A New Combination to Davy Jones' Locker: Melee over Marine Minerals

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INTRODUCTION

Long the realm of the mythical Davy Jones, the ocean floor in recent years has become the focal point of animated debate and will soon suffer the onslaught of the world's technological army. The prizes inspiring this quest down to the benthos are the seemingly innocuous rocks and crusty layers which have accumulated over millions of years. Known as manganese nodules, these conglomerations of minerals are necessitating decisions at the top levels of industry, finance, and government. The nickel, copper, manganese and cobalt within the nodules give them value. Two questions are representative of the concern over these minerals; (1) Who shall be entitled to mine the nodules and thereby appropriate the riches of the ocean floor?; and (2) under what conditions should mining operations be carried out? The obstacle to a simple solution—the nodules do not lay within the territorial jurisdiction of any sovereign.

The existence of the manganese nodules is hardly a recent discovery. The economic viability of seabed mining has not been recognized, however, until recent times, due to both a lack of need and lack of technology. The next fifteen years should prove to be an

1. A. Statham, Testimony on S. 2053, "Deep Seabed Mineral Resources Act," to the Subcommittee on Public Lands and Resources, Committee on Energy and Natural Resources and Committee on Commerce, Science and Transportation, United States Senate, (Oct. 4, 1977) [hereinafter cited as Statham]; (on file with author) See also Serial No. 95-4, Hearings before the Subcomm. on Oceanography and the Comm. on Merchant Marine and Fisheries on H. R. 3350, H. R. 4582, H. R. 3652, H. R. 4922, H. R. 5624, H. R. 6846, and H. R. 6784, 95th Cong., 1st Sess. 191 (1977) (statement of B. Gill Clements), [hereinafter cited as Serial No. 95-4]; Id. at 53 (statement of Marne Dubs on behalf of the American Mining Congress); Id. at 228 (statement of Philip Hawkins).
2. Id. at 370 (testimony of J.W. Dawson, managing director, Undersea Projects Insurance Brokers Ltd.); Id. at 169 (testimony of C.T. Houseman, vice president and technical director of Chase Manhattan Bank).
4. While isolated nodule deposits may exist within the two hundred mile zone, commercially exploitable deposits are found exclusively beyond the two hundred mile zones of any significant land mass. The major nodule belt in the North Pacific lies between 0 and 20 degrees north latitude and 115 and 160 degrees west latitude. MINING CONG. J. 48 (Dec. 1976); Bus. Inn'r's. 313, (Oct. 7, 1977) (weekly report); 123 CONG. Rec. #135 pt. III, E 5301 (Aug. 5, 1977).
5. HMS Challenger, a British research ship, first scooped up manganese nodules from the floor of the ocean over 100 years ago. Kennecott Copper Corp., Ocean Mining Fact Sheet, Jan. 29, 1974 (news release) (on file); [hereinafter cited as Ocean Facts]. H.R. REP. No. 95-588, 95th Cong. 1st Sess. pt. 1, 15 (1977) [hereinafter cited as H.R. REP. No. 588].
explosive period for this fledgling industry, if the substantial restraints inhibiting its growth are removed. The need for an alternative source of the minerals found in the nodules, and the willingness of industry to develop the necessary technology were demonstrated when Deepsea Ventures Inc. filed a claim with the Secretary of State in November of 1974. Deepsea Ventures sought exclusive mining rights in an area covering approximately sixty thousand square miles of the South Pacific known as the Clarion-Clipperton zone. This claim changed the tenor of the debates from the abstract to the concrete.  

The mere filing of a claim by a private corporation, however, has not served as a sufficient impetus towards resolution of the differences between competing interests. The United Nations Conference on the Law of the Sea has been negotiating a treaty concerning the seabed, through four unproductive years and six sessions of endless debate. The session scheduled for March 1978 will be a “do or die” effort according to Elliot Richardson, United States Ambassador to the Law of the Sea Conference. Frustration over last year's conference has led the negotiators and the Carter Administration to question the wisdom of pursuing negotiations through this vehicle. Frustration is also responsible for the Carter Administration’s change in posture reflected in its modified endorsement of domestic legislation authorizing seabed mining by United States’ citizens.

After presenting background information on the nature and location of seabed resources this article will examine the current status of seabed mining along with the applicable principles of international law. Against this background, the structure and function of the proposed International Seabed Authority and the nature of the proposed domestic regime will be analyzed.

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10. *Id.*; Wall St. J., July 21, 1977 at 4, col. 2; 123 Cong. Rec. #124, S12621, S12622. ( )
11. The Carter administration took the position that domestic legislation should be postponed pending the outcome of the Law of the Sea Conference in order to maintain consistency between domestic legislation and any international agreements. Wall St. J., Oct. 5, 1977 at 14, col. 2. H.R. 3350 and S. 2053 are the two bills which have been given the most serious consideration and enjoy the broadest support within Congress.
12. The legislation before Congress is supported by such strange bedfellows as the industrialists and the environmentalists. The environmentalists favor immediate legislation in recognition of imminent danger to the living resources of the ocean which could result from mining in the absence of an international agreement. R.A. Frank, *Deepsea Mining and the Environment* (1976).
THE NATURE OF MANGANESE NODULES

For economic purposes, many states have asserted territorial jurisdiction over the sea, two hundred miles from their shores. These areas, known as two hundred mile zones, account for thirty seven percent of the ocean surface.13 Manganese nodules lie outside the limits of any sovereignty, including the two hundred mile zone.14 This greatly restricts the potential area of the necessarily massive mining operations. Coupled with this limitation on the potential mining area is the lack of uniformity of nodule distribution,15 as well as differences in value of the individual nodules.16 The area of highest concentration, the Clarion-Clipperton zone, has already been claimed by a mining company.17 Only thirteen percent of the samples from outside that zone have mineral concentrations sufficient to justify commercial exploitation.18

A major distinction between nodules and other sea resources is the regeneration period. Nodules form by means of inorganic chemical precipitation;19 outer layers grow from one to seven millimeters in one million years.20 Thus, they are essentially a non-renewable resource. Estimates of the world wide deposits vary from hundreds of millions to trillions of tons of ore.21 The accelerating demand for natural resources and these inherent limitations of nodule mining have rendered the traditional notion of the Law of the Sea an anachronism.

16. Although nodules are found in all of the oceans, those in the North Pacific generally have a higher concentration of the minerals vital to the economic success of seabed mining. Of the four basic minerals found within the nodules manganese, copper, nickel, and cobalt it is generally agreed that the ore should have a concentration of 2.2% of the three latter minerals for commercial purposes. SEA TECHNOLOGY 23, 24 (Aug. 1976).
17. MINING CONG. J. 46 (Dec. 1976); SEA TECHNOLOGY, supra note 15; see also Grotius Revisited, supra note 7, at 271-72.
18. SEA TECHNOLOGY, supra note 15, at 24. Typical concentrations within the nodules vary from 0.7-1.5% copper, 0.8-1.6% nickel, and traces of cobalt. Ocean Facts, supra note 5. Other estimates place concentrations at 24.2% manganese, 14% iron, 1% nickel, 0.5% copper, 0.35% cobalt with traces of other elements including; silicon, aluminum, sodium, calcium, magnesium, potassium, titanium, barium, lead, strontium, zirconium, vanadium, molybdenum, zinc, boroh, yttrium, lanthanum, ytterbium, chromium, gallium, scandium, and silver. H.R. REP. No. 588, supra note 5, at 15; MINING CONG. J. 38 (Nov. 1973).
While the use of the sea's resources is an old as man, large scale exploitation is a recent phenomenon. Technological change necessitates the development of more sophisticated bases to guide exploitation. The United Nations has looked to three documents to provide such guidance: the 1958 Convention on the High Seas (Convention), Resolution 2749, and the Informal Composite Negotiating Text.

The Convention, the only treaty dealing specifically with such resource problems, defines the term "high seas" as all parts of the sea which are not located within the territorial waters of any state. Presumably, this definition includes the seabed, an integral part of the sea. The Convention mandates that no state shall exercise sovereignty over any part of the high seas. These sections support the inference that no state may exercise sovereignty over the resources of the seabed. Explicitly recognized "Freedoms of the High Seas" include: navigation, fishing, over-flight, and laying of pipes and cables. Any exercise of those freedoms must respect the rights of others to those same freedoms.

