhere indicates that shipping will not be permitted. On the contrary, it sets down conditions to encourage shipping while protecting the Arctic environment. Moreover, the numerous statements of the Canadian Government on this question have made clear that Canada wants to open the waters of the Arctic Archipelago not only for Canadian shipping but also for innocent passage by the shipping of all countries of the world, subject, again, only to the necessary conditions required for preservation of the environment.

In relation to the term "innocent passage," I would only point out that in the Canadian view a passage which threatens grave pollution of the environment of a coastal State cannot be considered innocent. The nature of the cargo must be taken into account in determining whether a particular passage is innocent, in the same way that it would be taken into account, I am sure, if the cargo were a shipment of nerve gas, or in the same way that the nature of the ship would be taken into account if the ship in question were a nuclear vessel, such as the Savannah.

Ratiner: I tried to phrase this question in the past 15 minutes in many different ways. I am afraid it is going to sound rhetorical, but I assure you it is not. My question for Mr. LeGault is, if within the course of the next year it were possible to produce an international agreement governing the use of the Arctic with suitable construction and safety standards included, and if all of the potential users of the Arctic were prepared to agree with a regime which would be completely international in character, would the Government of Canada actively seek to repeal its legislation--as actively as it sought to enact the legislation?

LeGault: In reply, I would like to say, first of all, that the Canadian Government is not prepared to abdicate its responsibility for the protection of its own territory and citizens, nor to delegate that responsibility to any other State or combination of States.

Secondly, the Canadian Government has indicated that the legislation will be proclaimed and will come into force. It has never for a moment suggested that the situation would be otherwise.

Thirdly, the Canadian Government from the outset has been committed to a combined national and multilateral approach to marine pollution in the Arctic and has indicated its willingness to participate in efforts to achieve internationally agreed standards of navigation safety and pollution control in the Arctic

waters. We are actively consulting with the United States on this matter at present.

Wolf: My name is Atwood Wolf, an attorney from New York. I would like to put a question to Mr. Johnston. In the light of his comment that he felt that the problem raised by the Canadian initiative was more conceptual than it was institutionalized, if I understand his words, it would be fair to say that the potential practical aspects of the problem would relate to the means and the substance of the Canadian Government's implementation of its policy in the rather broad area specified in the bill and over which it expects to exercise control. So I would, if I may, put a hypothetical question to Professor Johnston, and that is what does he believe the Canadian reaction would be to a situation in which, let us say, a State on the western shore of the Arabian Gulf undertook a policy such as that embodied in the Canadian bill, and then implemented it by regulations with respect to the design of ships that would effectively bar access to ports on the western shore of the Arabian Gulf to all ships owned, or flying the Canadian flag. I am referring specifically to design specifications for ships seeking access to the disputed waters.

Johnston: I hate hypothetical questions! So much would depend on unstated assumptions. What are you assuming, for example, about the nature of the Canadian national interest in this situation?

Wolf: We are assuming Canadian interest lies in not having access by its ships to the West Coast of the Arabian Gulf barred for reasons that have nothing to do with its relations with the eastern States.

Johnston: Canada is not a major flag State. It is not a "carrying" country. It is difficult to say what its policy should be in a situation so different from the Arctic which has never been an area of international commerce and may be amenable to development only under a special protective regime such as that claimed under the Canadian legislation. The compatibility of that legislation with international law, as I see it, rests on first order principles. In my view, the outside world should be more concerned with the fashioning of second and third order rules and regulations, some of which have been publicized and some have not yet been made public, with respect to the Arctic. There is enough flexibility in the Canadian position towards the Arctic to take account of the impact that the legislation has in the first place on other countries, and it gives them time to reconsider their own attitudes and policies. So in the making of second and third order regulations, certain matters could be adjusted, but nevertheless resting on the first order of principles of special protective authority over a shareable marine environment.

I would think if Canada and the United States could come together to negotiate bilaterally some detailed regulations on certain conditions of access, this would not involve any violence to the existing legislation. The question of repealing the Canadian legislation is rather academic. I don't see the existing legislation as some kind of straight jacket within which the Canadian Government finds itself trapped and prevented from negotiating meaningfully on

the second or third level of regulations. More serious perhaps is the political question, the domestic political question inside Canada. It is very difficult for any kind of government to know what the domestic political effect would be. There is a legitimate as well as realistic concern that in negotiating detailed second or third order regulations with another government, the Canadian government might give the erroneous impression to Canadians that it is in some way backing down from the policy underlying the existing legislation.

LeGault: I fail to understand how an assertion of pollution control jurisdiction in the undeniably unique circumstances pertaining in the Arctic can establish a precedent for a supposedly similar assertion of jurisdiction in the Arabian Gulf. I fail to see how a reasonable act can be challenged on the grounds it might allegedly give rise to unreasonable and unrelated acts elsewhere. I would also point out that the question as phrased, in any event, suggests that the stated hypothetical Arabian legislation would be discriminatory in character, whereas the Canadian legislation is not discriminatory. It applies to Canadian ships and all ships alike.

Finally, I would like to insist that the Canadian Government shares the concern of the international community for the preservation of the essential freedom of the seas. Canada believes that the best way to preserve that freedom of the seas is to adopt a flexible, creative attitude towards it, rather than to apply it rigidly and unimaginatively in circumstances where traditional law of the sea concepts are in no way appropriate, such as in the Arctic waters above all.

McCracken: I thought I understood Professor Johnston to say that Canada was not a carrier, and I am not so sure. In this collection of miscellaneous facts that I brought along with me there is a statement by the International Chamber of Shipping as follows: "The tonnage of Canada's own seaborne exports is greater than that of any country in Europe except the USSR, and its seaborne imports are the seventh highest in the world. Its interest in seaborne trade is therefore immense." Now, I am not trying to shoot anybody down, but I don't want anybody to shoot Mr. Wolf down, either.

LeGault: I would like to point out that seaborne trade does not necessarily mean trade borne in Canadian bottoms, but that Canada in any event does have a vital interest in seaborne trade.

Wulf: Norman Wulf, of the University of Miami. I have one observation and one question. The observation is that the danger to the sea from unilateral claims may be far greater than the danger to the sea from pollution by oil.

I am wondering how the distance of 100 miles was arrived at. I was looking through the Debates of the House of Commons and note a statement by Mr. St. Pierre on June 19, 1969, discussing the possibility of a claim to these waters under an Archipelago theory. In that statement he said, "In the Arctic there are one or two places where the base line might have to reach the extent of 100 miles to pass from point to point." In light of the statement by Mr. LeGault

that the 12-mile territorial sea will give control over both ends of the Northwest Passage, is 100 miles really necessary to control pollution, or are we in fact talking about sovereignty and perhaps masking a claim of sovereignty in a claim to prevent oil pollution?

Johnston: On certain aspects of that question I can speculate. Perhaps Mr. LeGault can provide information. There is no magic in the number 100, but I would think that the decision on this figure was influenced by the progression in the IMCO deliberations, 50 miles and then 100 miles, in the context of liability for pollution at sea. If you take an environmental approach, as we must, to problems in the Arctic, and pay attention especially to the slow processes of growth in the Arctic waters, it might seem that 100 miles is inadequate. Personally, I think it may have been a mistake to limit pollution control authority in the Arctic to 100 miles.

LeGault: I would like to say first of all there is no question of masking sovereignty in the guise of pollution jurisdiction in the Canadian Arctic waters legislation. The good faith of the Canadian Government on this question is unchallengeable. What Canada has done is to assert a limited form of jurisdiction to meet a particular danger. If anyone wishes to speculate about ulterior motives behind that assertion of jurisdiction, they are privileged to do so, but the purpose of the bill is limited to what is apparent on the face of the bill, namely to prevent the pollution of the Arctic marine environment.

With respect to the question whether 12 miles alone would be sufficient for the prevention of pollution of the Arctic waters, this limit alone would permit the exercise of pollution jurisdiction over a fairly wide area including two strategic points in the Northwest Passage, namely Barrow Strait and Prince of Wales Strait. It would not, however, be sufficient to protect the whole of the waters of the Arctic archipelago. It must be remembered that the thrust of the Canadian legislation is preventive and not merely punitive and liability oriented, and hence the need for a wider limit. It is precisely with regard to the prevention of pollution that the existing law of the sea is inadequate. It seems anomalous, in this connection, that certain countries are prepared to admit that it is permissible to sink a ship on the high seas after a marine accident has occurred which threatens pollution, but that it is not permissible to preclude that ship from entering certain areas in order to prevent an accident which would cause pollution.

With respect to the 100 mile limit for pollution jurisdiction, I think I would agree with what Professor Johnston has said. A hundred miles is not excessive, and perhaps not enough in terms of the preventive objectives of the Canadian legislation. But there has to be a limit of some kind. And I think, for a number of reasons, that a hundred miles is appropriate in light of the geography of the Arctic archipelago and such precedents as the 100 mile prohibited zones under the London Convention for the Prevention of Pollution of the Sea by Oil.

Griffin: I have a question for Mr. Ratiner. International law writers such as McDougal, Gidel, Brierly, Lauterpach, H.A. Smith, and many others, have carefully documented in their writings over a number of years that the growing point of international law in response to problems developed by new technology is the unilateral act of an interested nation which, if not unreasonable, is presumptively lawful. This same analysis was noted by Chief Justice John Marshall in a famous case in the 19th century involving jurisdiction which Portugal asserted off the coast of its then colony Brazil.

In view of this historical background, in what respects is the Canadian legislation any less reasonable than, let us say, the United States air defense identification zones, or the acts of the United States, France and the Soviet Union in closing off sections of the Pacific Ocean for military weapons testing?

Ratiner: I would like to try to answer that question taking the narrowest part first. You mentioned specifically air defense identification zones. We do not assert any jurisdiction, any enforcement in those air defense identification zones beyond the three-mile limit. Aircraft seeking to enter the United States are asked to identify themselves. If they actually enter the territorial air space of the United States, and have still not identified themselves, and refuse to do so, they may be escorted to an appropriate airfield to make a landing. We do not enforce any jurisdiction in the air space above the high seas.

Underlying your broader question is an assumption that unilateral claims are perhaps a lawful and sensible way in certain circumstances of making international law. I am not sure that I want to quarrel with that assumption, and therefore I am going to answer your question a little differently than the way in which you asked it.

I think that our experience in the oceans since the unfortunate Truman Proclamation has led us to a situation where unilateral claims are not a trustworthy way of creating international law. I ask that as a matter of policy we renounce the unilateral approach in favor of broad international agreement. The unilateral approach is simply not reliable in terms of protecting the interests of other nations which use the sea.

The multilateral approach is in some respects also not reliable because in a multilateral conference many compromises have to be made in order to reach agreement. It is, however, sure that everyone has a voice in the law when the multilateral approach is used. I am not quarreling with the concept that unilateral claims have been used to create international law. Indeed, the Truman Proclamation created instant international law by virtue of there being no protest to it by any nation in the world. Nevertheless, I ask that we now renounce that approach as being highly inefficient and potentially quite destructive and simply look to international treaty-making with respect to the seas.

Christy: I have two specific questions for Mr. LeGault. One is with respect to the depth in which mineral leases have been let off the coast of Canada. I think it would be helpful to get this background information. The other is with

respect to the effect of the hundred-mile contiguous zone on the freedom of scientific inquiry. If, for example, there were a proposal for scientific investigations of the deep seabed at the edge of the continental margin which could conceivably lead to some polluting elements, does this mean that the scientific inquiry would be prohibited?

I would also like to ask Mr. Ratiner some questions. Very little has been said at this conference with respect to the defense interests of the United States, and yet I expect that it is probably of significant importance as an underlying element of the President's position, and an underlying element of the United States opposition to the Canadian proclamation. It is assumed that these interests in defense call for the maximum freedom of the seas. Perhaps it is unfair to Mr. Ratiner to ask him up here to discuss what might be better termed Anglo-Franco-American problems, and then ask him the question about general problems of defense, but he is the only Defense Department spokesman we have.

Why is it that the maximum freedom of the seas appears to be of such great value to the United States? This might be asked with respect to two different issues, one with respect to the freedom of passage through the narrow straits, and the other with respect to the little black boxes which some of us have heard about.

Is it all narrow straits through which we want to maintain our freedom of transit, and is it presumed, if this is the case, that our overall objective is that of world peace keeping? Or is it just certain narrow straits that are of interest to us, perhaps for the purpose of maintenance of commercial activity and the right of maintaining open lines of commerce of valuable materials? If this latter is the possibility, can we then arrive at this kind of maintenance of certain narrow straits being opened, by somewhat more limited kinds of arrangements than blanket opposition to all extensions of limits.

With respect to the black boxes, these might be a myth. These are reportedly monitoring devices that might be placed off a foreign coast. If it is not a myth, what kind of influence does this have on the United States' position with respect to the narrow limits?

LeGault: In answer to the first question concerning the depths at which the Canadian Government has issued permits, I would like to give a very brief quotation from a speech by the Canadian Minister of Energy, Mines and Resources in the House of Commons on March 9. I quote: "The Federal Government has issued permits in water depths ranging to 2200 meters, about 7000 feet, in the Gulf of Main region; to 3700 meters, about 12,000 feet, in the Scotia Shelf region; to 2800 meters, about 9000 feet, in the Grand Banks region; to 2000 meters, about 6800 feet, in the Labrador Sea region; to 900 meters, about 3000 feet, in the Arctic Islands region; and to 2600 meters, about 8500 feet, in the Beaufort Sea Region."

In reply to the second question, as to whether or not the Canadian Government would prohibit a scientific project in the Arctic waters region if that

project involved a grave threat of pollution, the answer is very simple: yes, the Government would undoubtedly prohibit such a project under the Arctic waters legislation.

Ratiner: If I remember correctly, your first question to me dealt with the Nixon decision and the way in which it protects national security interests. I think that that question can be best answered by answering your second and third questions first. What are the defense interests in the sea? I am sure that everyone in this room is quite well aware of the fact that the Department of Defense owns both ships and aircraft and that it needs to deploy them to various parts of the world as long as we are the nation that we are today.

I want also at this point to emphasize that the new low profile posture of the United States in world affairs requires more than ever that there be force mobility. If indeed we withdraw troops around the world, as has been the tendency for the past several years, if more and more bases are closed, it becomes correspondingly much more important to maintain a naval and air force for defense of the United States which is sufficiently mobile as to avoid having to rely on foreign bases and foreign territories.

That brings me to the question of international straits. Obviously a variety of controls can be promulgated by coastal States over vital international straits. Some of these controls might be quite compatible with defense missions; others might not. Let's look at only one, for example. The credibility of the Polaris submarines as a deterrent force relies on the ability of Polaris to avoid identification as to location. If Polaris submarines can be identified as to location, they can also be attacked. If nobody knows where they are, they cannot be attacked. Therefore the right of submerged transit through international straits is crucial; if we must surface a Polaris submarine, its nose can be counted as it goes through a strait.

If a particular country bordering on a strait decides that there is a threat of pollution from nuclear-powered vessels and asks that they not go through the strait until the coastal State is satisfied that the nuclear-powered vessel will not pollute the coast, the United States would have to submit, first, an advance notification before entry into the strait, which is equally as bad as losing the right of submerged transit. And second, it might be asked to submit to inspection in port, which in many cases would reveal highly classified data and might impair its mission in the first place.

There are many who argue--and it simply isn't credible in today's world--that when it really counts the United States will go through, notwithstanding coastal State objections, indeed notwithstanding international law. And what they mean by that phrase, "when it really counts," is when there is a war. People tend to think of World War II as an example of when the United States used its alleged rights or actual rights without concern for legalities. The fact is we don't live in that kind of world now. We can't simply go where we want to because we want to. We observe the law, and if the law is unclear, or

if the law allows interference by coastal States with important missions, we may not perform those missions.

There is a wave of sentiment in the United States which suggests that we not perform those missions without regard to which ones they are, without regard to the circumstances, or without regard to the threat. I suggest that not all the missions that the United States armed forces perform should be judged by the same standards that are used to judge our missions in Vietnam or our mission in Cambodia.

You asked whether these were just a few straits or whether there were many more. The technical answer to the question is that if we were to recognize the 12-mile limit, the 116 straits which we regard as international, and now contain high seas through them, would be overlapped by territorial seas. The substantive answer to your question is that right now, with the world balance of power the way it is, you could probably identify a dozen key international straits, but tomorrow, ten years from now, twenty years from now, many of the international straits that today we do not identify as vital, might be vital. So we are very anxious to have whatever new rule applies to straits apply to all international straits.

Finally, the Department of Defense is quite concerned in this respect, and --perhaps ironically so--it shares the concern of the National Petroleum Council that there be established rules and orders on the sea. It is, when you are essentially a political organ responsive to political pressure, very difficult to conduct operations, or to navigate or to conduct exercises or to train without knowing what your rights are--and more importantly, with the assurance that you will not get into an ugly political mess when you exercise what you thought were your rights. Obviously we don't ask for international order if the international order includes total coastal State sovereignty over international straits. We think it is possible that there can be an international order negotiated with the rest of the world which will protect essential freedoms of navigation and accommodate safety considerations, pollution considerations, and the economic considerations which many coastal States have brought to bear in their claims over the seas.

It was that interest, among others, which was in our mind with respect to the preparation of the decision which President Nixon finally reached. We in Defense believed, perhaps because we are hurt the most by international chaos in the sea, that the best way to insure the rather minimal rights that the US wants to preserve for itself in the seas of the world is to accommodate all of these other interests. Obviously narrow boundaries comport with maximum freedom of movement. We therefore favor the narrowest possible territorial sea. We also favor the narrowest possible area in which coastal States exercise sovereign rights to explore and exploit the seabeds.

The President's proposal serves the national security interest in these ways: first, and I think most importantly, it signals a real substantive change in the United States' attitude toward the law of the sea. There can be absolutely

Ratiner (cont'd.): no question that the United States is prepared to go to a law of the sea conference or conferences, and to moderate what were traditional demands of a maritime power with global interests. I might suggest in the past these have been rather selfish interests. We have, beyond any doubt in my mind, prepared the psychological climate within the United States Government to modernize the law of the seas so that it will suit many more countries than just maritime powers. In short, we have demonstrated that we have the political will to negotiate fairly.

