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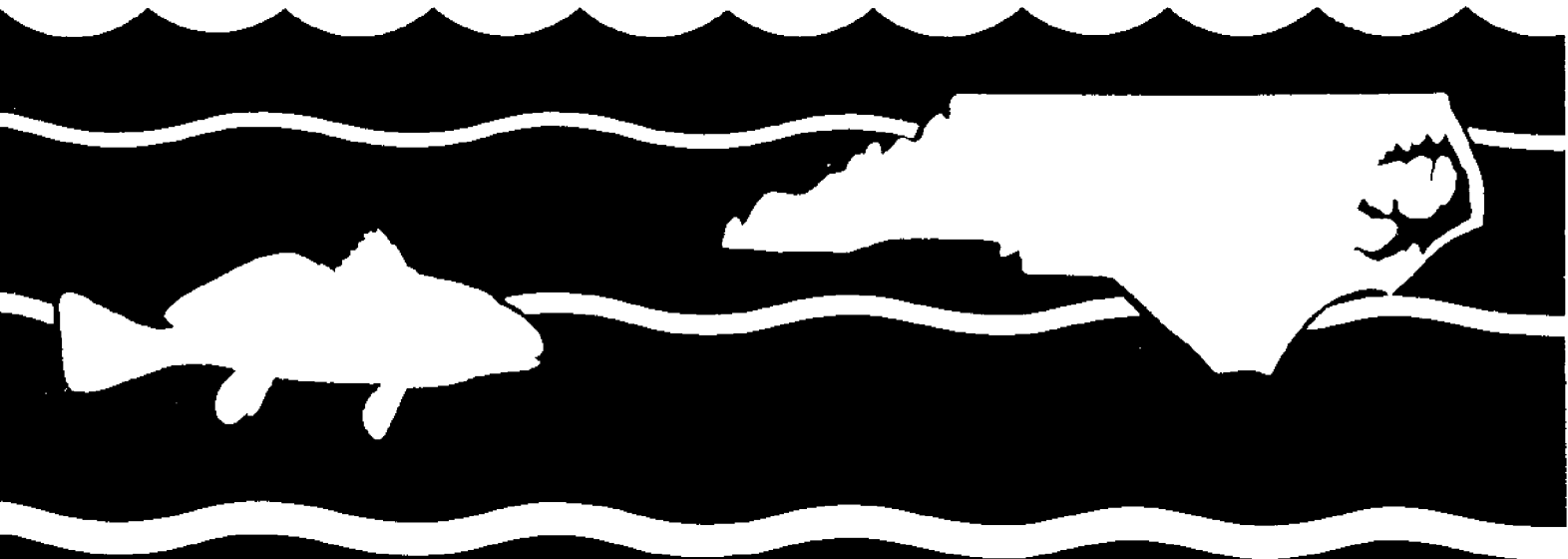
**EMERGING OCEAN OIL AND MINING LAW**

**Seymour W. Wurfel  
Principal Investigator**

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EMERGING OCEAN OIL AND MINING LAW

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## INTRODUCTION

The reported departure from the Wilmington, Delaware, shipyard, in which it was constructed, of Howard Hughes' special purpose vessel, the Glomar Explorer, for Pacific waters south of Hawaii, to undertake retrieval by suction of manganese nodules from the deep seabed, advances from the planning stage to execution the "gold rush" to seize the riches of the last remaining virgin territory of mother earth. Whether such exploitation will be dealt with at all, let alone effectively, by the 1974 Law of the Sea International Conference at Caracas, Venezuela, now rests in the realm of uncertainty.

The papers here presented are the result of Sea Grant sponsored research conducted by students at the University of North Carolina School of Law. This is but one of six Sea Grant legal research projects scheduled for 1974 publication in North Carolina. This volume deals with a few aspects of emerging ocean oil and mining law. The approach to this relatively new area of legal interest is necessarily tentative and even speculative. Hopefully, these discussions will be provocative and will engender further thought, research and writing in this important field. This area is one of delicate balance between the weaknesses of present domestic and international law to accommodate the seemingly limitless expansive capabilities of marine technology, with the basic interests of all mankind suspended in the vortex of that sensitive balance.

Drs. B. J. Copeland and William Rickards, Director and Assistant Director, respectively, of the North Carolina Sea Grant Program are to be congratulated upon their commendable vision and courage in promoting interdisciplinary solutions for newly emerging problems of marine ecology such as those here considered.

Thomas Suher, a third year law student, has been most helpful in performing many of the details of editing this volume. He is a veteran of the Sea Grant Program at the law school and a contributor to the 1973 Sea Grant publication, "The Surge of Sea Law."

This publication resulted from research sponsored by the National Oceanic and Atmospheric Administration (NOAA), Office of Sea Grant, Department of Commerce, and the State of North Carolina Department of Administration.

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INTERNATIONAL REGULATION OF  
PETROLEUM EXPLORATION AND EXPLOITATION  
ON THE HIGH SEAS

Jo Anne Sanford Routh

The oceans cover two-thirds of the earth's surface and have captured the imagination of intrepid explorers and men of commerce for thousands of years. A backward glance at the evolution of the body of law pertaining to oceanic activities reveals a markedly continuous and coherent, but slow development--it was nearly 400 years after the fifteenth century European voyagers explored the seas that the roles of ocean commerce and naval capabilities were expressed in a systematic way by Alfred Mahan in 1890.<sup>1</sup> Within our own century there has been controversy and confusion over the economic and strategic implications of the undersea environment, and presently there is no area more fraught with actual and potential controversy than that of the regulation of exploration and exploitation of the high seas. This paper attempts to deal with one facet of the complex arena (though the issues are so complicated and intertwined as to render clear limitation difficult): the international regulation of the search for and development of petroleum resources under the high seas.

As the realization of the limitations of our land and shallow-water petroleum resources is dawning on industrialized nations, the convergence of technological growth and a burgeoning population are leading to a depletion of the presently accessible resources.<sup>2</sup> The problem is exacerbated by political machinations which are accentuating the dependence on petroleum and natural gas as primary sources of fuel. The present fuel crisis demands and gives impetus to exploration and exploitation of the seas for petroleum supplies as realization of the political power that control of oil supplies entails and of the corollary susceptibility to political coercion being experienced by nations that have no indigenous supplies accentuates the need to delve deeper into the sea to find and tap its energy resources. The problem is complex and the implications numerous: the treatment of it herein deals with the present and projected technological capabilities regarding deep-water discovery and production of hydrocarbons; the origin and nature of the international law of high sea areas; and the proposals for clarification and change of that law promulgated in view of the 1974<sup>3</sup> United Nations Conference on the Law of the Sea.

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<sup>1</sup>R. SALKELD, WAR & SPACE ix (1970).

<sup>2</sup>J. HARGROVE, LAW, INSTITUTIONS, AND THE GLOBAL ENVIRONMENT 3 (1972) [hereinafter cited as Hargrove].

<sup>3</sup>The Conference was scheduled to be held in Santiago, Chile, in the spring of 1974, but domestic political upheavals in Chile have forced a cancellation of these plans. It will be convened at Caracas, Venezuela.

Technology Already Exists for Exploration and Exploitation of Petroleum Resources in Submarine Areas Beyond the Limits of National Jurisdiction

Petroleum resources under the seas are potentially the most valuable marine resource presented to man.<sup>4</sup> Widely divergent views exist regarding the extent and exploitability of these resources, with some suggesting that the problems of deep ocean mining are remote and that exploiters will be few.<sup>5</sup> On the contrary, the more realistic view is that potential profits in oil due to increased demand and dwindling (or politically restricted) supplies will make such deep sea petroleum exploitation economically feasible, if not inevitable, in the near future.<sup>6</sup>

The threshold issue is whether there are significant resources existing far enough offshore to be outside of a coastal state's jurisdiction. Controversy over the delineation of the outer limits of such jurisdiction notwithstanding, it is this writer's conclusion that valuable petroleum and natural gas fields do exist in submarine areas that are clearly out of the present bounds of any nation's jurisdiction, and there are known deposits in areas of disputed jurisdiction.<sup>7</sup> Hollis Hedberg, professor of Geology at Princeton University and veteran of forty years with Gulf Oil, noted that:

"...petroleum accumulations, comparable to those currently known to be commercial on land and in shallow coastal waters, may very possibly exist, not only under the deeper waters of the continental shelf, but also under the even deeper waters of the continental slope, the rise, and perhaps even certain parts of the deep ocean basins. ...available evidence suggests that this potential, such as it is, probably diminishes markedly out beyond the continental margins."<sup>8</sup>

Geological studies indicate that petroleum deposits do exist in various deep sea areas,<sup>9</sup> with the North Sea area being subjected to extensive exploration by bordering nations.<sup>10</sup> Ownership of the huge petroleum and natural gas reserves thereunder have been peacefully resolved by agreement

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<sup>4</sup>Mero, The Mineral Resources of the Sea, Elsevier Oceanography Series I 98 (1965) [hereinafter cited as Mero].

<sup>5</sup>Craven, The Challenge of Ocean Technology to the Law of the Sea, 22 *Jag. J.* 35 (1967).

<sup>6</sup>Browning, Exploitation of Submarine Mineral Resources Beyond the Continental Shelf, 4 *Tex. Int'l L.F.* 2 (1968) [hereinafter cited as Browning].

<sup>7</sup>*Id.*

<sup>8</sup>Hedberg, Some Matters of Concern to the Petroleum Industry With Respect to Public Policy on Mineral Resources of the World Ocean, in PROCEEDINGS, SYMPOSIUM ON MINERAL RESOURCES OF THE WORLD OCEAN 88 (1968) [hereinafter cited as Hedberg].

<sup>9</sup>W. BURKE, TOWARDS A BETTER USE OF THE OCEAN 35-37 (1969) [hereinafter cited as Burke].

<sup>10</sup>Mero 102.

on demarcation lines by those nations.<sup>11</sup>

The next issue concerns the prospects for discovery of oil fields which are far from shore and possibly submerged under thousands of feet of water. Technology already is available for geological and geophysical exploration in the deep oceans, and even for exploratory drilling to considerable sub-ocean depths. Off California in 1968 exploratory drilling was being conducted at depths of 400 meters, with the technological capacity to produce in 1500-2000 meters considered attainable by 1978.<sup>12</sup> The United States sponsored Deep Sea Drilling Project, managed by the Scripps Institute of Oceanography, has drilled with conventional rotary drilling techniques in water depths of 3000 to 20,000 feet, with penetrations in excess of 2500 feet into the ocean sediment.<sup>13</sup> It is believed that exploratory drilling can be done at virtually any depth for as early as 1968 the Glomar Challenger drilled into the Sigsby Knolls of the Gulf of Mexico in over 3,700 meters and found traces of petroleum.<sup>14</sup> This recitation of present and anticipated capabilities illustrates that delay in formulating and agreeing on a system of regulation of high seas exploration cannot be justified by claims of lack of technology; it is clear that exploratory capabilities have already outdistanced international legal provisions for regulation.

The final issue in this section concerns the potential for recovery of distant and deep-water petroleum resources. As late as 1958 Dr. Mouton of the Netherlands and Miss Gutteridge of the United Kingdom deemed it unlikely that exploitation was possible beyond 500 meters in the foreseeable future.<sup>15</sup> Though at present largely confined to waters of around 100 meters depth, exploitation of petroleum resources in 1000 meters and more is deemed feasible by 1977.<sup>16</sup> In 1953 no wells were more than 25 miles from land, now there are drilling sites situated offshore at distances of 100 miles,<sup>17</sup> and as early as 1964 Shell Oil developed and built a robot which was used in the Pacific Ocean at 1000 feet.<sup>18</sup> A series of experimental, free-floating vehicles had made tremendous progress toward drilling to new depths as early as 1965, reaching 15,000 feet into the sea floor sediment and as far as 20,000 feet into the ocean floor.<sup>19</sup> Industry and United States governmental confidence in greatly expanded exploitative capabilities is evidenced by the action of the Department of the Interior in putting up for bids land off the California coast extending to depths of over 600 feet.<sup>20</sup> Petroleum industry faith in profitable exploitation of deep-water resources is reflected in a 1968 trade-magazine claim that: "The offshore industry is standing on the doorstep of the biggest drilling boom in history. In one year, the industry has demonstrated its confidence in the outer continental shelf with three record-breaking oil and gas leases, as well as in vast offshore concessions abroad."<sup>21</sup>

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<sup>11</sup>Pardo, Who Will Control the Sea-Bed, 47 For. Aff. 133 (1968) [hereinafter cited as Pardo].

<sup>12</sup>Schaefer, Freedom of Scientific Research and Exploration in the Seas, 4 Stan. J. Int'l L. 49 (1969) [hereinafter cited as Schaefer].

<sup>13</sup>Coene, Future Engineering Possibilities, in PROCEEDINGS, SYMPOSIUM ON MINERAL RESOURCES OF THE WORLD OCEAN 75 (1968).

<sup>14</sup>Schaefer 49.

<sup>15</sup>U.N. Doc. A/CONF. 13/42 at 30-37 (1958).

<sup>16</sup>Hedberg 88.

<sup>17</sup>Pardo 125.

<sup>18</sup>McDevitt, The Law of the Seas, 1 J.U. Texas Int'l L. Soc'y 68 (1968).

<sup>19</sup>Mero 98.

<sup>20</sup>Pardo 128-29.

<sup>21</sup>Id. at 129.

Industry men warn that the catalyst for actual realization of these capabilities must be a reasonable economic incentive; that is, it must be profitable to explore and exploit deep sea petroleum resources in view of the overall demand for petroleum and the competition from land and shallow-water sources. Costs of production at increased depths increase exponentially; hence, such drilling will be highly susceptible to competition.<sup>22</sup> Yet, in view of previously noted supply-demand factors, it appears that the international legal system must think in terms of the inevitability of exploration and exploitation of petroleum in areas beyond the limits of present national jurisdictions. Petroleum mining on the deep ocean floor will require international regulation<sup>23</sup> and will pose formidable challenges to customary and conventional international law.

The element of international law most relevant to further petroleum development at this point is the delineation of boundaries, particularly the determination of the limits of the continental shelf. This is an immense and highly controversial legal problem and, though fascinating, is beyond the scope of this paper. Argument revolves around the meaning of Article I of the 1958 Geneva Convention on the Continental Shelf in its definition of the shelf as

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 admit of the exploitation of the natural resources of the said areas;<sup>24</sup>

This "exploitability rule" for determining the outer limit of national control has been severely criticized,<sup>25</sup> and as the continental shelf and the slope beyond are the primary producers of submarine petroleum at present, clarification of this definition requires immediate resolution.<sup>26</sup> With this brief acknowledgment of the pressing "shelf" problem, focus shall turn to international law regarding the "high seas," however they are ultimately defined.