Proponents of seabed mining assert a right to mine as an exercise of a freedom of the high seas. Although this right is not specifically enumerated, the Convention does authorize the exercise of freedoms "recognized by the general principles of international law." Proponents of mining analogize between fishing and mining, asserting that there is no significant difference between the two types of exploitation. This argument, however, ignores the fact that fishing is essentially a non-destructive use of the seas’ resources while mining is not. The fish regenerate rapidly; nodules do not. More importantly, actions by the nations of the world have shown that mining is not a recognized freedom. These actions, two United Nations resolutions, effectively assert that no person has a right to mine the seabed's resources.
resources of the high seas, since that right is possessed by the international community as a whole.

The real problem with the Convention lies in its vagueness. It fails to clearly articulate criteria for identifying other generally recognized freedoms, and does not specifically treat seabed mining. The Convention's insufficient definition of freedoms and restraints greatly hinders enforcement of those restraints by our domestic courts. Since the treaty is too vague to be enforced as domestic law, it is difficult to determine the effect, if any, it will have up on the actions of those private entities otherwise subject to the law of the United States. Notwithstanding these deficiencies, the Convention did lay foundations which must control any exploitation in the absence of a new treaty.

RESOLUTION 2749—THE COMMON HERITAGE OF MANKIND

The second source of guidance for resource exploitation, Resolution 2749, was adopted by the United Nations General Assembly in 1970, with the United States voting for that adoption. The Resolution declares "that the resources of the seabed are the common heritage of mankind," that the seabed shall not be subject to appropriation by any means, states or persons, and that no state shall exercise sovereign rights over any part." In addition to this expression of the world community's opinion as to the legal nature of the seabed resources, the Resolution also embodies a commitment that all activities on the seabed shall be governed by an international regime for the benefit of mankind. Much of the debate over the seabed centers upon the legal effect of this Resolution on the actions of United States citizens.

Effect of Resolution 2749 on the United States and Its Citizens

An international agreement may impose an obligation on a state party without attaining the status of domestic law. Agreements that qualify as domestic law can be enforced against private parties in domestic courts. If an agreement is not domestic law, obligations are imposed only on the state parties, not on their nationals directly.

seabed is the common heritage of mankind, the General Assembly had passed a resolution in the prior year calling for a moratorium on all seabed mining activities. A/Res./2574, (XXIV) U.N. Doc. A/C.1/355 (1969).
31. Serial No. 95-4, supra note 1, at 182.
32. Res. 2749 supra note 29, at 1, par. 1.
33. Id. at 2, par. 2.
34. Id. at 2, par. 4.
35. Id. at 2, par. 7.
The intended effect is determined by the interpretation of the agreement.36

With reference to the domestic law of the United States, Resolution 2749 is practically, if not legally, void. It has never been formally ratified. Even though there is authority for the contention that an executive agreement can operate as domestic law without the advice of the Senate,37 the Carter Administration maintains that private companies are free to mine despite the Resolution.38 Therefore, it is unlikely that the Resolution, unsupported by the executive branch and not formally embodied in a treaty, will ever be enforced against United States nationals.

Whether the Resolution is an international agreement that imposes obligations upon the United States may be determined by a textual interpretation of the instrument. The threshold issue in such interpretation is whether the Resolution was intended to effect legal relations, or whether it was merely a “declaration of standards of achievement.”39 The title, “Declaration of Principles Governing the Seabed,” speaks of general standards rather than concrete relationships. Notwithstanding the title, certain provisions of the Resolution support the proposition that it was intended to have a legal effect. The preamble contains the following introductory phrase: "Recognizing that the existing legal regime of the high seas does not provide substantive rules for regulating the exploration of the aforementioned area and the exploitation of its resources. . . ."40 In the operative portion it is declared:

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36. RESTATEMENT OF THE LAW-2D THE FOREIGN RELATIONS OF THE UNITED STATES §149 (1965) [hereinafter cited as RESTATEMENT]. Section 149 of the Restatement provides:

The extent to which an international agreement creates, changes, or defines relationships under international law is determined in case of doubt by the interpretation of the agreement. The primary object of interpretation is to ascertain the meaning intended by the parties for the terms in which the agreement is expressed, having regard to the context in which they occur and the circumstances under which the agreement was made. This meaning is determined in the light of all relevant factors.

One such circumstance may have been the absence of any perceived need to more fully define those relationships at that time. It could be decided that the objective manifestations of the words coincided with Resolution 2749. Id. Comment a states, “Objective manifestations of intention. . .not subjective intention. . .govern the meaning to be given. The interpretation. . .is not limited by certain contract doctrines that tend to restrict the introduction of certain types of evidence.”


39. The parties to the agreement may be states or international organizations. The determinative factor is the intent to alter or define the relations between the parties under international law. RESTATEMENT, supra note 36, §115 comment a.

40. Res. 2749, supra note 29.
The seabed . . . as well as the resources are the common heritage of mankind. . . . The area shall not be subject to appropriation by any means . . . no State shall claim or exercise . . . sovereign rights. . . . No State or person shall claim . . . rights . . . incompatible with the international regime. . . . All activities regarding the exploration and exploitation . . . shall be governed by the international regime. 41

The preamble, which recognizes the deficiencies of current instruments embodying substantive law, coupled with the language of the operative provisions, indicate that the instrument was intended to create binding legal relationships among the state parties. A notable exception to this conclusion is the reference in the operative portion to the common heritage of mankind. That provision is phrased in declaratory rather than mandatory language.

Another section that reflects an intent to effect legal relations states: "Nothing in here shall affect: (a) The legal status of the waters superadjacent to the area or that of the air space above the waters; (b) The rights of coastal states with respect to measures to prevent, mitigate, or eliminate grave and imminent danger to their coastline. . . ." 42 The inference is clear that while those particular legal relations were not intended to be affected, others were. The disclaimer concerns legal relations (the legal status of the air space above the high seas, and of the waters adjacent to the high seas) outside the scope of the subject matter of the Resolution (exploitation of the resources of the seabed). By negative implication, failure to provide a similar disclaimer for the subject matter of the Resolution leads to the inescapable conclusion that the drafters did intend to effect legal relations concerning exploitation of seabed resources.

One obstacle to the Resolution's effectiveness is the assertion that the United Nations representatives voting for the Resolution had no authority to bind the United States to an agreement. This claim lacks merit. A State may be bound by an international agreement made by one having the authority to represent it in its foreign affairs, even though that party lacks the specific authority to make the agreement, provided the agreement does not require ratification, and the other parties to the agreement do not know of the lack of actual authority. 43 Therefore, this agreement made by a United Nations representative may be binding on the United States, since any person acting under authority delegated by the president has

41. *Id.* at 2, par. 1-3.
42. *Id.* at 4, par. 13.
43. *Restatement,* supra note 36, §123(1), (2)(a), (b), (c), (d). An oral agreement may be binding *Id.* §115(a), comment c.
the power to make an international agreement.\textsuperscript{44}

Furthermore, a claim that the United States would never assent to an agreement curtailing mining rights, prior to the establishment of an international authority, cannot be accorded much deference. Objective manifestations determine the interpretation of an international agreement, not subjective intentions.\textsuperscript{45} Thus, the intent of the United States in voting for the Resolution is irrelevant. It is appropriate to refer to the opinion of the majority of the international community in determining the objective manifestations of the Resolution. While the good faith of that part of the international community known as the "Group of 77\textsuperscript{46}" is open to question, it is indisputable that they interpret the Resolution as imposing a binding obligation to refrain from mining. That group now constitutes a majority of the international community. Thus, it appears that the Resolution is binding on the United States, and the duty to give effect to its terms\textsuperscript{47} dictates United States' inhibition and restraint of its nationals, unless those nationals can point to some superior principle of international law supporting the right to mine.\textsuperscript{48}

**RES NULLIUS**

The foundation of international law is the sharing, by nations, of principles determined by the common opinion of mankind.\textsuperscript{49} One of these principles, *res nullius,\textsuperscript{50}* is cited by mining proponents to support the right to mine. According to that principle, property belonging to no one may be taken up by anyone, and by virtue of possession, will be considered the property of the possessor.\textsuperscript{51} Fish on the

\textsuperscript{44} Restatement, supra note 36, §132. That authority is subject to limitations not applicable here.