I will refer to a statement I will make on Thursday before the House Armed Services Committee. The President's proposal is important in another respect, and that is really in its method--the way in which, if the international community should accept the method, we would go about harmonizing these interests. To the extent that coastal States administer the resources of the trusteeship zone, as the President has proposed, they could only do so in accordance with rights expressly granted by the treaty. We would not propose that these be the broad sovereign rights of the Geneva Convention on the Continental Shelf. These broad sovereign rights were susceptible and have been used as bases for broader jurisdictional claims. Instead we will propose delegated rights geared to the performance of specific functions for the overall benefit of the international community. These delegated functions would be by treaty, and subject, even in these cases, to rules established by the international community.

We must very heavily put the emphasis on coastal State machinery rather than coastal State rights. There would indeed be coastal State machinery for administration of the exploitation of seabed resources in the trusteeship zone. But it would not be the coastal State's right, for example, to lower the standard imposed by the international agreement. The standard would be applicable beyond 200 meters to the trusteeship area as well as to the area beyond the trusteeship zone.

Finally, I don't think that these kinds of delegated and specific rights under international treaty would give rise to new and more sweeping claims of jurisdiction for another reason--and that is because the President's proposal includes, we hope, great benefits for the developing countries. With the exception of Canada, it has in recent years largely been developing countries which have unilaterally extended their jurisdiction over the seas, and primarily for economic reasons.

If President Nixon's proposal were accepted, in order for a developing country to extend its jurisdiction into the trusteeship zone, it would have to rob the international pot, and take from other developing countries. I seriously doubt that a developing country will want to put itself in that kind of position.

Hayes: We are all very interested in getting a rule of law as opposed to a rule of force on the oceans. The essence of the President's statement was that we aren't going to grab, and we encourage others not to do so. "Grab" is not a very nice word, but it is difficult to find another that is equally descriptive of an assertion of sovereignty in the ocean 100 miles from the base line. Whether that

is palliated by the self-serving assertion that it is from the best of motives is a question that ought not to be answered until you're sure than the answer can be generalized. Would it, for example, apply in the case of, let us say, Singapore and the Straits of Macasser, or the Union of Soviet Socialist Republics and the Arctic Ocean off the Siberian coast?

Johnston: In my view, the word "grab" has a connotation of acquisition, and in almost any context I could think of, it would mean the acquisition of an economic gain. If you are referring to the Canadian legislation, it is not a grab policy, for there is no economic gain involved. This kind of legislation is diametrically opposed to a grab policy. What Canada is trying to do is to defend itself from domestic and foreign vessels engaged in the pursuit of economic gain, and the word "grab" seems a strange word to use for this kind of self defense.

Blake: F. Gilman Blake, Chevron Oil Field Research Company. I gather that Mr. LeGault would, if asked, flatly deny the validity of "Craven's Law," about which I don't wish to quarrel with him. What I really wanted to comment on, and to ask him a question about, can be illustrated by the story that I heard not long ago about one of the fisheries conferences. It seems that a great many controversial discussions were going on, until some idiot tried to give a paper from the point of view of the fish.

I am in no way affiliated with the Humble Oil Company nor is my company in any way affiliated with the noble experiment conducted by the SS Manhattan. However, I do think I am qualified to understand the point of view of the fish. I don't quarrel with our Canadian friends' lofty expressions of concern for the ecology, not at all. However, what I would like to know--because I am wondering whether Humble Oil knew what a Pandora's Box they were opening--is whether the Canadian Government expressed these concerns to Humble Oil prior to their investing $50 million for this experiment, and at the same time telling them to go ahead with it.

LeGault: The only thing I would like to say about Craven's Law is that it is a classic example of a self-fulfilling prophesy. If extensions of maritime jurisdiction for a particular limited purpose have in fact tended to be translated into claims to outright sovereignty, it is precisely because of the inflexible attitude which for all practical purposes recognizes only the traditional concepts of the territorial sea and the high seas and leaves no room for the accommodation of interests between these poles.

With respect to the investment of the Humble Oil Company in the Manhattan Project, I think the Humble Oil Company was well aware of the Canadian Government's position regarding the Arctic waters before making that investment. The Company surely had every opportunity to be aware of Canada's position, and particularly it had the opportunity in discussions with Canadian Government officials prior to the launching of the project to realize that the Canadian Government had an overriding concern for the responsible development of navigation in the Northwest Passage, an interest in that development, and a desire to

cooperate in it and to encourage it. The Humble Oil Company had the opportunity in these discussions to realize that the Canadian Government was concerned with the question of environmental preservation and with the protection of the Arctic ecology from the risk of pollution which could arise with the development of navigation. I don't believe that the Humble Oil Company has expressed in any way, shape or form the view that the Canadian Government has dealt with it in anything but good faith in connection with the Manhattan Project. Canada acquiesced in the project, cooperated in it, and gave it active support and assistance. The Arctic waters legislation has not changed anything in this regard, but has simply confirmed and elaborated on the position which Canada held from the outset.

Olson: Fred Olson, Bureau of Commercial Fisheries. I am not a lawyer, but my questions or concerns deal with the view of the International Court of Justice that was discussed this morning, and to a limited extent the other three days. The first question is for Mr. Johnston and Mr. LeGault. We have no international law in this area. Why can't the International Court of Justice be used to create international law on cases that may concern the Bureau of Commercial Fisheries?

My second question refers to where Mr. Ratiner indicated that we ought to give international law a chance. If I recall correctly, in the United States' acceptance of the International Court of Justice we had some reservations. Do you think there is any chance of having a greater acceptance or complete acceptance of the International Court of Justice in the near future by the United States?

Johnston: My view may be a little different from the Canadian Government's. I question whether the International Court of Justice at present is prepared to take a prospective or developmental view of the international law of the sea. In other words, the Court may be still too retrogressive, too conservative, in its judicial philosophy, if one can generalize about the philosophy of a tribunal composed of people from different sections of the world. I would have thought that what little volume of decision-making in "growth" areas of international law has flowed from the Court in recent years is scarcely likely to induce any government that feels threatened by conservative legal attitudes to expose itself to a decision by a court with this kind of record. This is not so much a criticism of the International Court of Justice on my part as a recognition that it is not an appropriate organ to develop international law in this field. As I have said, the most serious deficiency is institutional rather than conceptual.

LeGault: In reply to the question as to why the International Court of Justice might not be used to create international law, I think I would prefer to rephrase the question and ask whether or not the Court has in fact played such a role. I do not believe it has done so to any great extent. I believe the reason for this relates above all to the very limited number of genuine acceptances of the compulsory jurisdiction of the Court and to the attitude of suspicion of certain countries towards the Court. This background, of course, hardly encourages bold initiatives in law-making by the Court, particularly

since the Court has no means of enforcing its decision. Until the international community demonstrates the will to have the Court create law, the Court will hesitate to do so. In the interval, it would be unrealistic to expect the Court to play a role which it has declined to accept on more than one occasion. This is not a criticism of the Court, but rather a recognition of the political realities within which the Court must operate.

Wilkes: There are three general principles of international law, all of which appear to support Canada's action in proposing its Canadian Arctic Waters Pollution Bill. The first is that "The law, like nature, abhors a vacuum." As it was put yesterday, courts must find some law to apply to a situation before them, because that is what we pay our judges to do. Indeed, when judges are criticized for "legislating," it is because legislators have been too slow to do their job, not because the judge did not do what we pay him for. Here, the Canadian legislature is filling such a vacuum better filled by legislation, for example, than by Admiralty Court rulings as to what should have been required for safety in the Northwest Passage. First, please note no one else was acting; there was, in short, a very real legal vacuum. Second, the solution taken is an extremely rational one. You will note that the Canadian Arctic Waters Pollution Bill (C-202) sets up a delegated regulatory framework. The actual standards as to the three main things regulated--pilotage, ship construction and cargo storage, and equipping for and reacting to danger--are left to the designee of the Governor-in-Council from the Queen's Privy Council. A regulatory group of experts is thus ultimately responsible.

The second general principle of law applicable here is that "The law does not require the doing of a useless act." The uselessness of recourse to bilateral or worldwide negotiations for quick protective detailed rules seemed, to the Canadians at least, to stem from two types of events. The first is the juggling with United States officials over the jurisdictional control over the two Manhattan voyages. It was clearly the Canadian passages which risked blockage, Canadian rescue forces which would have to risk their lives and even Canadian territorial waters involved--under any view of international law--off Princess Elizabeth Island. The second type of event is illustrated by the stone wall at Brussels which Canadian protective proposals met at the IMCO meeting. Right or wrong in their appreciation, the Canadians did actually see US-Canadian and IMCO recourse as the useless acts which world public order does not require.

The third general principle which may be advanced in support of the Canadian position, for the most part, is cessante ratione cessat ipsa lex (when the reason for the law ceases, the law itself ceases). Here the rule of "freedom of the seas" was designed to protect shipping against three things: (1) exactions for gain, as with Portuguese and Spanish "taxes" in the Indian Ocean; (2) limitations on fishing, as loomed important in the historic debate between Hugh de Groot and John Selden; and (3) impressing of seamen, as in the War of 1812. The Canadians are not acting contrary to any of these rationales here and suggest to us that the "freedom of the seas" principle no longer applies.

I submit that this may be Canada's biggest pitfall, for there is a fourth

unstated rationale for "freedom of the seas"--the uniformity of regulation which comes from no regulation at all. For example, it would not seem to be a reasonable world public order which required a tanker to have one size of compartments under Canadian law and another size when off Denmark's Greenland during the Northwest Passage. The remedy, however, would seem to be for tanker owners who want to preserve this uniformity to push as hard as they can for maximal and clear standards at the summer meeting called to get uniform design specifications on an international scale.

The frustrating delays on the Prudhoe Bay pipeline show that oil companies, as well as the Canadians, may not have time to wait for other "useless acts."

Alexander: I thought Mr. Ratiner's expression of what the United States hoped to do in the future was an exceedingly good one. There are two matters developing at what I think is an increasing and perhaps an alarming rate. One is the trend towards internationalization of the resources of the high sea as a common heritage of mankind. Internationalization may start on the seabed and work its way up through the water column, affecting not only the resources themselves, but other uses of the sea as well.

The other trend which is also interesting involves the special or "unique" situations of countries such as Iceland and Norway, with their dependence on fisheries, the USSR with its "closed" coastal seas, Peru with its eco-system justifying a 200-mile claim, and now we have Canada with its special ecological needs. Is it not possible that all 113 coastal nations of the world will in time find that they have "special situations" which justify special treatment? My question to Mr. Ratiner is do you anticipate where this new law will become a serious problem, the unique situation point?

Ratiner: With respect to the question of what might be termed creeping jurisdiction from international authority into the waters and possibly the air space involved, I think that underlying our thinking in the Department of Defense is a fundamental policy decision--we would prefer to trust the international community as a collective, than coastal States acting individually. There are clearly risks that the international community will attempt to control the oceans for all purposes, and the air space above. We think those risks are less than the risks of coastal State control over the same areas, as time goes by.

With respect to your second question, will more "unique situations" likely come into existence in coming years, that is probably impossible to answer. There is no question that Iceland will want certain kinds of treatment, and other countries such as Latin American countries will want another kind of treatment. They all claim special circumstances to justify their position.

One would hope that at a conference where most countries realize that the stakes are utterly fantastic for the future of the oceans, that special circumstance claims could be modified. We, on the other hand, might attempt to draw general rules to cover special circumstance claims. Not to create a list of

articles dealing with special circumstances, but to be sure that the substantive rights and obligations of all the parties to the law of the sea treaties comport with most of the genuine needs of these countries which allege special circumstances. I think it can be done if we want to do it. But if we don't have some give on the other side, we are not going to be able to do it.

Herrington: I understood Mr. LeGault to say that the Canadian action is "reasonable" and therefore cannot be claimed as a precedent for "unreasonable" acts. I further understand that Canada has unilaterally determined that her action in this matter is reasonable and by refusing reference of the World Court has precluded any test of this unilateral determination of "reasonableness."

I am sure that if any goverment should decide to take some much more extreme unilateral action, such government would almost automatically determine that, in the light of the circumstances, its action was reasonable.

Without involving in one way or the other the merits of the Canadian action, I don't see how the Community of Nations can protect itself from extreme unilateral actions by States if these States can, in accordance with the Canadian precedent, unilaterally determine whether their action is reasonable.

Nanda: I concede good faith to Canada and agree that its objectives are laudable. However, the use of the concept of "self-defense" to justify its actions is perhaps not a very desirable one. "Self-defense" is a muddled concept, and it is questionable that its twin criteria of "necessity" and "proportionality" have been met prior to Canada's taking this unilateral step.

Additionally, Canada's unilateral action would perhaps not be conducive to creating international law. Past trends show that efforts at creating international law of the sea by unilateral action have not been fruitful. The hazard of creeping jurisdiction and expansionism on the part of other countries is real and grave.

INTRODUCTION

Hon. Donald H. McKernan
Special Assistant for Fisheries and Wildlife to the Secretary
Department of State, Washington, D. C.

We will focus our discussion this afternoon on the last case history in regional management in this program--that concerning Latin American fisheries affairs. I have, first, Ambassador Edwin Letts who is well known in international legal affairs throughout the world. He has been dealing with ocean matters in international law for about 45 years. He has been in the policy-making area for the Government of Peru for a long time, and was one of the early experts in that country advocating the extension of broad jurisdiction into offshore waters. He was very active in the 1958 and 1960 Law of the Sea Conferences, and was a leading spokesman at the four party Buenos Aires Fisheries Conference this past fall participated in by Chile, Ecuador, Peru and the United States. He recently headed the Peruvian delegation to the Montevideo Conference, again discussing the question of the jurisdiction of the sea and the proposed law of the sea conference that is being considered now by nations of the world.

Our next panelist is Ambassador Edmundo Vargas, Legal Advisor to the Ministry of Foreign Affairs of Chile, and a professor of international law in Santiago. He is a leading architect of the foreign policy on law of the sea for his country, and in recent years has been heading most of the delegations from Chile concerned with law of the sea matters, among them the conferences at Buenos Aires and Montevideo.

I was hopeful of having a very strong advocate of the American fishing vessel owners with me today, but Mr. Felando, at the last minute, was unable to come. His replacement is an experienced international relations officer from my own office. Mr. Wilvan Van Campen is an expert in the international fisheries field, where he has been working for the past 20 years. He has made an extensive study of Japanese tuna fisheries, and was a fishery attache in the United States Embassy at Tokyo. He was also Director of the International North Pacific Fisheries Commission in Vancouver, British Columbia.

A previous panel dealt with a subject of great concern, the North Sea, where many things are happening that involve the developing law of the sea. The discussion this morning concerning Canadian-American relations in the Arctic again dealt with very important factors in the developing of world opinion for a new law of the sea conference, which in my judgment is inevitable within the next few years. There is another current problem, one that has been faced by the United States for over twenty years, and one that vitally affects the foreign relations of this country. This problem we are discussing in our panel this afternoon, the differences of opinion between the United States and certain countries of South America--particularly Ecuador, Peru and Chile--on jurisdiction over high seas fisheries off their coasts.

It is well known to many of you that much attention has been given recently to alternative schemes for international fisheries management. I will not try

to review these now. I recognize, however, there are some people who may not be so familiar with this field of international ocean affairs, and for them I would say that the previous Proceedings of this particular Institute contain a number of important papers on this subject; there are also papers published in other conference journals by such people as Dr. Chapman, Dr. Schaefer, Dr. Christy, Dr. Crutchfield, a few by myself, and others who have addressed themselves to the subject of the possible arrangements in the field of international living resources of the sea.

Generally these schemes involve, in the simplest case, unilateral jurisdiction conveyed ostensibly to the coastal State by international law. Another scheme involves a regional multilateral conservation convention of the type discussed the first day of this conference by Bill Sullivan--the International Convention for the Northwest Atlantic Fisheries. Another very well known convention is the one on the other side of the Atlantic, the Northeast Atlantic Fisheries Convention. Closer to the subject at hand, the Inter-American Tropical Tuna Commission is based on a multilateral convention composed of five nations, and soon to be composed of six, as Japan joins the group.

There have been a number of successful bilateral arrangements, both formal and informal, among them the conservation conventions between Canada and the United States, and more recently between the United States, the Soviet Union, Mexico, Poland and Japan. There have also been some suggested schemes for broader international control by such organizations as the United Nations or one of its specialized agencies.

The problems we are facing in Latin America with respect to the living resources of the sea are not new, but they have grown in recent years. I think any one of us on this stage would predict that these conflicts are going to increase in the future as the world fills up with people and with independent nations, and as man increases his technological capabilities for searching out and exploiting the resources of our planet. I feel that there are few activities of man where there are more opportunities for conflict and for cooperation than in harvesting of the living resources of the sea, particularly fish. The exploitation of fisheries is becoming increasingly international in character, and because of the interest of all nations in this resource, and because of the increased operating range of fishing vessels and their capability of keeping fish in acceptable condition for longer periods, the processing and marketing of fishery products is also becoming more internationalized in nature.

As fisheries are growing they are bringing new problems for the foreign departments of governments--problems of jurisdiction and allocation of resources, problems of cooperation in research and conservation, problems of competition in trade and in the marketplace. Essentially man is a problem-solving animal, and many of the concerned officials have turned their ingenuity to the ways of solving these international problems arising from the increased use of the resources of the sea. The problems that are developing and the solutions that are being applied are of various kinds, and reflect some features peculiar to

the fishing situation, and in some cases different policies and philosophies of governments that are trying to deal with these problems.

Many of the resources are of a regional interest, because of the natural distribution of the fisheries themselves. For example, the ground fish resources of the Northwest or Northeast Atlantic are essentially regional in nature, depending on the topography of the bottom and the peculiar circumstances of the current systems. Often they are regional simply because the fishermen themselves are confined by vessels or geographic or economic circumstances to a small area.

There are cases on the other hand where the resources of a particular region are exploited by fishermen from other regions. Here we can think of the distant-water fishermen coming long distances to the coast of the United States and Canada, and in the case of the United States, long-distance fleets of tuna boats travelling many hundreds and even thousands of miles to the coasts of other countries.