#### The Status of International Law Relative to Use of the Seabed Beyond the Limits of National Jurisdiction

It seems inevitable that some form of international control should exist beyond the outer limits of national jurisdictions over the three-fourths of the oceans that lie beyond the continental margin.<sup>27</sup> This position was aptly phrased by President Lyndon B. Johnson in July of 1966:

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<sup>22</sup>Hedberg 89.

<sup>23</sup>Comment, International Law and the 'Interests': The Law of the Seabed, 63 Am. J. Int'l L. 508-10 (1969).

<sup>24</sup>15 U.S.T. 471, T.I.A.S. 5200, 450 U.N.T.S. 82.

<sup>25</sup>J. ANDRASSY, INTERNATIONAL LAW AND THE RESOURCES OF THE SEA 47 (1970)

[hereinafter cited as Andrassy]. See also Creamer, Title to the Deep Seabed: Prospects for the Future, 9 Harv. Int'l L.J. 213 (1968).

<sup>26</sup>Burke 23.

<sup>27</sup>Hedberg 91.



Under no circumstances, we believe, must we ever allow the prospects 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 ocean bottoms are, and remain, the legacy of all human beings.<sup>28</sup>

Prior to an analysis of the implications of this view, it is instructive to review the history of principles of international law which govern use of the high seas. This historical perspective, when confronted with demands made on the legal system by modern technology, manifests the conflict of "two large and unwieldy bodies of law, the law of the sea, which tends towards freedom of exploitation, and the law of mineral estates in real property, which tends towards exclusive rights."<sup>29</sup>

"The true antecedents of the regime of the sea, at least as understood in modern international law, are not, strictly speaking, to be found in ancient times."<sup>30</sup> The ancients made the sea theirs by force when it served political or economic ends and it was theirs to keep only so long as their force was superior to that of would-be usurpers.<sup>31</sup> Though Hugo Grotius was later to cite Cicero's admonishment that no one should be deprived of the water that flows,<sup>32</sup> there is no evidence of recognition of a multi-national legal conception of areas of the sea among imperial Romans. The Roman jurist, Gaius, described the sea as res nullius, asserting that it belonged to the first occupant.<sup>33</sup> Celsus advocated free use of the sea, mare communum usum omnibus hominibus,<sup>34</sup> and Justinian expounded on this thesis in his Institutes, asserting that "the sea and its shores rank among the things common to all men, that the sea is open to public use and is nobody's property."<sup>35</sup> However, these concepts were part of Roman jus gentium and espoused for defining private obligations; their lack of international application was borne out by the fact of Rome's subjugation of peoples and sea to her rule. The concept of mare nostrum was diametrically opposed to any suggestion that the Roman concepts of free seas were anything other than expressions of private law.<sup>36</sup>

The notion of the "high seas" and its free use was formulated in response to a series of increasingly bold claims to maritime territories. The Republic of Venice promulgated public health regulations subjecting certain ships to a fortnight's isolation, and Genoa in 1467, Majorca in

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<sup>28</sup>Id.

<sup>29</sup>Browning 17.

<sup>30</sup>GARCIA-AMADOR, THE EXPLOITATION AND CONSERVATION OF THE RESOURCES OF THE SEAS 13 (1959) [hereinafter cited as Garcia-Amador].

<sup>31</sup>Freeman, Law of the Continental Shelf and Ocean Resources--An Overview, 3 Cornell Int'l L.J. 106 (1970) [hereinafter cited as Freeman].

<sup>32</sup>E. JONES, LAW OF THE SEA 6 (1972) [hereinafter cited as Jones].

<sup>33</sup>Garcia-Amador 14.

<sup>34</sup>Jones 107.

<sup>35</sup>Garcia-Amador 14.

<sup>36</sup>Id. at 13-14.

1471, and Marseilles followed suit.<sup>37</sup> Venice later claimed dominion over the Adriatic and even gained recognition thereof from other European sovereigns and the Pope.<sup>38</sup> Denmark joined the race and declared the Baltic straits of the Sund and the Belt its own.<sup>39</sup> Finally, the most extravagant claim of oceanic jurisdiction, based on Pope Alexander VI's Bull Inter cetera issued in 1493, was promulgated by Spain and Portugal. Their Treaty of Tordecillas apportioned all land and sea which had been or might be discovered between the two countries according to whether it lay east or west of a straight line drawn 100 leagues west of the Cape Verde Islands.<sup>40</sup>

Exaggerated assertions of dominion over global waters led to prolonged controversies over the doctrines of Mare Liberum and Mare Clausum. The 16th and 17th centuries witnessed the emergence and establishment of the idea of the "high seas," the "concept of which was implicit in the principle of the 'freedom of the seas' enunciated in opposition to the exaggerated pretences to maritime sovereignty."<sup>41</sup> Vasquez de Menchaca and Francisco Alfonso de Castro of Spain agreed that it was "contrary to national law and elemental principles of international relations to claim the sea and its waters as the private property of all nations. The use of the sea would be common to all nations."<sup>42</sup> Thus was the old Roman jus gentium revived and made international in character.

The next important development in the formulation and acceptance of the notion of the "high seas" came in 1609 when Hugo Grotius published chapter XXII of his De Jure Praedae.<sup>43</sup> In establishing his thesis of the freedom of the seas in Mare Liberum, "Grotius cited ancient writers with approbation, stating that the high seas were not within the sovereignty of any state."<sup>44</sup> He asserted, in this defense of Dutch rights to participate actively in the East Indian trade, that the sea belongs to all and is not subject to appropriation by anyone. The classic reply to Grotius was published in 1635 by John Selden of Britain. His Mare Clausum was a scholarly exposition of the rights of English sovereigns over the British sea.<sup>45</sup> The heated conflict between Mare Liberum and Mare Clausum theories abated "once it was realized that the two notions were neither incompatible from the legal point of view nor irreconcilable from the practical standpoint, but perfectly able to co-exist both within law and practice because neither excluded the other."<sup>46</sup> By the end of the 17th century the concept of the "high seas" had emerged as a fairly well-defined notion whose influence has dominated modern international law of the sea.<sup>47</sup>

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<sup>37</sup>Freeman 108.

<sup>38</sup>Hargrove 114.

<sup>39</sup>Garcia-Amador 14.

<sup>40</sup>Freeman 108.

<sup>41</sup>Garcia-Amador 16.

<sup>42</sup>Freeman 109.

<sup>43</sup>Jones 9.

<sup>44</sup>Id.

<sup>45</sup>Id at 11.

<sup>46</sup>Garcia-Amador 17.

<sup>47</sup>Freeman 111.

The sacred rule of "freedom of the high seas" has become well established in the intervening centuries,<sup>48</sup> but at present a struggle is being waged to grasp the true juridical nature of the high seas in an effort to modify the existing body of international law to fit the new technological realities. Vigorous debate has gone on for years over whether the high seas have the status of res nullius (belonging to no one) or res communis (common to all).<sup>49</sup> The latter view has prevailed along with the corollary notion that no state has the right to appropriate the high seas. A majority of members at the 1925 session of the Institute of International Law at the Hague declared in favor of the res communis thesis,<sup>50</sup> but adverse criticism of both theories exists. The preferable solution seems to base the international legal system regarding exploitation and regulation of deep seabed resources under the high seas on a "rational consideration of the economic, political, and social conditions of various countries of the world."<sup>51</sup> Reliance on Roman principles and failure to go further than the "exploitability rule" of the 1958 Geneva Convention on the Continental Shelf will result in a submarine land grab with the developed nations staking claim to the entire ocean floor.<sup>52</sup> If one accepts the premise now widely espoused that the oceans are the common heritage of mankind, then it is clear that present legal regulation of exploration and exploitation for petroleum or any other non-living resource is inadequate. It is unacceptable to permit technologically advanced nations to monopolize the petroleum resources of the "high seas" either under the rubric of freedom of the seas or the outmoded jurisdictional limits of the 1958 Convention. Assertions that under international law the high seas cannot be regarded as under the sovereignty of any state and that no state has a legal right to exercise jurisdiction over it fail to meet the multitudinous legal questions stimulated by the level of petroleum discovery and extraction capabilities. Thus, attempts are being made, with a view toward the Third United Nations Conference on the Law of the Sea,<sup>53</sup> to contend with the problems of a regime for regulation of the discovery and possession of resources under the high seas. The final section of this paper will deal with what appears to be the major thrust of recommendations regarding a regime for management of the ocean space beyond the bounds of national jurisdiction.

#### The Thrust of International Legal Movement in the Search for Agreement on Norms Governing Exploitation of the Space Beneath the High Seas

Colombos in 1962 asserted the rights of a state to occupy and claim subsoil under the high seas so long as the surface of the sea is not affected or endangered,<sup>54</sup> but the mainstream of international thought on the subject seems to depart from this assertion. The most eloquent spokesman for

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<sup>48</sup>C. J. COLOMBOS, INTERNATIONAL LAW OF THE SEA 60 (1962) [hereinafter cited as Colombos].

<sup>49</sup>Id. at 61.

<sup>50</sup>Jones 34.

<sup>51</sup>Browning 14.

<sup>52</sup>See, e.g., Andrassy, supra note 25.

<sup>53</sup>See supra note 3.

<sup>54</sup>Colombos 64.

radical modification of the traditional "freedom of the seas" concept is Arvid Pardo of Malta. On August 17, 1967, Dr. Pardo proposed a declaration and treaty resolution regarding the reservation of the seabed<sup>55</sup> embodying the following principles:

1. That the sea-bed and the ocean floor are a common heritage of mankind and should be used and exploited for peaceful purposes and for the exclusive benefit of mankind as a whole. Especially, that the needs of poor countries should receive preferential consideration in the distribution of financial benefits being derived from the exploitation of the sea-bed.
2. That claims to sovereignty over the ocean space beyond the limits of national jurisdiction should be frozen until the continental shelf is clearly defined.
3. That a representative body should be established to, among other things, provide for the establishment of an international agency to safeguard the international integrity of the ocean space deemed to be the "high seas."<sup>56</sup>

This led to the establishment of a thirty-five member Ad Hoc Committee on the Peaceful Uses of the Sea-Bed Beyond the Limits of National Jurisdiction.<sup>57</sup> Pardo warned that to permit occupation of the seabed under the high seas on a first-come, first-serve basis would result in the developed nations taking all to the exclusion of the developing states. The language of Pardo's proposal focused attention on the problems of exploitation of lands under the open sea: it stirred debates in the United Nations General Assembly, intensified oceanographic studies, and produced such intense deliberation by national and international agencies that the Ad Hoc Committee was soon made a permanent committee of the General Assembly.<sup>58</sup> The Committee has worked from the basic realization that accepted extension of national jurisdiction at sea for one purpose tends to expand to become jurisdiction for other and all purposes.<sup>59</sup> Thus, the imperative for grappling with the juridical issue of what entities or bodies should regulate rights of exploitation of such resources as oil is evident. In recognition of the need for timely action, a number of General Assembly Resolutions embracing Pardo's concepts of reservation of the sea-bed, ocean floor, and subsoil resources beyond the limits of national jurisdiction for the benefit of mankind as a whole and for establishment of a regime in pursuit of such goals have been declared.<sup>60</sup>

Various nationals have also offered proposals: Senator Claiborne Pell of the United States emphasized concern for maintaining the seas as the "common heritage of mankind" and submitted a comprehensive treaty regulating the exploration and exploitation of ocean spaces advocating enforcement of such treaty by the United Nations. Most writings in the

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<sup>55</sup>"Proposal for a Declaration and Treaty Reserving the Sea-Bed and Ocean Floor Beyond the Territorial Limits of National Jurisdiction for Peaceful Purposes and Use in the Interests of Mankind," U.N. Doc. A/6695 (1967).

<sup>56</sup>Pardo 135.

<sup>57</sup>G.A. Res. 2340, U.N. Doc. A/Res/2340 (1967).

<sup>58</sup>G.A. Res. 2467, U.N. Doc. A/Res. 2467 (1969).

<sup>59</sup>See supra note 23 at 508.

<sup>60</sup>G.A. Res. 2 (1968); G.A. Res. 2602 F (1969).

area evince a consensus regarding these sea areas and their resources as the "common heritage of mankind," and it is the position of this writer that such is the principle under which exploration and exploitation of the high seas should be conducted. The traditional freedom of the seas concept, entailing absolute freedom of use and exploitation, is obsolete in view of the exhaustible nature of resources such as petroleum, the inequity of denying a share in such resources to nations presently unable to retrieve them, and the international consequences of pollution damage to the seas from oil production sources.<sup>61</sup> Thus, rather than the principle of freedom of the seas serving as justification for unlimited exploitation, the better state of affairs would be for regulations to be formulated and effectuated to control that exploitation which would have the concomitant effect of determining the scope of that time-honored principle.

In 1970 the General Assembly issued a "Declaration of Principles Governing the Sea-Bed and the Ocean Floor and the Subsoil Thereof, Beyond the Limits of National Jurisdiction,"<sup>62</sup> which received 108 favorable votes with none against and fourteen abstentions. It was widely acclaimed for its affirmation of three principles:

1. That the resources of the high seas are the common heritage of mankind,
2. That the high seas shall not be subject to appropriation by any means by any State or person; thus, no sovereignty rights may be exercised over it.
3. That an international regime is to be established for regulation of exploration and exploitation of the ocean space under the high seas.<sup>63</sup>

As the Declaration was couched in mandatory terms and adopted without formal dissent, it has a "quasi-legal" character achieved through the bargaining and compromise process from which it evolved.<sup>64</sup> Now, as a growing number of nations are extending their boundaries over the continental shelf and to the slope beyond, and a few claiming jurisdiction over zones extending 200 miles from their coast, the enunciation of these principles by the General Assembly is a positive and hopeful step towards a sort of international agreement. It is true that a Declaration of Principles binds no one,<sup>65</sup> but the shared values it embodies will influence the behavior of nations even before the creation of an international regime.<sup>66</sup>

There have evolved some principal areas of agreement as the Subcommittee on the International Regime of the previously named General Assembly Committee has done preparatory work for the next Conference:

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<sup>61</sup>Garcia-Amador 212.

<sup>62</sup>G.A. Res. 2749 (1970).

<sup>63</sup>Kirgis, Technological Challenge to the Shared Environment: United States Practice, 66 Am. J. Int'l L. 304 (1972) [hereinafter cited as Kirgis].

<sup>64</sup>Id.