\textsuperscript{45} Restatement, supra note 36, §146 and comment a.

\textsuperscript{46} "The Group of 77" is a loosely knit organization of about 110 underdeveloped countries who perceive their interests with regard to seabed mining as sufficiently identical to warrant a collective stand against mining by any entity other than an international authority. 123 Cong. Rec. #125, S12675 (July 22, 1977).

\textsuperscript{47} Restatement, supra note 36, §138, comment a.


\textsuperscript{49} Cf. 123 Cong. Rec. #123, S12482, (July 20, 1977) (address by Senator Daniel Patrick Moynihan, Senate advisor to the Law of the Sea Conference); Honorable John B. Breaux (Chairman of House Subcommittee on Oceanography), Statement before the Senate Comm. on Commerce Science and Transportation-Joint Hearings on Seabed Mining, 95th Cong., 1st Sess. 2,3 (1977) [hereinafter cited as Breaux]; Serial No. 95-4, supra note 1, at 51, 52 (testimony of Senator Lee Metcalf).

\textsuperscript{50} Serial No. 95-4, supra note 1, at 182-83 (statement of John Quigley, professor of international law, Ohio State University).

\textsuperscript{51} II S. Thorne, Bracton, On the Laws and Customs of England, 41 (1968) [hereinafter cited as Bracton].
high seas are a common example of *res nullius*. Mining proponents analogize the resources of the seabed to fish in the sea, and assert there is no legally significant difference between the two—both should be considered *res nullius*.

However, it is questionable whether *res nullius* was ever a proper characterization of the resources of the high seas. *Res communes* is another principle that may be a more correct conceptualization. Things which are *res communes*, such as the air, sea, and seashore, can never be owned by anyone; they are perpetually and indivisibly common property. Since the 1958 Convention includes the seabed within its definition of the "high seas," and as the peculiar composition of the nodules makes them an integral part of the seabed, it may be more appropriate to consider the mineral resources of the sea as *res communes*.

An overall objection to this analysis is that the legitimacy of arguing about mining rights in terms of ancient Roman principles is highly debatable. These principles were developed at a time when relationships between people and nations were much less complex. There was no concern about depletion of the world's resources. The connection between these ancient principles and the current issues involved in resource exploitation is tenuous at best.

Furthermore, because the applicability of *res nullius* depends upon the common opinion of mankind, that concept cannot effectively support a right to mine, since the nations of the world have indicated that they do not recognize the right of anyone to reduce the nodules to possession and thereby establish title. Unfortunately, the world community has not yet indicated in what manner the nodules should be commercially exploited. This perplexing question is of primary concern to the third United Nations Conference on the Law of the Sea (UNCLOS III), wherein the nations of the world are negotiating a comprehensive treaty to guide all aspects of mankind's utilization of the sea.

52. "a common thing; a thing of the universe."
54. See notes 25 and 26 supra.
55. Bracton, supra note 51 at 41.
56. Resolution 2749 was adopted by a vote of 108-0. This unanimous support strongly implies a recognition that the Resolution, if not binding as an international agreement, qualifies as a customary principle of international law. The moratorium Resolution A/Res./2574(XXIV), which advocated an immediate halt to all seabed activities, may similarly qualify as a recognized principle of international law, although the level of support makes this more doubtful (68 yea-28 nay). See Grotius Revisited, supra note 7, at 279; Serial No. 95-4, supra note 1, at 182-83, 185-88 (statement of J. Quigley and dialogue with Breaux).
UNCLOS III and the Informal Composite Negotiating Text

The third potential source of guidance for resource exploitation, the Informal Composite Negotiating Text (ICNT) has been the center of controversy at UNCLOS III. This treaty-draft which attempts to implement the commitment to an international regime embodied in Resolution 2749, was prepared by Paul Engo, chief representative from the African Cameroon Republic and Chairman of Committee I.8 While the United States did not find the former text completely acceptable, the revised text submitted by Engo deleted "key" compromise provisions and was prepared under secretive circumstances adding fuel to the fires of suspicion.9 The secret preparation, alone, offers no basis for the righteous indignation of the United States, which a year earlier participated in secret negotiations resulting in a draft favorable to the United States.60

International Seabed Authority—World Government Prototype

The ICNT61 provides for the establishment of an International Seabed Authority (ISA) of which all state parties are members.62 The ISA is to consist of three principal organs—an Assembly, a Council, and a Secretariat.63 A distinct organ, the Enterprise, is to carry out directly all activities in the "Area."64 The "Area" is defined as the seabed, including the subsoil, beyond the limits of any national jurisdiction.65 Provision is also made for a Law of the Sea Tribunal, and its sub-body, the Seabed Disputes Chamber.66

The Assembly, as supreme organ of the ISA, is the policy-making body. It operates under majority rule with a two-thirds majority required for substantive questions.67 The policy which it formulates will be implemented by the Council. The thirty-six member Council is to be composed of four members from the countries making the greatest contribution to seabed exploitation, four from the major

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62. Id. at 27, §5, art. 154.
63. Id. art.156(1).
64. Id., art.156(2).
65. ICNT, supra note 61, at 6, art.1 (1).
66. Id. at 58-59, Annex V.
67. Id. at 28, §5, art. 157.
importers of nodule metals, four from the exporters, six from developing countries, and eighteen based on geographic distribution.68 None of the members are permanent.

The Council will implement policy through directives to the Enterprise, which will directly supervise activities in the Area.49 The Enterprise will be controlled by a Director-General and a Governing Board, both appointed by the Assembly.70

Concern has been expressed that the structure of the ISA will enable the developing countries to gain control at the expense of developed countries.71 An underlying fear is that the ISA will provide a working model for the creation of a world government.72 The ISA is structured as a government, and lacks only an enforcement organ.73 Moreover it will have a steady source of revenue once mining begins.74 Financial independence could be achieved even earlier through the exercise of its borrowing power.75 The ICNT also provides that the ISA shall enjoy governmental immunity, subject to abrogation only by waiver.76 Its only deficiency, lack of parties to be governed, is likely to be cured by the lure of ocean riches. A functional international government would necessitate major policy shifts by corporations and nations seeking the minerals under its control.

FUNCTIONS AND DYSFUNCTIONS OF THE ISA

Critics of the ISA focus on the potential effect which its operation could have on the activities of businesses and nations who perceive the seabed as a means of alleviating strategic and economic problems. The most pervasive criticism is the lack of sufficient assurances that private entities will be permitted to mine for their own

68. Id., at 29, art. 159 1(a)-(e).
69. Id. at 29, § 5, art. 160; Id. at 32, § 5, art. 169.
70. Id. at 8, § 5, art. 158 2 (IV).
73. Cf. ICNT, supra note 61, at 26, §4, art. 151(4), (5).
74. Id. at 25, §4, art. 150(1)(c). Activities in the area are to be carried out so as to ensure transfer of revenues to the Authority. Id. at 32, § 5, art. 170(2); Id. at 51, Annex II, par. 7(i).
75. Id. at 33, § 5, art. 174. The power of the Enterprise to issue bonds is contingent upon the consent of the member country in whose market the bonds will be sold. Id. at 56, Annex III, par. 10(c)(i).
76. The property and assets of the Enterprise are to be free from search and seizure. ICNT, supra note 61, at 33, §5, art. 178, 179.
account. A key provision restricting access provides that all resources are vested in mankind as a whole, and that the minerals derived from the resources are alienable only as provided in the treaty.

The text of the proposed treaty establishes stringent conditions to be met by private parties who seek to mine the seabed. Those private parties must be sponsored by a state party, and must agree to act in association with the ISA. Thus, their mining operations would never be entirely independent. The relationship between the private entity and the ISA would be set forth in a contract. The immediate parties to the contract would be the private party and the Enterprise. All contracts would be drawn to ensure that the ISA, through the Enterprise, will have ultimate control at all stages of the operation. This does not necessarily mean that the ISA will be actively directing all operations, but that it at least will have the ability to halt any operation and to specify the conditions under which the operations can continue.