Let me be more specific and tie in our discussion to the present area under consideration. Off the coast of Chile is a regional resource, migrating relatively short distances in the rich Humboldt Current, which is being fished to a tremendous degree. In the same area, a little farther offshore, lie tuna resources. These are of two species, first the yellowfin tuna migrating, according to the best information of our scientists, from the northern part of Chile northward to the southern part of the United States, and occurring out from the coast perhaps to 200, 300, or even 400 miles. Other species of tuna, including the second most important species, the skipjack tuna, migrate greater distances from the west coast of South America to the eastern and central Pacific, where tags which were physically put on in one part of the eastern Pacific have been recovered hundreds of miles away.

A recent paper by Dr. Schaefer, still unpublished, on the investigation, conservation and management of the fisheries of the high seas, points out the general migratory habits of many species of tuna. He indicates that the albacore tuna in their trans-Pacific migration from the eastern to the western side of the Pacific Ocean cover thousands of miles annually.

It is interesting that within the Western Hemisphere we have a wide variety of international fisheries situations, with their problems of conservation and economic competition. In the northern and southern halves of our Hemisphere, we have in fact developed broadly different approaches to these problems. If I might be permitted to characterize them in very general terms, I would say that the approach adopted in North America has tended to be resource-oriented. We take a look at the resources and develop management systems based upon these resources wherever they migrate. We look also at the people involved in exploiting the resource, and we have evolved systems that include the resource and, with some slight exceptions, all of the people engaged in the fishery.

Our Latin American colleagues, on the other hand, have adopted a system of management involving geographical or national boundaries, so that the character

of the two systems is quite different. The South American system, it seems to me, has tended to be an exclusive one. Essentially a group of coastal nations has examined what they felt to be in their own interests, and have gone ahead and formed conservation conventions involving the people living in this geographic area.

We North Americans have tended to accept the idea that fishermen of all nations have the right of access to resources except in very special circumstances. We furthermore have not found it to our general interest, at the present time at least, to bar these people without their agreement from participation in the fisheries for such resources. Therefore, it seems to us to be advisable, in order to achieve effective conservation measures, and some rationale to the management of these resources, to try to encourage the governments of all the countries whose fishermen operate in a given region to join in a cooperative international effort to solve the management problems of that region, even though some of the nations may in fact be located halfway around the world.

For example, in recent months we encouraged the Government of Japan to participate in the International Northwest Atlantic Fisheries Convention, even though Japan is thousands of miles away from the fishing grounds themselves. The Government of Japan responded, and is becoming a member of the Convention for the Northwest Atlantic Fisheries. The same is true of Japan in the eastern part of the Pacific, where recently the Japanese said they would join the open-ended inclusive conservation convention on tuna. In developing the arrangements for study and conservation of international fishing resources, it has seemed more important to us to gain the participation of all nations which exploit these resources than to vest control of the management in a government or nation that happens to front on the region of the fisheries, but which might not be in a position to fish for the resources themselves, or carry out adequately research for their conservation.

I realize I am putting a positive slant on our inclusive approach, and we will expect our colleagues from Chili and Peru to present a somewhat different point of view. It seems to me that the position of the three nations on the west coast of Latin America is that the best use of the resources is going to come from coastal State control. These resources in the seas off their coasts must in some way benefit primarily the people in the adjacent coastal States. In no instances in these three countries are they attempting to exclude other people from harvesting these resources, providing they do so under the regulations and rules set down by each of the coastal States. They believe that their system of conservation, practiced under the South Pacific Commission, is superior to or equal to that practiced by Inter-American Tropical Tuna Commission, the inclusive type of commission. And their advocacy of broad coastal State jurisdiction holds that this is the system of jurisdiction that will soon be accepted by a large number of nations, and in fact will become international law.

Again, when we in North America think of regional fishing arrangements, we tend to think of arrangements among the nations concerned, whereas the west coast South American nations appear to think primarily in terms of arrangements

among neighboring nations with respect to their fisheries. There is quite a little difference in these two points of view.

Thus, when a regional commission for the southwest Atlantic, the CARPAS Commission, was formed, membership was restricted to Argentina, Uruguay and Brazil, although at that time there were several European nations carrying on extensive fishing efforts in the region. And across the Andes, the west coast nations of South America established their Permanent Commission for the South Pacific. As far as I can tell, there was no provision made here for the participation of extra-regional nations, although a number of such nations exploit the yellowfin and skipjack tuna. By the same token, the west coast countries of South America have shown little interest in participating in the work of the Inter-American Tropical Tuna Commission, an organization formed on the lines of our North American inclusive concept with membership open to all countries who use the resource regardless of where the countries are located.

I suppose this philosophy, which developed south of the Equator, is the same philosophy that led the west coast countries of South America to prefer their own regional arrangements for the conservation of whales over those of the International Whaling Commission. Here again I would appreciate my distinguished guests' comments. I think the evolution of these two systems is of interest, and I think it is of particular importance in proper planning for the future. Indeed, it appears to an outside observer that the regional fisheries arrangements in South America are in fact international agreements which tend to be against the development of regional fisheries, and are based on the concept that in fisheries each coastal nation should turn its eyes only directly seaward from its coast, and to the extent feasible so exploit, or at least be the major beneficiary of, the resources that lie seaward of its own shores.

For some types of fisheries this would work very well. For example, it might well work for the anchoveta fishery. For highly migratory species, such as the species of tuna that are found off the coast in the eastern tropical and semi-tropical Pacific Ocean, overlapping the borders in terms of geography of several nations, it does not seem to be the most practical approach to the problems of research, conservation and management.

It is my understanding that some significant differences have arisen between the approaches to regional fisheries management on the east coast and west coast of South America itself. I believe that on the east coast of South America the CARPAS convention has been somewhat less exclusive than that practiced on the west coast. That is, although the east coast nations have excluded extra-regional countries from the joint fisheries arrangements, they have not tried to completely exclude one another from participation in the fisheries of their respectively-claimed jurisdictions. Thus, there are agreements between Argentina, Uruguay and Brazil that permit each other's nationals to enjoy reciprocal fishing privileges. I have not heard of similar arrangements on the west coast, although there is some licensing of each other's vessels, essentially on the same basis and with the same rights and privileges as extra-regional nations are bound by and participate in.

It seems to me that the east coast type of approach, looking at this from a theoretical point of view, is more likely to foster a broader cooperation in conservation efforts; while under the west coast philosophy, such cooperation is likely to be limited, perhaps, to such things as exchange of scientific data. Conservation and management efforts are to be taken individually by each nation, looking out of its own window at the sea.

You are all aware of the differences of the three countries of the west coast of South America and the position of the United States. I simply want to say a few words about that. For years the United States and these Latin countries have struggled unsuccessfully to resolve the legal differences between us, in terms of broad jurisdiction versus narrow jurisdiction. I think we have decided that while this is not a hopeless task, it is a task that is tremendously difficult and may take years to solve. We have, in recent years, taken a different approach. I want to point that out because I believe it will come up in our discussions and you should be aware of this, and thinking about it as we talk. We are attempting to set aside the differences in legal positions of the United States on one hand and the Latin American countries on the other, and we are suggesting that these be dealt with in another forum, for example, in a new law of the sea conference.

We are attempting to set aside the legal differences that we have had so much difficulty in resolving in the last twenty years, and to search for a practical solution to the problem. I believe that everyone on the platform here would agree that progress has been made towards finding a solution to our difficulties, although I want to make it perfectly clear that no final resoltuion has been found. The kind of progress I am talking about is perhaps not much, when measured by the progress in some other fields, but it is pretty good as far as progress goes in the field of international disputes. It shows substantial progress towards a solution when both sides are not only talking and communicating very well, but when they are actively attempting to seek a solution to the problem.

Partly because of the differences between the North American and South American approaches, the cooperation between us in the field of international fisheries and in the field of international marine affairs has been somewhat limited when compared with our cooperation with European nations and Canada, for example. We have other agreements with Canada, and several in a formal and informal way with Mexico. These, without exception, have been useful and successful. Costa Rica was an original partner with the United States in the Inter-American Tropical Tuna Commission, and Mexico and Panama are both members of this Commission at the present time, as is Canada, and after July 1, Japan.

All of these countries have been very valued collaborators in this international Convention, and the stocks of yellowfin tuna in the eastern part of the Pacific have never been at higher levels of productivity than they are today, although the fishing effort applied is greater than it ever has been in the history of the fishery.

Ecuador, one of the members of the South Pacific Commission, was also a member of the Inter-American Tropical Tuna Commission, but did withdraw a few years ago. South of Panama, the nations have not shown an interest in joining this particular Commission for a number of reasons. I am sure they are good, and sufficient from their particular point of view.

I do look forward to additional cooperation of these nations with our country in the future. I am hoping that the situation of isolation from one another in ocean affairs and fisheries affairs will end very soon and that we will find a basis to make possible close cooperation in fisheries, as our natural and long-held ties in other areas of economics and trade and culture bind us to that part of this Hemisphere.

Hon. Edwin Letts
Ministry of Foreign Affairs
Lima, Peru

I am very privileged and honored to participate in the meeting of this Institute. If I had known really how well prepared, how highly qualified are the people that take part, I would have been afraid. I would have excused myself from participating rather than being exposed to the criticism of the well prepared people that are here at this time.

I am going to enter into the matter of discussion this afternoon rather frankly, because I am expected to do so and because I speak as a private person and not as a Peruvian authority on this matter of fishing. I must say this is not the first time that I have discussed with Ambassador McKernan. We have had rather serious discussions on this matter in the past, but as representatives of our respective governments.

More than a hundred years ago, at the time that the guano islands off the Peruvian coast had acquired a great economic importance, there were some ships--I think from New England--that went there to exploit the guano resources. Peru was compelled to seize those ships and thus got into diplomatic discussions with the United States Government. Happily, we were able to prove rather conclusively that these islands were indeed Peruvian, and to contradict the opinion sustained by ex-whalers that they had used the islands for many years. At that time the State Department was completely satisfied with this situation. I hope that in the same line the discussions we have now gotten ourselves into can be solved in a satisfactory way.

I think Peru has acquired notoriety in this matter for several reasons. We have extended our sovereignty on the sea and have been the first to take unilateral action to impose respect of our law. The actions we have taken have been significant to the United States and other countries as well. We have achieved notoriety also because we are the people that catch the largest amount of fish. In a very few years we moved from just a harvester of fish for our own domestic consumption to a country that fishes the greatest volume of tonnage in the world. That is one reason, and a very good one, for the measures taken to preserve the richness of the fishing grounds there in Peru. This puts us in the limelight, since we do not allow others to fish in our waters without permit. This means, also, that the need to defend our juridical concept of the sea has entered into the Peruvian consciousness.

Geographically, Peru has four well defined regions: the coastal desert, the "Sierra" or the Andes with its very high mountains, the Amazonian jungle, and the sea. These are four completely different parts of the country. Nowadays everyone in Peru looks to the sea as our hope for the development of the country. For you, perhaps, 200 miles of territorial sea is too large. In Peru, I can tell you, that is not so. We are sure that if we had not in due time declared and extended our jurisdiction on the sea, we never would have become the largest fishing country in the world.

The fish were there, and if we had not extended our jurisdiction in defense of the possibility of others catching those fish, we are pretty sure that nowadays those fish would be caught--but not by Peruvians. That is the sentiment of the Peruvian people, and it must be taken into account when one tries to discuss this matter. I know very well that if somebody in Peru should try to diminish the 200 mile claim and say, "We can be happy with 199 miles," it would not be well received; you can be sure of that.

There is another situation that has given us notoriety in this matter, and that has been the many incidents in which Peru has seized foreign ships, among them American ships. We make no discrimination on seizures. In fact we did not begin by seizing American ships; we began by seizing an Onassis ship flying the Panamanian flag. This was done because Onassis publicly announced that his enormous fleet was going to fish whales in Peru in the waters that we proclaimed as under our sovereignty. Not only did he do this beforehand, but when that fleet effectively challenged our jurisdiction and entered Peruvian waters, a declaration was made to the press that they were fishing in our waters and nothing would happen to their boats. The Peruvian reaction was very strong. At that time we seized several boats and imposed a severe fine. We have never fined an American boat with anything so high. Our fines to the American boats generally are around $10,000; to Onassis it was $3 million. There is quite a difference.

In this question of the sea we have acted under two preoccupations continuously. From the beginning of our action we were seriously worried about two points, or criticized about two things, the conservation of the fishing resources in the sea, and the studies which are necessary to accomplish this conservation.

We had a certain experience with the conservation of living resources. At the beginning of the century we initiated regulations to protect the guano birds; those regulations extended beyond the three-mile limit which we had at that time. Later on, there was a tremendous reaction around the world when we extended our sovereignty to 200 miles, and when in accord with Chile and Ecuador in the Declaration of Santiago (1952), we again insisted on 200 miles jurisdiction on the sea.

I remember the diplomatic notes we received about this. They were rather impressive. They said, in the best diplomatic language, that we had lost our minds. We were then obliged to study what the alleged rule of the three-mile limit really was, and we discovered that American scientists and lawyers had studied that problem also, and they had preceded us in stating that the three-mile limit was not international law at all. One of them concluded that the three-mile limit was pure Anglo-Saxon propaganda. That was our conclusion too.

In our concern with preserving the stock of fish, we had a lot to learn, and we have received a great deal of help from the USA. I was proud to hear at this meeting, first in a talk by Mr. Schaefer, a leading scientist, and second by a representative of the State Department, that we were one of the few cases

where internationally or nationally the measures of conservation have been complied with.

Also, we have collaborated with other countries in the world on scientific studies. We have received a lot of assistance from the United States, especially from the institution that Mr. Schaefer represents. Mr. Schaefer is really the authority on this matter, and in Peru his advice is followed carefully. This puts us under an obligation, too. To apply measures of conservation and pursue scientific studies was a rather difficult road to follow for an underdeveloped country. It was an uphill road. Nothwithstanding, we have gone along that road because we feel that is our obligation. We feel that as a coastal country that has extended its jurisdiction, we must really save the living resources on our sea. Besides, the life of our country depends on those resources. This dependence on the sea must give us some special rights. That is our principal livelihood, and that interest must be reflected in the special rights of the coastal State.

I try not to mix into my explanations the organization which the three countries, Peru, Chile and Equador, have for the conservation of the living resources of the sea. My colleague from Chile is going to mention the work of the permanent commission of the South Pacific. But I want to touch on other points, particularly those that made us begin with jurisdictional claims. When we said we extended our jurisdiction to 200 miles, other countries accused us, saying that we were going to interrupt navigation, and have exclusive fishing rights. Those two points were made very clear in the official announcement of the three governments. Navigation within 200 miles of the coast is completely free. And we do not claim exclusive fishing rights in the 200 mile area.

We have never gone out of our way to impinge on the maritime rights of other peoples. We do not ask for exclusive fishing rights. One of the characteristics of the territorial sea is that the coastal State has exclusive fishing rights. Within the 200 miles, we have never invoked this; we only maintain our rights to regulate the fishing in the interest of preservation of the species.

Before we promulgated our rules and regulations for conservation and fishing, we had one conference between the three countries and the United States of America, in Santiago in 1965. We knew we had to allow fishermen from all parts of the world to fish within our waters. We made rules for that, and at the same time limited the fishing for conservation purposes. This was done in a decree of the Government, which took into consideration the real interests of fishermen from the United States. We had talked about these rules with the interested people in the tuna fisheries. For several years afterwards we had no incidents. The tuna fishing boats were duly licensed.

The ways of fishing for tuna have changed now; there are many more vessels. I still think that the majority of the boats that fish for tuna in the Peruvian coastal waters take care of getting a permit or license first, and that, more

or less, the same few boats are always the ones that are caught and fined.

I will not deal in the political implications of this at this time. I am going to tell a story about the beginning of our fishing efforts. It really was a war effort. At that time the United States was at war, and all of its fishing boats were gone. People from the United States were going to teach us how to catch and to can fish. We started a tuna canning industry, but it suffered after the war because the United States imposed heavy duties on imports.

It was then discovered that another product, fish meal, could bring a good price and could be produced easily in large quantities. That was the start of the enormous and rapid growth of Peruvian fishing.

Ambassador McKernan has said that there are now consultations going on between the three Latin American countries and the United States. This is really the third time that there are such talks. The first time was between the United States and Peruvian delegates to the O.A.S. I do not remember the name of the American delegate, but our representative was Ambassador Lavalle. They had two or three talks with no consequences.

Later on, with Mr. Herrington, who is present at this conference today, we had a conference of the four countries in Santiago in 1955. At that time we discussed problems rather openly, but found we were too far apart to arrive at a solution. Nowadays we are engaged again in talks. I know that this is very important, because when communications are open, there is always the possibility that something could be accomplished. And on this note of hope I finish my talk here today.

Hon. Edmundo Vargas
Legal Advisor to the Ministry of Foreign Relations
Santiago, Chile

First of all I want to express my gratitude to the Law of the Sea Institute, and to Ambassador McKernan who kindly suggested my name to be here this afternoon and to have an opportunity to explain the Latin American position in this matter.

I have an official position in my country. I want to say to you that I am not speaking in that capacity, but as a professor of international law. This, I think, will permit me to express myself in a very frank way.

There is something that I would like to explain to you regarding some aspects of the law of the sea within the Latin American approach. I want to analyze first, the political problems for a Latin American position regarding the law of the sea, and second, the management of the sea's natural resources.

I. Juridical and Political Principles of a Latin American Position Regarding the Law of the Sea

A. The Issue of the Law of the Sea

There are certain aspects regarding the law of the sea that have acquired great importance because of the debates they have provoked in the international community. These concern the issues that have not as yet been resolved by international law in codifying the work done at the last two Law of the Sea Conferences. The great debate caused by these questions in the international forum can be explained in the following way:

1. In the first place, the last two international conferences on the Law of the Sea, held in Geneva in 1958 and 1960, did not unify the criteria in defining the juridical regime applicable to certain maritime zones, although, at that time, they represented progress in relation to the Hague Conference of 1930 (i.e., it did not establish the breadth of the territorial sea, which is a fundamental problem). The fact that there is not an adequate international regulation has had serious implications. A clear example of this situation is shown in the fishery dispute of the South Pacific (Chile, Peru, and Ecuador and the United States) over fishery rights there.

These four countries have tried to solve their differences by agreeing not to discuss or alter their juridical positions. Nevertheless, there is no doubt that this agreement and the sincere effort of those four countries to find the right formula to prevent fishery incidents has not solved the principal difficulty, which is the juridical order resulting from the existence of different jurisdictions.