<sup>65</sup>Friedman, Selden Redivivus?--Towards a Partitioning of the Seas, 65 Am. J. Int'l L. 757 (1971) [hereinafter cited as Friedman].

<sup>66</sup>Kirgis 304.

1. The seabed beyond national jurisdiction is the common heritage of mankind and not subject to appropriation by sovereign claims.
2. The seabed should be reserved for peaceful purposes.
3. Exploration and exploitation are to be carried out for the benefit of mankind as a whole.
4. The area is to be open to scientific research.
5. States are to cooperate in pollution abatement.
6. Disputes are to be settled in accordance with Article 33 of the United Nations Charter.<sup>67</sup>

The vague and controversial areas are primarily those of delineation of the "high seas," determination of interim controls prior to the establishment of an international regime, and the nature and establishment of the regime and its operational and enforcement machinery. A Moratorium Resolution of the Sea-Bed Committee in 1969 called for all persons and states to refrain from exploiting the seabed or ocean floor beyond the limits of national jurisdiction pending the establishment of an international regime.<sup>68</sup> The resolution is without binding effect. The United States' position in interim developments, for one, is contra to the Resolution; President Nixon expressed opposition to the halting of exploration and exploitation during negotiations and called for any future regime to respect investments made in the interim.<sup>69</sup>

Numerous proposals for a high seas regime have been promulgated, and as the United States Draft Convention on the International Sea-Bed Area of August, 1970,<sup>70</sup> was a well considered, though tentative, working paper, its suggestions will be examined as an illustration of one possible type regime. It undertook to establish a comprehensive petroleum and mining code for the sea-bed beyond 200 metres,<sup>71</sup> proposing:

1. The establishment of an International Seabed Resource Authority.
2. Division of ocean space into three zones
  - A. a "national" zone to end at the 200 metre isobath or the 12 mile territorial sea, whichever is broader.
  - B. a "trusteeship" zone administered by the coastal state, with revenues from exploitation therefrom to be shared between the coastal state and the International Sea-Bed Resources Authority.
  - C. the deep sea-bed itself, to be administered by the International Authority.<sup>72</sup>

<sup>67</sup>Report of the Fifty-Fourth Conference, THE INTERNATIONAL LAW ASSOCIATION 833 (1970).

<sup>68</sup>Moratorium Resolution, G.A. Res. 2574 D (1969).

<sup>69</sup>Speech by Richard M. Nixon reported in 9 Int'l Legal Materials 809 (1970).

<sup>70</sup>U.S. Draft Convention, U.N. Doc. A/A.C. 138/25 (1970).

<sup>71</sup>Stone, The U.S. Draft Convention on the International Sea-Bed Area, 45

Tul. L. Rev. 527 (1971).

<sup>72</sup>U.N. Doc. A/A.C. 138/25, (1970).

Implicit in this proposal is a renunciation by states of absolute sovereign rights in the sea-bed under the high seas beyond a water depth of 200 metres.<sup>73</sup> Other proposals are also under consideration by the United Nations Committee, now expanded to 86 countries. The British Convention suggests an international regime to govern the entire area beyond immediate national jurisdiction. Other proposals vary widely but the majority do contain some sort of an International Sea-Bed Authority.<sup>74</sup> Generally, only the landlocked states favor a strong sea-bed authority with extensive jurisdiction, and they naturally favor revenue-sharing.<sup>75</sup> Four approaches to the regime problem are dominant:

1. An international regime, under the aegis of the United Nations;
2. An international-regional regime;
3. A regional regime;
4. National control over shore areas.<sup>76</sup>

Thus, while the international legal community struggles to come to terms with the complex problems of a major modification of the unwieldy body of sea law, technological capabilities already exist to exploit lands of an unknown juridical status: the high seas. As economic barriers against commercial exploitation fall, resolution of the legal and political problems of regulation of resource development and peaceful international accord on the high seas becomes more important. At present, no law prohibits the exploitation of resources beneath the high seas,<sup>77</sup> and conflicts seem sure to ensue as man delves further and deeper into the sea in his quest for petroleum. Serious upheavals in Chile have forced the cancellation of the 1974 Conference on the Law of the Sea, so resolution of these pressing problems may be further complicated. As to the current status of international regulation of petroleum exploration and exploitation on the high seas, the conclusion must be that it is extremely nebulous and controversial. As soon as it is economically feasible to exploit such resources, it is likely that assertions of either "freedom of the high seas" or the exploitability rule of the 1958 Geneva Convention on the Continental Shelf will be espoused in justification of production endeavors. In the absence of further international action on the subject, the dream of the "common heritage of mankind" will yield to the might and capabilities of technologically developed nations, to the exclusion of all others and with the added characteristic of conflict and controversy even among those developed states.

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<sup>73</sup>Id.

<sup>74</sup>Peaceful Uses of the Sea-Bed, U.N. Monthly Chronicle, April, 1972 at 40.

<sup>75</sup>Friedman 768.

<sup>76</sup>Jones 107.

<sup>77</sup>Browning 8.

INTERNATIONAL COOPERATION  
FOR THE  
CONTROL OF OIL POLLUTION

Gregory E. Smith

Concern over the pollution of the seas by oil is not new. In 1926, the United States sponsored the Conference on Oil Pollution of Navigable Waters in Washington, D.C., and called for a convention with strong provisions dealing with the problem of oil being spilled into the ocean. The Conference produced instead a weak convention which was never ratified by enough states to bring it into force.<sup>1</sup> Two years before the Conference, Congress had enacted the original Oil Pollution Act,<sup>2</sup> but it was even earlier that states first became concerned with the protection in general of their waterways.<sup>3</sup>

In recent years that concern has grown to nearly crisis proportions, especially after the Torrey Canyon and Ocean Eagle shipping disasters<sup>4</sup> and the blowout of the well off the Santa Barbara coast.<sup>5</sup> Concern has also increased because of the increase in size of the tankers being used to transport oil and the plans calling for ever larger ships. While plans are being made for tankers with a capacity of 1,000,000 or more dead weight tons,<sup>6</sup> it already takes ships such as the Universe Ireland, with a 312,000 dead weight ton capacity, three miles to stop with both propellers full astern.<sup>7</sup>

These concerns have expressed themselves through a proliferation of domestic legislation, speculation and reassessment of customary international law, and the formation of international treaties, agreements and organizations. Given the jurisdictional requirements in international law generally, the limitations of domestic approaches to the problem are readily apparent.

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<sup>1</sup>Mendelsohn, Maritime Liability for Oil Pollution, 38 Geo. Wash. L. Rev. 1, 20 (1969) [hereinafter cited as Mendelsohn].

<sup>2</sup>W. ROSS, OIL POLLUTION AS AN INTERNATIONAL PROBLEM 73 (1973) [hereinafter cited as Ross].

<sup>3</sup>The United States enacted the New York Harbor Act in 1886, and the 1899 Refuse Act, and Canada produced the Navigable Waters Protection Act in 1886. Ross 73.

<sup>4</sup>See generally, Ludwigson, Oil Pollution at Sea, in OIL POLLUTION: PROBLEMS AND POLICIES 1 (S. Degler ed. 1969) [hereinafter cited as Ludwigson].

<sup>5</sup>See generally, Holmes, The Santa Barbara Oil Spill, in OIL ON THE SEA 15-28 (D. Hoult ed. 1969).

<sup>6</sup>N. WULF, CONTIGUOUS ZONES FOR POLLUTION CONTROL: AN APPRAISAL UNDER INTERNATIONAL LAW 8 (1971) [hereinafter cited as Wulf].

<sup>7</sup>Ludwigson 8.



Customary international law may appear promising at first blush:

Two generalizations can be made concerning oil pollution:

- (1) It is illegal almost everywhere.
- (2) A polluter, if caught, is liable for all costs and damages resulting from his spill.<sup>8</sup>

This position is supported by other writers,<sup>9</sup> but they are quick to point out deficiencies which preclude ultimate reliance upon anything other than a more positivistic approach.

With such a concept, the key to international pollution control is that there is only a breach of international law when there is injury to the beneficial uses of the sea. Thus pollution of the seas by vessels of another state would not be a breach of international law unless some other use were injured. In addition, jurisdiction over activities on the high seas and prosecution is vested in the state of the flag...Flag states appreciate the relaxed shipping rules and are reluctant to rigidly enforce pollution violations, especially if such enforcement would threaten revenue derived from shipping sources.<sup>10</sup>

The focus of this paper is upon efforts in the international community to deal with this problem through cooperation and agreement. A review of the present machinery is the first task followed by an assessment of the efficiency and success of that machinery and, finally, examination of some recommendations for improvement made by experts.

The problem itself is not hard to define. Basically it is the discharge of oil upon or into the oceans and seas of the world. These discharges have three primary sources. The first, exemplified by the Torrey Canyon and other such incidents, is the massive discharge resulting from collisions and groundings of oil tankers.

The second, although actually of the same source, is of a different nature. It is the intentional discharge of small amounts of oil or oil mixtures from the tanks or bilges of the ship for cleaning or ballast purposes. For example, when a large tanker delivers the oil to its destination, it must then take on water in order to keep the ship from riding so high as to become non-maneuverable. When it is ready to take on another cargo of oil, the water must be discharged, and it takes with it the residue of the oil from the last haul.<sup>11</sup>

The third major source of oil pollution is from off-shore drilling or other off-shore attempts at exploitation of undersea oil reserves. The Santa Barbara incident is an example of this type of pollution.

By far the most important treaty to date is the 1954 International

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<sup>8</sup>Id.

<sup>9</sup>Ross 158.

<sup>10</sup>Id. at 158-59.

<sup>11</sup>See generally Wulf 9-11.

Convention for the Prevention of Pollution of the Sea by Oil, concluded in London on May 12th of that year and amended in 1962 and again in 1969.<sup>12</sup> The 1969 amendments are not yet in force.

The 1954 and 1962 Conventions basically seek to eliminate as far as possible all discharges of oil within certain prohibited zones. These zones include any area within 50 miles of the nearest land, and in certain cases there are specialized zones defined as 100 or even 150 miles from land or as lines connecting certain coordinates. This prohibition is not applicable to non-tankers if there are no facilities at the port of destination to receive bilge and other discharge from non-tankers.<sup>13</sup>

The 1969 amendments would change the approach for both tankers and non-tankers. For the former, all discharges of oil are prohibited except under the following conditions:<sup>14</sup> (1) (a) The tanker is en route AND (b) The instantaneous rate of discharge<sup>15</sup> does not exceed 60 litres per mile, AND (c) The total quantity on a ballast voyage does not exceed 1/15,000 of total capacity, AND (d) The discharge is more than 50 miles from land, OR (2) The discharge is from ballast and is such that, because of cleaning of the tanks, it would produce no visible traces of oil on the surface of clean calm water on a clear day with the tanker standing stationary, OR (3) The discharge is from machinery space bilges in which case the provisions for non-tanker restrictions apply.

For non-tankers discharge is prohibited except when:<sup>16</sup> (1) The ship is en route, AND (2) The instantaneous rate of discharge of oil content does not exceed 60 litres per mile, AND (3) The oil content of discharge is less than 100 parts per 1,000,000 parts of the mixture, AND (4) The discharge is made as far as practicable from the nearest land.

Under the 1962 amendments, Article II of the Convention (to be unchanged by the 1969 amendments) makes its provisions applicable to all ships registered with a member state and all unregistered ships of the nationality of a member state except: (a) tankers under 150 tons gross tonnage and non-tankers of under 500 tons gross tonnage, provided that each state party to the Convention applies the requirements of the Convention to those ships insofar as is reasonable and practicable; (b) ships employed on whaling expeditions; (c) ships operating in the Great Lakes to the lower exit of the St. Lambert Lock at Montreal; (d) naval and naval auxiliary ships but with the same proviso as in (a).

Article IV makes further exceptions to the prohibition on discharge whenever: (1) The discharge is to secure the safety of the ship, prevent damage to a ship or cargo, or save life at sea; OR (2) The discharge is caused by damage to the ship or unavoidable leakage, if all reasonable precautions are taken to prevent or minimize the escape; OR (3) The discharge is of an oily mixture with only lubricating oil which

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<sup>12</sup>For the 1954 Convention see 12 U.S.T. 2989, T.I.A.S. 4900, 327 U.N.T.S. 3; for the 1962 amendments see 17 U.S.T. 1523, T.I.A.S. 6109, 600 U.N.T.S. 332; for the 1969 amendments see 9 Int'l Legal Materials 1 (1970).

<sup>13</sup>Art. III, 17 U.S.T. 1523, T.I.A.S. 6109, 600 U.N.T.S. 332.

<sup>14</sup>Art. III, 9 Int'l Legal Materials 1 (1970).

<sup>15</sup>Defined in Article I as the rate of discharge in litres per hour at any instant divided by the speed of the ship in knots at the same instant.

<sup>16</sup>Art. III, 9 Int'l Legal Materials 1 (1970).

has drained or leaked from machinery spaces. The 1969 amendments would eliminate the third exception.

An Oil Record Book is required to be kept by all ships covered by the Convention and entries are to be made giving the circumstances of any oil discharge. In addition, under the 1969 amendments, tankers are to make entries whenever the ship engages in loading of oil cargo, ballasting of cargo tanks, discharge of dirty ballast, discharge of water from slop-tanks, disposal of residues and discharge overboard of bilge water containing oil which has accumulated in machinery spaces while in port.<sup>17</sup> For non-tankers, entries are to be made whenever the ship engages in ballasting or cleaning of bunker fuel tanks, discharge of dirty ballasts or cleaning water from bunker fuel tanks, disposal of residues and discharge overboard of bilge water containing oil which has accumulated in machinery spaces while in port.<sup>18</sup>

Articles VI and X comprise the enforcement provisions of the Convention. Article VI prohibits the contravention of Articles III (the discharge prohibition) and IX (the requirements for the Oil Record Book) and mandates that the punishment, to be carried out by the state of the flag, be of such severity as to discourage such discharge and at least equal to the punishment imposed by the flag state for the same offenses within its territorial waters. The 1969 amendments would make no changes in these provisions. Article X, which would remain substantially the same under the 1969 amendments, provides the procedure whereby a party to the Convention may provide the state of registration of a ship with written evidence that the ship has violated the Convention. The government so informed must investigate, may ask for further particulars from the informing state, and if the evidence warrants, must cause proceedings to begin against the owner or master of the ship. It then must notify the informing state and the Intergovernmental Maritime Consultative Organization<sup>19</sup> that such proceedings have been initiated.

