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NAVAL WAR COLLEGE
Newport, R.I

THESIS

RECOMMENDATIONS FOR A UNITED STATES POSITION
REGARDING DELIMITATION OF
THE OUTER BOUNDARY OF THE "LEGAL" CONTINENTAL SHELVES

by

Brian K. Hannula
Commander, U.S. Navy

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Brian K. Hannula

16 April 1970

This thesis has been submitted to the
University of Rhode Island in partial
satisfaction of the requirements for
the degree of Master of Marine Affairs.

Abstract of
RECOMMENDATIONS FOR A UNITED STATES POSITION
REGARDING DELIMITATION OF
THE OUTER BOUNDARY OF THE "LEGAL" CONTINENTAL SHELVES

The Convention on the Continental Shelf has come under attack because it does not establish a precise outer boundary for the "legal" continental shelf. It is the author's opinion that the United States should propose or support a revision of the Convention which would rectify this situation. A suitable delimitation proposal must have considerable domestic support and should represent the best compromise between opposing domestic views. A proposed revision of the Convention must also have strong international support if it is to be adopted. Each nation will determine a preferred delimitation which depends on the configuration of its own continental shelves and on the interest it may have in exploiting the resources of foreign shelves. Analysis of the various domestic and international interests leads the author to recommend that the United States, in order of preference, support the following delimitations: 200 meters/50 miles; 550 meters/50 miles; 550 meters; 50 miles; or 200 meters. If it can be assured that coastal State rights in the zone are limited to resource exploitation, support for an intermediate zone extending to 2500 meters/100 miles is also recommended.

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RECOMMENDATIONS FOR A UNITED STATES POSITION
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CHAPTER I

INTRODUCTION

Background. The coastal States of the world, in 1964, gained the exclusive and unquestioned right to exploit the natural resources of the seabed areas adjacent to their shores -- that is, those resources located on or within their continental shelves. The rights of the United States, in particular, were extended to an area approximately equivalent to that of the Louisiana Purchase of 1803. This region is larger than the State of Alaska and more than twice the size of the original 13 states. The right to resource exploitation was derived from the Conventions on the Continental Shelf and on the Territorial Sea and the Contiguous Zone which became effective, respectively, on June tenth and September tenth of 1964.¹ These Conventions were among the four major treaties which were adopted by the participants in the 1958 Geneva Conference on the Law of

¹Similar rights to resource exploitation were unilaterally claimed in the Truman Proclamation of 1945. "Proclamations Concerning United States Jurisdiction Over Natural Resources in Coastal Areas and the High Seas," The Department of State Bulletin, 30 September 1945, p. 484-487.

the Sea. The Convention on the Territorial Sea and the Contiguous Zone treats the seabed and subsoil beneath the territorial sea (the inner continental shelf), while the Convention on the Continental Shelf pertains to the seabed and subsoil beyond the limits of the territorial sea (the outer continental shelf).

Shortcomings of the Geneva Conventions. The Geneva Convention on the Continental Shelf has come under attack because it does not specify a precise outer boundary for the "legal" continental shelf.² It should be noted, perhaps, that the inner boundary of the "legal" shelf is also imprecise. It is dependent on both the baseline from which the territorial sea is measured and the width of the territorial sea claimed by the coastal State. Although baselines normally follow the sinuosities of the low-water mark, existing exceptions include the use of straight baselines.³ Since baseline claims of many States are not widely accepted by others, and because there is no general agreement on the width of the territorial sea, the inner boundary of the "legal" continental shelf is imprecise in many cases.

²See page 7 for the definition of the "legal" continental shelf.

³Aaron L. Shalowitz, Shore and Sea Boundaries, Vol. I (Washington: U. S. Govt. Print. Off., 1962), p. 27-30.

Limitations on the Breadth of the Analysis. The author is of the opinion that the United States should favor revisions to the Convention on the Territorial Sea and the Contiguous Zone and to the Convention on the Continental Shelf which would establish a uniform width for the territorial seas and a precise outer boundary for the "legal" shelves. The width of the territorial sea, however, is excluded from this dissertation except for the possibility of a tradeoff which would enhance international support for the "legal" continental shelf delimitation determined to be domestically preferred.

Another limitation on the breadth of this paper is related to insular shelves. It is important to realize that unless different rules are applied to islands, the governments of island territories will gain rights to resource exploitation in huge areas which are completely out of proportion to the size of their dry land masses. A delimitation based on distance from the baseline, or one which includes distance as a criterion, would be particularly inequitable. For instance, the government of a mere dot of land, which just breaks the ocean surface at high tide, would gain seabed exploitation rights within a circle whose radius is equal to the delimiting distance.⁴ One proposal

⁴A delimiting distance of 50 miles would yield a circular seabed area in excess of 7800 square miles.

for eliminating this potential inequity would limit insular "legal" shelves to an area equal to that of the dry land mass. While it is the opinion of the author that delimitation should be much more restrictive in the case of insular shelves than in the case of shelves offshore from mainland areas, analysis of that question is not undertaken in this paper.

The "Legal" Continental Shelf and the Seabed Beyond.

It is not reasonable to establish an outer boundary for the "legal" continental shelf without considering the differences in character between the two areas which will be separated by that boundary. While national rights to resource exploitation will prevail to shoreward, some degree of international control is likely to be established beyond that boundary.⁵ This international control may be exerted in an intermediate zone, a regime for deep seabed resource exploitation, or both. If a specific formulation of either or both of these concepts is incorporated in a proposal for delimitation of the "legal" shelf, many national attitudes on delimitation may be influenced. Although this analysis

⁵Arvid Pardo, quoted in Proceedings of the American Society of International Law (Washington: 1968), p. 224-226; Commission on Marine Science, Engineering and Resources, Marine Resources and Legal-political Arrangements for Their Development (Washington: 1969), p. VIII-36; Commission to Study the Organization of Peace, The United Nations and the Bed of the Sea (New York: 1969), p. 27-29.

is primarily concerned with direct domestic and international interests in the establishment of an outer boundary for the "legal" continental shelf, the possible impact of simultaneous consideration of a regime for the seabeds beyond that boundary is also given some attention. Until such a boundary is established, exploitation will inevitably be delayed in both the shoreward area of national jurisdiction and the seaward area of probable international control.⁶

⁶Initial deep-water ventures are certain to be risky in any case, but very little capital will be attracted to the exploitation of seabed resources if the holders of that capital cannot even be assured of the authority by which their operations will be governed. (The mining of deep sea mineral nodules represents a possible exception, however, since the exploiter may not require a long-term operation in a given area in order to derive an economic benefit.)

CHAPTER II

THE TWO CONTINENTAL SHELVES: GEOLOGICAL VERSUS "LEGAL"

The Geological Continental Shelf. The geological continental shelf is usually defined as the gently sloping shallow-water platform which extends outward from the coast to the shelf "edge." At this "edge," the bottom commences a relatively steep descent to the deep ocean floor. This steeper area is known as the continental slope. The shelf and slope are actually portions of the continent even though they are submerged. They may be differentiated from the non-continental ocean bottoms by the nature of their subsoil. The continental shelf and slope are characterized by basically the same type of rock formations as the dry continental areas. The ocean basins, on the other hand, exhibit considerably different geological composition. The average width of the geological continental shelves of the world is about 40 miles, but the range of shelf widths extends from less than five miles to more than 700 miles. Furthermore, the average depth of the "edge" of the geological shelf is about 132 meters, while there are known shelves which terminate at depths of less than 65 meters and a few others that extend to depths in excess of 550 meters.

The "Legal" Continental Shelf. In contrast to the geological shelf is the "legal" continental shelf, which is defined, however imprecisely, by the Convention on the Continental Shelf. Article 1 of the Convention reads:

For the purpose of these articles, the term "continental shelf" is used as referring (a) to the seabed and subsoil of the submarine areas adjacent to the coast but outside the area of the territorial sea, to a depth of 200 metres or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources of the said areas; (b) to the seabed and subsoil of similar submarine areas adjacent to the coasts of islands.¹

The primary deficiencies of this definition are that it is uncertain and varying. That is, due to the "exploitation" feature, it is uncertain at any given time because it depends on the degree of technical development which exists in the world at that time. The degree of that development may be known only very inexactly. Similarly, the area denoted by the definition varies from one time to another as technological advances are demonstrated. In fact, barring a firm interpretation of the term "adjacent," in Article 1 of the Convention, the seaward limit of the "legal" shelf will move progressively further offshore.