From another point of view, the four Geneva Conferences have recently been under severe criticism, and they have not been ratified by a great number of

countries, particularly those in Latin America. One criticism is that the maritime law is in constant evolution and that, in contrast, the Geneva Conventions have in some aspects become absolute.

2. In the second place, the process of evolution of maritime law has been the result of scientific and technological developments which have occurred in the last two decades. This very rapid advance has permitted countries to look for new opportunities in the sea and better profits from its resources. This fact has great significance as a means for the satisfaction of different nations' needs. A good example is utilization of the seabed and ocean floor.

3. There exists a third variable that has also influenced the rapid evolution of the law of the sea--the emergence of a series of new positions as a result of nationalism in the developing countries, a political expression of one of the greatest problems of our age.

This new expression bears no resemblance to classical European nationalism. It is rather the natural reaction to the challenge made by diverse economical and political problems that Latin America, as one part of the developing world, has had to face. This has resulted in the reaffirmation of the Latin Americans' political sovereignty; their right to self-determination; their right to free choice of social, economic, and cultural systems; their right to benefit from their natural resources.

Regarding the law of the sea, the emergence of these new positions which are contrary to traditional maritime law demands a new definition of this issue (such is the case of the 200-mile thesis presented by Chile, Peru and Ecuador in 1952 in the Santiago Declaration of Maritime Zones). This single reason has been enough to cripple the foundations of the maritime zones as conceived by the traditional law of the sea. While in the past national security and defense were the principal objectives behind maritime policy, today economical and social purposes are also important factors. We are therefore witnessing a great interest on the part of the international community in the utilization of the sea's natural resources, and as the necessary system of international regulation does not yet exist (a situation which tends to produce regional and worldwide conflicts), it is essential that the development of a new law of the sea adequate to the present circumstances be initiated as soon as possible.

The problem which now confronts the international community is which course to take. Up to now there have been only two extreme positions: one that protects the interests of the great maritime powers, and one that sustains the claims of the developing countries. I sincerely believe that these alternatives may produce, unfortunately, further conflicts between those nations with large fleets and those with extended coasts but with small fleets.

These circumstances which we have analyzed have induced certain world powers, such as the United States and the Soviet Union, to get together and elaborate a joint project which would defend their more conservative interests. For this reason, at the end of this decade, the governments of both countries

have initiated consultations for the purpose of obtaining governmental views for the convening of a new International Conference that would establish a definitive regime for the unsolved problems of the law of the sea. It would, according to the draft of the articles in the Soviet-American project, establish the breadth of the territorial sea within limits of no more than 12 nautical miles, the freedom of passage through straits used for international navigation, and questions concerning fishery problems in any given area of the high seas adjacent to the territorial waters or fishery zones.

While the United States and the Soviet Union were consulting with the members of NATO and the other countries of the Socialist bloc, a group of Latin American countries were forming a counter-movement. This fact may divide an eventual International Conference into two opposing blocs or positions: one that demands the establishment of universal rules based on the liberty of the seas and the free exploitation of its resources, and the other that considers that a single unified norm is impossible (and has never existed) because the characteristics and conditions of each country or region are entirely different. The second group would demand the right of the coastal States to extend their maritime jurisdiction in order to protect and exploit the resources essential to their development.

To complete this analysis, we must remember the initiative undertaken by the United Nations and which rounds out the above-mentioned positions. This organization has been studying the problems relating to the continental shelf, the seabed and ocean floor beyond the limits of national jurisdiction, and the prohibition arrived at by the Disarmament Committee of Geneva as to the use of nuclear weapons of mass destruction in the seabed and ocean floor. One of the most important points was established by Resolution 2574A(XXIV) of the General Assembly which requests the Secretary General to ascertain the views of member States on the desirability of convening a Conference of the Law of the Sea (based on a series of related themes stated in that resolution). This survey has been made by the Secretary General and is being answered at this moment by the member States.

B. Is There a Latin American Approach to the Law of the Sea?

We have already mentioned how indispensable the natural resources of the sea are to the developing nations, and Latin American countries have long felt a deep preoccupation and interest in this important fountain of resources. They have expressed it through a constant process in the consolidation of a Latin American doctrine initiated by the proclamations made by President Truman in 1945 and culminating in the recent Conference of Montevideo on the Law of the Sea. When we speak of a consolidation of a Latin American doctrine, we are referring to the existence of numerous juridical precedents which have united today to form the seed of an inter-American law; they are the foundations of a Latin American doctrine on the law of the sea.

On the other hand, the proclamations made by President Truman regarding the rights of the United States on its continental shelf (1945), meant for many

American countries the beginning of a series of unilateral declarations that claimed the right of coastal States to extend their national jurisdiction over maritime zones adjacent to their national waters. Thus, through successive actions, Latin American nations have extended their national maritime jurisdiction to over 200 miles from shore. For example, in 1947 Chile and Peru dictated legal norms (by presidential decrees) extending their sovereignty to 200 miles over the continental shelf; and later in the Santiago Declaration of Maritime Zones (1952), Chile, Peru and Ecuador stated that the 200-mile zone referred to the maritime resources which were situated off their coasts and which were an essential source of nourishment for their people and of raw materials for their economic development. They further expressed the obligation of these States to protect, regulate and conserve these vital resources so as to prevent their extinction.

Subsequently, other nations adhered to this position: Costa Rica in 1949, El Salvador in 1950, Nicaragua in 1965, Argentina in 1966, Panama in 1967, Uruguay in 1969, and Brazil in 1970.

The establishment of a 200-mile jurisdiction has a scientific explanation, in that it is the constitution of a natural limit for the diverse "biotic" communities which inhabit adjacent waters. It is furthermore founded on legal precedents that claim the right of the coastal States to extend their jurisdiction for specific objectives over areas traditionally considered as part of the high seas and therefore subject to the principle of the freedom of the seas.

The juridical precedents which we have mentioned were motivated primarily by reasons of defense and national security; such was the Declaration of Panama in 1939 (approved during the First Meeting of Consultation of the Foreign Ministers of America). This Declaration stated that it was of continental interest to extend a security zone of 300 miles around the coasts of America in which the belligerent nations would abstain from warlike activities. Other precedents are the Inter-American Treaties of Rio de Janeiro in 1947 and the denuclearization of Latin America in the Treaty of Tlatelolco in 1967.

The actions undertaken by Latin America, like the ones mentioned above, have become important antecedents for the Latin American States' proclamations on maritime jurisdictions, because since there cannot be a territorial sea of peace and another one of war, it is perfectly possible that the coastal States will not only extend their maritime jurisdiction for national security reasons, but also do it for economic purposes.

Other juridical precedents that have contributed to the formation of a Latin American position are: The LXXIV Resolution on "Preservation of the natural resources, continental shelf and sea waters" adopted by the 8th Inter-American Conference of Caracas in 1954; the XIII Resolution referring to the "Principles of Mexico on the Sea's Juridical Regime" adopted by the 3rd Meeting of the Inter-American Council of Jurisconsults in Mexico (1956); and the Resolutions 1803 and 2158 of the General Assembly of the United Nations concerned with the permanent sovereignty on the natural resources.

Naturally all of these precedents are insufficient for the acceptance of a coastal State's right to exercise complete and total sovereignty or jurisdiction to a distance of 200 miles. That is why Chile and other Latin American countries that maintain a maritime jurisdiction of 200 miles call this zone not "territorial sea," but a "patrimonial sea" which considers all the known liberties of the high seas (including the liberty of maritime and air navigation), except, of course, the liberty to fish.

Nevertheless, all of the precedents that we have analyzed have greatly contributed to the consecration of the Latin American principles which are now being unified in the Montevideo Declaration of May of this year. For example, this Declaration regards the following principles: the right of a coastal State to establish the limits of its maritime sovereignty and jurisdiction in conformity with the geographic and geological characteristics, and the factors that condition the existence of the sea resources and the necessity of its rational profit; the right to explore, conserve and exploit the living resources of the sea adjacent to its territory; and to regulate the regime of fishery and sea catch. These are in the opening paragraphs. Later paragraphs consider these same rights on the continental shelf, but with two different criteria: that of free exploitability, and of distance, depending on whether it is the geomorphologic shelf or not. Finally, it considers the right to adopt measures of regulation for the purposes mentioned above in the zones of maritime sovereignty and jurisdiction, without prejudicing the liberty of maritime and air navigation of ships or airships of any flag.

In spite of the fact that in the meeting of Montevideo only the countries with 200 mile claims attended, I think that the principles adopted there will be approved by the whole of the Latin American countries at the next Continental Conference; and it may be possible, too, that these might be widely acceptable to other countries as well. The Declaration of Montevideo has an advantage in that it does not establish a specific territorial sea of 200 miles; on the contrary it guarantees free maritime and air navigation. The reason for this lies in a policy based on a socio-economic purpose that will permit the nations to profit from the conservation and utilization of the living resources of the sea and from the wealth that exists in the seabed and ocean floor. For that reason I also think that the right and the obligation of the coastal State regarding the resources of its adjacent waters must be considered with a dynamic approach that can assure the rest of the world, and especially the coastal countries, benefits from these resources. In this manner, the portion of the sea resources which the coastal State does not use (within the limits of authorization based on adequate measures of conservation of the species) should be for the benefit of other people who need it.

To finish this part of my exposition, I will refer to a problem that is being discussed by the international community and is of the utmost importance for the law of the sea: the question of the seabed and ocean floor beyond the limits of national jurisdiction. I would like to explain very briefly our position in this matter. With the little time I have, I will mention only two points: the delimitation problem and the juridical regime applicable.

First of all, the delimitation between the seabed and ocean floor under national jurisdiction and those under the jurisdiction of an international regime cannot be done in a rigid way, as would be the case in the establishment of a 200 meter depth limit, because this would be contrary to the Geneva Convention. Furthermore, it would be unsuitable for those countries that lack a continental shelf, because of atypical oceanic topography with a sharp inclination of the ocean floor starting even within the first three miles off the coasts. A realistic criterion for the delimitation would be, then, one that could combine the depth with the surface (200 miles, for instance, and 200 meters) according to the free choice of the coastal State.

In the second place, the consideration of a juridical regime applicable to the seabed and ocean floor beyond the limits of national jurisdiction has only two alternatives: either the ocean floor beyond national jurisdiction benefits all of mankind and especially the developing countries which would participate jointly in the administration and benefits of these resources; or it is recognized as a part of the high seas, with full freedom of exploitation, which would mean that the only ones to benefit would be those nations whose greater economic and technical capacity would put them in a better position to develop and exploit these resources.

Most Latin American countries have chosen the first alternative and therefore propose that these seabeds be the common heritage of mankind. This implies participation of all countries in the benefits which result from the seabed's exploitation and administration.

If I have emphasized the political and juridical aspects of the Latin American position relative to the law of the sea, it is due to the fact that these nations have given greater weight to those aspects than to the scientific and technological challenge with which we are now faced.

II. Regional Management for the Natural Resources of the Sea

For the above-mentioned reasons, there is not as yet a Latin American policy with regard to regional management of the natural resources of the sea, except for the Permanent Commission of the South Pacific. Because of this, the solutions have so far been only national. Each State has devised on its own account the standards for the administration of its resources according to its best interests.

On the other hand, we might mention the steps taken recently by the Inter-American Development Bank and by FAO in order to organize regional programs in Latin America concerning fishing and sea catch; these are still in the preliminary stages. Some Latin American countries, as Ambassador McKernan recalled, are participating in the Inter-American Tropical Tuna Commission in which the interests of the United States have great influence.

I am going to deal now with the Permanent Commission of the South Pacific.

This is the most important agency of the South Pacific system and is responsible for the observance of the regulations and agreements of this system. It is composed of the representatives of Chile, Peru and Ecuador, and it is organized in a General Secretariat with two Under Secretariats, one juridical and one scientific. This agency has so far organized several conferences and meetings relating to the exploitation and conservation of the maritime resources of the South Pacific. Among the specific functions of this Commission we can mention the following: it establishes measures for protection of certain species, seasons and zones open to fishing, and fishing methods; promotes further research and scientific and technological studies of the biological phenomena that occur in the South Pacific; maintains statistical records concerning the industrial exploitation; maintains a close exchange of information with other international or private organizations working in this field, and so on.

As a result of the foregoing, the Ninth Ordinary Meeting of the Permanent Commission created the Coordinating Commission of Scientific Research (COCIC) which is a permanent advisor to the General Secretariat in scientific and technological matters. Furthermore, the Permanent Commission has already established close contacts with the Sea Research Institute of each country which had been created with the assistance of the United Nations Special Fund and of FAO. These Institutes, with the support and cooperation of the Permanent Commission, have contributed greatly to the development and progress of the fishing industries of these three countries.

For example, in Chile the total catch for 1952 amounted to 119 thousand tons, and in 1965 this figure increased to 708 thousand tons, placing Chile in the 17th world ranking position. The Peruvian case is even more spectacular. In 1952 the catch was only 151 thousand tons, and in 1965 this figure reached to 7,391,000 tons, placing Peru, since 1962, as the first fishing power in the world. Ecuador, at the same time, experienced a volume increase proportionate to Chile's, reaching a total catch of 53 thousand tons.

In the past 18 years, Chile, Peru and Ecuador have increased their participation in the world catch from two percent to 20 percent; and we feel that this tremendous increase, which has meant work, food and foreign exchange for these countries, is due in part to the effective assistance of this organization.

We are now thinking about a Latin American Organization, and I would like to explain very briefly some ideas on this matter. As we made clear in the preceding chapter, the benefits which could be obtained by the creation of a new type of organization, similar to the Permanent Commission but on a continental scale, would be incalculable.

Faced with this perspective, the Montevideo meeting considered the possibility of coordinating the different regional organizations which could be created in the future, such as a Permanent Commission for the South Atlantic, Permanent Commission for the Central American Countries, and so forth, in order to exchange information on plans for fishing development in Latin America.

We expect that the next Latin American Conference on the Law of the Sea to be held in Lima in August of this year will establish more concrete measures concerning the exchange of scientific information and procedures.

Such an organization would logically have strong effects on economic factors such as the marketing of the products of fishing, the rational development of the fishing industries in each country according to a coordinated plan which would permit each country to specialize with ultimately integrated objectives. In this respect Latin America has a long way to go.

Basically, we must find the necessary means to bind the Latin American maritime system to the process of continental integration which we are now facing. We have therefore insisted on the establishment of special fishing regulations for the Latin American countries, the creation of multinational fishing industries, the establishment of bilateral and multilateral fishing agreements, and so forth. But most of all, this Latin American Organization must defend the juridical, economic, and scientific interests of the continental maritime wealth.

Wilven Van Campen
Office of the Special Assistant for Fisheries and Wildlife
U. S. Department of State

The juridical dispute we have heard the previous speakers talk about has had some serious consequences for the American tuna fishermen, and I would like to describe some of these consequences as I think the tuna fishermen see them.

In general, I think that fishermen are not much concerned with the abstract questions of the law of the sea. The fact is, the United States disagrees even more fundamentally with El Salvador on these questions than it does with Peru and Chile. This is not of much concern to the American tuna fisherman because El Salvador does not have the capability of interfering with his operations. We also disagree with the Maldive Islands and Indonesia on these questions of jurisdiction. Again this is of no particular moment to the American tuna fisherman since he has no present interests in those parts of the world.

What keeps this problem from being simply a matter for governments to exchange protests and counter-protests on, and then put in the files and forget, is the fact that the waters off Ecuador and Peru are important fishing grounds for US tuna fishermen based in Puerto Rico and Southern California. These fishermen tend to see themselves as innocent victims of a theoretical dispute between governments, but by chance they are the ones that bear the brunt of this dispute in practical terms.

They face real problems as a result of this dispute. In the first place, the coastal countries require them to buy fishing licenses at what is sometimes described as modest cost, although I think those of us who have a modest income might find the figures rather impressive. If they do not buy these fishing licenses, and are found by the patrol boats of Ecuador or Peru fishing within 200 miles of the coast, their vessels may be seized, armed boarding parties put aboard, and they are brought into court, subjected to administrative proceedings, and a heavy fine is assessed.

To describe what happens in one of these incidents briefly, the sequence of events runs something like this: a tuna boat, a seiner out of Puerto Rico or southern California, drifts about 20 or 25 miles offshore, because that is where the best fishing banks are, and usually around the theoretical boundary between the claimed Ecuador and Peruvian jurisdiction. Up comes a patrol craft. In the case of Ecuador sometimes it is one that we loaned them for defense of the Hemisphere. They come alongside and an armed boarding party comes aboard and ascertains that the vessel has no license, and they order the captain to proceed to the nearest port. He comes in there and is taken to the port captain's office. In the meanwhile he has radioed the American Tunaboat Association, which calls the State Department, and as a result we often have a U.S. counsul present when the port captain holds his hearing. The Embassy, meanwhile, is put to the trouble of going to the Foreign Office and complaining about the incident, and requesting immediate release of the vessel.

Again, in both Ecuador and Peru the procedures have been made very rapid and efficient, and often the hearing is completed the same day as the seizure. A fine is assessed, which is a multiple of the license fee that the man should have had according to local law, and he is required to buy a license. An agent for the owner puts up a guarantee of payment for the sums, and the vessel is generally promptly released either the same day or the next day.

Some months later the owner puts in to the State Department a well-documented claim for reimbursement under the US law called the Fishermen's Protective Act. If the claim is approved by the lawyers in the Department of State, some six months later the boat owner gets back from the Treasury the money he was forced to put out to pay the fine and the license fee.

Only occasionally, fortunately, are there more dramatic incidents involving some shooting or accidental collision in boarding and some damage to the vessel and its gear. These occurrences, as I say, are fortunately rare, but very upsetting when they happen.

Then comes the next stage when a number of Congressmen that take a special interest in this type of incident begin to call various offices of the government, and give us more or less heated reactions and ask what we are doing about this problem. Sometimes they get moved to the point of introducing various punitive legislative measures aimed at punishing countries that have the temerity to seize our vessels on the high seas.

From the fishermen and boat owners' point of view, the consequences here are, first, the economic cost--the license fees that are either paid in advance or are forced to be paid, and fines that must be paid in case of a seizure--and second, a certain amount of danger plus a great deal of inconvenience. Some of the US fishermen, we don't know how many, make a practice of buying licenses in advance.