There is a requirement in Article VII that ships must be fitted so as to prevent the escape of fuel oil or heavy diesel oil into bilges unless discharge from the bilges can be prevented. The carrying of water ballast in oil fuel tanks is to be avoided if possible. The 1969 amendments expand this article to apply to all kinds of oil.

Finally, under Article VIII, each state must promote facilities for reception of oily mixtures as would remain for disposal after the bulk of the water had been separated from the mixture. There would be no change in this provision under the 1969 amendments.

The 1958 Geneva Conference produced three conventions which have at least some bearing on the problem of oil pollution. The first of these is the Convention on the High Seas.<sup>20</sup> Article 24 provides that

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<sup>17</sup>Id., Art. IX.

<sup>18</sup>Id.

<sup>19</sup>See note 28 and accompanying text, infra.

<sup>20</sup>13 U.S.T. 2312, T.I.A.S. 5200, 450 U.N.T.S. 82.

Every state shall draw up regulations to prevent pollution of the seas by the discharge of oil from ship or pipelines or resulting from the exploitation and exploration of the sea bed and its subsoil, taking into account existing treaty provisions on the subject.

The second is the Convention on the Continental Shelf,<sup>21</sup> of which Article 5(1) states that exploration or exploitation of the shelf "must not result in any unjustifiable interference with navigation, fishing or with the conservation of the living resources of the sea." Article 5(7) provides that within "safety zones" of up to 500 meters around an installation such as an off-shore oil well, "[T]he Coastal State is obliged to undertake all appropriate measures for the protection of the living resources of the sea from harmful agents."

Article 24 of the Convention on the Territorial Sea and the Contiguous Zone<sup>22</sup> stipulates:

1. In a zone of the high seas contiguous to its territorial sea, the coastal state may exercise the control necessary to:
  - (a) Prevent infringement of its customs, fiscal, immigration or sanitary regulations within its territory or territorial sea.
  - (b) Punish infringement of the above regulations committed within its territory or territorial sea.
2. The contiguous zone may not extend beyond twelve miles from the base line from which the breadth of the territorial sea is measured.

Two other important conventions were the result of a conference held in Brussels in 1969. They are the International Convention on Civil Liability for Oil Pollution Damage (The Civil Liability Convention) and the International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (The Public Law Convention). The Civil Liability Convention<sup>23</sup> applies to all ships actually engaged in carrying oil as its cargo and imposes strict liability upon those ships for damages as a result of oil spills as well as costs of measures taken by anyone for the prevention or minimization of damage. Recovery can be avoided only when the cause of the damage was an act of war or act of God, the act of a third party done with intent to cause damage, or the act of a third party responsible for the maintenance of navigational aids in the exercise of that function. The liability is limited to \$134 per ton of the ship's tonnage or \$14,000,000, whichever is less, but only if the ship owner is not at fault and if he establishes a fund in the state where the injury took place for the total amount of his liability. Each state is required to ensure that the ships under its flag have the requisite financial responsibility and, if the ship is carrying over 2,000 tons of oil, it must be insured.

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<sup>21</sup>15 U.S.T. 471, T.I.A.S. 5578, 499 U.N.T.S. 311.

<sup>22</sup>15 U.S.T. 1606, T.I.A.S. 5639, 516 U.N.T.S. 205.

<sup>23</sup>9 Int'l Legal Materials 45 (1970).

The Public Law Convention<sup>24</sup> provides that, in cases of maritime casualties or acts related thereto, coastal states may take action to "prevent, mitigate, or eliminate grave and imminent danger to their coastline or related interests from pollution or the threat of pollution of the sea by oil." This right to take action on the high seas, however, is very limited. There can be no action against warships or state-owned vessels in non-commercial service. Action against other ships can be taken only upon consultation with other states affected by the casualty (especially the flag state), notice of proposed measures, and consultation with independent experts. These requisites may be dispensed with in an extreme emergency, but the action must be proportionate to the threatened or actual damage and must be taken so as to avoid risk of human life and interference with repatriation of the crew. Actions taken in violation of the Convention result in potential liability upon the coastal state for the over-reaction.

The Civil Liability Convention was supplemented in 1971 with the International Convention on the Establishment of an International Fund for Oil Pollution Damage.<sup>25</sup> This Convention sets up a fund, initially of \$5,000,000, from contributions from those states receiving more than 150,000 tons of oil per year, to be used to compensate victims of oil spills. Compensation is still limited, however, generally to \$30,000,000, but amounts collected under the Civil Liability Convention are included within that limit. The fund also indemnifies the shipowner for liability paid under the Civil Liability Convention to the extent that the payment was over \$100 per ton or \$8,333,333 but less than \$133 per ton or \$14,000,000, whichever is less. Payment is still avoided if the cause was an act of war or if the ship was government owned but acts of God are covered.<sup>26</sup>

The Comité Maritime International was established in 1897 and potentially could contribute to the alleviation of the oil pollution problem but because its members are generally economically developed "flag states," the conventions it recommends are seldom ratified by the requisite number of states.<sup>27</sup>

The Intergovernmental Maritime Consultative Organization was established by convention on March 6, 1948.<sup>28</sup> Its functions, under Article III of that convention, are to make recommendations, draft conventions, convene conferences, and provide the machinery for consultation and exchange of information. Its field of operation is anything relating to technical matters affecting shipping, but it is strictly consultative and advisory. Being a specialized agency of the United Nations, it also considers matters referred to it by the General Assembly, and perhaps most importantly, it administers the 1954 and 1962 Conventions for the Prevention of Pollution of the Sea by Oil.<sup>29</sup>

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<sup>24</sup>Id. at 25.

<sup>25</sup>Ross 169.

<sup>26</sup>Id. at 169-70.

<sup>27</sup>Id. at 159-60.

<sup>28</sup>9 U.S.T. 621, T.I.A.S. 4044, 289 U.N.T.S. 3.

<sup>29</sup>Ross 161.

The treaties just summarized do not, of course, exhaust the list of all those bearing on the problem of oil pollution. There are also regional agreements such as the Agreement Concerning Pollution of the North Sea by Oil concluded in 1969 between Belgium, Denmark, France, the Federal Republic of Germany, the Netherlands, Norway, Sweden, and the United Kingdom.<sup>30</sup> In addition, there are bilateral treaties, such as the Boundary Waters Treaty of 1909 between the United States and Great Britain,<sup>31</sup> which bear upon the problem of pollution in an international setting. A work prepared for the use of the Committee on Public Works of the United States Senate reports 63 multilateral treaties and 17 bilateral treaties bearing on this subject.<sup>32</sup> Moreover, there are significant international agreements between businesses which have a great bearing upon recovery by both individuals and governments in cases of major oil pollution damage. The most significant of these is the Tanker Owners Voluntary Agreement Concerning Liability for Oil Pollution Damage, commonly referred to as TOVALOP.<sup>33</sup>

TOVALOP provides insurance for the member owners to pay damages to governments for the costs of the oil spill cleanup or, in case the owner cleans up the spill, to reimburse him. The owner is liable unless he can prove he was not negligent, but there is a maximum liability of \$100 per gross registered ton of the tanker or \$10,000,000, whichever is less. If a government chooses to recover on the basis of this agreement, then it is precluded from pursuing recovery by any other means.

Since TOVALOP was effective prior to the Civil Liability Convention, an agreement amending TOVALOP was necessary in order to take the new Convention into account. These 1971 amendments<sup>34</sup> make recovery available to private individuals, corporations, and political subdivisions as well as to national governments. The maximum liability was adjusted to \$30,000,000 less the sum of the following: (1) the owner's maximum liability under TOVALOP, (2) the amount of expenditures for which the owner was entitled to receive reimbursement for cleanup expenses as provided in TOVALOP, (3) the maximum liability for the owner with respect to such damage under applicable law, statutes, regulations, or conventions, (4) the maximum amount that persons sustaining pollution damage were entitled to receive from other sources.

These various international agreements have been the source of much hope for alleviation of the problem of oil pollution of the seas.

The trend obviously is toward broadening of prohibition zones and narrowing of prohibition exceptions of the 1954 convention, and the result as indicated by the resolution [of the 1962 Convention which favored "complete avoidance as soon as practicable of discharge of persistent oils into the sea"] may be one of absolute prohibition.<sup>35</sup>

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<sup>30</sup>Id. at 172.

<sup>31</sup>36 Stat. 2448, T.S. 548.

<sup>32</sup>C. CHRISTOL, OIL POLLUTION OF THE MARINE ENVIRONMENT --A LEGAL BIBLIOGRAPHY 79-86 (1971).

<sup>33</sup>8 Int'l Legal Materials 497 (19 ).

<sup>34</sup>10 Int'l Legal Materials 137 (197 ).

<sup>35</sup>Shutler, Pollution of the Sea by Oil, 7 Houston L. Rev. 315, 323, 423 (1970) [hereinafter cited as Shutler].

The majority of writers, however, have not given in to false hopes, and major criticisms are leveled against both the multilateral approach in general and the specific treaties already enacted.

Multilateral attempts to prevent and control international oil pollution have not had any more success than the domestic responses....Like the domestic actions, international regulations focus on prohibiting discharges and establishing sanctions. Such regulations are far from perfect: they do not ensure full compensation or global coverage; there is lack of preventive measures; the recognition of the public's right to a pollution free environment is nonexistent; and there are no contingency plans for dealing with spills on the high seas. Prosecution involves long and tedious procedures and rests with those states having the least interest in pollution control.<sup>36</sup>

The 1954 Treaty with the 1962 amendments has been deemed deficient because of a lack of meaningful enforcement procedures.<sup>37</sup> Moreover, even if the 1969 amendments are ratified by enough states to make them enforceable, the "basic criticisms still apply: surveillance is weak; reporting is left to the master of the ship; and penalties are not specified and are left to the state of flag."<sup>38</sup>

Deficiency in coverage of these conventions is evident. The Geneva Convention on the High Seas contained "the first reference in an international document to sources of pollution of the sea other than ships, e.g., offshore drilling."<sup>39</sup>

The recommendations for improvement of the existing regime have taken various forms. As to off-shore drilling, it has been suggested that there be liability upon both private companies and licensing governments with "an international agency to enforce regulations and award compensation for pollution damage."<sup>40</sup> Another writer has suggested that "the practical recourse to nations facing potential pollution problems is to explore the possibility of bilateral arrangements for prevention and control."<sup>41</sup>

Basically, however, recommendations have focused on two main areas: that of prevention of disasters and that of financial responsibility to deal with disasters when they do occur. As to the latter, the call is for a new convention<sup>42</sup> which should (1) make the carrier (shipowner or

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<sup>36</sup>Ross 172-73.

<sup>37</sup>Edwards, Oil Pollution and the Law, in OIL POLLUTION OF THE SEA 295 (1968) [hereinafter cited as Edwards].

<sup>38</sup>Ross 170.

<sup>39</sup>Shutler 431.

<sup>40</sup>Note, Continental Shelf Oil Disasters: Challenge to International Pollution Control, 55 Cornell L. Rev. 113, 127-28 (1969).

<sup>41</sup>Ross 173.

<sup>42</sup>Edwards 27-30.

charterer) liable for the risks imposed by the convention, (2) impose either absolute liability or liability based on ordinary negligence, (3) impose liability for all pollution in all forms of discharge with a limitation "large enough and flexible enough to cover realistically the costs of pollution damage," (4) govern pollution on the high seas, and, if effective protection for the coastal states can be incorporated, pollution of inland waters and (5) require insurance or the posting of bond.

In addition to technical improvements which can be made to prevent spillage of oil from shipping activities,

It is recommended that efforts be pursued to strengthen and extend the oil pollution control and related aspects of International Conventions and Treaties.

Specifically:

1. The United States should press for early adoption, through IMCO and other suitable channels, of these international safeguards:
  - (a) Establishment and uniform use of recommended sea lanes.
  - (b) Expeditionary reporting by the ship's master to the affected coastal nation and to the flag state of any spill in the international prohibited zones.
  - (c) Basic safety standards for all vessels transporting cargoes of particular hazard, including oil.
  - (d) A requirement that all vessels on international voyages carry adequate up-to-date navigational information for their intended voyage.
  - (e) Improved standards for ship lookouts.
2. The U.S. should endorse and support international studies of the feasibility of shore guidance systems for ships.<sup>43</sup>

These recommendations for improved methods of dealing with the problems of oil pollution are certainly desirable in view of the long-term framework from which the problem should be considered. But the hopes expressed earlier should not be discounted completely. Not only are progressive steps being taken to alleviate this specific problem, the very fact that strenuous efforts are being made for pollution control in general in an international setting gives rise to some optimism. Although it is true that historically man has been at war with nature, it has never before been necessary for him to depend for his survival upon cooperation among all members of the world community. The war with nature has changed. During his efforts to control and harness nature, man still had time to fight against himself. Now that the war has become a fight to save nature he is finding that only through cooperation with all of his fellows can he be successful.

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<sup>43</sup>Secretary of the Interior and Secretary of Transportation, Oil Pollution: A Report to the President, in OIL POLLUTION: PROBLEMS AND POLICIES 101-02 (1969).



THE LEGAL ATTITUDES OF THE PEOPLE'S REPUBLIC OF CHINA  
TOWARD OFF-SHORE OIL EXPLORATION AND  
EXPLOITATION

Jane E. Rankin

I. Introduction

This paper will focus on the attitude of the People's Republic of China (PRC) toward its continental shelf and territorial sea in the context of its claim to the Senkaku Islands and the surrounding seabed, including its oil deposits. First, the history of the Islands and their rise in importance in recent years will be considered. Secondly, the Chinese position will be recounted and examined. Among the questions to be probed are the extent to which the Chinese rely on international law and precedent and the role foreign policy and ideological considerations play in the Chinese declarations.