Companies consenting to such stringent control by the ISA are not assured of access to the minerals. Any party wishing to contract with the ISA, as all miners must, will be required to submit an application. The ISA will then choose those applicants with whom it will contract. In selecting applicants the ISA may give preference to those private entities willing to work directly with the Enterprise in a joint venture in which developing countries would also directly participate. Thus, the potential scope of independent operations is severely limited. Many private companies would not be willing to mine under such a joint venture structure and that unwillingness would force them to an unfavorable position among the applicants seeking contracts. These limitations on access could be the breaking point of the negotiations, for they strike at the heart of the national interest in ocean mining.

National Interest in Access to Nodules

The prospect of a guaranteed supply of the metals contained in the manganese nodules was the original stimulus of governmental action. The minerals have strategic importance to the United

78. ICNT, supra note 61, at 23, § 2, art. 137(2).
79. Id. at 26, §4, art. 151(2)(ii).
81. Id. at 50, Annex II, par. (5).
82. Id., par. (g), (i), (j) (iii).
83. Ely, Deep Seabed Minerals: Congress Steams to the Rescue, 40 INT'L L. 538 (1976);
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States. Their strategic value is directly related to the high level of importation of nodule metals. The United States imports approximately 95-100% of its manganese, 98-100% of its cobalt, 71-74% of its nickel, and 15-18% of its copper. The fact that most of the free world's supply of these minerals is controlled by a few nations further intensifies the strategic significance of the nodules. These minerals are of critical importance to the heavy industries of this country: manganese, for its use in the removal of impurities during steel production, cobalt, for the production of alloys used by the aerospace industry, copper, for the electrical industry. Nickel is also used by the aerospace industry, as well as hundreds of other industries, as a necessary element in the production of stainless steel.

Of even greater significance than strategic considerations is the contribution which seabed mining may make in alleviating the United States' current deficit in the balance of payments. Estimates of the annual trade deficit attributable to importation of nodule metals range from $500,000,000 to $1,500,000,000. Optimistic proponents believe that this deficit could be eliminated within twenty years of full-scale seabed mining. However, the accrual of such benefits depends upon the development and utilization of the necessary technology.

Transfer of Technology

The ICNT allows the ISA to require a transfer of technology to itself and developing countries as a precondition to contracting with the ISA. This provision is considered vital by developing countries, expected to be technologically inferior for twenty to thirty years. This technological deficiency has engendered fears that the Assembly would institute discriminatory policies in an attempt to stay full-scale development until those countries gain the necessary tech-

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Breaux, supra note 48, at 3; 123 CONG. REC. #124, S12482 (July 20, 1977).
84. H.R. Rep. No. 588, supra note 5, at 17-18; Ocean Facts, supra note 5, at 1; Grotius Revisited, supra note 7, at 227.
85. See United States Policies with Respect to High Seas Fisheries and the Deep Seabed: A Study in Contrasts, 9 Nat. Resource Law 639 (1976) [hereinafter cited as United States Policies]. That author estimates that 99% of the free world's manganese is controlled by 5 nations, 66% of the nickel by 2 nations, 99% of the cobalt by 5 nations, and 75% of the copper by 5 nations.
87. Ocean Facts, supra note 5, at 1.
88. Id. at 1; H.R. Rep. No. 588, supra note 5, at 19.
89. Law of the Sea-Talk, supra note 58, at 1339; United States Policies, supra note 85, at 639.
90. 123 CONG. REC. #124, S12622; Law of the Sea-Talk, supra note 58, at 1342.
91. Galey, supra note 72, at 174.
nological expertise. The harshest requirements regarding transfer of technology are directed towards private entities possessing the needed technology, who will actually develop the resources. Every applicant must agree to negotiate for the licensing of the technology actually used. Where two applicants compete for a contract involving the same Area, the private entity who offers the best technological deal to the ISA will probably be selected. The contractor will also be required to design and implement training programs for the personnel of the ISA and developing countries, and must allow their actual participation in all activities in the Area. The contractor may withhold proprietary equipment designs. However, the broad discretion of the ISA in granting contracts may render that protection a nullity.

Requiring transfer of technology does not provide incentive for the development of sophisticated, as opposed to basic, mining systems. The right to the exclusive use of one's own research and development has traditionally provided the greatest impetus for improving technology. It is not always possible to assess from an empirical basis the real cost or value of any improvement until there has been a period of exclusive use. The potential for industrial espionage is accentuated by the training programs for "outsiders," particularly in ocean mining where it is impossible to develop a system without field-testing the equipment. These restrictions have also inhibited companies from making the large investment in prototype operations, which will provide the data upon which final decisions will be based. These factors have prevented companies from projecting

93. Id. at 50, Annex II, par. 4(c)(ii).
94. Id. at 50-51, Annex II, par. 5(g), (i), (j).
95. ICNT, supra note 61, at 53, Annex II par. 9.
96. Id. par. 8.
97. MINING CONG. J. 46, 47 (Dec. 1976). The U.S. companies have all chosen an air-lift method whereby a dredging head scrapes the nodules from the ocean floor and feeds them to a nearly vertical pipe through which they are transported up to the ship with air suction. The dredge head may be either towed or self-propelled. Other methods include a simple "dragline" method, which is nothing more than a large bucket dragged across the ocean floor. The Japanese continuous bucket method is substantially the same with more buckets. R.A. FRANK, DEEPSEA MINING AND THE ENVIRONMENT, 8 (1976). Ocean Facts, supra note 5, at 3.
98. Current expenditures of those companies interested in mining as members of consortia have ranged from 10 to more than 20 million dollars each. The next step of prototype mining would require an investment of from 50 to 100 million dollars to be increased to 300 to 500
returns on their investment and have already delayed ocean mining a number of years.

Cost, Feasibility and Contingencies

A related deficiency in the ICNT is its failure to clearly set forth the financial contribution to be required of companies mining in the Area. The text provides that the financial contribution will be negotiated between the contractor and the ISA, with an assurance of equality in contract terms. The financial obligation of the contractor will be computed using three factors: an annual royalty, a production charge (both of which should be uniform for all contractors), and a share of the net proceeds. The determination of the proceeds of the operation is to include an allowance for development costs. Fears concerning the amount of profits which the ISA may seek stem from a recognition that developing countries consider the ocean a principal tool for restructuring the world’s economy. Such conceptions crystalize the conflict between the goals of developing countries and the perceived needs of the entrepenuers and financiers of ocean mining.

Another provision of the ICNT imposes volume restrictions on production. Production for the first seven years will be limited to the projected growth of the world nickel market; thereafter, it is not to exceed sixty percent of the projected growth of that market. The purpose of these limits is not to avoid resource depletion. The ICNT, does not deal with this potential problem. Rather, the limitations on production are intended to provide economic protection for developing countries who depend upon the exportation of the minerals found in the nodules.

millions of dollars at the initiation of “pilot” activities. Estimates of the total investment by four consortia in technological development are as high as 1.5 billion dollars. See 123 CONG. REC. #121, E4589 (July 18, 1977). Statham, supra note 1, at 16; Welling, Next Step in Ocean Mining-Large Scale Test, MINING CONG. J., 47, (Nov. 1976) [hereinafter cited as Welling].

99. ICNT, supra note 61, at 50, Annex II, par. 5(d) (ii).
100. Id. at 51, Annex II, par. 7(a) (ii) (iii), (iv).
101. Id. par. 7(c) (i).
102. Id. at 51-52, Annex II, par. 7(d).
103. Galey, supra note 72, at 172-73; The New International Economic Order and the Law of the Sea, supra note 72, at 584-86.
104. 123 CONG. REC. #124, S12622 (July 21, 1977); 123 CONG. REC. #125, S12676 (July 22, 1977); Law of the Sea-Talk, supra note 58, at 1342.
105. ICNT, supra note 61, at 25, §4, art. 150(B)(i).
106. In the systems of compensation established for the developing countries whose economies are adversely affected, it is not a requirement that a beneficiary state be a party to the treaty. Practically, this should present little inconsistency as the developing countries, which have already developed mining industries, are likely to be anxious to participate in the activities of the ISA, due to beneficial effects which that participation may bring to the economy. ICNT, supra note 61, at 25, § 4, art. 150(g).
These production restrictions are troublesome. The limitations may hinder the development of the seabed since they deprive the mining companies of the data needed to compute feasibility figures. Artificial restrictions on supply will raise prices directly and indirectly due to the inability of the mining interests to achieve maximum utilization of their equipment and a proportional return on their investment. One industry spokesman asserts that ocean mining will not be cost competitive with land-based mining for many years, in the absence of artificial supports. Artificial constraints increase this inability to compete and diminish the desirability of ocean mining for those with land-based alternatives. The minimum amount of nodule ore which can be brought to the surface at one site, while retaining necessary profitability, is estimated to be from 1,500,000 to 4,250,000 metric tons per year. Moreover, this figure does not reflect processing costs. These costs are a vital consideration for they represent one half of the total cost of nodule mining. The danger of production limitations lies not in cost-prohibition, but in making mining insufficiently profitable to attract investment.