It has to be considered also that there are potentially ten or a dozen countries which might try to impose this kind of system on the operators in a highly mobile fishery. It sometimes seems as if the coastal countries look to seaward with blinders on, like a horse, and all they see is the water straight out from the coast, without considering the possibility that the vessel may have to move laterally along the coast in order to operate successfully. This is certainly true in the case of tuna fishing.

Another problem of the system of attempted regulations that stems from the position on jurisdiction of the coastal countries is that the fisherman has no guarantee that the system will be stable or reasonable, and that it will not be changed capriciously. One of the countries which imposes a licensing system on the tuna fishermen has several times sharply jacked up the license fee to produce more revenue. The last time it was done, the license fee was abruptly tripled. The same country has fiddled around with the length and validity of licenses and has recently reduced the periods for which licenses are good to

such a degree that for certain types of boats, the bait boats, that fish off the Galapagos, it is hardly worth buying a license any more because the chances of making a successful trip within the period of the validity of the license are very slim. Since a boat owner is a businessman and in a highly risky business, he has to consider these as business expenses, and it may seem to him sometimes that it is hardly feasible to continue doing business under these circumstances.

A further danger from the point of view of the fisherman and boat owner is that extension of jurisdiction is seen as a way of promoting the development of fisheries, as the two previous speakers have mentioned. Indeed it is alleged that there is a cause and effect relationship, and that the development of fisheries in Peru and the neighboring countries was due to the extension of jurisdiction. I think this is a rather questionable conclusion. But if this belief is held in coastal countries, and the development does not follow promptly enough on the extension of jurisdiction, it can easily have a consequence that the government will attempt to force this development by making the conditions of operations so onerous for distant-water fishermen that they will shift their base of operations to that country. In other words, extension of jurisdiction becomes a device for capturing a fishing industry.

Fishermen with a big investment and a valuable boat who depend on their ability to conduct a highly mobile operation over a big area are not likely to be interested in moving their base of operations to another country, particularly since a number of Latin American countries have a history of adding further heavy requirements to foreign vessels that try to operate from their ports; such as requiring a change of registry which then makes it impossible for the vessel to land fish in the United States, requiring that local nationals be used to man the vessels, and so forth.

It seems at the present time that when the situation gets this sticky, the boat owners, if they have any alternative place to go, will eventually abandon the fishing grounds which are in dispute. I think there has been a possible tendency for the fishing fleet to do this in the Ecuador-Peru area over the last few years. Boats which used to figure quite prominently in the seizure list are now fishing off West Africa in the latter part of the year. There is a renewed interest in fishing farther out in the Pacific, moving towards the central and western parts of the ocean, and I think that the unsettled jurisdictional situation off the west coast of South America may be an element in this development.

So there is a possibility that certain hitherto productive tuna grounds may be left to lie fallow unless the coastal countries can find a way to go into the tuna business, which they have not done very much of so far. If the tuna resources are not fully utilized, it will be a shameful loss for all parties concerned. After all, 200 miles of empty ocean with no one fishing out there is of no great value to the coastal countries or anyone else.

Fishermen and boat owners, I think, are rather skeptical of the reports that these jurisdictional claims and the resulting regulatory systems are based

on the needs of conservation. They know that their government is a member of a tuna conservation arrangement which involves several countries and which has produced conservation recommendations that are implemented very severely in the regulations applied to them. They know that they have a very short fishing season now for yellowfin tuna, and that if they come into port after the close of that season with too much yellowfin it is taken away from them. But in their dealings with the Latin American countries they see only that they are required to pay a certain amount of money for a license. They see no other restrictions put on their operations.

I think it is fair to say that the tuna fishermen and tuna boat owners in general are rather dissatisfied with the handling of this problem at this point, and I think it looks to them as if their government is saying one thing and doing another. The government tells them that the waters beyond 12 miles from shore are the high seas, that the United States' flag is entitled to go there, and that the fishermen are within their rights to fish there. But when that right is challenged by force, by coastal State authorities, it seems to them their government's actions are rather weak and ineffective. They know that the government has other political interests which have to be accommodated; but naturally, like most people, they see their own interest as large in the foreground and these others are small in the background.

There has been some mention of the fact that negotiations have been under way off and on over some period of time to try and work out an amicable solution to this problem between the governments, and I think in general the fishermen and boat owners feel this is desirable. But I think that many of them are a bit skeptical about the outcome, fearing that a solution their government works out may be almost as bad as the problem.

I think the fishermen are aware, some of them being fairly well-informed people, that the lack of success in dealing with this problem on the part of their government over the years has led to its spread. Now it has spread in some areas where they are not very much concerned, such as Argentina. Recently it spread to an area where they <u>are</u> concerned, and that is Brazil, since a good many US flag vessels, it turns out, fish off the northeastern coast of Brazil, a considerable distance from the shore. We therefore have in prospect, depending on how the Brazilian government operates under its new decree, a situation perhaps comparable in seriousness to that which has been allowed, or which we have not been able to prevent from continuing so long, on the west coast.

I think some of the boat owners and fishermen feel that the future looks dark for them and perhaps for distant-water fishermen in general. This feeling may lead to a psychology of "clean out and get out; we are going to be pushed off these fishing grounds eventually anyway; let's get all we can while we can." This type of psychology, of course, is very bad in trying to get the fishermen's support for conservation efforts.

If I could express a personal view here, I feel that in general fishermen are occupied in a very admirable trade, and one that is perhaps less offensive

and more harmless than many trades pursued by man. They take food from the sea and they make it available to landsmen. For the most part they don't harm anyone. They risk their money in a very risky business, and sometimes their lives. Since they operate on a share system, they earn every dollar that they make. They have to be protected against themselves by government through conservation measures, and they have to be helped sometimes to settle conflicts and competition among themselves and among the fishermen of other countries.

Beyond that, it seems to me that the ideal objective we should all work for in devising a law of the sea as it applies to fishermen is to find a way to let them fish as freely as they can without making them victims of disputes between governments, or attempts by governments to make money out of their operations, or the use of their operations and the regulations of same for nationalistic purposes within governments. Whether or not it is legal under any particular philosophy of the law of the sea, it seems to me almost immoral to allow fishermen to be subjected to demands for monetary tribute in situations where they really get nothing in return in the way of services, protection, conservation efforts, or any other activity of the government for their benefit.

Finally, I would like to say something as a shade tree lawyer about what I feel are two fatal defects of the position which is being promoted as a common Latin American position on the law of the sea. First, the character of the jurisdiction claimed is not clear. It varies from country to country; and in some countries which are leaders of the movement, the claims seem to be deliberately kept vague. The second point is that the extent of the jurisdiction is not specified, but rather kept elastic. Each country can set its own breadth to meet what it considers to be its own particular needs.

It is hard for me to see how such vague and changeable concepts could be made the basis for what anyone could call the law of the sea. It seems to me almost a law of anti-law. While it may come to be generally accepted in Latin America, it is inconceivable to me that it would be very widely acceptable in the rest of the world.

McKernan: Before summarizing our discussion, I'm going to give my two Latin American colleagues an opportunity to make comments on the things that have been said by either me or Mr. Van Campen in the last few minutes.

Letts: Mr. Van Campen has criticized both his own government and our governments. One of the points he made is that certain countries do not maintain their regulations. When those regulations are changed, the fishermen are charged more for the permits or the conditions for the permits. That is a question which can be negotiated. As I mentioned earlier, for some years we had regulations that were complied with and we had no incidents. The incidents returned with the change in ways of fishing, and shall I say with politicians on both sides. When we got those regulations set and negotiated, and complied with by the American tuna boats, I know the State Department was not pleased. But in 1956 to 1958 there were no incidents.

We have been accused of being rather vague in our regulations and in our political points of view. It is said that this is done on purpose. The only real difference I see between our respective points of view in general in matters of fishing is that the United States wants universal regulations, rules that apply to the whole world; while we think that in fishing matters, especially on the western coast of South America and probably the whole of Latin America, we need to have regional regulations. It is not possible to have the same rules for the open space of the Pacific, where facing the Peruvian coast there is only the Australian coast completely on the other side of the world, as would apply to the Arctic region or the Baltic or Mediterranean Seas. They are very close seas; whereas in the west coast of South America we have very open seas.

Mr. Van Campen has accused everybody of being ineffective, his own government and ours. Perhaps the tuna fishermen are right. We are asking them to pay for permits, but we are giving them permission to fish in our waters, the facilities of the ports if they need them, and other advantages. From the other side, we can say we had a tuna canning industry and the US government imposed a duty of 32 percent and killed that industry. That is the other side of the medal.

Vargas: I agree with you that our position is not for the moment clear. We are in the process of creating an international law. We cannot accept the traditional customary internation law, and we really think that the developing countries have a very important contribution in this matter. I am speaking privately here, in my own capacity, and I do not want to represent the Latin American government when I say that the 200 mile claim for the territorial sea is a big mistake, mainly because of the problem of freedom of navigation. That is why we think that the question of freedom of navigation must be recognized. For that reason, we are calling this area the "patrimonial sea." But this is not the position of all of our Latin American countries. Some say that the sea is open to everyone; we don't agree with them. We want to protect the natural sea resources of coastal States because they constitute an economic right of the developing nations. I am sure that we are soon going to arrive at a common resolution. But at this moment I agree we in Latin America do not have a very clear position.

McKernan: I have been asked to summarize some of the points made by our distinguished Latin American guests. I will make two or three points concerning this. Ambassador Letts laid before us the history of the development of the 200-mile zone, and a good deal of the rationale and logic that went into the formulation of this. He pointed out that within the space of a few years, Peru has come from almost a non-fishing nation to the most important fishing nation of the world. Both he and Ambassador Vargas believe that the South Pacific Commission has been an effective tool in the regional concept that is being developed in Latin America, and I could detect no difference in their points of view concerning that.

Ambassador Letts took a rather strong position on this issue of the specificity of their positions. In fact, I clearly gained the impression that he felt there was some advantage in this stage of the evolution of the Latin American position to be purposely vague as to the extent of jurisdiction over the 200-mile area. Parenthetically, I would say that I believe this does distinguish Peru's position from that of both Chile and Ecuador. Ecuador has quite clearly declared, and in fact has written into its constitution and domestic law, that this is a 200-mile sea with all rights and jurisdictions going to the coastal States within 200 miles. The government of Peru has never claimed this specifically to be a territorial sea. I am quite certain that my friend Ambassador Letts and I understand one another clearly on this subject. I believe today he explored this matter a little further with us and explained in more detail this point of view.

In Chile I believe the position is quite clear. A relatively narrow territorial sea, and a very wide jurisdiction over fisheries and all resources, including those of the seabed, tends to be the hallmark of the Chilean position in this regard.

Vargas: Of course, we do not have in Chile and Peru a continental shelf in the traditional sense, that is to say a geomorphological shelf.

McKernan: Yes, but you did say in your exposition today that some arrangement for 200 meters or 200 miles might well express the developing view of the countries advocating 200 miles in Latin America.

I felt that Ambassador Vargas expressed as particularly important a recent meeting in Montevideo. I think he sees this as a beginning of the development of the next step in Latin American law of the sea practices and policies. I quite clearly gained the impression that he felt the next meeting to be held in Lima in August might well explore and perhaps develop the idea of a South Pacific Commission for the entire South American Continent. That is an attempt to get approval or agreement of a general policy for a broad extension of jurisdiction and a broad protection.

Once again I want to remind you of my initial remarks, which were simply intended to be explanatory, concerning exclusive kinds of arrangements, exclusive

in the sense that these countries would control the use, the exploration and exploitation of the resources lying off their coasts. I think both men, but particularly Ambassador Letts, stressed the close relationship between the land, the sea and the air in this concept of jurisdiction out to 200 miles. I think Ambassador Letts also pointed out how strongly held this was in government and among the people of his country and, I believe he implied, all of the countries.

Wooster: Ambassador Vargas referred to the scientific justification for the extended zone of 200 miles. I don't propose to open a debate on the scientific justification at this time and in this audience. My own guess is that there is no more scientific justification for a 200-mile limit than for a three-mile limit, and that the only marine organism that recognizes these lines is man himself. But, given a belief in a scientific justification, and given the conservation motivation of this extended zone, one would expect there to be a vigorous scientific research program under way in these countries. Further, because along the west coast of South America there is sort of a common circulation and ecology system, one would expect a concerted cooperative effort in research among these countries, both to support the justification, if you will, but more importantly to provide the scientific bases for conservation.

I have two questions, then, either to Ambassador Vargas or Ambassador Letts. One, what is the scope of the research efforts in these countries both singly and jointly that will provide the scientific bases for conservation; and two, what was the attitude in Montevideo for encouraging scientific research in this 200-mile zone and for facilitating research within this zone by scientists from all countries?

Vargas: Of course, I am not a scientist and I am unable to have a very specialized scientific discussion; it would be very difficult for me to explain the 200 mile line scientifically. For that reason I did not explain this point very much, and would prefer to comment on legal matters. Nevertheless, there are two important scientific facts which have contributed to the extension of the jurisdiction of the zone up to 200 miles. These reasons are mainly applied to the south Pacific countries. First, the Humboldt Current flows between 60 and 200 miles offshore. Second, the biotic communities live in that zone. It is not an arbitrary extension. Maybe that is not a very scientific reason, and in this matter I must confess that I am not an expert. Maybe Dr. Letts can add to that.

Letts: As I understood the question, it was not only what was the scientific reason for establishing our limit at 200 miles, but also what scientific work are we doing. I would repeat what Ambassador Vargas has said. Before we established the limit of 200 miles, our scientists were consulted in Lima. The opinion was that geography indicated that the Humboldt Current was there, and for most of the year the Humboldt Current is 200 miles off the coast. It is different water, with different salinity, different temperature, and even different color. These three conditions establish the quite different scene that can be recognized by people who are accustomed to the sea.

The other part of the question was what kind of scientific work are we

doing. I must say we are doing our best. We have not the resources of the large countries, but in the meantime, our Maritime Institute is doing a rather good scientific work, and it has been recognized by all scientists who have been in touch with that Institute. I know the Chilean Institute is doing some work too. Our Institute has gone into ecological studies, and its work is recognized by scientific authorities, particularly its work on anchoveta. The reason they do not know much about tuna is that they have not been studying tuna for very long. But certain other species of fish are studied and those studies are going to be published by the Institute.

McKernan: I believe many American oceanographers would say that the waters of the Humboldt Current do not originate off the coast, and are in fact upwelling waters whose characteristics have little to do with the land mass itself. This argument, as you know, has been going on for many years. We won't solve it here, but I presume you would nave no objection to having that point of view incorporated with your excellent response.

Wooster: I never intended to open that argument; I wanted to find out what was the attitude in Montevideo about facilitating scientific research within the 200-mile zone. I don't think we can argue the other question in this forum.

McKernan: The point here, I think, is what effect will the Declaration of Montevideo have on freedom of scientific research. The Declaration does not deal specifically with this question, but it does deal with the matter of jurisdiction over the waters and seabed. Therefore, indirectly it deals with this question. I think now we have focused on the question here.

Letts: I think at Montevideo we had enough work to make a juridical unification of the different positions of the nine countries there. We didn't touch on scientific studies, or a way to cut off investigation. I must repeat that in the Declaration of Montevideo, no distance is mentioned at all, except that the countries that had declared 200 miles have united. But in the positive part of the Declaration, we mention no distance from the coast as a rule. We have left that open.

McKernan: Many American scientists are very much concerned over the question of jurisdiction, not from the standpoint of defense or of economics particularly, but from the standpoint of freedom of research for science. The question raised by Dr. Wooster is whether or not this freedom of research will be hampered by claims of additional jurisdiction; if so, the scientists see this as being a very great handicap to the development of resources.

Letts: We did not touch on that point, but for the present I can say that freedom of research is not going to suffer in any way. In Peru, and in Chile too, we have never curtailed in any way any investigation, even when we knew that certain scientific people were investigating certain points that were contrary to our own scientific points of view. We admitted them, and gave them every facility to go on with their scientific investigations. We said that the tuna

in Peruvian waters were not the same stock as in other areas. The tuna that are fished in the coast of Peru are not the same as the tuna that are fished in California. We have never made any difficulty for any scientific research.

Vargas: I would like to add something to that. With the exception of the resolution of the countries of the South Pacific Commission, the Montivedeo Declaration is the first Latin American document we have worked on. Of course it has to be improved. We hope that in the next Latin American meeting we will improve many things. For instance, different scientific aspects are missing in this document, because our first objective was to have just a political and legal explanation. At this moment we are in the process of creation.

Ratiner: My question is for Ambassador Vargas. If I may, I will take a moment to set some of the background of the question. The United States, as well as other countries, has for several hundred years maintained rather persistently a position on the law of the sea with which you all are quite familiar. The United States has maintained that the position of the three-mile limit and absolute freedom of the seas beyond it was the proper view of the international law of the sea.

In the past two years, principally the past year, the United States has made the following pronouncements: First, we have indicated that we are willing to accept a 12-mile territorial sea, despite the fact that we believe our vital security interests could be deleteriously affected by moving from a three to a 12-mile limit. We have put that question before the international community. We have not enforced our rights as we see them on the high seas with force. Our interest in international straits, I suggest, is as vital to the United States as Chile or Ecuador or Peru's interest in 200-mile jurisdictional waters is vital to them.

Second, we have publicly indicated that we are prepared to accord preferential fishing rights to coastal States beyond the 12-mile limit, in the context of a negotiated treaty.

Third, we have offered to give up what could have been vast mineral resources off the coasts of the United States to the international community for international regulation and with substantial sums of money flowing into the international community principally for economic assistance to developing countries with no strings attached.

Fourth, we have also offered to cede to the international community substantial regulation and control of exploration and exploitation in the deep seabeds beyond the 200-meter limit.

My question to Dr. Vargas, based on your experience at Montevideo, is this: Do you feel that the Latin American nations are prepared to make equal strides in changing their position so that perhaps we might have a successful law of the sea conference in the next few years?

Vargas: I appreciate those words and the conversation on this issue. I am not sure of the appropriate terms; I will call them, for the present moment, concessions. But I am not sure if they are really concessions. The three miles in the United States, and some very few countries at this moment, are obsolete. The three miles of 20 or 30 years ago are obsolete. I am sure the general rule at this moment is not three miles. I cannot say what it will be, but I think there are now more countries that do not have three miles than countries that do. My country is one of the few that has three miles of territorial sea. We are changing our position. It is possible that in the next month we also are going to have 12 miles.