II. Background of the Islands and the Oil Discoveries

A. History

The Tiao-yu-t'ai Islands (as they are known in Chinese) or the Senkaku Islands (their Japanese name) consist of "five uninhabited islets and three barren rocks," located 120 nautical miles northeast of Taiwan (ROC), 200 nautical miles west of Okinawa and 351 nautical miles east of the PRC.<sup>1</sup> The largest islet is only two miles long and less than one mile wide, jutting out 360 meters above sea level.<sup>2</sup>

The oldest existing reference to the Senkakus can be found in Chinese navigation records of 1403. Apparently, the Islands provided a charting aid for the Chinese on their way from China to the ancient Kingdom of the Ryukyu Islands (which include Okinawa).<sup>3</sup> The Senkakus are also mentioned in Ryukyuan annals of 1708 and on Japanese maps of 1783 and 1785. In each of these references, Chinese sovereignty over the Senkakus appears conceded.<sup>4</sup> The Ryukyu kingdom met its demise at the hands of the invading Japanese, who by an Imperial Edict of 1896, allowed the Ryukyus to annex the Senkakus. This annexation was solidified by the treaty following the Japanese victory in the Sino-Japanese War of 1895 by which Taiwan and the surrounding islands were ceded to Japan.<sup>5</sup> The next stage of the Senkakus' history began after World War II when Japan relinquished "all the territories Japan has stolen from the Chinese;..." pursuant to the Cairo Declaration of 1943. On October 24, 1945, China declared Taiwan to be her thirty-fifth province.<sup>6</sup> However, in setting up its administration of the Japanese Islands, the United States expressly included the Senkakus in the territory under its jurisdiction, which territory reverted to Japanese

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<sup>1</sup>Choon-Ho Park, Oil under Troubled Waters: the Northeast Asian Seabed Controversy, 14 Harv. Int'l L.J. 241 (1973) [hereinafter cited as Park].

<sup>2</sup>Note, International Law and the Sino-Japanese Controversy over the Territorial Sovereignty of the Senkaku Islands, 52 B.U.L. Rev. 763 (1972).

<sup>3</sup>Park 249.

<sup>4</sup>Id. at 250.

<sup>5</sup>Id.

<sup>6</sup>Id. at 251.

control on May 15, 1972.<sup>7</sup>

### B. A Mini-Middle East Oilfield?

Despite these several transfers, the Senkakus had gone largely unnoticed until their location put them on top of a possible East China Sea oil field. In 1968 the Committee for Coordination of Joint Prospecting for Mineral Resources in Asian Offshore Areas (CCOP) under the auspices of the United Nations Economic Commission for Asia and the Far East (ECAFE) conducted seismic surveys of the area in October and November.<sup>8</sup> The results showed two areas of oil-rich sediment, one under the Yellow Sea and one under the East China Sea stretching from the southern tip of South Korea to Taiwan.<sup>9</sup> (See Map 1) With some estimates as high as fifteen million tons of undersea oil alone, the reports of the Committee concluded that "a high probability exists that the continental shelf between Japan and Taiwan may be one of the most prolific oil reservoirs in the world."<sup>10</sup>

Responding immediately were three of the four surrounding states--Taiwan, South Korea, and Japan, all heavily dependent on oil imports to fuel their countries.<sup>11</sup> All three made unilateral and overlapping claims to the area and each began selling concessions to their newly claimed territory so that the area resembles a checkerboard.<sup>12</sup> (See Map 2) Of the seventeen concession blocks created, all but four are contested.<sup>13</sup> Not until 1970 did these three contending states set up a liaison committee to coordinate joint exploration of the area.<sup>14</sup> It was following a fruitless meeting by this committee in Seoul in November that the PRC finally issued its first statement on the subject.<sup>15</sup>

### III. The Chinese Attitude

#### A. What the Chinese Have Said

On December 5, 1970, the People's Daily carried a sharply worded condemnation of the liaison committee, accusing it of being supported by United States imperialism. It also claimed that the Senkakus belonged to Taiwan and therefore were an "integral part of China," merely administered as a part of Taiwan while Taiwan was held by the Japanese from 1896 to 1945.<sup>16</sup> Again at the end of December, the People's Daily denounced Japan, South Korea, Taiwan and the United States for their joint exploration attempts and again claimed the Islands and their surrounding seabed, announcing that "we will

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<sup>7</sup>Id. at 255.

<sup>8</sup>52 B.U.L. Rev., supra note 2, at 764.

<sup>9</sup>Comment, The East China Sea: The Role of International Law in the Settlement of Disputes, 1973 Duke L.J. 824.

<sup>10</sup>52 B.U.L. Rev., supra note 2, at 764.

<sup>11</sup>1973 Duke L.J., supra note 9, at 838-42.

<sup>12</sup>Washington Post, April 10, 1971, at 11, col. 7.

<sup>13</sup>Park 225.

<sup>14</sup>New York Times, Dec. 6, 1970, at 32, col. 1.

<sup>15</sup>Washington Post, Dec. 5, 1970, at 1, col. 1.

<sup>16</sup>New York Times, Dec. 6, 1970, at 32, col. 3.

never permit others to put their fingers on them."<sup>17</sup> It is interesting to note that in April 1971 the State Department warned American ships exploring for oil in the East China Sea that they would be on their own if stopped by PRC vessels. Obviously, the United States Government did not want its new detente with the PRC to suffer because of potential disputed oil finds. By mid-April, activities by American ships had almost ceased in the East China Sea.<sup>18</sup>

In May 1971 the Chinese termed "absurd" the Japanese assertion that the Imperial Edict of 1896 placed the Senkakus under Japanese sovereignty.<sup>19</sup> In 1972 and 1973 the Chinese have on several occasions pointedly approved and supported pronouncements by Latin American countries claiming 200 miles of territorial waters.<sup>20</sup> Although the PRC claims only twelve miles of territorial sea, it accepts unilateral extensions beyond that limit by others, as exemplified in the following statement made in the Peking Review.

Geographically, the shallow sea area off the coast of a country is the natural extension of its land territory. Mineral resources here are an integral part of its natural resources. We consider it is in the exercise of the sovereignty of a state to reasonably define, in accordance with their specific conditions and the need for development of their national economies, the scope of their jurisdiction over economic resources beyond their territorial seas, using the names of exclusive economic zone, continental shelf, fishing zone etc. Neighboring countries in a common sea area should equitably allot their limits of jurisdiction through consultation on the basis of equality and mutual respect.<sup>21</sup>

From their United Nations seat the Chinese have continued to support the claims of the developing nations and oppose the maritime "hegemony of the superpowers, the United States and the Soviet Union."<sup>22</sup> In the United Nation Seabed Committee preparing for the 1973 Conference on the Law of the Sea, the Chinese representative has strongly urged that the Convention on the Territorial Sea and Contiguous Zones be renounced as an inequitable limitation on the sovereignty of the developing nations.<sup>23</sup> The PRC has also maintained that ECAFE must promote the independence of the region's nations and that the "superpowers" cease using "the signboard of 'aid' and 'joint exploration' to rob the developing countries of their natural resources..."<sup>24</sup>

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<sup>17</sup>New York Times, Dec. 30, 1970, at 5, col. 1.

<sup>18</sup>Park 232-33.

<sup>19</sup>Peking Review, May 7, 1971, at 14-15.

<sup>20</sup>New York Times, March 20, 1972, at 13, col. 1.

<sup>21</sup>Peking Review, March 30, 1973, at 9-11.

<sup>22</sup>Peking Review, April 13, 1973, at 13-14.

<sup>23</sup>Id.

<sup>24</sup>Peking Review, April 20, 1973, at 13-14.

## B. Legal and Policy Analysis of the Chinese Position

Two interdependent legal issues exist in this dispute--the territorial status of the Senkakus and the delineation of the continental shelf boundary. In regard to the former, the United States has stated that the inclusion of the Senkakus in its administrative jurisdiction was not meant to and should not prejudice the conflicting claims of any of the nations.<sup>25</sup> In this territorial debate, each side asserts history and international law are on their side. No matter how interesting and important the resolution of these territorial claims is, however, the focus of this paper is on the latter problem of defining the limits of the continental shelf.

Preliminary to a discussion of the Chinese continental shelf policy, it should be mentioned that the PRC in its Declaration Regarding Territorial Waters on September 4, 1958 adopted a twelve mile limit measured from a straight baseline.<sup>26</sup> The timing was definitely related to the Taiwan Straits crisis in which Secretary of State Dulles pledged United States aid in defending Quemoy and Matsu, two islands within twelve miles of the Chinese coast.<sup>27</sup> But apart from this timing consideration, it does appear that the Chinese, though not a party to the 1958 Geneva Convention on the Territorial Sea and Contiguous Zone,<sup>28</sup> did follow the proceedings closely.<sup>29</sup> In fact, the Chinese did point to the recognition by the Geneva Convention of the straight baseline method and also to the opinion of the International Court of Justice in the Anglo-Norwegian Fisheries case.<sup>30</sup> The three criteria set out by the Court for the use of the straight baseline method were: "(1) the baselines must not appreciably depart from the general direction of the coast, (2) the sea areas lying within these lines should be sufficiently linked to land as to be subject to the regime of internal waters, and (3) the economic interest considered in drawing baselines should be peculiar to the region and clearly evidenced by long usage."<sup>31</sup> One author has concluded that the islands within twelve miles of the Chinese coast may be used to connect straight baselines.<sup>32</sup> However, the Chinese have so used all the islands along its coast, (see Map 3) regardless of their distance from the Chinese mainland. Its 1958 Declaration includes "coastal islands on the outer fringe,"<sup>33</sup> some of which are found more than sixty miles off the coast.<sup>34</sup>

The 1958 Declaration makes no reference to the continental shelf; no public statement on the issue was made until December 1970 and even then the term "continental shelf" was not used.<sup>35</sup> However, under the terms of the 1958 Geneva Convention on the Continental Shelf all of the seabed claimed by the PRC qualifies as continental shelf, being less than 200 meters in

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<sup>25</sup>Park 255.

<sup>26</sup>Peking Review, Sept. 9, 1958, at 21.

<sup>27</sup>J. HSIUNG, LAW AND POLICY IN CHINA'S FOREIGN RELATIONS 103-04 (1972) [hereinafter cited as Hsiung].

<sup>28</sup>U. N. Note, Law of the Sea, 14 Harv. Int'l L.J. 556 (1973). See 15 U.S.T. 1606, T.I.A.S. 5693, 514 U.N.T.S. 205.

<sup>29</sup>Hsiung 103.

<sup>30</sup>Tao Ch'eng, Communist China and the Law of the Sea, 63 Am. J. Int'l L. 57 (1969).

<sup>31</sup>Allen & Mitchell, The Legal Status of the Continental Shelf of the East China Sea, 51 Ore. L. Rev. 797 (1971-72) [hereinafter cited as Allen].

<sup>32</sup>Id.

<sup>33</sup>Id. at 798.

<sup>34</sup>Id.

<sup>35</sup>Park 230.

depth. Article Six prescribes the result when two or more states are on opposite sides of the same continental shelf. If they do not agree on a division and no "special circumstances" argue for another boundary, then the boundary is the median line, "every point of which is equidistant from the nearest points of the baselines from which the breadth of the territorial sea of each state is measured."<sup>36</sup> Two practical problems impede the applicability of this Article to solve the boundary issue. The first is the fact that as of March 1973 neither Japan or the PRC were parties to the Convention on the Continental Shelf;<sup>37</sup> the second is the fact that the PRC does not recognize Taiwan or South Korea.<sup>38</sup> Neither of these facts need prove insuperable, but either could provide an easy "out" if the PRC does not wish to reach a multilateral settlement. A legal issue that could sow discord is which islands will form the baselines used to chart the median line between the states. An ideological issue playing a crucial role is the PRC's insistence that Taiwan is part of the PRC and therefore the territorial sea and continental shelf, measured starting at Taiwan, would clearly include the Senkakus.

An article published in 1969 and written by a professor of international law at the National Chengchi University refers specifically to the Convention on the Continental Shelf, stating that when two or more nations claim the same shelf area, the conflict "must be solved by the rules of international law."<sup>39</sup> It is not the median line principle that the author emphasizes, but the principle of natural prolongation of the land territory, pointing especially to the North Sea Continental Shelf cases decided by the International Court of Justice.<sup>40</sup> He lists the following rules and principles that can be deduced from these cases:

- 1) the continental shelf as a natural prolongation of the land territory of the coastal state belongs to the coastal state,
- 2) the term continental shelf includes the seabed and subsoil and also minerals contained in the sea,
- 3) the natural boundary of the continental shelf stops where it meets the deep sea,
- 4) the criterion of the 200 meter isobath may be extended according to the principle of exploitability but should not be extended to the deep sea,
- 5) the equidistance principle for delimiting the continental shelf areas as provided and defined in the Geneva Convention should apply to the parties which ratified the Convention,
- 6) to states which have not accepted the Convention, the "general principles of law recognized by civilized nations" as provided by Article 38 of the Statute of the International Court of Justice should apply.<sup>41</sup>

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<sup>36</sup>Id. at 235. See 15 U.S.T. 471, T.I.A.S. 5578, 499 U.N.T.S. 311.

<sup>37</sup>U.N. Note, Law of the Sea, 14 Harv. Int'l L.J. 556 (1973).

<sup>38</sup>1973 Duke L.J., supra note 9, at 837.

<sup>39</sup>Yi-Ting Chang, Delimitation of the Continental Shelf, The Annals of the Chinese Society of International Law 40 (1969) [hereinafter cited as Chang].

<sup>40</sup>Id. at 42.

<sup>41</sup>Id.

The only quarrel the author has regarding these rules is with number three for he strongly believes that the national jurisdiction of a state should not extend beyond 200 meters no matter what the state's geography.<sup>42</sup> The article concludes that the continental shelf, so limited, should remain under the national jurisdiction of the coastal states and that the deep seabed should be placed under an international agency.<sup>43</sup>

In their later comments in the United Nations, the Chinese have not mentioned limiting the isobath to 200 meters, perhaps because their technology will soon pass that point or because their Latin American friends for the most part have narrow continental shelves that drop off sharply not far from shore. But more importantly, the Chinese have been much cooler on the subject of international control of the deep seabed. That is, the Chinese now seem to consider that beyond 200 miles, the seabed belongs to mankind and its use should be resolved by all nations, but not necessarily by an international regime.<sup>44</sup> After all, the Chinese continental shelf extends from 150 to 360 nautical miles eastward off its coast and only at the edge of this shelf, some 350 miles out, are found the Senkakus.<sup>45</sup> This continental shelf is contiguous to both the Chinese mainland and Taiwan but is separated from the Ryukyus by the Okinawa Trough with a depth of over 2000 meters.<sup>46</sup> These geographical factors help explain why the Chinese have emphasized the natural prolongation principle more than the equidistance principle. On the other hand, Japan, China's main rival for the Senkakus, supports an international regulatory agency which would control all but rather narrow continental shelves of the coastal states and would license all exploration beyond these narrow limits.<sup>47</sup>

#### IV. Conclusion

In looking back over the Chinese response to the issues surrounding the Senkaku Islands controversy, several factors emerge as important: the use of international conventions and legal precedent in pressing its claims over its territorial sea and continental shelf, the non-recognition of Taiwan and the insistence that Taiwan constitutes part of the PRC for political and territorial purposes and the emergence of the PRC as a world power, carefully labeling the United States and the Soviet Union as "superpowers" while reserving for itself the self-appointed leadership of the developing countries. And superimposed over this matrix of factors is the critical world oil shortage. Chinese energy needs are considerably less acute than those of Japan, South Korea, and Taiwan, but the PRC's growth pattern will soon force it to look at the Senkakus more seriously as a source for fulfilling its rising energy needs.<sup>48</sup> It remains to be seen which of these factors will loom largest and whether international law "will provide a vocabulary used to express political and economic pressures, or will help ultimately to shape the resolution of the controversy."<sup>49</sup>

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<sup>42</sup>Id. at 40.