Some authorities have concluded that the Geneva Convention logically infers that all submarine areas of the

¹"Convention on the Continental Shelf," The Department of State Bulletin, 30 June 1958, p. 1121-1123.

world have been theoretically divided among the coastal States.² That is, as technology improves, the claims of coastal States will eventually meet in mid-ocean. Other authorities, while acknowledging that technologically advanced maritime countries appear increasingly oriented toward claiming variously defined sovereign rights over the ocean floor, up to the ocean median lines, conclude that such a division is unlikely to be accepted by the international community.³ Authorities generally agree, however, that the present definition of the "legal" continental shelf will never be interpreted so as to precisely delimit its outer boundary. The International Court of Justice did little to dispel this belief when it ruled, in connection with a North Sea continental shelf case, that by no stretch of the imagination can a point 100 miles off a coast be regarded as adjacent in the normal sense.⁴ Unfortunately, no indication was given regarding what areas

²Shigeru Oda, International Control of Sea Resources (Leyden, Netherlands: Sythoff, 1963), p. 167; American Society of International Law, Whose is the Bed of the Sea? (Washington: 1968), p. 219.

³Arvid Pardo, quoted in Proceedings of the American Society of International Law (Washington: 1968), p. 221; Myers S. McDougal, "Revision of the Geneva Conventions on the Law of the Sea - The Views of a Commentator," Natural Resources Lawyer, Vol. 3, 1968, p. 26.

⁴Leo J. Bouchez, "The North Sea Continental Shelf Cases," Journal of Maritime Law and Commerce, October 1969, p. 118.

of the sea could be considered as adjacent to the coast. Furthermore, the ruling now brings into question the status of shelf areas which are shoreward of the 200-meter isobath, but more than 100 miles from the coast.

The Feasibility of Revising the Definition of the "Legal" Continental Shelf. Whatever their interpretation of the Convention on the Continental Shelf, most authorities believe that the deep areas of the ocean should be treated differently than the continental shelf areas.⁵ In order to ensure such a development, however, it is essential that the Continental Shelf Convention be revised. In that regard, Article 13(1) of the Convention specifies:

After the expiration of a period of five years from the date on which this Convention shall enter into force, a request for the revision of this Convention may be made at any time by any Contracting Party by means of a notification in writing addressed to the Secretary - General.⁶

Since the Convention has been in effect for more than five years, revisions may now be considered. In fact, numerous revisions which would delimit the "legal" shelves have been suggested by leading authorities. Their recommendations have included delimitation criteria such as geology, water

⁵Shigeru Oda, "Proposals for Revising the Convention on the Continental Shelf," The Columbia Journal of Transnational Law, Vol. 7, 1968, p. 9-10.

⁶"Convention on the Continental Shelf," p. 1121-1123.

depth, distance from shore, and combinations of depth and distance. Prior to considering the various delimitation proposals, however, it may be well to clarify the interest of various domestic factions in the delimitation of the outer boundary of the "legal" continental shelf.

CHAPTER III

DOMESTIC INTERESTS IN DELIMITATION OF THE "LEGAL" CONTINENTAL SHELF

Assumptions Concerning Domestic Interests. A restrictive reading of the Convention on the Continental Shelf may easily lead to the conclusion that delimitation of the "legal" shelf must only be of interest to those who would exploit the resources of the shelf. Consider Articles 2(1) and 2(2) of the Convention, for example:

The coastal State exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources.

The rights referred to in paragraph 1 of this article are exclusive in the sense that if the coastal State does not explore the continental shelf or exploit its natural resources, no one may undertake these activities, or make a claim to the continental shelf, without the express consent of the coastal State.¹

Furthermore, Article 3 provides:

The rights of the coastal State over the continental shelf do not affect the legal status of the superjacent waters as high seas, or that of the airspace above those waters.²

In addition, Article 5(8) states:

The consent of the coastal State shall be obtained in respect of any research concerning

¹"Convention on the Continental Shelf," The Department of State Bulletin, 30 June 1958, p. 1121-1123.

²Ibid.

the continental shelf and undertaken there. Nevertheless, the coastal State shall not normally withhold its consent if the request is submitted by a qualified institution with a view to purely scientific research into the physical or biological characteristics of the continental shelf, subject to the proviso that the coastal State shall have the right, if it so desires, to participate or to be represented in the research, and that in any event the results shall be published.³

Articles 2(1) and 2(2) of the Convention would seem to limit coastal State rights on the "legal" shelf to exploration and exploitation of the natural resources, while only prohibiting other States, except when they have coastal State permission, from those same activities on the shelf. Furthermore, Article 3 specifies that the legal status of the superjacent waters, and the airspace above them, are not affected and Article 5(8) indicates that the coastal State shall normally permit foreign States to conduct scientific research on its continental shelves.

In spite of the foregoing provisions, however, it is assumed by the author that coastal State "sovereign rights" may become "sovereignty" with regard to the shelf, or, at least, that its jurisdiction on the shelf will extend to the degree that it can effectively prohibit or restrict all overt operations on its shelf by foreign States. The author also assumes that coastal State "sovereignty" or

³Ibid.

"effective jurisdiction" may eventually extend to the water and air space above the "legal" shelf.

While other authorities would disagree, the foregoing assumptions are supported by numerous writers. They are of the opinion that the implications of the Convention are much broader than a restrictive reading would convey.

Schwarzenberger stated:

. . . any claim to the right of exclusive appropriation of the resources of the continental shelf is the thin end of a dangerous wedge. It is a covered claim to sovereignty over the continental shelf, and such claims easily degenerate into still more anarchic aspirations to sovereignty over the continental shelf.⁴

According to Franklin,

It is difficult to see how the term "sovereign rights" can mean anything less than "sovereignty," . . .⁵

Oda states:

. . . inherent in the adoption of the continental shelf is an inevitable modification of the entire concept of freedom of the superjacent high seas.⁶

The opinions of these authorities lead the author to conclude that the foregoing assumptions regarding the

⁴Georg Schwarzenberger, quoted in Shigeru Oda, International Control of Sea Resources, p. 156-157.

⁵Carl M. Franklin, International Law Studies 1959-1960 (Washington: U.S. Govt. Print. Off., 1961), p. 47.

⁶Shigeru Oda, "Proposals for Revising the Convention on the Continental Shelf," p. 19-20.

extension of "sovereign rights" to full "sovereignty" on the seabed and its subsoil and the eventual growth of this "sovereignty" to include the superjacent water and air space may be valid. If this is an accurate assessment of the situation, the coastal State, on and above its "legal" continental shelf, could prohibit the military, scientific research, and fishing operations of foreign States. In fact, coastal State jurisdiction in the waters superjacent to the "legal" shelf has already been demonstrated by the United Kingdom.⁷ Furthermore, Uruguay has recently declared exclusive fishing and marine hunting rights in the waters which cover their continental shelf. A previous decree by the President of Uruguay, on July 16, 1963, claimed only the rights of exploration and exploitation of natural resources of a continental shelf delimited by the 200-meter isobath.⁸ If these types of jurisdiction become generally accepted, extension of national authority to the airspace above the "legal" shelf will inevitably be the next goal of many States.

Domestic interests in the delimitation of the "legal"

⁷The United Kingdom's Continental Shelf Act of 1964 empowers the government, for the purpose of protecting installations on its continental shelf, to prevent ships from entering certain designated areas. Ibid., p. 23.

⁸Presidency of the Republic of Uruguay, "Press Release No. 662/69 of May 16, 1969."

continental shelf, then, are concluded to encompass military, scientific research, and fishing factions, as well as the mining and petroleum extraction factions which are more explicitly indicated by the Convention. Before analyzing the characteristics of various delimitation proposals and the specific preferences of each faction, the basic reasons for their interests will be established.

Scientific Research Interests in "Legal" Continental Shelf Delimitation. Acquisition of knowledge is the most fundamental of national goals in the sea because it determines the degree of success which will be attained in achieving all other oceanic goals. The discoveries resulting from scientific research may enhance national security, stimulate the economy, increase the national capability to provide adequate food for a growing population, yield the technology necessary to augment diminishing raw materials found in dry continental areas, increase national prestige in the world community, and improve the quality of the environment. Those areas of scientific research most closely related to the question of delimiting the "legal" continental shelf apply to national security, the fisheries industry, and offshore mining and petroleum extraction. Each of these areas will be discussed separately.