It is very difficult for me to answer what will be the position of Latin America as a whole. I think that very important negotiations are yet to be done, and in relation with this I think that some very important information is in the Declaration of Montevideo. I don't think the Latin American countries will withdraw very easily from their present position, or at least the nine countries that have signed that Declaration. For that reason, I think that there should be some negotiations first; only then can we have some hope of arriving at a very important conclusion.

If we don't have the negotiations, and I am speaking very frankly, and instead you send us a draft, as a whole, and say, "Take it or leave it," we are not going to entertain any such thought. That I am absolutely sure of. I think that some Latin American countries from other areas do not have exactly the same position we have; but in some aspects they are close to our position. That is why it is very important for us to have negotiotions, to understand positions, and in that sense I think that this meeting is very important. We can speak very informally here, and not as representatives of any country. Mr. Ratiner's question is very good and very important.

It is important to know the things on which we can compromise. At this moment, speaking in behalf of Chile, I must say that in some respects our position in Chile is not exactly the same as that of Peru or Ecuador. Regarding the Soviet-American draft of the Law of the Sea, I think that we do not have any objections to Article 2; there is no problem. However, I think that we cannot accept Article 3. I think that there must be important changes in Article 3 of the Soviet-American draft before we can arrive at a solution. This is my personal opinion.

Letts: I know how Mr. Ratiner put his question regarding military defense, and I can assure him that he can be free of any worry. In most of the Latin American countries, we will comply with the treaty of mutual defense. Really, what we have established does not affect defense. A territorial sea, in the general sense, has many different purposes; some for war, some for neutrality, some for fishing, some for defense of the powers of the State. In matters of defense and neutrality, we have the Declaration of Panama, and the Rio Treaty, and these secure the Hemisphere defense.

The other part of the question was your announcement that in view of the change of circumstances, the United States is changing its position, and is offering certain concessions. I can only say that we are prepared to discuss these concessions with an open mind. There is an international community that is involved in these discussions; it is not only for a few countries to decide on the matter. I still insist that the big difference between the United States and the Latin American countries is that of the universal solution versus the regional solution.

Kasahara: Listening to the discussions of this conference as well as of some other meetings on ocean affairs in which I have participated, I almost feel that it is considered a bad thing to be a strong maritime nation. In this context I do not think fishery issues are as important as some people say they are. Regardless of what was said by my good friend Mr. Van Campen, fishermen and industry tend to find some way of catching fish even under very restrictive conditions. The amount of tuna caught in the Pacific is not likely to decrease greatly because of international restrictions.

I also think that most nations can survive without depending on the extractive resources in what is now considered international waters. But there is a problem which is really vital to some of the nations, and that is sea-borne trade. There are an increasing number of highly industrialized nations which have few natural resources and which depend greatly on the import of raw materials and energy and the export of finished products, both by sea. Perhaps Japan in the best example.

If restrictive legal concepts concerning the ocean have developed to a point where this basic aspect of these nations' economies is threatened, some of them might decide to take unilateral action for reasons which they consider even more justifiable than those used today by so-called coastal States for protecting their interests.

Herrington: I have two questions, the first addressed to Ambassador McKernan and the second to Dr. Letts and Dr. Vargas. The first one: In the course of our session today we have heard an eloquent explanation of the official positions of the governments of Peru and Chile. We heard an effective statement of the problem with regard to fishermen. I don't believe we have yet heard of the official United States position on the controversy. Perhaps you could help us on that?

My second question: I believe there is a world need for international systems which facilitate the conservation and utilization of the oceanic resources. My question then is not regarding the position of any government, but simply, what kind of system will facilitate this? Peru has ably demonstrated with anchoveta that where the resource comes under the jurisdiction of one country, the problem of utilization and conservation can be effectively carried out. Now we turn to tuna. The stocks of tuna in their migrations may come under the jurisdictional claims of half a dozen countries. Unilateral claims to broad jurisdiction are jeopardizing not only the conservation of such stocks, but also

their utilization. This prompts my question. In the interests of the world or mankind to which we have often referred, would it be possible and desirable to treat stocks such as anchoveta differently from stocks such as tuna, which migrate over wide differences? If not, how should we handle the conservation-utilization problems of tuna?

McKernan: In my introductory remarks I intended to indicate that the United States' position at the present time with respect to fisheries dispute was to attempt to set aside the legal issues and to find a practical solution to the dispute that has engaged us for the past 26 years or so. And with regard to our legal position, I doubt that I need to expose that any further. The United States' position, of course, in a general sense is very much in favor of a narrow breadth of the territorial sea, and as Mr. Ratiner has quite well explained, this involves certain concessions on our part. Under certain conditions we are prepared to accept a broader territorial sea than at present, in fact a 12-mile territorial sea.

With regard to the fisheries problem, I thought I had explained our view and our objective in the present discussions and negotiations that have been going on for the past three years.

Letts: I would like to answer the second question, and I will try to be very brief. I think Mr. Herrington has pointed up a very important problem. We have discussed it many times. It is a difficult question to answer because it does not depend on us, it depends on governments. We feel that most governments now, and most of the people, believe that the old laws of the sea are obsolete. They were eighteenth century laws. At that time it was thought that the fisheries resources were inexhaustible; that the human race would never consume all the fish. Yet even at that time there was some condemnation of fishermen who damaged the fish population.

I agree with Mr. Herrington in his criticism. We have done good studies on anchoveta, but we have not with respect to tuna. Mr. Herrington asked a very broad and important question: should the rules of fishing and the rules of the sea consider different distances from the coast, or consider the fish themselves? International law establishes its rules on maritime zones in relation to distances from the coast. There are the high sea, the territorial sea and the internal waters, all with different rules. Wouldn't it be preferable for the future law of the sea to do away with maritime zones and establish the new rules and regulations based on the rights, necessities and duties of the States taking into account the fish? You have offered a very important question. I personally agree with you.

Waitesman: In view of the differences of opinion expressed this afternoon regarding international law, I am wondering how the panel views the International Law Commission as a forum for resolution of these differences, since apparently the International Court of Justice has been ruled out as a potential vehicle for such resoltuion?

McKernan: I think from the United States point of view, we regard the proposed law of the sea conference as an appropriate forum for attempting to resolve the legal differences between us. I am not certain that our Latin American friends are prepared to advocate a new law of the sea conference, but I would remind our audience that they are at least preparing for a law of the sea conference, where I am sure they hope that their point of view with respect to their legal position will prevail.

Vargas: My personal opinion is that the International Law Commission is well qualified on this matter, but it is not yet prepared. Our interest on this point is the same one that the United States has, and most of the other countries. The International Law Commission takes about seven years in the preparation of the draft of the law of the sea. The way it is working now on this problem indicates that it would take some years before we had a final result. I think that most of the countries in the international community want to have some final rules on this matter sooner than that. This doesn't necessarily mean that we are going to have a conference next year, since there must be preparations and consultations. I think that at this moment the problem is mainly political. That is why the International Law Commission at the present time may not be the appropriate organ to consider this matter.

McNichols: My question is directed to Mr. Van Campen, and relates to the legislation on the books of the United States which provides for a deduction from aid payments of the amount equivalent to fines and certain other costs suffered by the fishing boats seized in the 200-mile zone. It doesn't seem to have changed anybody's mind on the 200-mile limit. I wonder if you could tell if it had any effect at all, adverse or otherwise.

Van Campen: First of all, let me point out that the legislation to which you refer was produced by the Congress and not the Executive Department. It is true neither this provision nor any of several other similar provisions of law seem to have induced any nation to give up this 200-mile claim. Whether these laws may have exercised some influence on the situation or not is a matter of debate among some of the people in the Executive Department, and it is almost a matter in which you need a crystal ball to tell.

Some argue that measures of retaliation are an irritant rather than a help. Others feel that they may perhaps create some degree of inducement to sit down and discuss the matter. I guess I would not be giving away any State secrets to say that that particular provision to which you refer has never been implemented.

Carroz: The theme this afternoon is fishery conservation and management in Latin America. Discussions have centered on problems off the western coast of the Continent. It might also be appropriate to turn our attention to the eastern coast and to consider the situation prevailing with respect to the fisheries of the southwest Atlantic. Indeed you referred briefly to it in your introductory remarks.

The conditions obtaining in the southwest Atlantic are in fact very similar today to those in the southeast Pacific. There, as we heard, the coastal States have established the Permanent Commission for the South Pacific. This is a Commission which may be described as land-based. Its membership is in principle limited to coastal States and its three members, Chile, Peru and Ecuador, all claim exclusive jurisdiction over fisheries in a 200-mile zone. Foreign vessels may fish in this zone subject to certain conditions. On the other side of the continent, FAO established ten years ago the Regional Fisheries Advisory Commission for the Southwest Atlantic, known under the acronym "CARPAS." As in the case with the Permanent Commission for the South Pacific, CARPAS is land-based in that its membership is restricted at present to Argentina, Uruguay and Brazil, and other countries may only participate as observers. The three members now have a 200-mile territorial sea. However, even before that was so, FAO and CARPAS, which is actually a subsidiary body of the Organization, have been alert to the need for a close collaboration between the coastal States and the States that are fishing or carrying out research in the southwest Atlantic.

Already in 1966, CARPAS itself recommended that consideration be given to a revision of its Statutes so as to allow inter alia for the active cooperation of the non-coastal States concerned. Such cooperation is necessary for at least two reasons: (a) The coastal States recognize that they will not themselves exploit all the fishery resources in the areas over which they claim jurisdiction. Their basic fishery legislation envisages the possibility for foreign vessels, subject to conditions already determined in the case of Argentina but still to be determined in the case of Brazil and Uruguay, to fish in the greatest part of the territorial sea. (b) Several of the species in the southwest Atlantic are migratory, so that any fishing effort exerted on the resources in the territorial sea affects these resources in the high seas and vice versa. Following a suggestion made by Argentina at the Fourteenth Session of the FAO Conference late in 1967, it is envisaged to convene a conference on the fisheries of the southwest Atlantic. Data are now being collected to permit an assessment of the state of the resources in the area. It is not yet known whether the membership of CARPAS will be open or whether new arrangements will be devised, but the efforts now deployed by FAO are designed to bring about a close cooperation between all States, coastal and non-coastal, concerned with the conservation and development of the fishery resources of the southwest Atlantic.

McKernan: On behalf of my panel, and all of the participants and speakers, I want to thank Dr. Alexander and Dr. Knauss, the very efficient staff of the Law of the Sea Institute, and other officials at the conference for the wonderful hospitality and wonderful facilities that we have enjoyed the past four days. We are very deeply indebted to the University of Rhode Island, and hope that Dr. Knauss will pass along to the President and other appropriate officials our very deep gratitude for these facilities and for this wonderful hospitality.

MONTEVIDEO DECLARATION ON THE LAW OF THE SEA
Adopted May 8, 1970

The States represented at the Montevideo Meeting on the Law of the Sea,

RECOGNIZING that there exists a geographic, economic and social link between the sea, the land, and its inhabitants, Man, which confers on the coastal peoples legitimate priority in the utilization of the natural resources provided by their marine environment,

RECOGNIZING likewise that any norms governing the limits of national sovereignty and jurisdiction over the sea, its soil and its subsoil, and the conditions for the exploitation of their resources, must take account of the geographical realities of the coastal States and the special needs and economic and social responsibilities of developing States,

CONSIDERING: that scientific and technological advances in the exploitation of the natural wealth of the sea have brought in their train the danger of plundering its living resources through injudicious or abusive harvesting practices or through the disturbance of ecological conditions, a fact which supports the right of coastal States to take the necessary measures to protect those resources within areas of jurisdiction more extensive than has traditionally been the case and to regulate within such areas any fishing or aquatic hunting, carried out by vessels operating under the national or a foreign flag, subject to national legislation and to agreements concluded with other States,

that a number of declarations, resolutions and treaties, many of them inter-American, and multilateral declarations and agreements concluded between Latin American States, embody legal principles which justify the right of States to extend their sovereignty and jurisdiction to the extent necessary to conserve, develop and exploit the natural resources of the maritime area adjacent to their coasts, its soil and its subsoil,

that, in accordance with those legal principles the signatory States have, by reason of conditions peculiar to them, extended their sovereignty or exclusive rights of jurisdiction over the maritime area adjacent to their coasts, its soil and its subsoil to a distance of 200 nautical miles from the baseline of the territorial sea,

that the implementation of measures to conserve the resources of the sea, its soil and its subsoil by coastal States in the areas of maritime jurisdiction adjacent to their coasts ultimately benefits mankind, which possesses in the oceans a major source of means for its subsistence and development,

that the sovereign right of States to their natural resources has been recognized and reaffirmed by many resolutions of the General Assembly and other United Nations bodies,

that it is advisable to embody in a joint declaration the principles emanating from the recent movement towards the progressive development of international law, which is receiving ever-increasing support from the international community,

DECLARE the following to be Basic Principles of the Law of the Sea:

1. the right of coastal States to avail themselves of the natural resources of the sea adjacent to their coasts and of the soil and subsoil thereof in order to promote the maximum development of thier economies and to raise the levels of living of their peoples;

2. the right to establish the limits of their maritime sovereignty and jurisdiction in accordance with their geographical and geological characteristics and with the factors governing the existence of marine resources and the need for their rational utilization;

3. the right to explore, to conserve the living resources of the sea adjacent to their territories, and to establish regulations for fishing and aquatic hunting;

4. the right to explore, conserve and exploit the natural resources of their continental shelves to where the depth of the superjacent waters admits of the exploitation of such resources;

5. the right to explore, conserve and exploit the natural resources of the soil and subsoil of the seabed and ocean floor up to the limit within which the State exercises its jurisdiction over the sea;

6. the right to adopt, for the aforementioned purposes, regulatory measures applicable in areas under their maritime sovereignty and jurisdiction, without prejudice to freedom of navigation by ships and overflying by aircraft of any flag.

Furthermore, the signatory States, encouraged by the results of this Meeting, express their intention to coordinate their future action with a view to defending effectively the principles embodied in this Declaration.

This Declaration shall be known as the "Montevideo Declaration on the Law of the Sea."

Ambassador H. S. Amerasinghe
Permanent Mission of Ceylon to the United Nations

Among the many questions to which the international community has in recent years been required to direct its attention, few have attracted such widespread interest, especially in academic and industrial circles, as the question of the seabed and the ocean floor beyond the limits of national jurisdiction, the reservation of the area exclusively for peaceful purposes, and the exploitation of its resources for the benefit of mankind. The reason for this overwhelming interest and concern lies in the fact that this is a sphere which provides a unique opportunity for international cooperation of a constructive and positive nature in conformity with the principles and in fulfillment of the purposes to which 126 nations stand committed by their membership in the United Nations. At the same time, it is a sphere whose material resources can prove a fatal lure to our acquisitive instincts, blinding us to our greater duty to those higher principles and purposes that should constitute the essence of international cooperation in the world of today.

In your three days of discussion I hope that you have succeeded in establishing a clear understanding of the need to apply to the problems of the seabed and ocean floor rules of international conduct which are tempered with a proper mixture of altruism and mutual interest. It is not sufficient in the world of today to assert and live by the principle that power creates its own rights, and that the palm should go to the swiftest or the strongest. This is no Olympic contest. The riches of inner space, as the area of the seabed and ocean floor beyond the limits of national jurisdiction has come to be called, should not be left open to competitive exploration and exploitation on the specious plea that the greatest benefit to mankind would accrue if modern and developing technology and the nations commanding its use were left free and unfettered by any obligation to the international community to explore and exploit primarily for their profit and advantage whatever resources exist in any part of the world. Such a policy does not conform to that more enlightened spirit which is gradually emerging today and which seeks to reduce progressively through international cooperation the inequalities that exist between nation and nation, as the best guarantee of peace and security.

My audience this evening contains many eminent specialists in international law and, no doubt, many leading industrialists as well. If I address my remarks particularly to the international lawyers, it is not merely because this occasion is their intellectual saturnalia, but because they are perhaps most favorably placed to exert a powerful influence in molding international law to serve the needs of peace, justice, and progress. International law evolving through the force of custom has, in the past, traditionally found its main source in the power, influence and interests of the few. The moral concept of the greatest good of the greatest number that once inspired the growth of democracy but which had long remained alien to the sphere of international law must form the foundation of our creed today.

We must not be unmindful of the fact that if international law is to serve its avowed purpose of regulating the conduct of States in their relations with one another in a manner conducive to the establishment and maintenance of peace and security and consistent with the provisions of the supreme instrument in that domain, the United Nations Charter, it must form one coherent entity. Human activity in the three elements of air, sea and land has become inextricably interrelated. The rights, interests and obligations of a State in one element affect its own and those of other States in the other elements. This proposition is equally true of each of the elements taken by itself. The law of the sea has to be one comprehensive and coherent whole.

I shall, in the time available to me this evening and conscious of the need to avoid a tiresome repetition of all that you have discussed, refer to a few outstanding issues relating to the law of the sea and which have a special bearing on the question of the seabed and the ocean floor beyond national jurisdiction.

For three years now the United Nations has been discussing the question of the reservation exclusively for peaceful purposes of the seabed and ocean floor and the subsoil thereof beyond the limits of national jurisdiction, and the use of their resources for the benefit of all mankind. If progress is to be measured by the degree of agreement that has already been reached, the results might seem disappointing. But there is no cause for discouragement. The issues have been clearly identified and it is left now to us to devise the means of settling them.

It is imperative that we start with a set of general principles. The General Assembly expects a comprehensive and balanced statement of principles designed to promote international cooperation in the exploration, exploitation and use of the seabed and ocean floor and to ensure the use of its resources for the benefit of mankind to be presented to it at its twenty-fifth session by the Sea-Bed Committee. This declaration, in my opinion, is distinct from the set of legal norms and principles which would have to be formulated to regulate activity in the area. In substance, the two will be much the same. They would differ only in purpose and character. In the first stage the statement would constitute a declaration of political will on the part of member States. It will then, at a later stage, be transformed into more precise legal principles and norms for regulating activity and promoting cooperation to ensure the objectives in contemplation.

The issues which are of crucial and overriding importance and which have to be settled before a proper regime can be designed are the legal status of the area of the seabed and the ocean floor and the subsoil thereof beyond the limits of national jurisdiction, including the resources of the area, and the precise limits of national jurisdiction.