<sup>43</sup>Id. at 45.

<sup>44</sup>Peking Review, Aug. 25, 1972, at 11.

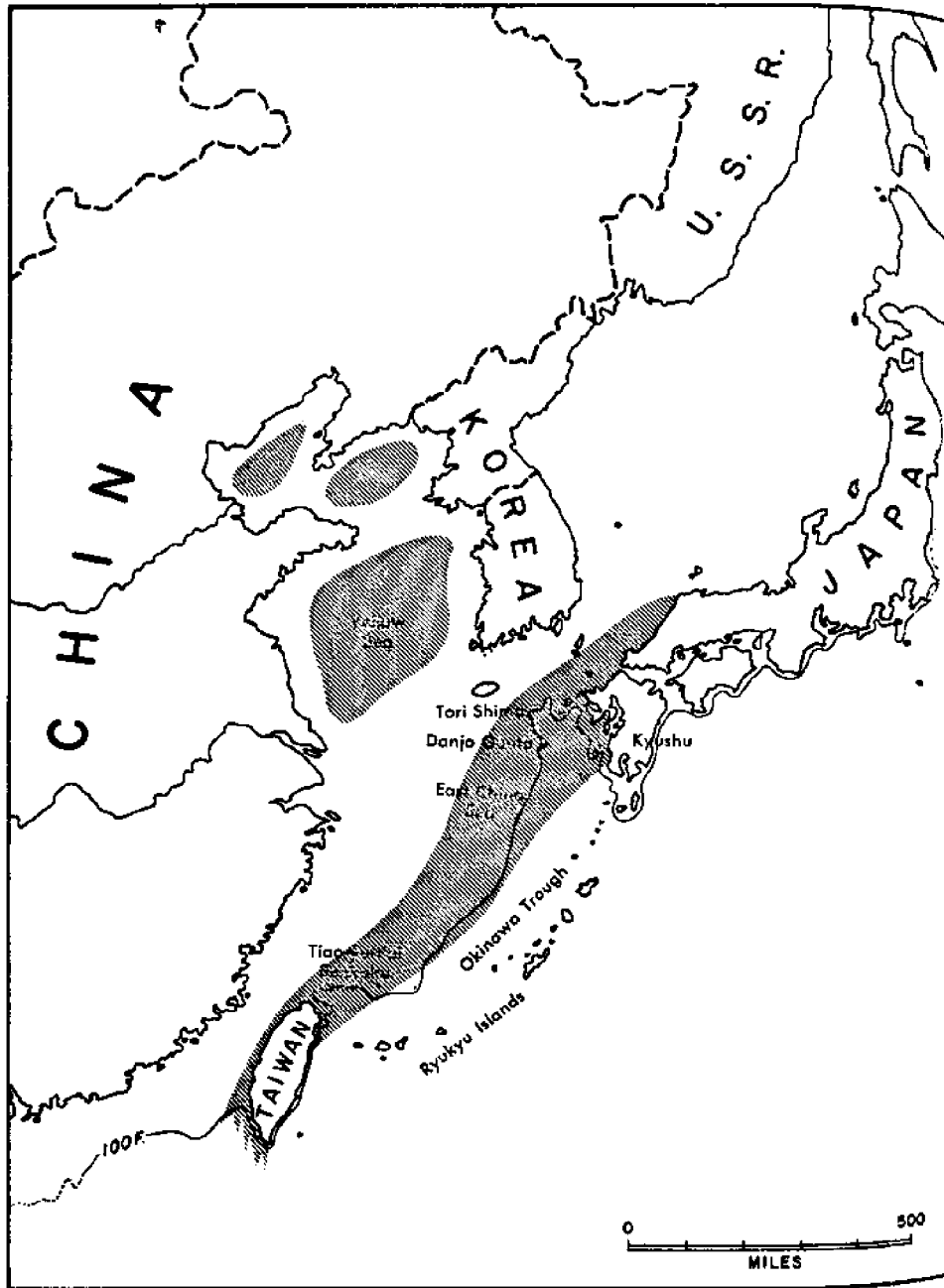
<sup>45</sup>Allen 791.

<sup>46</sup>Park 253.

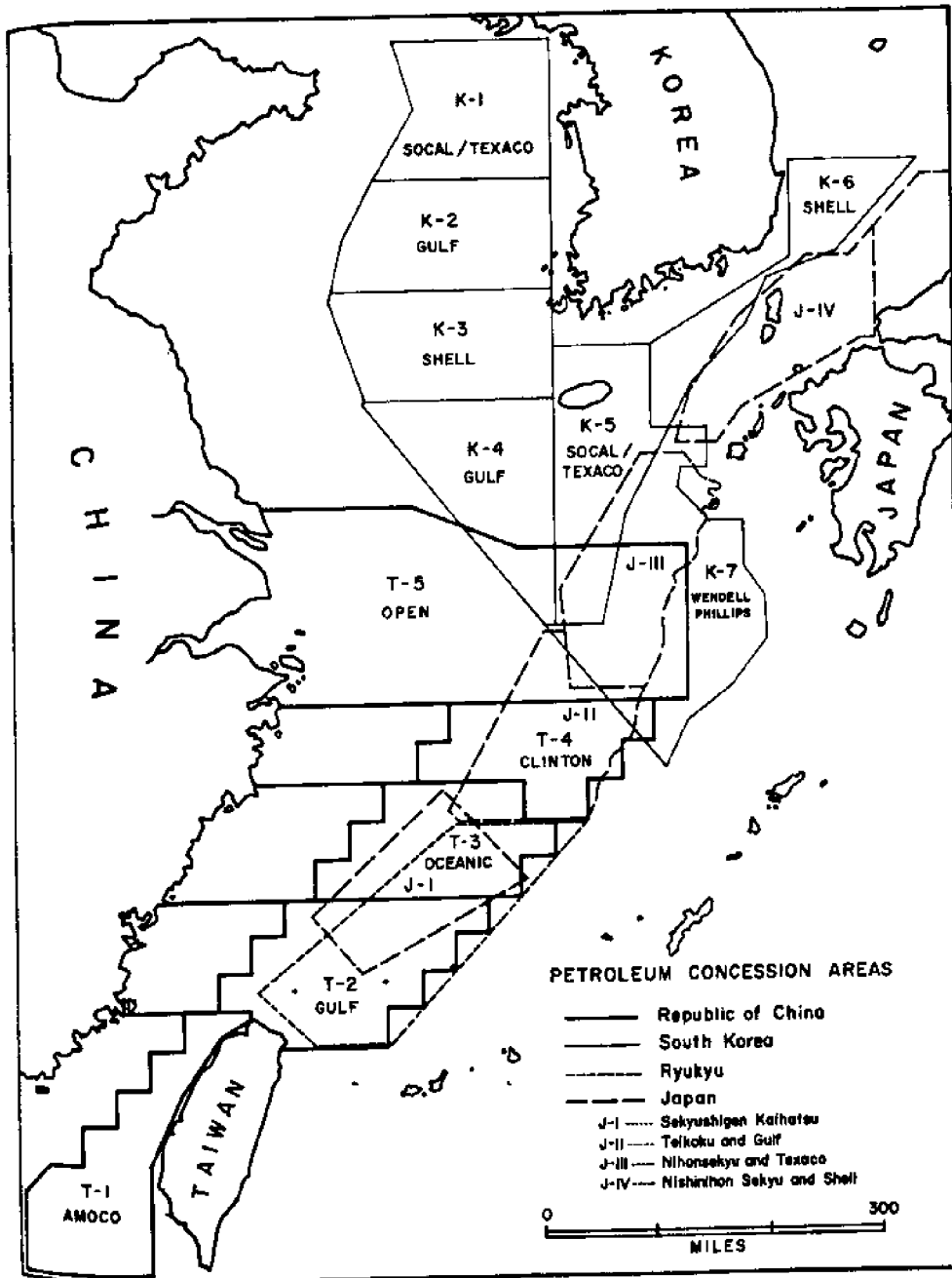
<sup>47</sup>1973 Duke L.J., supra note 9, at 838.

<sup>48</sup>Park 230-32.

<sup>49</sup>Id. at 260.



Map 1: Prospective Oil and Gas Fields beneath the Yellow Sea and East China Sea.  
Based on CCOP/ECAFE 1 TECH. BULL. 17 (1969).



Map 2: Unilateral Claims and Concession Areas.  
Based on U.S. State Dep't, Map No. 261 7-71 (State RGE).



*The Continental Shelf of the East China Sea*

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## MANGANESE NODULES AND INTERNATIONAL LAW

William P. Andrews, Jr.

Manganese is a metal that has become useful only in the past century. It is a small but necessary ingredient in the process of national development as we know it today since it is essential in the production of steel.<sup>1</sup> Most of the manganese the world produces goes to the developed countries. A small amount is used in the production of dry cell batteries and hydroquinone (a photographic developer).

Known world reserves of manganese (dry land) are sufficient to meet world demand until the later 1990's. Since the primary use of manganese is in the production of steel, the contingency of rapid industrialization of the less developed nations could accelerate this date to perhaps 1990.<sup>2</sup> But extensive low grade on-shore deposits are capable of satisfying increased demand at prices no more than twice present prices, even in the unlikely circumstance that present technology might be exhausted twenty years from now.<sup>3</sup> There is no evidence of increasing natural resource scarcity. Aggregate mineral supply has historically been able to keep up with growing demand at constant prices, and there is little reason to expect a change in the near future.<sup>4</sup>

It would seem, therefore, that the finding of manganese nodules on the deep ocean floor would be of little importance to a world which has so many more pressing problems to deal with. This is not so, as a combination of fear, avarice, and national pride has turned the search for these nodules into one of the most hotly debated, widely contested issues in contemporary international sea law. The desire for these nodules has been one of the reasons behind the various proposals contemplating an international seabed authority and has played a leading role in the move by many nations towards a more explicit definition of the continental shelf.

Modern theory of sea floor spreading implies that beneath a thin veneer of later sediments the ocean basins are generally floored with relatively young and sparsely mineralized basaltic rock. Frank LaQue states that, "It would be safe to say...that underground mining in deep international waters is such a remote possibility that it need not concern us at present."<sup>5</sup> The same is not true though for the surface of the seabed. Exploration has shown that the seabed surface is littered with manganese nodules about the size of baseballs. The existence of these nodules was

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<sup>1</sup>Id. BROOKS, LOW GRADE AND NONCONVENTIONAL SOURCES OF MANGANESE 8 (1966).

<sup>2</sup>Brooks & Lloyd, Mineral Economics of the Ocean, in PROCEEDINGS OF A SYMPOSIUM ON MINERAL RESOURCES OF THE WORLD OCEANS 25 (1968) [hereinafter cited as Lloyd].

<sup>3</sup>Id. at 25.

<sup>4</sup>Id.

<sup>5</sup>LaQue, Deep Ocean Mining: Prospects and Anticipated Short Term Benefits, in PACEM IN MARIBUS 133 (E. Borgese ed. 1972) [hereinafter cited as LaQue].

discovered by the Challenger Expedition (1873-1876). It found an abundance of black, hydrous, manganese-dioxide concentrations on the floors of the three major oceans.<sup>6</sup>

At the present time, the resource represented by the nodules, as far as their manganese content alone, is virtually worthless because the cost of production and metal extracting would far exceed the market value of the product.<sup>7</sup> But these nodules contain copper, cobalt and nickel in amounts large enough so that they can be considered as a great untapped source of these metals as well. In fact the Vice President of International Nickel Co. states that "we can reasonably assume that the real metal value of nodules lies in their nickel, copper, and cobalt content."<sup>8</sup> He holds the belief, along with others, that manganese nodules are the only likely potential resource over much of the large ocean basins.<sup>9</sup>

The more economically attractive nodules are most likely to be found at very great depths of water--from 12,000 to about 18,000 feet.<sup>10</sup> It appears that the best hunting ground for commercially exploitable manganese nodules is south and east of Hawaii extending in the direction of Baja California and extending southwest from there. The samples located in those areas have two percent or more of cobalt, nickel or copper.<sup>11</sup> In the Southern Hemisphere several hundred miles west of Peru, there is another area with a number of high quality nodules.<sup>12</sup> The Atlantic also has manganese nodules but they tend to be less valuable. These nodules are widespread on the Blake Plateau off the coasts of Georgia and Florida, but they contain only 11 to 15% manganese and low levels of copper, cobalt, and nickel.<sup>13</sup>

For several years there has been discussion as to the economic feasibility of exploiting manganese nodules. The problems are great and include technical and mechanical considerations such as the great depths at which they lie and economic considerations such as the danger of flooding the world market. But it seems that the time for the mining of nodules has come. Deep Sea Ventures, a subsidiary of Tenneco, together with Metallgesellschaft of Frankfurt, Germany, are spending between five and ten million dollars on developing the recovery technology. This will be sold to a consortium with capital between 100 and 200 million dollars.<sup>14</sup>

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<sup>6</sup>J. MERO, THE MINERAL RESOURCES OF THE SEA 127 (1965) [hereinafter cited as Mero].

<sup>7</sup>James, Mineral Resource Potential of the Deep Ocean, in PROCEEDINGS OF A SYMPOSIUM ON MINERAL RESOURCES OF THE WORLD OCEANS 41 (1968) [hereinafter cited as James].

<sup>8</sup>LaQue 138.

<sup>9</sup>Id. at 134.

<sup>10</sup>Id. at 136.

<sup>11</sup>M. SPANGLER, NEW TECHNOLOGY AND MARINE RESOURCE DEVELOPMENTS 284 (1970) [hereinafter cited as Spangler].

<sup>12</sup>Id. at 284.

<sup>13</sup>McKelvey, Mineral Potential of the Submerged Parts of the Continents, in PROCEEDINGS OF A SYMPOSIUM ON MINERAL RESOURCES OF THE WORLD OCEANS 35 (1968) [hereinafter cited as McKelvey].

<sup>14</sup>Auburn, The International Sea-Bed Area, 20 Int'l & Comp. L. 173 (1971).