It may be evident that the value derived from scientific research increases as the area available for research

increases. This is basically true because of the fact that neither ocean waters nor seabeds are homogeneous. From a scientific research viewpoint, therefore, a relatively narrow "legal" continental shelf delimitation is most desirable. The narrower the delimitation, the smaller the oceanic regions which can potentially be denied to scientists by the adjacent coastal State.

Military Interests in "Legal" Continental Shelf Delimitation. Although direct use of the seabed by the United States Navy has been relatively modest, current uses include the bottoming of submarines, the emplacement of various sensors, the conduct of mine warfare, and rescue and salvage operations. In the future, however, technological innovations will undoubtedly permit the seabed to form a new dimension in naval warfare. It may become feasible, for instance, to employ fixed, or mobile, ballistic, or anti-ballistic, missile platforms on the seabeds. Other possibilities are submarine maintenance facilities, research and communications stations, and storage depots. These increased capabilities for using the seabed will promote more flexibility in the execution of naval missions.

The United States Navy has traditionally roamed freely on, within, and above the oceans of the world. A radical change in the present legal regime, which would restrict naval operations in large areas, could disturb the

strategic posture of the United States. From a naval viewpoint, then, a narrow delimitation of the "legal" continental shelf would be most desirable.

Some may argue, however, that narrow delimitation is not a valid naval concern because, through the principle of reciprocity, the United States would obtain rights equal to those of other countries with regard to its "legal" shelf and the water and air space above it. The United States, however, must view delimitation in the knowledge that its Navy is dominant in the world today and that, if sufficient resources are committed, the nation has the technological capability to maintain its naval dominance. This being the case, operational restrictions have a greater impact on the United States Navy than on other navies of the world. In slightly different terms, if national jurisdiction in the sea were to increase, the United States would lose more in terms of deterrent, offensive, and distant-water defensive capabilities than it would gain in domestic-water defensive strength.

Fishing Interests in "Legal" Continental Shelf Delimitation. Worldwide fishing efforts are conducted primarily in continental shelf areas. These regions are most accessible to man and, fortunately, environmental conditions are such that the concentration of fish tends to be very high. Although only about 7.5 percent of the ocean surface is

superjacent to continental shelf areas, about 90 percent of the world's catch of fish is taken from those waters.

While it is apparent, then, that there are fishing interests regarding the "legal" continental shelf, there are two broad categories within these fishing interests. With regard to shelf delimitation, their interests are directly opposed. Distant-water fishing interests favor a narrow delimitation which will enhance their opportunity to operate relatively close to the shores of foreign States. In-shore fishing interests, on the other hand, prefer a wide shelf delimitation which may reduce foreign competition in domestic waters.

Petroleum and Mining Interests in "Legal" Continental Shelf Delimitation. By the year 2000, despite increasing reliance on nuclear power, and other new energy sources, it is estimated that three-fourths of domestic energy requirements will be satisfied by oil and gas. Since the rate of consumption of domestic oil and gas is increasing more rapidly than new reserves are being discovered, a major problem facing the petroleum industry is to prove additional reserves. A growing proportion of the search for these reserves is being extended to the sea. Offshore oil production among free countries of the world already accounts for 16 percent of total free world production and is expected to exceed 30 percent prior to the end of the decade.

Although significant quantities of natural gas are not yet being produced from domestic offshore reserves, it may be essential to increase this production and to prove more reserves in the near future. The ratio of natural gas reserves to natural gas production fell from 27 in 1950 to less than 16 in 1968. This ratio cannot continue such a marked downward trend indefinitely or consumer demand will not be satisfied.

The mining of hard minerals on the continental shelves of the United States is of no practical significance except in the case of sulfur, sand, gravel and oyster shells. Furthermore, there are no domestic mining operations being conducted in the deep ocean, so domestic offshore mining can be discussed only in terms of potential. It should be noted, however, that successful ocean mining, in comparatively shallow water, is being conducted in other parts of the world. Some United States companies are involved to a small degree in these foreign offshore mining operations. Furthermore, these companies, and others, have collectively invested several million dollars in studying the potentialities of offshore mineral production. The interest indicated by this investment is eventually expected to lead to significant domestic offshore mining.

Mining and petroleum extraction interests appear to prefer a wide "legal" continental shelf delimitation.

While such a delimitation would assure huge areas of exclusive exploitation rights in domestic waters, it would also limit potential operations by United States companies in foreign waters. A big factor in the preference for a wide "legal" shelf is that it maximizes the exploitable area which is under national control. A narrow delimitation, on the other hand, would probably subject petroleum and mining interests to some form of international jurisdiction which has not yet been established. These industries appear to prefer to operate under a relatively predictable national jurisdiction than to be committed to an imprecisely defined form of international control.

CHAPTER IV

VARIOUS PROPOSALS FOR DELIMITATION OF THE "LEGAL" CONTINENTAL SHELF

Criteria for a Suitable United States Position. The United States should propose or support a revision of the Convention on the Continental Shelf, for the purpose of delimiting the "legal" shelves, which at a minimum, would satisfy the following criteria:

1. It should be both certain and ascertainable.¹
2. It should bear some reasonable relationship to the geological continental shelf.²
3. It should have a considerable degree of domestic support and represent the best possible compromise between opposing domestic interests.
4. It should have a considerable degree of known, or potential, international support.³

¹That is, it should be unambiguous and a ship at sea should be able to determine its location.

²Although not as critical as the other criteria, the term "continental shelf" should be replaced by some term such as "submerged area" if the criterion is not satisfied. The latter terminology was considered and rejected by the International Law Commission, which proposed the wording of the Convention, since "continental shelf" more adequately described the area in question.

³Without this characteristic, a proposal is strictly academic since its adoption cannot be achieved.

General Characteristics of Various Delimitation Proposals. Delimitation proposals are normally based on geology, water depth, distance from shore, or a combination of depth and distance. The geological delimitation proposal, which represents an attempt by scientists to translate a description of nature into precise legal terms, is inherently appealing. Except for the geological proposal, which cannot be established without costly and time-consuming surveys, all delimitation proposals have the common characteristic that their locations are easily determined.⁴ All delimitations based on distance from the baseline partially equalize the benefits accruing to countries with narrow geological shelves with those gained by countries with wide geological shelves. This partial equalization of benefits is also a characteristic of delimitations based on a combination of depth and distance.⁵ Another distinction of using depth and distance in combination is that, if they are paired properly, controversy between "distance" advocates and "depth" advocates is eliminated.

⁴An outer boundary based on distance is most easily established, while a boundary based on depth would be next easiest to determine.

⁵The demarcation line would be established on a point by point basis by whichever delimitation criteria, depth or distance, occurred further offshore. Distance is measured in nautical miles and depth is measured in meters throughout this dissertation.

Elimination of Certain Delimitation Proposals from Detailed Analysis. In order to reduce the breadth and complexity of the detailed analysis of delimitation proposals which follows, certain proposals will be discussed, and some of them eliminated, at this point. The bases on which these proposals are eliminated from detailed consideration include impracticality, complexity, and failure to meet the criteria specified at the beginning of this Chapter.

Before eliminating some of the alternative proposals, it would seem reasonable to consider the definition of the "legal" continental shelf as defined by the present Convention on the Continental Shelf. Some shortcomings of this definition were noted in Chapters I and II. Its dismissal at this point is facilitated, however, by referring to the list of criteria for a suitable United States' position on "legal" shelf delimitation which appeared at the beginning of this Chapter. Unless the validity of these criteria can be discredited, the present "legal" shelf definition, which satisfies none of them, must be rejected as an initial United States' position.⁶

There does appear to be one circumstance, however,

⁶The deficiencies of the present definition with regard to criteria one and two were discussed in Chapters I and II. The analysis of Chapters V and VI will indicate that the present definition, though preferable to some alternatives, also fails to satisfy criteria three and four.

in which the United States should support retention of the present definition; that is, in the event that one of the domestically acceptable delimitations, as set forth in Chapter V, fails to gain sufficient support to be adopted. In this case it would be in the national interest to support the present definition in order to delay, and perhaps prevent, the adoption of a precise, but domestically unacceptable, delimitation.