Two other issues on which the General Assembly has laid stress are the economic and technical conditions and rules for the exploitation of the resources of the area in the context of the regime to be established, and appropriate international machinery for the administration of the area and its resources.

This is one half of the problem. The other and equally significant half, as stated clearly in the resolution before the United Nations, is the reservation exclusively for peaceful purposes of the area of the seabed and ocean floor and the subsoil thereof underlying the high seas beyond the limits of national jurisdiction. The main features of the revised draft treaty presented jointly by the USSR and the United States to the Conference of the Committee on Disarmament on April 23, 1970, like the previous draft are:

(1) the area within which military activity is to be prohibited and
(2) the types of weapons to be prohibited.

The area of prohibition which, for convenience sake, I shall describe as the international zone of demilitarization, is defined as the area lying beyond the outer limit of the seabed zone conterminous with the 12-mile outer limit of a zone measured from the same baseline as the territorial sea.

In regard to the types of weapons to be prohibited, the draft treaty seeks to ban the emplanting or emplacement on the ocean floor and the subsoil thereof lying within this international zone of any nuclear weapons or any other types of weapons of mass destruction as well as structures or launching installations or any other facilities specifically designed for storing, testing or using such weapons. These provisions will serve at least one valuable purpose. They will resolve the ambiguity now existing in the Geneva Convention on the Continental Shelf regarding the use for military purposes of the continental shelf whether by the coastal State or any other State.

Within the 12-mile seabed zone measured from the same baseline as the territorial sea, the coastal State alone shall have the right of military use, including the right to emplace or emplant the types of weapons and structures banned from the international zone. However, in removing one ambiguity, the draft treaty leaves unresolved another which is inherent in the existing law of the sea. It permits the coastal State to use the seabed beneath its territorial waters for military purposes including the emplacement of those types of nuclear weapons and weapons of mass destruction which are to be banned from the area beyond the 12-mile zone. The draft treaty seems to imply or assume that the maximum width of the coastal State's territorial sea shall itself be 12 miles. This would require a revision of the Convention on the Territorial Sea and Contiguous Zone.

A clear definition of the term "weapons of mass destruction" is indispensable but is not contained in the draft treaty. It has been argued that only weapons of mass destruction would have sufficient military significance to warrant the expense of operation from the seabed and ocean floor and that, therefore, any weapon that could have sufficient significance militarily to warrant the expense of operation from the seabed and the ocean floor would, by definition, have to be a weapon of mass destruction. In a treaty of this nature nothing should be left to definition by inference. The types of banned weapons should be so defined as to exclude all possibility of military use of the area outside the 12-mile seabed zone. Weapons of mass destruction should be defined so as

specifically to include chemical and biological weapons. The armaments that are prohibited should include submarines with nuclear capability or with the capacity of mass destruction. Even the temporary use of the seabed and the ocean floor by submarines equipped with nuclear capability or with weapons of mass destruction could interfere seriously with the peaceful use of the seabed and the ocean floor and should, therefore, be covered by the ban. Those who desire the area of the seabed and the ocean floor and the subsoil thereof beyond national jurisdiction to be reserved exclusively for peaceful purposes and wish military uses to be prohibited in that area cannot be satisfied with anything less than a total prohibition on the establishment, beyond the 12-mile zone, of all military bases, fortifications and similar installations. Whether communications, surveillance and detection devices should be included in the ban would need to be considered.

One of the most encouraging features of the new draft, as in the case of the old draft, is the extent on the one hand of the area to which the demilitarization proposals apply and on the other hand of the area within which military uses are to be permitted to the coastal State. The 12-mile zone may well prove to be narrower than the area within which the coastal State will eventually be allowed by international agreement to exercise exclusive sovereign rights to the mineral resources of the continental shelf. This in itself is an admission of the need for keeping within the narrowest possible limits the area of the seabed and the ocean floor within which military activity may be permitted. Despite all the reservations I have expressed in regard to the draft treaty, I do concede that the measure of agreement reached between the two biggest powers is vastly encouraging.

All the discussions that have taken place in regard to the exploitation of the resources of the seabed and the ocean floor and the subsoil thereof beyond the limits of national jurisdiction would serve no purpose other than an academic one unless and until agreement were reached on a precise and internationally accepted definition of the area of the seabed and the ocean floor which lies beyond the limits of national jurisdiction. The General Assembly has taken the first step towards the convening of a conference on the law of the sea to review the regimes of the high seas, the continental shelf, the territorial sea and contiguous zone, and fishing and conservation of the living resources of the high seas for the particular purpose of arriving at a definition of the limits of national jurisdiction.

I would agree with those who contend that the most urgent questions to be solved are the determination of a maximum fixed limit of territorial waters and the definition of the outer limit of the continental shelf within which the coastal State can exercise exclusive sovereign rights for the purpose of exploring and exploiting its natural resources. It would not be reasonable, however, to ignore the position of those States which, lacking a continental shelf, enjoy no geological inheritance. It is not unreasonable for them to consider themselves to be entitled by way of compensation to the living resources of the sea in the widest possible marine zone adjacent to their coasts. These geographically disinherited States have reacted to the assertion of exclusive title by the coastal States to the natural resources of the continental shelf by proclaiming

a 200 mile limit of territorial waters. A 200 mile limit of territorial sea, with the concomitant claim to the resources of the seabed underlying that extent of sea, might seem to have little practical value for States that have no continental shelf, but the existence of such claims to such a wide limit of territorial waters does have an important bearing on the problem of securing international agreement in regard to a clearer and more precise definition of the outer limit of the continental shelf than is at present provided in Article 1 of the Geneva Convention on the Continental Shelf.

The formulation of a legal regime for the exploitation of the resources of this area requires in the first place a determination of the legal status of the area and its resources. If the objective is to exploit them in the interests of mankind, that status must be such as would recognize the area and its resources as the property of the world community. A considerable body of opinion not confined to the developing nations would wish the area and its resources to be treated as the common heritage or patrimony of mankind. This may be a novel concept hitherto unknown, but as I have already indicated, we must abandon traditional concepts and evolve a new concept if this fresh field is to be saved from competitive exploitation restricted unavoidably to those with the financial resources and with the technological power to exploit them.

The concept of the common heritage of mankind, as we understand it, is in effect the concept of property held in trust for all mankind, property which belongs to no single nation but to the entire world. The main objection to the common heritage concept seems to be based partly on the fear that some of the heirs to the heritage might carve out what they regard as their share. This is a misunderstanding of the common heritage concept. An essential feature of the concept of common heritage is the indivisibility of that heritage. It is by the acceptance of the principle of indivisibility that a rational means of equitable sharing in the benefits resulting from the exploitation of that heritage could be ensured. It is deeply gratifying that one of the two most powerful nations of the world has announced its acceptance of this concept of common heritage. I refer to the recent declaration by the President of the United States on United States ocean beds policy. Whether the United States' understanding of the concept is identical with what we of the developing nations have in mind has yet to be ascertained, but we have no reason to fear that there can be any sharp conflict of understanding that cannot be reconciled by negotiation.

Initial steps have been taken at the United Nations to consider the manner in which the benefits of exploitation should be distributed. There are indices of the economic status and economic growth of nations commonly accepted in international organizations such as, for example, the assessments for contributions to the expenses of the United Nations, by which we could be guided in selecting those countries which are in the greatest need for assistance and which should, therefore, be the primary beneficiaries of the exploitation of the seabed's resources. But this stage is still somewhat remote.

I have already trespassed unduly on your forbearance. The subject is too vast to be covered in a short address and my aim has been to draw attention to the main features of the question as we see it at the United Nations.

Prominent among the other aspects of the question is the problem of pollution of the marine environment and the preservation of its ecological balance, to which the international community is fully alive. Conferences such as the one held here under the auspices of the Law of the Sea Institute at Kingston, Rhode Island, during the past three days have a special contribution to make in stimulating the efforts of the United Nations towards international agreement and international cooperation on one of the most fascinating and challenging problems that confront us. Scientists, physical and social, lawyers, industrialists, businessmen and bankers, along with politicians and mere diplomats, are involved here because we are all involved in mankind.

SOME RECENT DEVELOPMENTS IN SOVIET MARITIME LAW

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To those who recall the vigorous advocacy of the traditional three-mile limit of territorial waters by the United States delegation to the 1958 and 1960 Geneva Conferences on the Law of the Sea, the recent disclosure by the Legal Adviser to the Department of State that the United States would support an international convention fixing the territorial waters of all countries at twelve miles may have come as a considerable surprise.[1] While the United States position is predicated upon securing appropriate guarantees of innocent passage through international straits, it nonetheless constitutes a rather unexpected shift in American maritime policy.

Equally dramatic is the changed attitude of the Soviet Union--principal protagonist of the Western maritime powers at the Geneva Conferences--toward the law of the sea. Historically a partisan of a twelve-mile breadth of territorial waters and of a broad concept of historic waters, the Soviet Union urged at Geneva that coastal States should fix the limits of their jurisdiction seaward in conformity with their security, economic, and other interests. Many Western observers concluded that the USSR sought to appropriate vast areas of adjacent seas under the pretext of historic bay, "closed" sea, and territorial sea doctrines, and they viewed such claims as evidence of an aggressive Soviet posture toward the West. After the 1960 Geneva Conference failed to reach agreement on the breadth of the territorial sea, the Soviet Government unilaterally enacted a twelve-mile limit and denied to foreign warships the right of innocent passage in Soviet territorial waters.

The present writer has argued elsewhere that these Soviet doctrines were more properly attributable to historic Russian maritime legal policy, to profound Soviet naval weakness and the relegation of the Navy to a coastal defense role in Soviet strategic doctrine, to predominantly coastal commercial fishing operations, and to dependence upon foreign merchant fleets to carry goods.[2] But indications of basic alterations in long-standing Russian and Soviet interests at sea are accumulating, and these are beginning to affect Soviet attitudes toward the law of the sea.

In 1961 the large and sophisticated Soviet high seas fishing fleet appeared off the New England and Alaskan coasts of the United States. Soviet fishing vessels began operating in the Gulf of Alaska in 1962, in the Gulf of Mexico and the Caribbean in 1962-63, off Oregon and Washington in 1966, California in 1967, and Hawaii in 1968. By the late 1960's, Soviet fishery activity had been

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[1] 9 Int'l. Legal Materials (1970), p. 434.

[2] W.E. Butler, The Law of Soviet Territorial Waters. New York: Praeger (1967).

instrumental in persuading the United States Congress to create a twelve-mile fishing zone and had brought the USSR into diplomatic confrontations with Argentina, Ghana, Senegal, and other States. At the same time, the Soviet Government endeavored to curtail Japanese fishing off Soviet coasts in the Okhotsk Sea and the Sea of Japan.

Following the demonstration of American naval superiority during the Cuban missile crisis, the Soviet leadership accelerated naval and merchant marine shipbuilding programs begun in the mid-1950's, being determined, one may speculate, never again to be at such a disadvantage. The Soviet merchant marine is now of respectable size and one of the most modern fleets on the oceans. The Soviet Navy is increasingly being regarded as a formidable potential adversary.

The impact of these developments upon Soviet attitudes toward the law of the sea has been gradual, at times barely perceptible, but nonetheless significant and far-reaching. This is perhaps best illustrated by comparing traditional Soviet positions on vital maritime questions with recent Soviet writings and policies.

Territorial sea. In the pre-1917 period the Tsarist Government frequently expressed attitudes toward the legal regime of the seas at variance with the practices of the major Western seafaring powers, particularly with regard to the extent of coastal jurisdiction over adjacent seas. Generally speaking, Russia supported the cannon shot rule as a flexible and realistic criterion for measuring coastal jurisdiction at sea. While both the cannon shot rule and the three-mile limit were incorporated into Russian legislation and treaty practice of the late eighteenth and the nineteenth centuries, on several occasions the Russian Government attempted to adopt a broader limit or protested that the breadth of territorial waters was unresolved in international law. In the first decade of the twentieth century a series of commissions appointed by the Tsarist Government to study the issue recommended that Russian territorial waters be extended to at least six and, in one case, up to twenty miles. Higher officials, however, concluded that a unilateral extension of territorial waters would be unacceptable to the major seafaring States and elected to pursue a graduated approach by creating coastal zones for special purposes. Thus, in 1909 a customs belt of twelve miles was established, and in 1911 an exclusive twelve-mile fishing zone was created off the far eastern coast of Russia. The establishment of each zone was strenuously protested by Great Britain and Japan, who were apprehensive that Russia was asserting a jurisdiction broader than that provided for in the decrees. The United States, among others, construed the Russian legislation narrowly and entered no objection.[3]

Thus, on the eve of the Bolshevik revolution the Russian Government had rejected the three-mile limit of coastal jurisdiction as a principle of customary international law, apparently had observed that principle for the most part

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[3] Ibid., pp. 3-6.

in State practice, and had established two twelve-mile zones for special purposes. Whatever its long-range intentions may have been, the Tsarist Government did not promulgate or enforce a twelve-mile belt of territorial waters, notwithstanding subsequent assertions by Soviet jurists to the contrary.

Broadly speaking, the Soviet approach to territorial waters falls into three periods. In the immediate post-revolutionary period until 1947 the law of Soviet territorial waters did not differ markedly from that of the West. At international conferences, the Soviet Government adhered to the position of the Tsarist Government that there was no generally recognized breadth of territorial waters in international law. In practice, however, Soviet normative acts adopted different limits for different purposes. For example, a decree of 1921 established a twelve-mile fishing zone in certain Arctic waters and closed the White Sea to foreign fishing;[4] a 1928 decree still in force created a ten-mile zone regulating the use of wireless radio equipment;[5] and a 1927 statute on the State boundary fixed a twelve-mile belt of coastal jurisdiction but did not specify that a belt of territorial waters had been delimited.[6] A Soviet jurist writing in 1939 confirmed this interpretation of Soviet legislation: "USSR legislation does not define the breadth of territorial waters of the Soviet Union..." but "establishes border and customs zones, fishing zones, zones for the use of radio equipment, fortified zones, and zones closed to navigation."[7]

Following World War II, Soviet patrol vessels began to strictly enforce the twelve-mile fishery zone against Japanese and Scandinavian vessels. In the ensuing diplomatic correspondence exchanged with governments of the aggrieved vessels, it became clear that the USSR was now attempting to interpret the 1927 statute on the State boundary as having established a twelve-mile belt of territorial waters, although legislative language and prior Soviet practice did not support such a position.

During this same period, Soviet jurists stressed the desirability of using the term "territorial waters" in place of the term "territorial sea" because the former expression more correctly reflected the nature of the waters and the connection of the maritime belt with the territory and internal waters of the coastal State: in other words, it suggested a greater degree of coastal State

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[4] 6 Soviet Statutes & Decisions, (1969), p. 26.

[5] Ibid., p. 95.

[6] Ibid., p. 30.

[7] V. A. Belli, writing in a naval international law manual published in 1939, cited by A. N. Nilolaev, Problema territorial'nykh vod v mezhdunarodnom prave (1954), p. 202.

sovereignty over territorial waters.[8] Soviet jurists who prior to 1940 had interpreted Soviet legislation as providing for contiguous zones were criticized for mistaken and harmful views which "weaken our position in the struggle for the sovereign rights of the USSR in its territorial waters" and which "help our adversaries in their struggle against us, and in their attempts to violate the regime of our Soviet territorial waters."[9] From this time forward, Soviet jurists began to insist that the USSR had always applied the twelve-mile limit, which supposedly had been fixed by the Tsarist customs decree of 1909.

The right of innocent passage experienced a similar evolution. Prior to 1945, Soviet law and practice with respect to the right of innocent passage generally conformed to Western practice. Thereafter Soviet jurists questioned the existence of such a "right." The most extreme position was taken by A. N. Nikolaev, a jurist who served as a member, and later deputy chairman, of the Soviet delegation to the Geneva Conferences on the Law of the Sea. In 1954 Nikolaev contended that innocent passage contradicted State sovereignty over territorial waters and gave an opportunity to aggressive blocs to commit hostile actions against the coastal State under the guise of innocent passage. Hence, he concluded, passage of foreign nonmilitary vessels must not only be innocent but also necessary from the viewpoint of customary navigation.

Nikolaev's position, it must be added, was not pressed by the Soviet delegation at Geneva. The head of the Soviet delegation acknowledged that his Government favored recognition of the right of innocent passage as one of the essential conditions of normal international navigation.

The Soviet Union did seek to have some of its postwar doctrinal attitudes toward the regime of territorial waters adopted during the Geneva Conferences, especially the twelve-mile limit and restrictions on the right of innocent passage for warships. The Conferences were unable to resolve either issue, and in signing the Convention on the Territorial Sea and Contiguous Zone the Soviet Government entered a reservation to Article 23(d) to the effect that a coastal State has the right to establish an authorization procedure for the passage of foreign warships through its territorial waters.[10]

The postwar period culminated in 1960 with Soviet ratification of the Geneva Convention on the Territorial Sea and with the adoption of two basic legislative acts affecting the regime of territorial waters. The first, a Statute on the Protection of the State Boundary of the USSR, explicity codified

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[8] The strongest proponent of the view, Nikolaev, published a monograph in 1969 entitled "The Territorial Sea". The expressions territorial "waters" and "sea" have both been used in recent Soviet legislation.

[9] Nikolaev, op. cit., p. 199.

[10] 6 Soviet Statutes & Decisions, (1969), p. 63.

the twelve-mile limit as the breadth of Soviet territorial waters, defining the nature and conditions of innocent passage, and otherwise implemented the Geneva Convention.[11] The second legislative act, the Rules for Foreign Warships Visiting the Territorial Waters of the USSR, provided that consent for the passage of foreign warships into Soviet territorial waters must be requested through diplomatic channels thirty days prior to the proposed visit.[12] These Rules enacted into law the Soviet reservation to Article 23(d) of the Convention on the Territorial Sea.

Within the past year or so, there have been indications that a new phase is emerging in Soviet attitudes toward the law of territorial waters. The Soviet Government is re-examining its postwar attitudes. To be sure, there will be no retreat from the twelve-mile limit. But as the Soviet Union grapples with the implications of its newly-acquired status as a major maritime power, other changes are perceptible. Soviet jurists, for example, have recently urged the convening of a third conference of the law of the sea to agree upon a maximum breadth of territorial waters permissible under international law. The Soviet view now is that twelve miles is the absolute maximum limit.[13] Similarly, the Soviet attitude toward the archipelago theory has changed from one of qualified endorsement to cold disapproval. One suspects, although such a view has not yet been publicly expressed in Soviet legal media, that the USSR would accept a carefully defined right of innocent passage for all vessels through international straits in order to reach agreement on the breadth of territorial waters.