The more complex and innovative the technological system required, the more expensive it is to develop. Thus, the consensus is that high investment costs will have to be one of the prices that must be paid to get into this field. Once the technology is found, the day to day cost of running these harvesting operations should not be too high. This combination of high investment cost and low operating cost suggests that each venture will have to be undertaken on a large scale. David Brooks, noted authority on the subject, states: "Only at a high rate of production can such investments be amortized in an acceptable length of time. Typical rates will almost surely not be less than 2,000 tons of nodules per day. Some 20 to 50 percent of this tonnage will be recoverable metal which places each deep sea mining operation at the scale of the largest on-shore mines."<sup>15</sup> LaQue has pointed out that the probable method of recovery of nodules will be a harvesting operation from a moving platform that will occupy the ocean bottom only intermittently. In this respect the recovery of the nodules from the sea floor is much more similar to a fishing operation than to a conventional mining operation.<sup>16</sup> Mero in his book goes into detail about the different available methods of mining at different depths.<sup>17</sup>

For the skeptics who argue that the technology has yet to be developed for the exploitation of deep sea nodules, it must be pointed out that the first dredging stage has already commenced on the Blake Plateau at a depth of 900 meters.<sup>18</sup> Also, present plans call for the dredging of 25,000 tons of nodules at a depth of 3600 meters off the coast of California in 1974.<sup>19</sup>

The harvesting has begun, although as of yet it is a token effort, and the world has still to decide exactly how to regulate it. What law governs?

By a verbal note dated 8/17/67 and addressed to the Secretary General of the United Nations the permanent mission of Malta to the United Nations requested the inclusion in the agenda of the 22nd regular session of the General Assembly an item entitled "Declaration and treaty concerning the reservation exclusively for peaceful purposes of the seabed and of the ocean floor, underlying the seas beyond the limits of present national jurisdiction and the use of their resources in the interest of mankind."<sup>20</sup>

That was the beginning of a flood of resolutions and proposals that have covered just about every conceivable possibility for control of the areas of the ocean bed which contain the nodules.<sup>21</sup>

<sup>15</sup>Brooks, Deep Sea Manganese Nodules: From Scientific Phenomenon to World Resource, in PROCEEDINGS OF THE 2ND LAW OF THE SEA INSTITUTE 35 (L. Alexander ed. 1967).

<sup>16</sup>M. Schaefer, The Resources of the Seabed and Prospective Rates of Development as a Basis of Planning for International Management, in PROCEEDINGS OF THE 5TH LAW OF THE SEA INSTITUTE 26 (1970) [hereinafter cited as Schaefer].

<sup>17</sup>Mero Ch. VII.  
<sup>18</sup>Ocean Firm Launches 100-200 Million Dollar Mining Venture, Ocean Industry, March, 1969, at 66.

<sup>19</sup>The Oceans--Whose Hunting Preserve?, Forbes, March 15, 1970.

<sup>20</sup>U.N. Doc. A/6695 (1967).

<sup>21</sup>S. ODA, THE INTERNATIONAL LAW OF THE OCEAN DEVELOPMENT (1972).

There are three major problem areas according to Arvid Pardo, the Maltese representative, which are contributing to the delay of a definitive world response:

- (1) The nature of the basic concept that should govern the exploration, use, and exploitation of the seabed beyond national jurisdiction. Should it be an adoption of the traditional concept of the high seas, or should it be the new concept of the common heritage of mankind?
- (2) The nature of the regime and the international institutions which it has proposed to establish. Can an appropriate, equitable, and effective legal regime for the seabed beyond national jurisdiction be established without creating international institutions? If international institutions are necessary would their competence extend to the management of the seabed beyond national jurisdiction including regulation of all uses ..., or should the competence of international institutions be limited to the question of resources, exploitation or perhaps even only to a mere registration of claims to exclusive exploitation rights over certain areas? In the event that it were found desirable to create international institutions with a wide competence and strong powers, how can the conflicting interests of states be balanced in such a way as to insure both the viability of the regime, which must include the respect of the vital interests of all states together with the satisfaction of the needs of the poorer countries, and the impartiality and efficiency of whatever international institutions are created?
- (3) What are the limits of national jurisdiction? Consensus now exists that an area of the seabed beyond national jurisdiction does in fact exist but there is disagreement as to its limits. There is general agreement that the seabed beyond the limits to be agreed upon should be reserved for peaceful purposes but there is disagreement on the meaning of the words, peaceful purposes. There is agreement that the seabed should be exploited for the benefit of mankind as a whole, but there is strong disagreement on the practical content to be given to this phrase. There is a very wide feeling that some type of international institution should be established but there is equally wide disagreement on the functions and powers of such an institution.<sup>22</sup>

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<sup>22</sup>Pardo, New Horizons in Ocean Science and Law, in PACEM IN MARIBUS 252 (E. Borgese ed. 1972).

Wolfgang Friedman has come to the conclusion that:

- (1) The major maritime powers, and especially those with worldwide fishing interests, will continue to oppose greatly extended national jurisdictional limits beyond the 12 mile territorial seas which have now in effect, though not yet in form, become the generally accepted norm.
- (2) The smaller coastal states, and especially those for which fishing is a major source of livelihood, will insist on wide territorial limits.
- (3) The landlocked states are the only group generally favoring a strong seabed authority with extensive jurisdiction including revenue sharing.
- (4) The major industrial and technologically developed coastal states are unlikely to consent to any revision of the Continental Shelf Convention which would scale down the open-ended definition of the continental shelf to a fixed depth limit, even one considerably exceeding that of the Truman Proclamation or of the Convention.
- (5) The U.S.S.R.'s opposition to the setting up of an international seabed authority with licensing and regulatory powers appears to be confirmed by its recent draft. The International Sea-Bed Resources Authority proposed by the U.S.S.R. would essentially be confined to recommendations on the implementation of a general treaty by which the states will be responsible for peaceful uses of the seabed and its exploitation "for the benefit of mankind...."<sup>23</sup>

The problem is more than just a problem of foreign policy for each nation, especially the more industrialized nations which must take into account national security and industrial interests. The United States is a good example of a country that is having a difficult time in deciding which way to go.

Unlike the world's manganese resources, the quantity of manganese ore mineral at present prices in the United States is negligible. Because of its strategic importance, an attempt was made to satisfy at least part of our manganese needs from domestic resources, but it seems the experiment has failed. The production of domestic ores (35% or more Mn content) was only 29,258 tons of manganese ore in 1965 or roughly 1% of our annual consumption.<sup>24</sup> The majority of the imports come from several African countries (58%); Brazil (21%) and India (10%)--the remaining nine percent is imported from ten other countries.<sup>25</sup> As for the other metals found in the nodules,

The U.S. imports 19% of its copper and is almost totally dependent upon imports for nickel at 85%, and cobalt at 92%. We import these metals, with the exception of nickel,

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<sup>23</sup>Friedmann, Selden Redivivus-Towards a Partition of the Seas?, 65 Am. J. Int'l L. 768-69 (1971).

<sup>24</sup>Spangler 274.

<sup>25</sup>Id. at 274.

mainly from developing countries which are generally unresponsive to U.S. foreign policy or which are increasingly combining among themselves to manipulate the prices upwards or to control production and distribution to further their economic and political goals.<sup>26</sup>

At first it was thought that the nodules would be valuable strategically, but David Brooks has pointed out that the strategic value is negligible because of the vulnerability of the harvesting operation itself on the high seas and of the ships transporting the ore back to land.<sup>27</sup> But, as to competition with existing sources as to transportation costs, the test is now underway.<sup>28</sup>

Presently it is impossible to state what the United States' position is in the international debate regarding the limits of the continental shelf and the seabed regime. The U.S. is harvesting nodules at a depth of 1800 meters which is far in excess of the 200 meter limit set up in the 1958 Geneva Convention on the continental shelf. The U.S. is construing the Convention to allow jurisdiction over the submerged part of the continent which corresponds approximately to the 2500 meter contour in the northern half of the Western Hemisphere.<sup>29</sup> While upholding this position as an "interim" policy, the United States presented on August 3rd of 1970 a Draft United Nations Convention on the International Seabed Area.<sup>30</sup> This proposal re-established a firm limit of 200 meters depth for the Continental Shelf while setting up an intermediate trusteeship zone between the limit of the continental shelf and the edge of the continental margin, to be administered by the coastal state but subject to international controls over standards of safety, pollution, and technology. It also included an obligation to hand over at least fifty percent of the revenue derived from the exploitation of the intermediate zone to the international seabed authority for aid to the developing countries. As John Laylin stated:

The U.S. proposal does not: (1) lay claim or purport to confer territorial rights over any part of the area, (2) favor the coastal state over the landlocked state, (3) favor the industrialized state over the lesser developed state, (4) purport to postpone or replace a multilateral convention establishing a worldwide international regime.<sup>31</sup>

Whatever criticisms may be leveled at it, the proposal was a serious effort towards establishing a viable solution that would be acceptable to nations. It was an attempt to lay to rest the question of the legality of extensive territorial seas in exchange for a strong international seabed regime.<sup>32</sup>

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<sup>26</sup>Laylin, Interim Practices and Policy for the Governing of Sea-Bed Mining Beyond the Limits of National Jurisdiction, Law of the Sea Institute-Needs and Interests of Developing Countries 27 (L. Alexander ed. 1973).

<sup>27</sup>Lloyd 28.

<sup>28</sup>Id. at 25.

<sup>29</sup>McKelvey 31.

<sup>30</sup>U.N. Doc. A/AC. 138/25 (1970).

<sup>31</sup>See supra note 26, at 27.

<sup>32</sup>Friedmann, The Law of the Sea. Past, Present and Future, in THE FATE OF THE OCEANS (J. Logue ed. 1972).

Whatever the merits of the U.S. Draft U.N. Convention on the International Sea-Bed area, there was an immediate, negative Congressional reaction to it embodied in the Metcalf Report. This was a report by the Special Subcommittee on Outer Continental Shelf to the Senate Committee on Interior and Insular Affairs, 91st Congress, December 12, 1970. It stated in part:

Whatever renunciation might be intended to be made through the adoption of a future seabed treaty, no renunciation should be permitted to be made which in any way encroaches upon the heart of our sovereign rights under the 1958 Geneva Convention, which we construe as follows:

- (1) The exclusive ownership of the mineral estate and sedentary species of the entire continental margin.
- (2) The exclusive right to control access for exploration and exploitation of the entire continental margin.
- (3) The exclusive jurisdiction to fully regulate and control the exploration and exploitation of the natural resources of the entire continental margin.

Although purporting to support the U.N. Draft proposal, aside from the exceptions pointed out above, it actually destroys the Draft proposal and serves to re-establish present situation.

The Metcalf report has not been passed by Congress, and the U.S. Draft U.N. Convention is not our Policy either; they are just samples of the diverging views on this question. Clairborne Pell comments, "We delude ourselves if we believe the problems can be solved in international negotiations before or in the absence of policy determinations within our own government."<sup>33</sup>

What will happen to the law as far as the outer limit over which a nation may claim jurisdiction without infringing on the sea-bed and the high seas can only be speculated on at this time since there is scheduled a Law of the Sea Convention in 1974. But it is my opinion that if individuals or nations really wanted to find a solution, they could look to the present law and find one.

The 1958 Geneva Convention on the Continental Shelf is explicit in its definition of what it calls the "continental shelf":

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

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<sup>33</sup>Pell, The Political Dimensions of an Ocean Regime, in PACEM IN MARIBUS 235 (E. Borgese ed. 1972).



Article 2: (1) The coastal state exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources. (2) These rights are exclusive, and even if unexercised, no one may make a claim to the continental shelf without the express consent of the coastal state. (3) Right does not depend on proclamation or occupation. (4) The natural resources referred to consist of the minerals and other non-living resources of the seabed and subsoil together with living organisms belonging to sedentary species, i.e., organisms which, at the harvesting stage, either are immobile on or under the seabed or are unable to move except in constant physical contact with seabed or subsoil.

Article 3: 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.<sup>34</sup>

According to Brierly, "The correct interpretation would seem to be that the 200 meter depth criterion is subject to the exploitability criterion, but the latter is controlled by the overall general conception of the shelf as a geological feature and by the principle of adjacency in Article 1."<sup>35</sup> He states that it is clear from the preparatory materials (records of the International Law Commission) that it was not thought that the rights would go on indefinitely until the ocean floor would become divided subject ultimately to a median line division in accordance with Article 6, but that the legal concept was based substantially upon the geological conceptions.<sup>36</sup> When taken to its logical conclusion, Article 1 says that the state has jurisdiction over the seabed and subsoil out to the 200 meter mark automatically and then on to the shelf, as a geologic feature, as exploitability allows. The continental shelf and slope geologically can be considered part of the continent, and we have no reason to believe that when they specifically stated that the area was to be the area "adjacent to the coast" they meant to exclude the continental slope. It is a little harder to make a case for the continental rise which is a "gently sloping transition from the toe of the continental slope at around 2 or 2.5 kilometers depth outward to the oceanic basin,"<sup>37</sup> but even if it were included, about 80% of the ocean floor around the world would still be outside this area.<sup>38</sup> What this means is that if the 1958 Continental Shelf Convention were interpreted to extend the jurisdictional boundaries of nations over the seabed as far as possible, this area would still comprise only 20% of the ocean floor, leaving 80% to be dealt with in some other way. Thus, if the nations of the world at some future point agree on an international seabed regime, it can exercise jurisdiction over the remaining eighty percent of the seabed. In the meantime nations can harvest manganese nodules unmolested off their own continental margins, and one of the two issues would be resolved.

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<sup>34</sup>15 U.S.T. 471, T.I.A.S. 5578, 499 U.N.T.S. 311.

<sup>35</sup>I. BROWNLIE, PRINCIPLES OF PUBLIC INTERNATIONAL LAW 228 (1973).

<sup>36</sup>Id. at 228.

<sup>37</sup>James 42.

<sup>38</sup>Schaefer 9.

As to the oceanic basins and seabed not associated with continents, present international law also applies. Until the adoption of legislation to the contrary, the principle of freedom of the seas allows nations to do anything as long as it does not impede the other uses of the high seas such as fishing and navigation. The U.N. General Assembly has passed contradictory resolutions but these are not legally binding on member states because the General Assembly has no legislative power.

In principle, the seabed of the high seas is "res communis"<sup>39</sup> and not susceptible to appropriations by states or private persons; thus harvesting nodules is much like catching fish. Since, as we saw in the beginning of the paper, the technology for harvesting nodules has moved in the direction of movable platforms or like structures that do not harvest just one area but are ambulatory, and since there is evidence that the sea nodules replenish themselves,<sup>40</sup> it can be persuasively argued that the differences in deep-sea fishing and deep-sea harvesting of manganese nodules are extremely minimal at least in the eyes of international law.