In addition to the delimitation proposals which will subsequently be analyzed in detail, a comprehensive listing of proposals based on depth or distance would also include the following: 600 meters; 1000 meters; 30 miles and 200 miles.⁷ Delimitation at 600 meters or at 30 miles would fail to satisfy the third and fourth criteria, while delimitation at 1000 meters or at 200 miles would fail to satisfy all but the first criterion. In view of their deficiencies, these four proposals are eliminated from further discussion.

Delimitation of the "legal" continental shelf on the basis of existing geological features has much inherent appeal. Two proposals for geological delimitation have been made. The first of these, delimitation at the geological "edge", must be dismissed because it fails to

⁷Center for Naval Analyses, The Navy's Role in the Exploitation of the Ocean (Project Blue Water), Phase II, (Washington: September 1968), p. 36.

satisfy criteria three and four. Furthermore, in many locations there is no "edge" between the continental shelf and the continental slope, but a gradual merging of the one into the other.⁸

A second geological delimitation would include both the continental shelf and the continental slope in the definition of the "legal" shelf. The earth's mantle rises quite close to the earth's surface under the deep oceans, while true continental rock characterizes the areas below the continents and below the continental shelves and slopes. Dr. Hersey suggests that the point at which the mantle rises toward the surface, and the continental rocks thin out, might conveniently mark the outer edge of the "legal" continental shelf.⁹ Advantages of this proposal, as compared with those which depend on other bases of delimitation, are as follows:

1. It would differentiate precisely between the continental seabed and the deep ocean floor.
2. It would avoid somewhat arbitrary water depth, or distance from shore, specifications.
3. Jurisdictional disputes related to common-pool oil

⁸Shalowitz, p. 183.

⁹Center for Naval Analyses, p. 33.

production problems would probably be avoided.¹⁰

4. It could be a final solution to the delimitation problem because a coastal State has no "natural" claim beyond the continental seabeds.

In spite of these advantages, and the inherent appeal of geological delimitation, this proposal must also be dismissed. First of all, the associated surveys would be too costly and too time-consuming. The primary shortcoming of this proposal, however, is that it fails to satisfy the fourth criterion -- that is, it lacks international support. Only those nations which have wide geological shelves and slopes would be likely to support this delimitation proposal. These States are very small in number as compared to the large majority of States whose self-interest would not be served by this delimitation.¹¹ Therefore, this second form of geological delimitation is also eliminated.

A suggested method of delineating rights to seabed resources, both on the continental shelf and in the deep oceans, is embodied in a "revenue-line" scheme.¹² Under

¹⁰Common-pool oil production problems are associated with the fact that a single pool of oil or gas can be tapped from more than one location. Due to the marked compositional differences in continental subsoil as compared with non-continental subsoil, a pool of gas or oil is not expected to straddle the boundary between the two areas.

¹¹See Chapter VI.

¹²Center for Naval Analyses, p. 33-34.

this scheme, the outer boundary of the "legal" continental shelf would be delimited by some distance from shore. Beyond this boundary, as within it, only the coastal State or its licensee would be entitled to exploiting the resources of the seabed. Outside the delimiting line, however, a portion of the revenue derived from resource exploitation would be placed in an international treasury which would be used to benefit all nations. As exploitation proceeded from the boundary of the "legal" continental shelf to the mid-ocean median lines, the amount of the derived revenue to be placed in the international treasury would be proportionately increased.

The very complex "revenue-line" proposal does not satisfy criteria two, three, or four, which were expressed at the beginning of this Chapter. Furthermore, adoption of this proposal could give coastal States effective jurisdiction, and potential sovereignty, as far seaward as the mid-ocean median line.¹³ Although revenue for an international treasury would result, the potential extension of national jurisdiction associated with the scheme would be sufficient to make it unacceptable to most States. The "revenue-line" proposal, therefore, will not be included in the subsequent discussion.

¹³See Chapter III.

A restricted variation of the "revenue-line" proposal forms one version of the "intermediate zone" concept.¹⁴ Rather than extending the exploitative rights of the coastal State to mid-ocean, however, this proposal would specify a seaward limit for those rights. Revenues produced would belong solely to the coastal State, once again, as far offshore as the outer boundary of the "legal" continental shelf. The area beyond that demarcation line, to a seaward limit for coastal State exploitative rights, would be known as the intermediate zone. A certain amount of the revenue produced from resource exploitation in this zone would be placed in an international treasury.¹⁵ This amount would increase, on a graduated scale, from a relatively small proportion of the revenue near the outer limit of the "legal" shelf to a maximum amount near the seaward limit of the intermediate zone. This intermediate zone is not discussed subsequently because, like the "revenue-line" proposal, the potential extension of coastal State jurisdiction associated with it is considered unacceptable.

A second version of the "intermediate zone" concept would also limit resource exploitation in the intermediate

¹⁴Lewis M. Alexander, "Alternative Regimes for the Continental shelf," Speech, University of Rhode Island, Kingston, R. I.: 6 February 1970.

¹⁵This treasury would be utilized to promote world and regional community improvement.

zone to the coastal State or its licensee. Rather than being subject to the jurisdiction of the coastal State, however, exploitation would be governed by whatever regulations may be established by an International Registry Authority.¹⁶ These regulations would coincide with those which may be administered by an International Registry Authority within a framework for exploitation of the resources of the deep seabed which also is unestablished. A portion of the revenue produced in either of the two regions governed by an International Registry Authority would, once again, be placed in an international treasury.

The "intermediate zone" concept of the preceding paragraph would not result in a significant risk regarding the extension of coastal State jurisdiction. Furthermore, it does not conflict with the delimitation criteria previously set forth. Depending on the limits specified, this intermediate zone may satisfy all of those criteria. It will not be included in the detailed analysis of Chapters V and VI, however, because it is considered to be a transitional entity, between the "legal" shelf and the yet unestablished regime for deep sea resource exploitation, rather than a true proposal for shelf delimitation. In other words, whatever the subsequent analysis of "legal" shelf delimitations

¹⁶Commission on Marine Science, Engineering and Resources, Our Nation and the Sea (Washington: 1969), p. 147.

may yield, it is quite possible that an intermediate zone may be appropriate in conjunction with that delimitation. This possibility, as well as the simultaneous consideration of a regime for the deep seabeds, will be treated in Chapters V and VII.

Specific Characteristics of Various Delimitation Proposals. Table I lists the most prominent, and yet unrejected, proposals for delimiting the outer boundary of the "legal" continental shelf and the percentage of the world's seabed which would be enclosed by each boundary. Each of these delimitation proposals satisfies the first and second criteria for a suitable United States' position on the matter.

The delimitation proposals of Table I are repeated in Table II, where the degree to which each proposal satisfies criterion two is specified. Table II also includes other basically desirable or undesirable characteristics for each proposal. These characteristics are not labeled as either "advantages" or "disadvantages," although, in general, both are included. Labeling is not considered necessary in most cases because the desirability or deficiency of the characteristic will be obvious. In other instances, double labeling would be required because dimensional advantages to "narrow shelf" interests are disadvantages to "wide shelf" interests and vice-versa.

TABLE I

SEABED AREA ENCLOSED BY VARIOUS DELIMITATION PROPOSALS

Proposed Outer Limit	World Seabed Enclosed (%)
200 meters	7.5
550 meters	9.5
50 miles	11.0 ^a
200 meters/50 miles ^b	15.0
550 meters/50 miles ^b	16.0
2000 meters	16.5
2000 meters/50 miles ^b	18.0
2500 meters	19.5
2500 meters/110 miles ^{b,c}	28.0

^aThis value was estimated by the author since the associated delimitation was not included in the source cited below.

^bThe outer boundary would be established on a point by point basis by whichever delimitation criteria occurred further offshore.

^cThis proposal is considered interchangeable with the 2500-meter/100-mile pairing which is frequently seen.

Source: Center for Naval Analyses, The Navy's Role in the Exploitation of the Ocean (Project Blue Water), Phase II, (Washington: September 1968), p. 70.