The Reassessment Clause and Grandfather Rights

A textual provision odious to investors is the reassessment clause. It provides for reassessment of the international regime within twenty five years. At that time, unless an agreement to the contrary is reached, access to the seabed will become the exclusive right of the Enterprise and any partners whom it may seek out for a joint venture. The exclusivity, not limited to nodule mining, would encompass any exploitation carried out within the Area. This provision forces the mining companies to compute costs on a maximum utilization period of twenty five years. Financing, protected by the continuity of operations, could extend no longer. Considering the time already spent negotiating the ICNT, the four years of conferences and the seven years since Resolution 2749, and the crucial issues still unresolved, it is naive to believe an agreement can be reached within an acceptable period of time. Barring all other objections, it is a tremendous waste of time to reassess these complex issues in just two decades.

107. Statham, supra note 1, at 3-4.
108. The actual estimates are from 1 to 3 million dry tons a year, but as the nodules are from 30-40% water, the tonnage required would be that indicated in the text. Welling, supra note 98, at 46.
109. Id.
110. Id. at 46-47.
111. ICNT, supra note 61, at 26-27, §4, art. 152, 153.
One provision notably absent from the ICNT is a "grandfather clause." Such a clause would provide minimal protection for those engaged in mining prior to the effective date of the treaty. Without the clause no company can be assured of access and therefore might waste the money spent in developing technology. Thus, such a clause is considered indispensible for United States agreement to any treaty.\(^\text{112}\)

The concern over these deficiencies is based on the underlying assumption that the developing countries will seek to profit at the expense of those who provide the technology. This assumption is supported by portions of a mild-mannered address delivered to the United States House of Representatives by Paul B. Engo, representative of the African Comeroon Republic and Chairmain of Committee I.

The growth of new ideas of meaningful justice and national progress for all; the institutions, political, social, and economic that have evolved from the American experience these have provided revolutionary models for peaceful evolutions in many lands near and far.

I have chosen to refer to these facts because it is in their light that one expects the Government and people of the United States to be more receptive to revolutionary ideas and changes than most of the other world. Sometimes the knowledge of your great achievements in many fields in only two centuries, tempts most people to expect more benevolent leadership than you can in all reality afford. You get criticized because many expect so much of so comparatively young a nation.\(^\text{113}\)

To partially counteract the risks presently inherent in seabed mining, international consortia have been formed.\(^\text{114}\) The consortia, akin to joint ventures, allow individual companies of various nations to pool their resources during the developmental stages of seabed mining. The companies thereby share the benefits of research while spreading the risk of economic loss which may result from current

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\(^{112}\) Breaux, supra note 48, at 6-7; Serial No. 95-4, supra note 1, at 452-53.

\(^{113}\) 123 Cong. Rec. #119, E4468 (June 20, 1977).

\(^{114}\) Companies actively pursuing ocean mining at the present are mainly members of one of the four international consortia: (1) the Deepsea Ventures group, composed of U.S. Steel, Union Miniere of Belgium, and Deepsea Ventures; (2) the International Nickel group, composed of AMR-Metallgesellschaft Preussag, Domco-Sumitomo (and other Japanese firms), Inco Ltd. and Sedco Inc.; (3) the Kennecott Copper group, composed of Rio Tinto Zinc and Consolidated Gold Mines of Great Britain, Normanda Mines of Canada, Mitsushibi of Japan, and Kennecott Copper Corp.; and (4) Lockheed Missiles and Space Co. which is forming a consortia with Amoco Minerals and Billiton International Minerals (Royal/Dutch Shell). Statham, supra note 1, at 16-17; Serial No. 95-4, supra note 1, at 196-97, 285, 325; Welling, supra note 98, at 50-51.
legal uncertainties. However, the risk-spreading ability of consortia is of diminishing utility as the companies prepare for full-scale operations and the size of investments necessarily increases.

**UNILATERAL ACTION—DOMESTIC LEGISLATION**

Legislation supporting unilateral action has been introduced in Congress in response to the stagnant treaty negotiations. The legislation is intended to provide a climate of legal security so that the development of seabed mining will not be further inhibited. It is not intended to be a complete alternative to an international agreement. Whether or not it accomplishes these purposes, it is likely that the legislation will be enacted by this session of Congress. Its support is premised upon the strategic importance of the minerals as well as their potential contribution to the elimination of the growing trade deficit. A few lobbyists urge enactment of these bills, H.R. 3350 and S. 2053, to preserve the environment from the detrimental effects of mining in the absence of comprehensive guidelines. An examination of specific sections of the legislation demonstrates that these goals may not be realized.

**The Environment**

A belief that the mining companies are likely to begin mining with or without either a treaty or domestic legislation is the foundation of environmentalist support of unilateral action. If insufficient attention is given to the environment at the developmental stage, it may be necessary for industry to retrofit its equipment to comply with later regulation. Environmental damage could occur in the interim. The principal danger now envisioned is that suction lifts will carry sediment and “near-bottom” water to the surface, unless equipment is designed to discharge these elements at an earlier point. The colder and denser near-bottom water could harm ani-

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116. Serial No. 95-4, supra note 1, at 193, 210, 274-75, 345-48; Statham, supra note 1, at 5.

117. Correspondence with Judy Townsend, professional staff of the Subcommittee on Oceanography, Committee on Merchant Marine and Fisheries, House of Representatives, (Oct. 27, 1977 on file) [hereinafter cited as Townsend Correspondence]. S. 2053 and H.R. 3350 are almost identical, except for the antitrust provision of S. 2053. H.R. 3350, supra note 115; S. 2053, supra note 115, §103 d).

118. See text accompanying notes 87-90, supra.


120. SEA TECHNOLOGY 25 (Aug. 1976) Breaux, supra note 48, at 7, 8; FRANK, supra note 119, at 34.

121. FRANK, supra note 119, at 15 (1976).
mal life. However, the greatest danger is presented by sediment, which can take as long as five years to descend one hundred yards, thereby causing disruption in photosynthesis and the food chain.122

The executive branch will have the responsibility of assessing environmental impact through the preparation of programmatic impact statements.123 Further, issuance of a license for seabed mining is considered a major federal action for purposes of the Environmental Policy Act of 1969,124 and may require an impact statement particularized to the proposed operation. The Secretary of Commerce will control the two-tiered authorization of activities on the seabed.125 The first tier is the license, which allows the holder to engage in exploration.126 The second tier is the permit, which authorizes the taking of substantial quantities of minerals from the seabed for the purpose of marketing those minerals.127 In granting a license or a permit, terms and conditions are to be specified for the protection of the environment.128 Additionally, modification of licenses or permits may occur if necessary for protection, and if the potential injury to the environment outweighs both the national interest in obtaining minerals and the burden of economic loss.129

The Secretary of Commerce can immediately suspend a license and halt activities, if it is determined such emergency measures are needed to prevent a significant adverse effect upon the environment.130 Finally, the Secretary is granted rule-making authority to effectuate the purposes of the Act.131

Environmentalists do not feel that the rule-making authority is sufficiently connected with the environmental portions of the legislation.132 The grant is contained in sections of the bills not related

122. Id. at 15, 16.
123. The House bill requires the Secretary of Commerce, in consultation with the Administrator of the Environmental Protection Agency and other agencies to prepare such statements with special attention to the areas wherein development is likely to occur first. H.R. 3350, supra note 115, §105. The Senate bill requires the Secretaries of the Interior and Commerce, acting through the National Oceanic and Atmospheric Administration, to prepare such statements. S. 2053, supra note 115, § 109c).
125. H.R. 3350, supra note 115, § 103a) et seq.; S. 2053, supra note 115, § 102a) et seq.
126. H.R. 3350, supra note 115, § 3(5); S. 2053, supra note 155, § 6(4).
127. H.R. 3350, supra note 115, § 3(1); S. 2053, supra note 115, § 6(1).
129. H.R. 3350, supra note 115, § 103 i)(1), (2); S. 2053, supra note 115, § 105b) (1).
130. H.R. 3350, supra note 115, § 104c); S. 2053, supra note 115, § 106 c).
131. The House version has a general grant of rule-making power, with subsequent grants of power to make rules and regulations in regard to specific substantive and procedural matters, but not including the environment. H.R. 3350, supra note 115, § 106 a). The Senate version seems to allow for more specific environmental regulation though it is not mentioned as such. S. 2053, supra note 115, § 401 c).
132. Serial No. 95-4, supra note 1, at 138-40.
to the environment. They also believe that specific provisions allowing regulation of the amount of discharge are needed. \textsuperscript{133} The balancing test for modification appears to be weighted against the environment from the start, as the environmental injury must outweigh both the national interest in the minerals, and the burden of economic loss. This is a difficult standard to meet, particularly when one recalls that a major justification for enacting the legislation is the national interest in the minerals.