Closed sea doctrine. The notion of the closed sea is not a Soviet invention.[14] It dates back at least to John Selden, author of Mare Clausum (1635), in the seventeenth century. Tsarist jurists often referred to the Caspian Sea as the prototype of the closed sea, and from time to time in the interwar period Soviet diplomats urged that the Black and Baltic Seas be closed to warships of non-littoral States. The full-fledged theory of the closed sea originated in postwar Soviet diplomatic correspondence with Turkey over the future status of the Montreux Convention of 1936 governing the Black Sea straits. In 1948 this view was given an elaborate jurisprudential rationale by a Soviet jurist named Dranov, who asserted that for historical, juridical, and geographic reasons the coastal States were entitled to have the decisive voice in regulating a closed sea. In 1951 a young Soviet international lawyer, S.V. Molodtsov, applied

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[11] Ibid., p. 45.

[12] Ibid., p. 65.

[13] See A.L. Kolodkin, "Territorial Waters and International Law," International Affairs [Moscow], No. 8 (1969), pp. 79-81; A.N. Nikolaev, Territorial'noe more (1969).

[14] Butler, op. cit., pp. 19-26.

Dranov's thesis to the Baltic Sea. Later the doctrine was extended to the Okhotsk Sea and the Sea of Japan.

In its original Soviet version, the closed sea doctrine held that the coastal State(s) were entitled to the exclusive use of and jurisdiction over the entire sea. By the mid-1950's, Soviet jurists appreciated that such a view would be quite unacceptable, and the doctrine underwent numerous refinements. At present, Soviet legal theorists suggest that a closed sea must be characterized by: (1) a particular geographic configuration of the coastline; (2) the proximity to the coast of a limited number of States whose land territory fully encloses the given expanse of sea; (3) a comparatively narrow entrance to the sea; (4) the absence of significant international maritime routes through the sea. The merchant vessels of noncoastal States would have the same rights as those of coastal States, all being governed by the regime of the high seas. Warships of noncoastal States would have no right of access to a closed sea, whereas warships of coastal States would enjoy a right of free and unlimited navigation in closed seas beyond the territorial waters of other littoral States. The right of vessels of noncoastal powers to fish has been left open.

Even from this brief summary of the closed sea doctrine, it is apparent that it was devised primarily to protect Soviet coasts from the large navies of noncoastal powers. The doctrine still retains some vitality, for the USSR annually suggests to the Baltic States that they establish a regional regime for the Baltic Sea. One would also suspect that the USSR invoked the closed sea doctrine in 1968 when protesting against visits by US naval vessels to Turkish ports on the Black Sea. Nevertheless, there is a serious question as to whether apart from the Baltic and Black Seas, which have a distinctive historical and geopolitical status, the closed sea doctrine will continue to be compatible with Soviet maritime interests. Although Soviet jurists have carefully tailored the closed sea doctrine exclusively to Soviet coasts, there is always the danger that other States may seize upon the doctrine in order to justify the exclusion of Soviet vessels from their coasts. Soviet fishing flotillas would be especially vulnerable to such a policy. In this connection it is highly significant that a volume on maritime law published in 1969 in the USSR is the first in more than two decades to omit a general discussion of the closed sea.[15] While this omission probably does not signify a total abandonment of the notion, it is unlikely that the doctrine of the 1950's will long survive.

Historic waters. Both Russian and Soviet publicists have long regarded historic bays and seas as part of the internal waters of a coastal State and subject to its unlimited sovereignty. Some Soviet jurists have classified a given body of water as both a closed sea and an historic bay--i.e., the White Sea. Until the early 1950's, the White Sea, the Sea of Azov, and the Gulf of Riga were commonly cited by Soviet jurists as examples of the historic bay. In 1951 a Soviet international law textbook added the category of the historic sea,

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[15] A. A. Volkov, Morskoe pravo (1956).

referring specifically to the Kara, Laptev, East Siberian, and Chukotsk Seas. All of these, it was argued, were actually large bays of the Arctic Ocean, a view which, geographically and geologically speaking, has some merit.

Although none were designated by name, historic bays and seas were expressly included within USSR internal waters by the 1960 Statute of the Protection of the State Boundary of the USSR. Under the Statute, a historic bay or sea is one having special economic or strategic significance for the littoral State or as having been established by historical tradition. Although the definition is so stated that any one of the factors would appear to justify invocation of the doctrine, Soviet writers attempt to establish the presence of all three when defending the designation of a body of water as historic.

The single instance of a formal application of the historic bay principle occurred in 1957 when the USSR Council of Ministers decreed that Peter the Great Bay, the site of Vladivostok, which is a major naval base only ten miles from the Chinese border, was part of the internal waters of the USSR.[16] The decree was promptly endorsed by the People's Republic of China, although vigorously protested by several Western powers. The Bay had never before been mentioned by any Soviet writer as being an historic bay.

In this case, too, Soviet endorsement of the historic bay principle, particularly as espoused in the 1950's, appears to have been influenced by considerations of security. Taken together, the historic bay and closed sea doctrines as formulated by Soviet jurists in the 1950's would effectively close ten of the fourteen seas washing Soviet coasts to foreign influence and navigation. However, the historic bay or sea doctrine as applied to the Arctic coastline of the USSR has been effectively challenged by the voyages of United States Coast Guard icebreakers into the Kara and Chukotsk Seas since 1963. Although the Soviet Government objected to the passage of armed icebreakers through the Vil'kitskii Straits, a passage from the Kara to the Laptev Seas overlapped by Soviet territorial waters, on the ground that the icebreakers as naval warships had not obtained authorization for such passage pursuant to Soviet law, the legal theory of historic waters was not elevated into a State claim.[17] Under the historic

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[16] 6 Soviet Statutes & Decisions (1969/70), p. 209.

[17] This is an excellent example of the necessity to distinguish between Soviet doctrine and practice. On many occasions Soviet legal theory is strongly influenced, indeed is often directly inspired by, positions taken by Soviet diplomats in international conferences or organizations or in bilateral diplomacy. However, on other occasions Soviet jurists write what in effect is a brief for changing the law to accord with Soviet interests; in the latter case their theoretical positions may or may not accord with State practice or represent official views. And increasingly Soviet international lawyers express views which clearly are personal and are not necessarily shared by their own colleagues. Western readers of Soviet legal media often overlook these exceedingly important distinctions.

water theory, foreign vessels would be wholly barred from the Arctic region since the waters in question would be internal waters. The return to a more traditional listing of historic waters (White Sea, Peter the Great Bay), based upon Soviet legislation, contained in a 1969 maritime law textbook may signify the final demise of the historic waters theory with regard to the Arctic seas.[18]

Continental shelf. The theory of the continental shelf made its appearance in Russian State practice as early as 1916. In that year the Russian Government employed the term "plateforme continentale de la Siberie" to justify a claim to certain islands north of Siberia in a memorandum to several governments.[19] The Soviet Government referred to the "plateau continentale siberien" in a 1924 note reaffirming the claim of 1916.[20]

Soviet legal literature paid little attention to the legal status of the shelf until 1950, when V. Koretskii, who retired in 1970 as the Soviet judge on the International Court of Justice, wrote an article surveying the claims various States had made to the shelf. Koretskii was critical of claims where "expanses of sea are usurped and are transformed into national waters." During the deliberations of the International Law Commission, and later at the Geneva Conference on the Law of the Sea, the Soviet Government took a generally moderate approach toward most of the issues at stake. It supported the exclusive right of a coastal State to use the wealth of the shelf while opposing any extension of that right to support a claim to superjacent waters. It opposed the application of the regime of the high seas to the shelf on the grounds that the strongest capitalist powers would acquire an undue share of shelf resources. However, full sovereignty over the shelf was objectionable as being incompatible with the interests of non-littoral States in fishing and freedom of navigation. During the 1958 Geneva Conference, and again in recent disarmament negotiations, the USSR strongly supported demilitarization of the shelf; i.e. use of the shelf exclusively for peaceful purposes.

In February 1968 the USSR adopted an edict on the continental shelf; this was the first Soviet legislative act defining the legal status of the shelf beyond the twelve-mile belt of Soviet territorial waters and was intended to implement the provisions of the Convention on the Continental Shelf.[21]

The 1968 edict incorporated verbatim the definition of the shelf set forth in the Convention on the Continental Shelf, while resolving an ambiguity in that Convention as to whether huge depressions or trenches constituted the outer boundary of the shelf or whether the shelf-mass beyond the depression should

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[18] Volkov, op. cit., p. 119.

[19] 6 Soviet Statutes & Decisions (1970), p. 255.

[20] Ibid., p. 256.

[21] Ibid., p. 258.

also be deemed part of the shelf. In adopting the latter view, the Soviet Government undoubtedly had in mind the several sizable troughs intersecting portions of the polar seas off Soviet coasts.

The Soviet definition of the shelf included the so-called "exploitability" clause of the Convention on the Continental Shelf with regard to the outer boundary of the shelf; i.e., the shelf extends to a depth of 200 meters or, beyond that limit, to the depth at which technology permits exploitation. Soviet jurists interpreted this provision to mean that the most technologically advanced State in the world determines the outer boundary of the shelf for all States as it develops its own shelf at ever-greater depths. To do otherwise, Soviet jurists contend, would enable advanced States to explore the seabed and subsoil off the coasts of other countries at a depth exceeding their own continental shelf. This would "contravene the spirit of the Convention on the Continental Shelf, which leaves to each State the right of exploration and exploitation of areas of its seabed and subsoil..."[22] However, the application of the principle would not extend, in the Soviet view, to the deep ocean bed beyond the geological continental shelf.

The problem of delimiting the boundary of a shelf shared by two or more States has already been dealt with in Soviet treaty practice pursuant to Article 6(2) of the Convention on the Continental Shelf. In a Soviet-Finnish agreement of May 20, 1965, the parties made the shelf boundary in the Gulf of Finland co-terminus with the boundary of their respective territorial waters.[23] The boundary of their shelf in the northeastern part of the Baltic Sea, under an agreement of May 5, 1967, is a median line.[24] Pursuant to an agreement of Aug. 29, 1969, the Soviet-Polish shelf boundary in the Gulf of Gdansk is drawn at points equidistant from the coasts of both States.[25] Negotiations are in progress to demarcate the Soviet shelf boundary with Norway.

The issue of delimiting the boundary of adjacent shelves came before the International Court of Justice in the North Sea Continental Shelf Cases; judgment was rendered in February 1969. On October 23, 1968, surely by no coincidence the same day that the ICJ began to hear oral arguments in the Cases, the USSR, Poland, and East Germany signed a joint Declaration on the Continental Shelf of the Baltic Sea. The Declaration provided that the "surface and subsoil of the bed of the Baltic...are a continuous continental shelf" whose delimitation must be carried out in conformity with the "principles set forth in the 1958

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[22] 3 V.M. Chkhikvadze, et. al., ed., Kurs mezhdunarodnogo prava v shesti tomakh (1967), p. 298.

[23] 6 Soviet Statutes & Decisions (1970), p. 264.

[24] Ibid., p. 268.

[25] 9 Int'l. Legal Materials (1970), p. 697.

Geneva Convention on the Continental Shelf and, in particular, Article 6..."[26] The base lines used to compute the breadth of the territorial sea in conformity with the 1958 Convention on the Territorial Sea were reciprocally recognized and considered to be the base lines for delimiting the shelf, whose precise coordinates were to be determined in bilateral or multilateral agreement among the States concerned. In this manner the USSR communicated its attitude toward the pending cases before the ICJ, and, as it turned out, the substance of the dissenting opinion written by the Soviet judge.

The natural resources of the continental shelf are defined in the Convention on the Continental Shelf and in the 1968 edict as the "mineral and other nonliving resources of the seabed and subsoil, as well as living organisms belonging to sedentary species..." In the USSR these resources are State property, and their exploration and exploitation must be carried out in conformity with Soviet law.

On October 29, 1968, the Ministry of Fisheries of the USSR confirmed a "List of Living Organisms Which Are Natural Resources of the Continental Shelf of the USSR" containing 52 species of marine life.[27] Reflecting its insistence at the 1958 Geneva Conference that crustacea must be included in the concept of shelf resources, the Soviet list specified Tanner and Alaska King Crabs, as well as other crab species on the USSR continental shelf "except species which swim when mature." This formulation left some negotiating leeway to the Japanese, for whom the Alaska King Crab gathered off the Kamchatka coasts has been an important source of revenue and food.

The 1968 edict prohibited foreign aliens and companies from engaging in research, exploration, and exploitation of natural resources and in other work on the Soviet continental shelf unless permission has been expressly granted in an international agreement to which the USSR is party or unless competent Soviet authorities issue a special permit. In the Declaration on the Continental Shelf of the Baltic Sea the parties agreed not to give over parcels of that shelf for exploration, exploitation, or other use to non-Baltic States, nationals, or firms. In 1965 the USSR formally protested against sea-bottom coring operations carried out by the U.S. Coast Guard icebreaker Northwind in the Kara Sea as violating the Convention on the Continental Shelf. Two years later a request of the United States Government to conduct research on the continental shelf beneath the polar seas off the Soviet coast was refused outright by the USSR.

Deep seabed. The legal regime of the deep seabed is such a comparatively new and complex issue that Soviet attitudes and policies, as those of other countries, are still in the process of gestation. A glance at a map of the Soviet coastline, however, will show that the USSR faces difficult choices.

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[26] 6 Soviet Statutes & Decisions (1970), p. 261.

[27] Ibid., p. 282.

The so-called "national-lake" approach--extending the outer boundary of the continental shelf seaward until it abuts the boundary of opposite States--has been labeled "absurd" by Soviet jurists. The USSR would receive very little seabed area under such a scheme, and there is apprehension in Soviet legal media that such a division of the ocean bed would effectively do away with the freedoms of the seas.

Soviet jurists also have objected to the extreme opposite of the national-lake theory: vesting title to the deep seabed in an international organization or authority. A supranational authority would be "inadvisable," "incompatible with freedom of the seas," and "would impair State cooperation in ocean exploration" in the opinion of Soviet diplomats.[28] While this view apparently would foreclose Soviet support for or acquiescence in United Nations administration of the seabed, it would not necessarily preclude Soviet participation in the creation of an international registry authority or analogous international arrangement with limited, specifically defined functions to regulate aspects of the deep seabed so long as that body were under the control of its sovereign member-States.

Rejection of the aforementioned theories leaves the "flag-State" approach, permitting each State to exploit and claim jurisdiction over areas of the seabed as technology permits. Soviet publicists are not enthusiastic about this approach either, fearing that the USSR may be at a severe disadvantage if competition were unrestricted and, moreover, that there would be excessive interference with other uses of the seas.

Consequently, Soviet diplomats have supported a "go slow" approach with regard to the development of a comprehensive seabed regime and stressed that, in any event, a number of specific norms of international law already extend to the seabed. These norms must be taken into consideration by any and all States using the seabed under whatever regime. Existing norms and principles are said to include: (1) the right to lay submarine cables and pipelines on the bed of the high seas; (2) the right to engage in "fisheries conducted by means of equipment embedded in the floor of the sea" under circumstances specified in Article 13 of the Convention on Fishing and Conservation of the Living Resources of the High Seas; (3) the freedom of scientific research in the world ocean, including the seabed and its resources; (4) respect for the legal rights and interests of other States; (5) respect for the generally recognized freedoms of the high seas, including freedom of navigation and fishing. To these Soviet jurists would add the denuclearization of the seabed beyond a twelve-mile maritime zone, as provided in the draft treaty on the prohibition of the emplacement of nuclear weapons and other weapons of mass destruction on the seabed and the ocean floor and the subsoil thereof.[29]

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[28] Also see S. Smirnov, "The Ocean and Law," Izvestia, Jan. 7, 1970, p. 2; translated in 6 Soviet Statutes & Decisions (1970), p. 294.

[29] 6 Soviet Statutes & Decisions (1970), pp. 288-293.

Conclusions. Marine developments of the past decade have brought the United States and the Soviet Union closer together on many basic issues of maritime policy than at any time in the past. The Soviet Union has abandoned its open-ended formulations of the norm governing the breadth of territorial waters, has insisted that twelve miles is the maximum limit, and would like to convene a third conference on the law of the sea to finally resolve the issue. The archipelago theory has become suspect in the Soviet view, and there appears to be less resistance to a guarantee of innocent passage for all vessels through international straits. The closed sea and historic waters doctrines, for so long a prominent Soviet contribution to international legal theory, are being relegated to the background. With regard to the continental shelf, the Soviet Government is deeply concerned about claims to the shelf or seabed which would impinge upon the freedoms of the seas and is unwilling to recognize any claims to sovereign rights extending beyond the geological continental shelf.

One would hope this means that some of the vexing problems of the law of the sea are more susceptible of solution. But proximity of interest is not identity. The paramount interest of the United States Navy in the freedoms of the seas is not fully shared by the Soviet Navy. Despite some impressive increase in capability and a great deal of publicity, the Soviet Navy plays a comparatively modest role in Soviet strategic doctrine; it is still oriented primarily to coastal defense and shows no inclination to develop a "deep-blue" fleet. Soviet international lawyers associated with the USSR Ministry of Defense seem less enthusiastic in defending the freedoms of the high seas than do their colleagues within the Soviet merchant marine and fishery ministries.

Expanding claims to the high seas could severely injure both American and Soviet merchant shipping, but in fisheries the Soviet Union is much more vulnerable than the United States. Indeed, the USSR Ministry of Fisheries has emerged as the most vocal critic of claims to jurisdiction at sea beyond twelve miles; in the United States the sadly declining east coast fishing industry is demanding protection from foreign competition.

It is still too early to judge the extent to which American and Soviet interests in mining or oil extraction at sea may conflict. Soviet fishery interests are apprehensive about the pollution and obstruction likely to accompany mining or oil operations, and one would suppose that Western firms will show greater initiative than Soviet enterprises in commencing such exploitation.

On the whole, however, American and Soviet approaches to the law of the sea will probably continue to become less polarized than in the past, and the prospects for cooperation in marine-related developments look more promising than ever before.

List of Conferees

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