TABLE II

CHARACTERISTICS OF DELIMITATION PROPOSALS

Delimitation Proposal ^a	Characteristics
200 meters	<ul style="list-style-type: none"> - Reserves largest amount of seabed for exploitation under a deep sea regime yet to be determined. - Enhances global operations while restricting domestic offshore operations. - Coincides with average depth of outer edge of worldwide geological shelf, 132 meters, more closely than do other depth proposals.
550 meters	<ul style="list-style-type: none"> - A familiar alternative since it was proposed, and widely discussed, at the 1958 Geneva Conference. - Beyond man's current exploitative capability, so little pressure for further revision would be forthcoming for several years. (All greater depths, of course, have the same characteristic to a larger degree.) - Would bring essentially all of the geological shelf under coastal State jurisdiction, but goes well beyond the geological shelf in numerous areas. - Boundary occurs on the continental slope in most locations, so eventual claims to the remainder of the slope would undoubtedly result.

TABLE II (CONT.)

Delimitation Proposal ^a	Characteristics
550 meters (cont.)	- Would probably result in jurisdictional disputes over common-pool oil production on the "shelf." ^b
50 miles	<ul style="list-style-type: none"> - Coincides with average worldwide shelf width of 40 miles more closely than do other distance proposals. - Provides some benefit to coastal States which have little or no geological shelf.
200 meters/50 miles ^c	- Combines characteristics of the separate criteria, but is less restrictive than either. (See Table I)
550 meters/50 miles ^c	- Combines characteristics of the separate criteria, but is less restrictive than either. (See Table I) (Common-pool oil production disputes on the "shelf" would probably be lessened as compared with the 550 meter delimitation. ^b)
2000 meters	<ul style="list-style-type: none"> - Near the outer boundary of the continental slope. (A "natural" boundary.) - Would largely eliminate common-pool oil production disputes on the "shelf."^b
2000 meters/50 miles ^c	- See separate criteria and Table I.
2500 meters	- Near the outer edge of the continental slope. (A "natural" boundary.)

TABLE II (CONT.)

Delimitation Proposal ^a	Characteristics
2500 meters (cont.)	- Would largely eliminate common-pool oil production disputes on the "shelf." ^b
2500 meters/110 miles ^{c,d}	- Encloses all continental margins. (Would eliminate common-pool oil production disputes on the "shelf." ^b (A "natural" boundary.) - Considerable area is conceded to coastal States.

^aThe term "meters" refers to water depth, while "mile" refers to distance from the baseline in nautical miles.

^bCommon-pool oil production refers to the fact that a single pool of gas or oil can often be tapped from more than one location.

^cThe demarcation line would be established on a point by point basis by whichever delimitation criteria, depth or distance, occurred further offshore.

^dThis proposal is considered interchangeable with the 2500-meter/100-mile pairing which is frequently seen.

Influence of the Characteristics of Specific Delimitation Proposals. It is likely that individual States will establish a position on "legal" continental shelf delimitation which is in accordance with their national self-interest.¹⁶ On the other hand, most States are unlikely to

¹⁶The self-interest of both domestic factions and foreign States is assessed in the next three Chapters.

attain the adoption of their primary position because of the opposing interests of other nations. The inherent appeal, or logicality, of the various proposals, expressed in Table II, may be of some influence in the inevitable compromising which will result.

CHAPTER V

A PRELIMINARY NATIONAL POSITION ON "LEGAL" CONTINENTAL SHELF DELIMITATION

Review of Domestic Interests. Before determining which proposal for delimiting the outer boundary of the "legal" continental shelf represents the best compromise between domestic interests, those interests will be reviewed.¹

Briefly, they can be grouped into two general categories:

1. Military, scientific research, and distant-water fishing interests would be best served by relatively narrow worldwide "legal" continental shelves even though foreign States would be permitted to pursue similar interests in correspondingly close proximity to the shores of the United States.

2. Petroleum, mining and inshore fishing interests would be best served by relatively broad worldwide "legal" continental shelf delimitation despite the fact that their potential exploitative activities off foreign shores would be greatly restricted.

¹As indicated in the opening paragraph of Chapter IV, the third criterion which must be satisfied by a suitable United States position on "legal" continental shelf delimitation is that it have a considerable degree of domestic support and represent the best compromise between opposing domestic interests. Chapter III provides the rationale for the general type of delimitation preferred by each of six domestic interests.

Analysis of Domestic Interests. Table III expresses the relative preference of each of the six domestic interests, previously identified, for the various delimitation proposals included in Tables I and II. Within each column of Table III, for the domestic interest which heads that column, each delimitation proposal is ranked from one, the most desirable, to nine, the least desirable. A superscript letter "u" indicates that the lack of desirability of a given proposal is such that it is probably unacceptable.²

The rankings assigned to each proposal in Table III are in accordance with the general shelf-width preferences previously expressed. That is, the preferences of military, scientific research and distant-water fishing interests rank, in order, from the narrowest "legal" shelf proposal to the broadest "legal" shelf proposal, where the width in question is based on the percentage of worldwide seabed enclosed. On the other hand, the preferences of petroleum, mining, and inshore fishing interests rank, in order, from the broadest "legal" shelf proposal to the narrowest "legal" shelf proposal, where the width in question is based on the configuration of the United States' seabeds only. In this

²Another way to view rankings which feature the superscript "u" is that the domestic interest which heads the column considers the associated proposal to be inferior to the "legal" continental shelf defined by the present Convention.

TABLE III

RELATIVE PREFERENCE OF DOMESTIC INTERESTS
FOR THE VARIOUS DELIMITATION PROPOSALS

PROPOSED OUTER LIMIT ^a	DOMESTIC INTEREST ^b					
	MIL.	SCI. RES.	D/W FISH.	PETRO- LEUM	MIN- ING	INSH. FISH.
200 meters	1	1	1	9 ^u	9 ^u	9 ^u
550 meters	2	2	2	8	8	8
50 miles	3	3	3	7	7	7
200 m/50 mi	4	4	4	4	4	4
550 m/50 mi	5	5	5	3	3	3
2000 meters	6 ^u	6 ^u	6 ^u	6	6	6
2000 m/50 mi	7 ^u	7 ^u	7 ^u	2	2	2
2500 meters	8 ^u	8 ^u	8 ^u	5	5	5
2500 m/110 mi ^c	9 ^u	9 ^u	9 ^u	1	1	1

^aThe proposals are arranged in accordance with the amount of worldwide seabed they enclose -- from the lowest to the highest percentage. (See Table I.) Considered from the standpoint of the United States' seabeds alone, the 2000-meter and 2500-meter proposals would precede the 200-meter/50-mile proposal.

^bPreferences of each domestic interest are rated from one, most desirable, to nine, least desirable. (See page 36 and Chapter III for the rationale which supports the relative preferences of each domestic interest.) Proposals which are likely to be unacceptable to a domestic interest are indicated by a rating with a superscript "u."

^cThis proposal is considered interchangeable with the 2500-meter/100-mile pairing which is frequently seen.

regard, it must be emphasized that the configuration of the seabeds adjacent to the United States does not conform to the overall worldwide average. Specifically, off the coasts of the United States the 2000-meter and 2500-meter isobaths enclose less seabed than the 200-meter/50-mile pairing.³

Delimitation at 2000 meters, 2000 meters/50 miles, 2500 meters, or 2500 meters/110 miles is unacceptable to military, scientific research, and distant-water fishing interests because their activities would be prohibited in large and critical areas -- the geological continental shelves and continental slopes, and, perhaps, their superjacent waters. Eliminating these delimitation proposals, only delimitations at 200 meters, 550 meters, 50 miles, 200 meters/50 miles, and 550 meters/50 miles remain to be considered from a strictly national viewpoint.⁴ The 200-meter depth delimitation is retained in spite of the fact that, since it is more restrictive to their domestic offshore operations than the present "legal" continental shelf, it is considered unacceptable to petroleum, mining and inshore fishing interests. It cannot be eliminated because territorial integrity and

³Lewis M. Alexander, "Alternative Methods for Delimiting the Outer Boundary of the Continental Shelf," Unpublished Article, University of Rhode Island, Kingston, R. I.: 1970, p. 48.