\textit{Processing of Minerals}

Another important provision of the legislation requires permittees to process all minerals within the United States. \textsuperscript{134} The bill provides an escape clause which allows processing outside the United States with the permission of the Secretary. \textsuperscript{135} The Secretary of Commerce must determine that foreign processing is necessary for the economic viability of the operation and must be satisfactorily assured that the processed minerals will be returned to the United States if the national interest so demands. \textsuperscript{136} This provision is crucial to elimination of the trade deficit. Processing accounts for an estimated one half of the cost of these minerals. \textsuperscript{137} If the United States permittee was allowed to underwrite the construction and operation of a foreign processing facility the dollars would flow the wrong way.

The present Secretary of Commerce and Ambassador Richardson oppose the requirement of domestic processing due to the international character of the consortia. \textsuperscript{138} The restriction may irritate developed countries whose nationals participate in the consortia. Deepsea Ventures, Inc. supports the provision, recognizing the desirability of strategic control. \textsuperscript{139} However, this is not the position of companies with international partners. \textsuperscript{140} The countries of those partners, like the United States, have a legitimate interest in securing an independent supply of those minerals. Strategic control and balance of payments are as vital to them as to the United States. Additionally, buying nodule minerals from the United States would result in higher transportation and labor costs. However, as support for this legislation is based on the balance of trade and strategic

\begin{footnotes}
\item[133] Id. at 462-63 (testimony of John Rhett, Sp. Ass't. Admin. for Water Operations Program, E.P.A.).
\item[134] H.R. 3350, \textit{supra} note 115, § 103 c)(3); S. 2053, \textit{supra} note 115, § 102 c)(3).
\item[135] Id.
\item[137] See text accompanying note 110, \textit{supra}.
\item[138] Serial No. 95-4, \textit{supra} note 1, at 475.
\item[139] Id. at 328 (testimony of J. Flipse, president of Deepsea Ventures, Inc.).
\item[140] Statham, \textit{supra} note 1, at 17, 18.
\end{footnotes}
needs, it would be irrational and counterproductive to exclude the provision. A regulation requiring that a proportion of the minerals be processed within the United States may be a necessary compromise.

**Licensing Specific Sites**

Sections of the legislation beneficial to all business interests provide for the licensing of a specific area within which a company may operate. The Secretary of Commerce is to specify the size of the area, sufficient to satisfy a permittee’s production requirements and to allow intensive exploration. Filing an application for a specific site establishes priority for licenses, and only the licensee may procure a permit. The Secretary may not issue a license or permit for an area covered by an equivalent authorization from a reciprocating State. The president may designate reciprocating States where he finds the State regulates the development of the seabed in a manner comparable to the United States.

Delineation of the area within which activity will be allowed is considered a necessity by the industrial community. In support of this contention, industry cites the cost of fully exploring a specific area, the need to know the exact location of deposits, and the dependence of processing upon the consistency of ore composition. Furthermore, priority and exclusivity of site are essential to obtain the necessary financing. The environmentalists concur on the need for specificity. Variations in geology and topography dictate a more thorough analysis than is possible in generalized studies, particularly if the results are to be incorporated as conditions to a license or permit.

144. H.R. 3350, supra note 115, § 103 c)(1)(E); S. 2053, supra note 115, § 102 c)(1)(B).
146. H.R. 3350, supra note 115, § 106; S. 2053, supra note 115, § 116.
147. Serial 95-4, supra note 1, at 207, 275; Milton Stern, Vice President of Kennecott Copper Corp. testified that the calculations needed to determine the productivity of mining must be based upon data from a specific site. Id at 357-58.
148. H.R. REP. No. 588, supra note 5, at 20-21; Serial No. 95-4, supra note 1, at 56-57. C.T. Houseman of the Chase Manhattan Bank, testified that in determining whether or not to finance a particular operation, a bank would have to calculate the likely productivity within a specific area to determine whether there was adequate security for their investment. Id. at 76-77, 172; Id. at 193-94.
Critics claim licensing specific sites is tantamount to a subdivision of the ocean by the government. One Congressman has asserted it could be viewed as a form of imperialism.\textsuperscript{150} Ambassador Richardson suggests the licensing of a "plan of work," rather than a specific area may be more appropriate in light of international commitments.\textsuperscript{151} Such a plan would include a description of the techniques to be used and the area to be mined. If no more than a nominal difference, such a suggestion would fail to accommodate environmental or financial needs. Any description more generalized than that contemplated by the bills would not provide a basis for determining the appropriate protective conditions to be imposed upon the licensee; nor would financial institutions feel they were adequately secured due to the inability to predict the annual payload of their borrower.

\textit{Investment Compensation}

Controversy over unilateral legislation is magnified by sections which provide for compensation of the mining entities if international agreement results in a diminution in value of their investment.\textsuperscript{152} The compensable investment must have been made after the effective date of the Act, and does not include funds invested for the research, development, or evaluation of the technology, nor any potential value of the mineral resources.\textsuperscript{153}

In addition to limitation on types of investments, restrictions are placed on which entities may qualify. The entity must be operating under a permit issued before the effective date of an international agreement, and the international agreement must result in a voiding of the license or permit, or in the imposition of substantially different terms.\textsuperscript{154} Permittees must have been operating for less than ten years.\textsuperscript{155} The claimant must also have elected to pay an annual compensation premium.

Comparable to an insurance premium, the proceeds of this premium would go into a compensation fund from which disbursements would be made. On a "minimal" investment of $500,000,000, the annual premium could vary between $3,750,000 and $1,250,000.\textsuperscript{156} An election not to pay the premium is irrevocable.\textsuperscript{157} The maximum

\textsuperscript{150} H.R. 3350, supra note 115, § 202 b); S. 2053, supra note 115, § 202 b).
\textsuperscript{151} H.R. 3350, supra note 115, § 202 a); S. 2053, supra note 115, § 202 a).
\textsuperscript{152} H.R. 3350, supra note 115, § 202 c); S. 2053, supra note 115 § 202 c).
\textsuperscript{154} H.R. 3350, supra note 115, § 202 h)(2)(B); S. 2053, supra note 115, § 203 b)(2).
\textsuperscript{155} H.R. 3350, supra note 115, § 202 h)(2)(A); S. 2053, supra note 115, § 203 b).
compensation available to the mining entity would be the lesser of
ninety percent of the investment or three hundred and fifty million
dollars.\footnote{158} Subject to set off for the salvage value of assets directly
related to mining, plus any after tax revenue earned through the
mining activities.\footnote{159} Losses insurable through customary channels
are also excluded.\footnote{160}

Although at first glance the compensation provision might appear
to be an insurance policy, the stringency of the limitations, particu-
larly those relating to a set off for revenues, indicate a more limited
scope. Only those losses which cannot be compensated in any other
way are covered. These provisions have been strongly criticized as
special interest legislation, serving the interests of the mining com-

munity at the expense of the taxpayer.\footnote{161} That criticism must be
conceded. The government does not normally guarantee any type of
investment, particularly in a new and somewhat speculative indus-
ty.