⁴Chapter VI will indicate that the dismissal of all other proposals can also be justified on the basis of international considerations alone.

national independence, the primary interests of the United States, are best represented by the military interest in the foregoing analysis. Although the 200-meter proposal is retained, however, it is ranked lowest among the five remaining delimitation proposals because of the substantial opposition it will receive from domestic "wide-shelf" interests. The data of Table III would also appear to indicate that delimitations based on a depth and distance pairing represent a better compromise between opposing domestic interests than either the 550-meter or 50-mile proposal. Therefore, as a national position on "legal" continental shelf delimitation, considering domestic interests only, the five non-rejected proposals of Table III are ranked as follows:

1. 200 meters/50 miles
2. 550 meters/50 miles
3. 550 meters
4. 50 miles
5. 200 meters

Domestic Support for an Intermediate Zone. In conjunction with any of the foregoing delimitations, from a domestic standpoint, an intermediate zone could be very appealing. Specifically, it could provide additional domestic shelf area on, and within, which the right to resource exploitation would belong exclusively to the United States or its

licensee.⁵ At the same time, domestic "narrow-shelf" interests would not suffer because their operations in foreign waters would not be restricted on the seabed of the intermediate zone, or in its superjacent water or air space. The most frequently discussed intermediate zone would terminate at the 2500-meter/100-mile point, whichever criteria would give the coastal State the greater area for exploitation. If a revision of the Convention on the Continental Shelf were worded so as to negate the possibility of the coastal State gaining significant jurisdiction in the region, the intermediate zone concept would be highly desirable domestically.

Domestic Support for a Regime for Exploitation of the Natural Resources of the Deep Seabeds. As indicated previously, the exploitation of natural resources seaward of the "legal" shelf, within the intermediate zone or beyond it, will probably be controlled by an international authority. In the event that a regime for the deep seabed area is considered simultaneously with a revision of the Convention on the Continental Shelf, the United States should have an established position on the matter. In this regard, President Johnson stated:

⁵As indicated in Chapter IV, however, a portion of the profits derived from resource exploitation would be payable to an international treasury.

Under no circumstances must we ever allow the prospect of rich harvest and mineral wealth to create a new form of colonial competition among the maritime nations. We must be careful to avoid a race to grab and to hold the lands under the high seas. We must ensure that the deep seas and the ocean bottoms are, and remain, the legacy of all human beings.⁶

Furthermore, Ambassador Goldberg stated the United States' position in December 1967, in the United Nations General Assembly, as follows:

First, we believe that the prospects of rich harvest and mineral wealth both in the deep oceans and on the deep ocean floors must not be allowed to create a new form of competition among marine nations.

Second, my nation believes that the nations of the world should take steps to assure that there will be no race among nations to grab and hold the lands under the high seas. The deep ocean floor should not be allowed to become a stage for competing claims of national sovereignty.

Third, we must insure that the oceans and the deep ocean-bottoms remain, as they are, the legacy of all human beings and that the deep ocean floor will be open to exploration and use by all states, without discrimination.

Fourth, my nation stands ready to join with all other nations to achieve these objectives in peace and under law.⁷

In view of the recorded position of the United States, and in order to ensure that the deep seabeds do not fall to

⁶Commission on Marine Science, Engineering and Resources, Our Nation and the Sea, p. 141.

⁷Commission on Marine Science, Engineering and Resources, Marine Resources and Legal-Political Arrangements for Their Development, p. VIII-29.

non-systematized and unregulated unilateral claims, the author recommends national support for an international regime for the deep seabeds. As in the case of the previously discussed intermediate zone, a portion of the profits derived from resource exploitation would be payable to an international treasury.

CHAPTER VI

QUANTIFIABLE INTERNATIONAL SUPPORT FOR VARIOUS "LEGAL" CONTINENTAL SHELF DELIMITATION PROPOSALS

International Interests in Delimitation of the "Legal" Continental Shelf. Before determining the probable international support for each of the delimitation proposals of Tables I, II, and III, various categories of international interest will be identified.¹ With regard to the "legal" continental shelf, these interests are as follows:

1. States with relatively wide geological shelves.
2. States with relatively narrow geological shelves.
3. States which are "shelflocked."
4. States which are landlocked.

Table IV lists each State in accordance with the nature of its geological shelf.²

¹As indicated in the opening paragraph of Chapter IV, the fourth criterion which must be satisfied by a suitable United States position is that it have a considerable degree of known, or potential, international support.

²The criterion used here to describe a "wide-shelf" country is that, for a significant distance along the coast, the 200-meter isobath lies more than 50 nautical miles from shore. If this is not the case, a coastal country is considered to have narrow shelves. "Shelflocked" countries are those whose geological shelves do not extend beyond the 200-meter isobath because of the proximity of opposite or adjacent States. Alexander, "Alternative Methods for Delimiting the Outer Boundary of the Continental Shelf," p. 25.

TABLE IV

DISTRIBUTION OF STATES IN ACCORDANCE WITH
THE NATURE OF THEIR GEOLOGICAL SHELVES^a

STATES WITH
WIDE SHELVES^b

Argentina
Australia
Brazil
Burma
Canada
China (Mainland)^c
France
Guinea
Guyana
Honduras
Iceland
India
Indonesia
Ireland
Mauritius
Mexico
New Zealand
Nicaragua
Norway
Pakistan
Philippines
South Africa
Soviet Union
Tunisia
United Kingdom
United States
Uruguay
Vietnam (South)^c

STATES WITH
NARROW SHELVES^b

Albania	Korea (South) ^c
Algeria	Lebanon
Barbados	Liberia
Bulgaria	Libya
Cameroun	Malagasy Republic
Ceylon	Maldiv Islands
Chile	Malta
Colombia	Mauritania
Congo	Monaco ^c
(Brazzaville)	Morocco
Congo	Muscat and Osman ^c
(Kinshasa)	Nauru ^c
Costa Rica	Nigeria
Cuba	Panamá
Cyprus	Peru
Dahomey	Portugal
Dominican Republic	Romania
Ecuador	Senegal
El Salvador	Sierra Leone
Equatorial Guinea	Somalia
Gabon	Southern Yemen
Gambia	Spain
Ghana	Syria
Greece	Taiwan
Guatemala	Tanzania
Haiti	Togo
Israel	Trinidad and Tobago
Italy	Turkey
Ivory Coast	United Arab Republic
Jamaica	Venezuela
Japan	Western Samoa ^c
Kenya	
Korea (North) ^c	

TABLE IV (CONT.)

STATES WHICH ARE
"SHELF-LOCKED"^b

Belgium
Cambodia
Denmark
Ethiopia
Finland
Germany (East)^c
Germany (West)^c
Iran
Iraq
Jordan
Kuwait
Malaysia
Netherlands
Poland
Saudi Arabia
Singapore
Sudan
Sweden
Thailand
Vietnam (North)^c
Yemen
Yugoslavia

STATES WHICH ARE
LAND-LOCKED^b

Afghanistan	Luxembourg
Andorra ^c	Malawi
Austria	Mali
Bhutan ^c	Mongolia
Bolivia	Nepal
Botswana	Niger
Burundi	Paraguay
Central African Republic	Rwanda
Chad	San Marino ^c
Czechoslovakia	Swaziland
Hungary	Switzerland ^c
Laos	Uganda
Lesotho	Upper Volta
Liechtenstein ^c	Vatican City ^c
	Zambia

^aSee footnote 2 on page 44 for a definition of each of the coastal State categories.

^bOf the total of 141 countries, 28 have wide shelves, 62 have narrow shelves, 22 are "shelf-locked," and 29 are landlocked. Among the 124 United Nations members, 26 have wide shelves, 56 have narrow shelves, 19 are "shelf-locked," and 23 are landlocked. (There are actually 126 voting members of the General Assembly, since Russia is in effect represented three times. The three delegates represent Byelorussia, the Ukraine, and the Soviet Union.)

^cNot a member of the United Nations.

Source: Lewis M. Alexander, "Alternative Methods for Delimiting the Outer Boundary of the Continental Shelf," Unpublished Article, University of Rhode Island, Kingston, R. I.: 1970, following p. 24.

Analysis of International Interests. Each column of Table V contains a ranking of various delimitation proposals in accordance with the likely preference of the nation, or category of nations, which heads that column. The United States and the Soviet Union are shown separately from other "wide-shelf" countries because of their superpower status. Their concurrence may be essential to any viable revision of the Convention on the Continental Shelf and their influence may be sufficient to gain adoption of a revision which would not otherwise appear feasible. Unacceptable proposals are indicated by a "U," or by a numerical ranking with a superscript "u."

The United States' preferences in Table V are derived from the analysis following Table III, while preferences of the Soviet Union are based on the following assumptions:

1. Military and scientific research interests of the Soviet Union are similar to those of the United States and, therefore, the last four proposals of Table V are unacceptable.

2. Petroleum, mining, and fishing interests of the Soviet Union are more global-oriented than those of the United States and, therefore, these interests will tend to reinforce their military and scientific research interests in favoring a narrow "legal" shelf.

Preferences in the remaining columns of Table V are

TABLE V

RELATIVE DEGREE OF INTERNATIONAL SUPPORT
FOR THE VARIOUS DELIMITATION PROPOSALS

PROPOSED OUTER LIMIT ^a	GEOLOGICAL SHELF CATEGORY ^b					
	U.S.	USSR	WIDE SHELF ^c	NARROW SHELF ^c	"SHELF- LOCKED" ^c	LAND- LOCKED
200 meters	5	1	7 ^u	6	1	1
550 meters	3	2	3	7	2	2
50 miles	4	3	9 ^u	1	3 ^{u?}	3 ^{u?}
200 m/50 mi	1	4	6	3	4 ^{u?}	4 ^{u?}
550 m/50 mi	2	5	5	4	5 ^{u?}	5 ^{u?}
2000 meters	U	U	2	8 ^u	6 ^{u?}	6 ^{u?}
2000 m/50 mi	U	U	4	5	7 ^{u?}	7 ^{u?}
2500 meters	U	U	1	9 ^u	8 ^{u?}	8 ^{u?}
2500 m/110 mi ^d	U	U	8 ^u	2	9 ^u	9 ^u

^aThe proposals are arranged in increasing order of enclosed seabed. (See Table I)

^bPreferences within each category, in general, are rated from one, most desirable, to nine, least desirable. In the case of the United States and the Soviet Union, however, unacceptable proposals are not rated, but simply denoted by a "U." Proposals which are likely to be unacceptable within the other categories are indicated by a rating with a superscript "u." Where unacceptability is particularly difficult to judge a superscript "u?" is employed.

^cSee the definitions in footnote 2 on page 44.

^dThis proposal is considered interchangeable with the 2500-meter/100-mile pairing which is frequently seen.

based completely on relative economic advantage. In other words, it is assumed that the overwhelming majority of the nations represented in these last four columns do not have sufficient military and scientific research interests to override their domestic economic interests. Therefore, each State will prefer the proposal which maximizes its potential economic advantage relative to that of other countries.³ If this is the case, national preferences will generally be as follows:

1. Nations with wide geological shelves are most likely to prefer delimitation either geologically, or by water depth.⁴

2. Nations with narrow geological shelves are most likely to prefer delimitation by distance from the baseline.

3. Nations which are either "shelf-locked" or landlocked will prefer delimitation at 200 meters since they cannot gain additional benefits from a delimitation beyond that boundary.⁵

³This is assumed to occur when a given State maximizes the amount of seabed to which it gains exploitative rights as compared with the seabed area gained by other States.

⁴Geological delimitation, of course, was rejected in the discussion on pages 24 through 26.

⁵If they could reasonably expect the adoption of such a delimitation, of course, landlocked States would prefer that coastal States be totally restricted with regard to rights on their continental shelves.

Rankings assigned to the various delimitation proposals in Table V are considered self-explanatory in the case of "shelf-locked" and landlocked nations and the bases for indicated preferences of the United States and the Soviet Union have already been mentioned. On the other hand, the rankings associated with "wide-shelf" and "narrow-shelf" States may require clarification. In the case of "narrow-shelf" nations, the 50-mile delimitation is preferred because it would provide them with the same amount of seabed area as that gained by "wide-shelf" countries. Furthermore, the 50-mile delimitation would mean that "narrow-shelf" States would gain more seabed area than any of the landlocked States and more than most of the "shelf-locked" States. The 2500-meter/110-mile pairing is ranked second among "narrow-shelf" preferences, but this ranking is certainly questionable. Although this proposal might well be ranked third, fourth, or fifth, however, the subsequent analysis will show that it would be dismissed in any case. Certainly the 2500-meter/110-mile pairing would rank ahead of those proposals which are based on water depth alone, since delimitations based on depth would result in significant gains for "wide-shelf" countries while yielding almost nothing to "narrow-shelf" countries. The three proposals which pair various depths with the 50-mile distance criterion rank as shown in Table V because each would provide

"narrow-shelf" countries with the same amount of seabed, while competing "wide-shelf" nations would gain as depth increases. Finally, delimitations based on depth alone mean very little to "narrow-shelf" States, while their "wide-shelf" competitors gain with each increase in depth.

With one exception, the ranking assigned to each proposal in Table V for "wide-shelf" countries can be justified by simply reversing the argument presented in the preceding paragraph. The exception is the 200-meter ranking. This proposal is ranked lower than might be expected because it would be more restrictive to "wide-shelf" nations than the "legal" shelf which is presently defined.

In analyzing the data of Table V, it is essential to be mindful of the voting power represented by each of the column headings. Although this cannot be determined precisely, a fairly accurate estimate can be made. It is likely that proposed revisions of the Convention on the Continental Shelf will be considered at a future Law of the Sea Conference. As in the case of the 1958 Conference, which adopted the present Convention, voting participants would probably include the members of the General Assembly of the United Nations as well as those non-members which are invited by the General Assembly. There are a total of 17 sovereign States which are not presently members of the United

Nations.⁶ It is not considered feasible to determine which of these States would be invited and which of those would then accept. Realize, however, that such States would be relatively few, compared to the 126 voting members of the General Assembly, and that they are distributed fairly equitably among the four different shelf categories of Table V. Therefore, since non-members of the United Nations could not be expected to significantly affect the outcome, the analysis of Table V will be based on the relative strength of each geological shelf category as it is represented in the General Assembly. The United States would have one vote, of course, but the Soviet Union, in effect, would have three.⁷ "Wide-shelf" States other than the United States and the Soviet Union would have 24 votes, while "narrow-shelf" States, "shelf-locked" States, and landlocked States would have, respectively, 56, 19, and 23 votes.

It is also important to realize that the adoption of a revised Convention on the Continental Shelf would most likely require the support of two-thirds of the voting participants at the Conference. If each of the 126 members of the General Assembly voted, 84 votes would be required in

⁶See Table IV on page 45.

⁷The three Russian delegates to the General Assembly of the United Nations represent the Soviet Union, the Ukraine, and Byelorussia.

order for a revision to be adopted. Alternatively, 43 votes would be sufficient to defeat a proposed revision.

By analyzing the data of Table V, many delimitation proposals can be dismissed. Proposals for delimitation at 2000 meters, 2500 meters and 2500 meters/110 miles, for instance, can be eliminated from further consideration as a result of their general unacceptability. Since "narrow-shelf" countries have 56 votes in the General Assembly of the United Nations, and only 43 would be required to defeat a proposal, delimitation by a water depth of 200 meters or 550 meters would probably be blocked by the position of "narrow-shelf" States alone. Therefore, only four of the proposals in Table V remain to be considered; 50 miles, 200 meters/50 miles, 550 meters/50 miles, and 2000 meters/50 miles. All but the "wide-shelf" nations would prefer to adopt any of the other three of these proposals rather than effect delimitation at 2000 meters/50 miles. The latter delimitation proposal, therefore, may also be eliminated.

It should be noted that the delimitation proposals eliminated above could have been dismissed on the basis of the ratings included in only the last four columns of Table V. The validity of the foregoing assumptions regarding the preferences of the Soviet Union, therefore, is not critical. Furthermore, the fact that Table V does not specifically rate the preferences of the United States and the Soviet

Union for some of the proposals is of no consequence, since all unrated proposals have been eliminated.

Another ramification of the analysis associated with Table V is that the proposals which survived, 50 miles, 200 meters/50 miles and 550 meters/50 miles, were among the five proposals which emerged from the discussion of Table III. Therefore, the rather summary dismissal of four of the original proposals, in the analysis of Table III, is not critical to the overall discussion.