It is arguable, however, that these protections are necessary to
provide security and stimulate investment in ocean mining. The
increasingly low level of liquidity in the mining industry is respon-
sible in part for the need of investment protection. Diminishing re-
turns on land-based operations and the lack of internal investment
funds has necessitated outside investment before full-scale develop-
ment can begin.\footnote{162} Outside investors are unwilling to let their secu-

rity ride the waves of the current international negotiations.\footnote{163} Com-
mercial insurance to cover this type of political risk is non-
existent.\footnote{164}

It has been suggested that the Overseas Private Investment Cor-
poration ought to cover such a risk. As a quasi-governmental body,
established by the United States, OPIC facilitates investment in
under-developed countries through insuring political risks such as
inconvertible currency, expropriation, and war. It finances projects
through direct loans and guarantees. However, OPIC's statutory
authority precludes insuring operations in international waters.\footnote{165}

\footnote{158. H.R. 3350, supra note 115, § 202 e)(1); S. 2053, supra note 115 § 202 e)(1).
161. 123 CONG. REC. #109, E4025.
162. See Ocean Mining Systems, supra note 397, at 2.
163. H.R. REP. No. 588, supra note 5, at 19; Serial No. 95-4, supra note 1, at 193-94, 170-
71, 209-10, 213, 349, 536-37.
164. Serial No. 95-4, supra note 1, at 170-71, 330-31, 374, 378. The impossibility of assess-
ing risks of a future event contingent upon the consent of 150 nations, and establishing a

corresponding premium is the reason for the unavailability of insurance. Id. at 381-82.
165. H.R. REP. No. 588, supra note 5, at 20.
Therefore, legislatively authorized compensation is the only protection available.

Opponents maintain the potential cost of this compensation provision cannot be justified in terms of the national interest. The portion of the annual trade deficit attributable to nodule metals would be exceeded by five claims for the maximum statutory compensation. Such arguments, however, ignore the intensity of the national interest, strategic or otherwise, in assuring a source of these minerals. Due to the size of investments, diminishing the amount of the compensation would not comport with financial realities.

It is also asserted that investment protection is unnecessary as grandfather rights can be assured in the treaty. That assertion ignores the current progress of the negotiations and does little to encourage development. Furthermore, the legislation would provide compensation only in the event that grandfather rights were not included in the treaty. If they were included, no loss would occur as a result of an international agreement within the terms of the legislation.

A compromise limiting investment protection to the proportion of national benefits derived from mining would be acceptable to industry and to the financiers. Adequate security would be provided as the proportion of national benefits would most likely be directly related to the proportion of American investment. However, it is likely that the legislation will be passed without adequate guarantees. The House Committee on Interior and Insular Affairs reported the bill favorably, but deleted the investment guarantee. The Carter Administration has approved the legislation, but opposes the guarantee. If support of the legislation stems from a desire to encourage mining, it is inconsistent to delete the investment protection clause. It may be, however, that support is premised upon a desire to stimulate the international negotiations through decisive action, rather than upon a desire to encourage mining.

THE PROPRIETY OF UNILATERAL ACTION

Whether or not domestic legislation is an appropriate means of prodding the international community into an agreement, that ra-

166. Serial No. 95-4, supra note 1, at 32-35 (Fraser), 447 (Eliott Richardson), 474-75 (Juanita Kreps).
167. See text accompanying notes 87-90, supra.
168. Serial No. 95-4, supra note 1, at 112-13, 447, 474-75.
169. Statham, supra note 1, at 18.
170. Townsend correspondence, supra note 117.
tionale underlies much of the support given to the bills.\footnote{172} Regardless of its efficacy for that purpose, there is support for the contention that certain provisions constitute an improper exercise of sovereignty.

The unilateral legislation disclaims any sovereignty over the areas of the seabed.\footnote{173} However, the exercise of certain rights, no matter how characterized, can result in a de facto exercise of sovereignty.\footnote{174} The authorization of mining lends official approval to the appropriation of specific areas of the seabed by United States nationals. The nature of seabed mining will necessarily preclude others from enjoying those same rights, as the first enjoyment will be the last. A government supporting this activity through investment guarantees might be regarded as a silent partner in such a mining endeavor. Requiring the minerals to be brought within the government’s territorial control elevates the level of involvement, particularly in light of the official recognition of the legitimacy of the operation. This beneficial interest, together with the necessarily exclusive nature of mining, the authorization of activities, and the control over licensing, constitutes an exercise of de facto sovereignty over the seabed by the United States.

Indeed, some legislators realize the legislation could be viewed as a territorial grant by the United States.\footnote{175} A plausible hypothetical could include a foreign mining boat, accompanied by a foreign gun boat, in confrontation with a United States mining operation. Congressmen McCloskey and Fraser assert that the use of force in protection of mining claims should be considered a real possibility if this legislation is enacted.\footnote{176}

Another indication of the improper assertion of sovereignty is the licensing provision of this legislation. American law regards a license as the grant of an interest in land. The grant includes the privilege of using land which is in the possession of another, the licensor.\footnote{177} The licensor has the privilege of granting licenses, and retains control over the subject land during the entire term of the license.\footnote{178} The license entitles the licensee to do acts which would

\footnotesize{\begin{itemize}
\item \footnote{172} Breaux, supra note 48, at 5; H.R. Rep. No. 588, supra note 5, at 30; United States Policies, supra note 85, at 643; Serial No. 95-4, supra note 1, at 51-52, 424-25; 123 Cong. Rec. #135 pt.II, S13981.
\item \footnote{173} H.R. 3350, supra note 115, § 101 1)(2); S. 2053, supra note 115, § 5 1)(2).
\item \footnote{174} The validity of the assertion of jurisdiction by a state, through the attachment of legal consequences to the conduct of its nationals in other countries, is well established. Restatement, supra note 36, § 30.
\item \footnote{175} Serial No. 95-4, supra note 1, at 474; H.R. Rep. No. 588, supra note 5, at 67.
\item \footnote{176} H.R. Rep. No. 588, supra note 5, at 72; Serial No. 95-4, supra note 1, at 41.
\item \footnote{177} 2 American Law of Property § 8.110 (A.J. Casner ed. 1952).
\item \footnote{178} Id. § 8.111.
\end{itemize}}
normally be an interference with the rights of the licensor.\textsuperscript{179} Such an interference by one not holding a license would usually be a trespass. It is not unreasonable to infer that one who licenses activities in a specific area, implicitly asserts possessory rights over that area. When a government asserts possessory rights over a parcel of land it is typically called an assertion of sovereignty.

Proponents of the legislation will argue that the doctrine of \textit{res nullius} allows individuals to mine, and that the government is exercising jurisdiction only over the person of its nationals.\textsuperscript{180} However, the inapplicability of \textit{res nullius} and the peculiar nature of the nodules demonstrate the fallacy of that claim.\textsuperscript{181} It also demonstrates the weakness of the claim that the government is exercising jurisdiction only over its nationals.

Opponents of the legislation take the position that the status of the seabed is controlled by the declaration that the seabed is the "common heritage of mankind" and that this, in itself, prohibits this legislation.\textsuperscript{182} The United States has maintained, however, that this principle does not create a rule of common property over the seabed.\textsuperscript{183} Analysis of "the common heritage of mankind" may reveal the proper treatment to be accorded the seabed.

Application of the ancient principle of \textit{res communes} would give the seabed the status of common property.\textsuperscript{184} Interpretation of "the common heritage of mankind" supports that suggestion.