The final conclusion to be drawn from Table V is that the interest of the United States, and "wide-shelf" countries in general, is opposed to the self-interest of the other States considered. These latter States, however, have sufficient votes to gain adoption of a revised Convention on the Continental Shelf which is in accordance with their preference. In terms of international support, therefore, the remaining three proposals must be ranked as follows:

1. 50 miles
2. 200 meters/50 miles
3. 550 meters/50 miles

CHAPTER VII

NON-QUANTIFIABLE INTERNATIONAL SUPPORT FOR VARIOUS "LEGAL" CONTINENTAL SHELF DELIMITATION PROPOSALS

"Legal" Continental Shelf Delimitation versus a Uniform Width for the Territorial Seas. The analysis of Chapter VI indicated that the self-interest of over two-thirds of the States which are members of the United Nations would be best served by a "legal" shelf delimitation at 50 miles from shore. It is not considered necessary, however, for the United States to abandon the domestically preferred 200-meter/50-mile delimitation.¹ One reason that the latter delimitation may still be feasible is that there exists the possibility of a tradeoff agreement concerning the width of the territorial sea.

Among the "narrow-shelf" and "shelf-locked" countries listed in Table IV, 30 members of the United Nations presently claim a 12-mile territorial sea. The United States, the United Kingdom, France, Japan, and numerous others, have refused to recognize the 12-mile width in favor of clinging to the traditional three-mile territorial sea. In view of this prestigious opposition, many of the nations which

¹Recall from Chapter V that three delimitation proposals, based on domestic interests alone, were determined to be preferable to delimitation at 50 miles.

claim the wider zone of sovereignty must find the situation uncomfortable at best.

Whenever a conference is convened to consider revisions to the Convention on the Continental Shelf, revisions to the Convention on the Territorial Sea and the Contiguous Zone will probably be considered also. By agreeing to support a 12-mile territorial sea, the United States could probably gain support, among the 30 "narrow-shelf" and "shelf-locked" countries previously mentioned, for a "legal" continental shelf delimitation at 200 meters/50 miles. Even if all 30 of these nations agreed to this tradeoff, however, considerable other support would be required to gain adoption of the domestically preferred delimitation. On the other hand, sufficient support may well be gained so that the 50-mile proposal could not gain the required two-thirds majority.

The adoption of a 12-mile territorial sea, incidentally, is not considered contrary to the long term interests of the United States. In fact, since national claims to sovereignty in the sea are becoming more expansive as time passes, a precise width of 12 miles for the territorial seas might appear very desirable a decade hence, but it may also be unattainable at that time. In supporting the broader territorial sea, however, the United States should ensure that the right of innocent passage is preserved and that this right be clearly defined to include warships. Also,

overflight rights, similar to the right of innocent passage, must be included, beyond the three-mile point, in any revision of the Convention on the Territorial Sea and the Contiguous Zone.

International Impact of an Intermediate Zone or a Regime for Exploitation of the Natural Resources of the Deep Seabeds. The lesser developed nations of the world, which include the overwhelming majority of sovereign States, can only derive a short-term economic benefit from the exploitation of the natural resources of the seabed by utilizing the capabilities of technologically advanced nations. These profits may be derived by the lesser developed countries in the following ways:

1. They may lease rights to resource exploitation on their "legal" continental shelves, or within their intermediate zones, to nations which have the necessary technological capability.

2. They may benefit from deposits to an international treasury which would result from the exploitative efforts of a coastal State, or its lessee, within any coastal State's intermediate zone.

3. They may benefit from deposits to an international treasury which would result from the exploitative efforts of any State, in the deep seabeds, beyond the "legal" continental shelves and intermediate zones.

The first of the foregoing possibilities, excluding the intermediate zone, was the subject of the analysis of Chapter VI. On the other hand, the results of that analysis might be modified if an intermediate zone or a regime for deep seabed resource exploitation were considered concurrently with a proposal for delimitation of the "legal" continental shelf.

In spite of their considerable appeal, recall that the 200-meter and 550-meter delimitation proposals of Table V were rejected due to the likely position of "narrow-shelf" countries alone.² If an intermediate zone, or a regime for deep seabed resource exploitation, were adopted in conjunction with one of these delimitations, however, "narrow-shelf" countries could derive relatively short-term benefits. That is, they could participate in the profits to be derived from exploitation of resources located in the seabeds of "wide-shelf" countries, but beyond the "legal" shelf. Most of these resources will be economically accessible in the foreseeable future and, no matter what State does the exploiting, payments will be made to an international treasury. Although "narrow-shelf" countries might eventually derive more relative benefits from exclusive rights to resource exploitation in the deep waters adjacent

²See the discussion on page 53.

to their coasts, if their preferred 50-mile delimitation were adopted, access to these resources may not be feasible for decades.

It would seem, therefore, that the 200-meter and 550-meter "legal" continental shelf delimitations might have considerable international support if proposed in conjunction with an appropriate intermediate zone or a regime for the deep seabeds. This would depend primarily upon the amount and early receipt of profits to be obtained by "narrow-shelf" countries due to the operations of technologically capable nations in the various intermediate zones and the deep seabeds.

It is also well to note, however, that landlocked and "shelf-locked" States could not derive more benefit from the adoption of an intermediate zone than from the adoption of a regime for the exploitation of deep seabed resources alone.³ A unified effort by these States would only fall one vote short of defeating an intermediate zone proposal at a future Law of the Sea Conference.⁴ Since overall complexity would be reduced if the intermediate zone were omitted, many other

³By definition, these States either have no coastline or cannot claim seabed resource exploitation rights seaward of a water depth of 200 meters because of the proximity of other States.

⁴The votes that may be cast by the relatively few participating States which are not members of the United Nations are once again neglected.

States would probably join the landlocked and "shelf-locked" States in favoring a "legal" continental shelf in conjunction with a regime for the deep seabeds rather than also supporting an intermediate zone.

CHAPTER VIII

CONCLUSIONS AND RECOMMENDATIONS

Conclusions. In view of the foregoing analysis of "legal" continental shelf delimitation, and related matters, the following conclusions are presented.

1. The present definition of the "legal" continental shelf is inadequate because it specifies an outer boundary which is both imprecise and variable and because it satisfies none of the criteria for a suitable "legal" shelf as set forth in Chapter IV.

2. Delimitations which best represent domestic interests, in order of preference, are as follows:

- a. 200 meters/50 miles
- b. 550 meters/50 miles
- c. 550 meters
- d. 50 miles
- e. 200 meters

3. An intermediate zone extending to 2500 meters/100 miles would be domestically acceptable, in conjunction with any of the above delimitations, if it were assured that coastal State rights in the zone were limited to resource exploitation.

4. If each member of the United Nations establishes its position on "legal" continental shelf delimitation on

the basis of the relative area of seabed to which it will gain exclusive exploitation rights, the proposals which are likely to gain substantial international acceptance, in order of preference, are as follows:

- a. 50 miles
- b. 200 meters/50 miles
- c. 550 meters/50 miles

5. Consideration of an intermediate zone or a regime for deep seabed resource exploitation, along with "legal" continental shelf delimitation, could result in sufficient international support for a delimitation at 200 meters or 550 meters to make it feasible for one of them to be adopted.

6. The United States can probably gain sufficient support to block a first-vote adoption of the internationally favored 50-mile delimitation by agreeing to support a 12-mile territorial sea proposal.

Recommendations. In the order of their acceptability to domestic interests, it is recommended that the United States act as follows:

1. Propose or support a revision to the Convention on the Continental Shelf which would delimit the "legal" shelf at 200 meters/50 miles.
2. Support a revision to the Convention which would delimit the "legal" shelf at 550 meters/50 miles.

3. Agree to a 12-mile territorial sea, if such a trade-off is necessary, and would be effective, in gaining adoption of one of the above proposals.

4. Support delimitation at 550 meters in the event that its adoption becomes feasible.

5. Support delimitation at 50 miles rather than allow the present, variable definition to remain in effect.

6. Support a delimitation as narrow as the 200-meter water depth, in spite of the position of domestic "wide-shelf" interests, in conjunction with an intermediate zone, or a regime for deep seabed resource exploitation, or both.

7. Support an intermediate zone extending to 2500 meters/100 miles, in conjunction with any of the above proposals, if it can be assured that coastal State rights in the zone are limited to resource exploitation.

8. Support the present definition of the "legal" continental shelf if such action is necessary, and would be effective, in blocking the adoption of a delimitation which is too wide to be acceptable to domestic "narrow-shelf" interests.

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