The word common suggests a thing shared in respect of use or enjoyment, without apportionment or division into individual parts. The word heritage suggests property or interests which are reserved to a person by reason of birth. . . .Mankind refers to the collective group whereas man refers to individual men or women.\textsuperscript{185} One might conclude that the phrase connotes worldwide common ownership of the seabed and its resources.\textsuperscript{186} The developing countries are not the only countries supporting such an interpretation. Both the Spanish and French texts of Resolution 2749 use a word which relates to common property.\textsuperscript{187} From this "ordinary meaning"...

\begin{footnotes}
\item[179] Id. § 8.109. In the case of public rights it seems appropriate to consider the authority as a trustee in whom the rights are vested for the benefit of the general public.
\item[181] See text accompanying notes 48-56 supra.
\item[182] Serial No. 95-4, supra note 1, at 182, 399-400.
\item[183] Grotius Revisited, supra note 7, at 280.
\item[184] See text accompanying notes 49-56, supra.
\item[186] Id.
\item[187] Grotius Revisited, supra note 7, at 280.
\end{footnotes}
interpretation and the unanimity supporting the Resolution, one could surmise that the common property approach toward the seabed qualifies as a customary principle of international law.\textsuperscript{188}

Accepting this interpretation, application of principles of American property law under the Statute of Anne would permit any co-owner of the seabed to possess and use it as he chooses.\textsuperscript{189} The Statute of Anne, as originally enacted, required the co-owner to account for profits from rentals, but not for his own productive use of the land.\textsuperscript{190} The Statute was adopted in the United States with the modification that the co-owner must account to the other owners for profits received from any use resulting in a reduction in value of the property.\textsuperscript{191}

Under these principles, the “common heritage” doctrine could permit the immediate authorization of mining by any “co-member” of the world community. Any country authorizing mining would be required, at a minimum, to account to co-members for any profits, as the value of the seabed would be diminished. The proposed domestic legislation does provide for the establishment of an international fund financed by mandatory contributions from seabed miners that would be used for payments to the international community.\textsuperscript{192} The provision for the international fund is a tacit acknowledgement that the seabed is common property. Unfortunately, the provision is deficient in providing for sharing pursuant only to a future international agreement.\textsuperscript{193} If no international agreement is reached no sharing will occur pursuant to the legislation. Consistency and honesty mandate sharing with the international community from the inception of mining.

\textbf{Conclusion}

Development of the technological ability to exploit the resources of the sea poses no serious problem if the restraints inhibiting mining investment are removed. Distribution of the nodule minerals among the nations of the world presents the most difficulty. If access to these minerals is unduly restricted to ensure the participation of developing countries, industry may opt not to proceed with development. On the other hand, industry cannot be given a carte blanche, for this threatens the equality in enjoyment of ocean re-

\begin{itemize}
\item 188. See text accompanying note 56-58, supra.
\item 189. 2 \textit{American Law of Property} § 6.14 (A.J. Casner ed. 1952).
\item 190. \textit{Id.}
\item 192. H.R. 3350, \textit{supra} note 115, § 203; S. 2053, \textit{supra} note 115, § 204.
\item 193. \textit{Id.}
\end{itemize}
sources. The accelerating "resource crunch," coupled with anticipation of the potential benefits to be derived from the sea, may prompt hasty and irrational decisions. Both the overly burdensome terms of the ICNT, and the self-serving provisions of the proposed domestic legislation, are examples of solutions which lack the balance needed to avoid unnecessary and unproductive conflicts.

Such conflicts can be avoided only by assuring that the character of the resources is respected in any plan for exploitation. As the mineral resources lie outside the jurisdiction of any sovereignty, the proper characterization of these minerals can be gleaned only by reference to the opinion of the international community. The world community has essentially two choices. It may characterize the minerals either as res nullius, or as common property.

The world community has expressed its opinion in Resolution 2749 and in the continuing negotiations, that the minerals are to be regarded as the common property of mankind. It must be emphasized that the opinion of the international community exists apart from its formal expression in Resolution 2749. The opinion pre-existed the Resolution; indeed, the Resolution would not have passed if the opinion did not already exist. Therefore the continued vitality of that opinion does not depend upon the existence or the interpretation of Resolution 2749.

Besides formally expressing the world community's opinion, Resolution 2749 was the written memorial of an international agreement whereby the parties committed themselves to development of the ocean's resources through an international organization. The "good faith obligation" to give effect to the terms of that agreement necessitate that no party to the agreement proceed with development prior to, or apart from, the international organization to be established. It is important to distinguish this obligation, which is totally dependent upon the continued legal effect of that international agreement, from the opinion of the international community as to the character of the resources, which was merely expressed in the resolutions.

The commitment by all parties to a functional international organization is the keystone to rational development of the ocean. The developing countries must realize that the obligation of the United States is not unconditional. The commitment to development through an international entity is contingent upon the recognition of the legitimate interests of this country and its citizens.

The parties to the international agreement embodied in Resolution 2749 may have mutually breached that agreement. The developing countries probably have committed a breach by their lack of good faith and inflexibility in trying to implement the terms of the
agreement. Such a breach would release the United States from its obligation to refrain from development until the establishment of an international organization. However, a breach of the international agreement does not alter the international community's characterization of the resources as common property. There has been no indication of any change in the opinion expressed in Resolution 2749. Any development of the seabed must be in keeping with this character.

Therefore, unilateral action can be justified only in so far as it respects the character of the ocean resources and provides for an equitable sharing of the benefits derived from ocean mining. As the proposed domestic legislation provides for a sharing only in the event of an international treaty it is grossly deficient.

The current progress in international negotiations suggests that ocean development is likely to occur through unilateral, rather than consolidated actions. Those taking unilateral action must be particularly careful to respect the rights of others. The United States must be particularly careful as the other developed nations are watching its actions closely to take their cue. Should its actions meet with criticism, the other nations are not likely to support the United States at the risk of alienating the underdeveloped countries. Instead, they probably will justify their actions as an attempt to keep the United States from appropriating all the resources.

The most serious ramifications of the decisions regarding manganese nodules will not be realized until years after those decisions are made. The ultimate methods of exploitation, and the tenor of further international negotiations will have great precedential value with respect to the distribution of the resources of what have heretofore been considered "no-man's lands."\footnote{194}

The exploitation of Antarctica will be the first application of the model established by ocean mining.\footnote{195} When full-scale exploitation of Antarctica begins, the last of the earth's great mineral reserves will start to dwindle, as will the last great untapped source of food. The importance of developing a rational method for distributing these

194. Cocca, Principles for a Declaration with Reference to the Legal Nature of the Moon, Space Law Perspectives 16 (1976); Bus Int'l 313 (Oct. 7, 1977); 123 Cong. Rec. #125, S12675.

195. There is a treaty which seeks to insulate Antarctica from claims of sovereignty. However, there are few guidelines within that treaty which deal explicitly with resource exploitation. Antarctica Treaty, done Dec. 1, 1959 12 U.S.T. 791, T.I.A.S. No. 4780 (entered into force for the U.S. June 23, 1961).

The problem of a lack of guidelines is accentuated by the possibility of oil exceeding the deposits lying off the coast of Alaska. Manchester Guardian Weekly/The Washington Post, Oct. 2, 1977, at 15, 16, col. 1. Millions of tons of krill, a crustacean, which promises to double the world's supply of fish, may prompt commercial exploitation even sooner. Id.
resources upon which many nations will depend is undeniable. The United States has become keenly aware of the interdependence of nations with regard to natural resources. Hopefully, it will not seek to fill short term needs at the expense of relations with the other nations of the world. Beyond these terrestrial impacts, one must also consider the likelihood that the manner of development of the ocean and Antarctica will greatly effect the way in which man exploits the celestial bodies of outer space.\(^{196}\) None of the parties to the current negotiations are acting in a manner welcome as a precedent for the future. The underdeveloped countries expect to reap a disproportionate harvest from the bottom of the ocean. Recognizing this imbalanced approach, the United States has responded with unilateral action aimed at assuring that its nationals participate in seabed development. It has failed to insure the right of the other nations of the world to share in that development. Such singlemindedness must be discarded. There may come the day when some other country holds the combination to Davy Jones's locker.

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196. Echoing some of the language of Resolution 2749, the treaty governing the use of outer space declares that outer space is the province of all mankind, and that no state shall exercise sovereignty over any part of space or the celestial bodies. Treaties on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, done Jan. 27, 1967 18 U.S.T. 2412, T.I.A.S. No. 6347 (entered into force for the U.S. Oct. 10, 1967). Those scholars concerned with this area of the law have been advocating the creation of an international authority to deal with the problem of allocating resources. Activities on Celestial Bodies Including the Exploitation of Natural Resources, SPACE LAW PERSPECTIVES, 223-25 (1976).

One of the more unique resources which space has to offer is the geostationary orbit, which is the orbit located above the equator and approximately 22,130 miles from the surface of the earth. The particular attraction of this orbit is that a satellite within it will be stationary relative to a point on earth. The countries with space technology are concerned that the orbit will become too "glutted" with the satellites of the space powers as the "orbit" can only accommodate a finite number of satellites. \(^{6}\) INT'L LAW NEWS 1, 5 (April 1977).

197. In July of 1978 the House of Representatives passed H.R. 3350. The Senate version of the bill is still in committee.