Although we may use the same law to govern both high seas fishing and mining, that does not mean the same mistakes will be made in the latter area as in the former. For example, by international treaties to govern harvests we can avoid total depletion of the ocean although that result is hardly likely since the reserves are so great and the market is so easily saturated.<sup>41</sup> Smaller nations can finance joint ventures since the output of each mine or operation would be great and an international board could help them with technology.

By using the law we have, the long run prospect according to Orris C. Herfindahl is one of "price reduction to the level of costs, with the social gain going to the consumer in the form of lower prices."<sup>42</sup> This would give an incentive to investors from the large industrial countries to sufficiently develop the technology so that later the developing countries may then use this technology to their advantage as well. For this to happen, it must be decided that "the value of the ore will be high enough to attract both the investment funds from prospective mining firms and the necessary support from national governments given the result that mineral scarcity is unlikely to be a problem in industrial nations for the foreseeable future and that alternative on-shore sources of supply are available."<sup>43</sup> By giving investment capital freedom of the seas we greatly enhance the chances of such an affirmative decision.

The main opponents of this type solution would fall into three categories: (1) Landlocked countries--the only way for them to really come out ahead would be with a strong international seabed regime which would distribute profits to them. They are few and have relatively little influence; it is doubtful that they alone could prevail against this extension of freedom of the high seas. Even so, under freedom of the seas they have as

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<sup>39</sup>P. JESSUP, THE LAW OF THE TERRITORIAL WATERS AND MARITIME JURISDICTION 18 (1972).

<sup>40</sup>D. BROOKS, LOW GRADE AND NONCONVENTIONAL SOURCES OF MANGANESE (1966).

<sup>41</sup>See LaQue 144-45.

<sup>42</sup>Herfindahl, Some Problems in the Exploitation of Manganese Nodules, *supra* note 26 [hereinafter cited as Herfindahl].

<sup>43</sup>Lloyd 29.

much right as any one to exploit the resources of the sea. (2) Countries exporting manganese, copper, nickel and cobalt may not be as adversely affected as at first it would seem, because it is not true that a dollar of exports represents a net addition of a dollar to a country's GNP. You have to assess the cost prior to export. The true measure of damage is the decline in the profits from the mining activity.<sup>44</sup> Many resources would not be affected. Some of the present land sources are higher grade ores than those in nodules. The currently developed land sources represent sunken investment costs, which may be difficult to displace competitively. Also, many firms that would be potential customers for the new source of metal would be ruled out if they possessed captive mines in the developing countries which supplied them these metals. (3) The 200 mile limit group would probably favor the extended interpretation of continental shelf, but they would want to go further. It is possible that the upcoming Law of the Sea Convention may settle the territorial sea issue and limit it to 12 miles thus quieting this faction.

Freedom of the seas has served well since the 17th century when Hugo Grotius first enunciated the concept,<sup>45</sup> and I see no reason why, given its proven capabilities, the concept should not be allowed to remain in effect today. It is my conclusion that with respect to the question of manganese nodules found on ocean beds that cannot be geologically considered part of the continental land mass, freedom of the seas will work as well for mining as it has for fishing and is probably the best and most realistic solution that the world can reach given the attitudes of nations today.

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<sup>44</sup>Herfindahl 36.

<sup>45</sup>H. GROTIUS, DE JURE PRAEDAE 594 (1950 Oxford Press ed.).

# THE DEEP OCEAN AND ITS NON-LIVING RESOURCES:

## A NEW LEGAL REALM

John P. Huggard

### Introduction

For millions of years a vast wealth of mineral resources has been waiting for man in the depths of the sea. These bounties of the deep have been locked in a vault for which man has been unable to find a combination. Man's future needs, together with new and advanced technology, is the combination and it is now on the edge of being deciphered by many of the world's nations.

When the vault is opened and exploitation of the deep ocean becomes a reality, it will be essential that the community of nations establish a regime for the orderly, productive, and peaceful gathering of these maritime riches.

The purpose of this paper is to discuss some of the mineral resources available to man from the sea and man's rapidly increasing skill in procuring these minerals. More importantly, it will examine the questions which arise from man's new mastery beneath the ocean, and the laws, both present and future, necessary to cope with the issues of a global deep sea "gold rush."

### The Rush to the Sea

Man is by no means unknowledgeable about the sea and what lies in its depths. He has over the centuries accumulated a storehouse of information concerning the ocean. It is only in the past few decades, however, that he has come to appreciate the actual potential of this seemingly unlimited resource and to make meaningful attempts to cultivate it.<sup>1</sup> Man has been forced to turn increasingly to the oceans for sustenance and security on a scale commensurate with the expansion of his needs and the growth of his technical ability to use the sea to meet these needs.<sup>2</sup> The ocean is fast becoming man's hope for survival in a world which is continuing to increase its population, its industries and its need for more natural resources. In the past thirty years alone, the United States has used more natural resources than the entire world has used since its birth!<sup>3</sup> Countries once lauded as inexhaustible shelters of natural resources have so depleted their supplies as industrial states that they can no longer look inward, but are forced to go to external sources for their raw materials.<sup>4</sup> Shortage of the resources of the land, an increase in the world's population, the growth of industry, the advancement of technology, and competition among men and nations for new mineral wealth is once again forcing man to become a pioneer. Man's new frontier is the deep ocean.

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<sup>1</sup>USES OF THE SEA 19, THE AMERICAN ASSEMBLY, Columbia Univ. (1968). [hereinafter cited as Uses of the Sea].

<sup>2</sup>Id. at 3.

<sup>3</sup>D. KAY & E. SKOLNIKOFF, WORLD ECO-CRISIS 27 (1972).

<sup>4</sup>Minerals, Facts and Problems 2-5 (1970).

## Resources of the Deep Sea

As man's knowledge and his ability to use it increase, he is constantly conquering and mastering the secrets of this globe upon which he lives; and as he conquers he makes laws governing the distribution of the bounty. For a long time, man's efforts were concentrated on mastering the land and all the wealth it contained both on and under the earth. He then mastered the ocean surfaces and learned to use the products of the sea. At each stage of his advance, he formulated for himself laws governing the dispersal of his wealth. In the past century his technology has enabled him to reach the seabed off his coasts, thus expanding his use of the ocean from a source of food and a means of transportation to a supplier of hard minerals. The mineral resources found in the submerged land areas, particularly the continental shelf, have been until now only sparsely exploited.<sup>5</sup> Minerals such as tin, coal, iron ore, copper, gold, cobalt, uranium, zinc, lead, and arsenic<sup>6</sup> are only some of the resources available in varying quantities found off different coastlines and on or in the ocean seabeds.

In 1958, the Geneva Convention on the Continental Shelf was set up to define the limits of jurisdiction of coastal nations over the resources of the seabed.<sup>7</sup> The Convention defined the continental shelf as referring 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 meters or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources of the sea areas;...<sup>8</sup>

The 200 meter limitation became nebulous when extended to include any area adjacent to the country technologically capable of being exploitable.<sup>9</sup> Generally speaking, however, in 1958, man was not looking beyond the geographical-geological boundaries of the continental shelf and had little idea what was in fact beyond, or what valuable minerals might be found there. Moreover, he did not have the technical capabilities to extract minerals at depths too much greater than the 200 meters set by the Convention. But technology has advanced rapidly; it has surpassed, though not substantially the depths set in 1958, and in the near future man will be capable of reaching the seabed of that area beyond the continental shelf. The continental shelf doctrine, therefore, is of limited application to the solution of the deep ocean floor exploitation problem.<sup>10</sup>

Before presenting the question of legal jurisdiction, of the rights and limits to exploitation of the deep ocean floor, it is essential to understand the nature of the area beyond the shelf and the possible resources available.

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<sup>5</sup>H. REIFF, *THE UNITED STATES AND THE TREATY LAW OF THE SEA* 54 (1959).

<sup>6</sup>*Id.*

<sup>7</sup>*PACEM IN MARIBUS* 132 (E. Borgese ed. 1972) [hereinafter cited as *Pacem in Maribus*].

<sup>8</sup>Convention on the Continental Shelf, 15 U.S.T. 472, T.I.A.S. 5578, 799 U.N.T.S. 311.

<sup>9</sup>*Pacem in Maribus* 132.

<sup>10</sup>Grunawalt, *The Acquisition of the Resources of the Bottom of the Sea-A New Frontier of International Law*, 34 *Mil. L. Rev.* 101, 126 (1966).

Beyond the shelf about "half the deep seafloor is covered with abyssal plains and hills, that lie at depths of about three thousand to 5,500 meters, consisting of relatively flat to rolling and hilly plains, studded with...volcanic seamounts or rugged surface areas resulting from extensive fracture zones and faults."<sup>11</sup> A blanket of unconsolidated sediment covers much of this bed.<sup>12</sup> What minerals can be found and mined on a large scale in this vast flat area at depths previously unreachable by man or his machines? Harold James concluded that the mineral resource potential of the deep ocean is small per unit area compared with that of the continents or of the continental shelves.<sup>13</sup> Since deep sea exploitation of some minerals and metals would be costly and economically unfeasible considering the relatively untapped shelf areas, this paper will concern itself primarily with what experts in this field believe to be the only potentially profitable resource over much of the large ocean basins --manganese nodules and the associated metals found within these nodules which lie on the deep sea bottom.<sup>14</sup> It appears that the nodules were first discovered as far back as 1875 during the Challenger expedition.<sup>15</sup> Interest in the nodules was renewed in the 1950s as dredgings and photographs, made possible through the advent of deep sea oceanographic equipment, gave evidence of the possibility of larger deposits of the manganese nodules than had previously been indicated. It is now estimated that these nodules, which have since been found in every ocean, exist on the floor of the Pacific Ocean alone in quantities as high as 1,500,000 million tons, to which estimate a further 10,000 million tons are added every year.<sup>16</sup> "Testimony before the United States Senate Committee on Commerce, in 1965, disclosed that the nodules containing these metals occur at depths between 3,000 and 17,000 feet," and that deep-ocean photography reveals that five to ten pounds of these nodules per square foot lie in many areas of the oceans.<sup>17</sup> The richest manganese nodules appear to be in the Pacific Ocean at depths of about 12,000 feet.<sup>18</sup>

The value of the nodules lies in the richness of their various components. The major part of these nodules consists of manganese and iron. Other metal constituents of the nodules include such valuables as nickel, copper, and cobalt, although in much smaller percentages. On the basis of the limited amount of research available on the analysis of the composition of the nodules, the following chart is presented.

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<sup>11</sup>Pacem in Maribus 97.

<sup>12</sup>Id.

<sup>13</sup>Id. at 98.

<sup>14</sup>COMM'N ON MARINE SCIENCE, ENGINEERING, AND RESOURCES 151 (1969).

<sup>15</sup>J. MERO, THE MINERAL RESOURCES OF THE SEA 147 (1965).

<sup>16</sup>E. BROWN, THE LEGAL REGIME OF HYDROSPACE 103 n.57 (1971).

<sup>17</sup>S. REP. NO. 528, 361st Cong. (1968).

<sup>18</sup>L. HENKIN, LAW FOR THE SEA'S MINERAL RESOURCES 3 n.7 (1968) [hereinafter cited as Henkin].

Some Chemical Components of Manganese Nodules<sup>19</sup>  
(percent of dry weight)

<u>Mineral</u>	<u>Pacific Ocean</u>	<u>Atlantic Ocean</u>
Manganese	24.500	16.000
Iron	14.000	17.000
Silicon	9.000	11.000
Nickel	1.000	.420
Copper	.625	.200
Cobalt	.375	.310

The composition of the nodules is basically uniform although the ratio of the elements in the nodules tends to vary over different parts of the sea floor. Since the Pacific Ocean contains probably the greatest concentration of the valuable nodules, it is safe to assume that the most extensive nodule-recovery operations will take place there. Although commercial scale exploitation of the deep ocean nodules will not take place much before 1980 to 1985,<sup>20</sup> its value will depend mainly on the cost and feasibility of reaching the ocean floor. For this we must once again turn to man's advances in technology.

Technological Advances

Until recent years the subject of access to and jurisdiction over the deep ocean floor has been generally an academic question. Present technology, however, no longer permits us to avoid a direct confrontation with issues concerning this area. "New materials of construction, new means of propulsion, new instruments of observation, navigation and communication will very shortly make it possible for man to explore and exploit the furthest depths of the ocean."<sup>21</sup> A brief overview of some of the present deep ocean technological achievements evidence man's progress in ocean exploitation.

An excellent example of man's increased ability to reach the ocean bottom is "Project Mohole." "Project Mohole," an enterprise set up to examine the crust and mantle of the earth, operates drilling devices in as much as 18,000 feet of water.<sup>22</sup> Other advances include man's improvement of deep sea submersibles. Knowledge in this field is increasing so rapidly that accurate predictions for the future can be made with little hesitation. Auguste Piccard started the initial thrust into the ocean deep with his development of the first, free-diving deep submersible, the FNRS-3.<sup>23</sup> He was followed by his son, Jacques, who designed and constructed the Trieste.<sup>24</sup> The Trieste, purchased by the United States, made an experimental dive in January of 1960. The dive took the Trieste into the deepest part of the ocean known to man--the Challenger Deep, located in the Mariana Trench--to a depth exceeding 35,000 feet.<sup>25</sup> Following the Trieste, two other deep submergence research submarines were designed to descend deep into the ocean abyss. The Alvin and the Aluminant were

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<sup>19</sup>This Chart combines information taken from the following sources: Pacem in Maribus 136 and Uses of the Sea 37.

<sup>20</sup>Pacem in Maribus 143.

<sup>21</sup>Uses of the Sea xv.

<sup>22</sup>1966 Petroleum Press Serv. 68.

<sup>23</sup>Uses of the Sea 26.

<sup>24</sup>Id. at 27.

<sup>25</sup>J. ANDRASSY, INTERNATIONAL LAW AND THE RESOURCES OF THE SEA 8 n.36 (1970) [hereinafter cited as Andrassy].

instrumental in locating a thermonuclear bomb lost in waters 2,800 feet deep off Palomares, Spain, in the spring of 1966.<sup>26</sup> Since that time over two dozen research submersibles have been built in the United States which have depth capabilities of from 300 to about 8,000 feet.<sup>27</sup> More consequential for the purposes of this paper are the recent activities of several large American corporations who have successfully begun small scale ventures in an attempt to find a feasible way to mine the manganese nodules inexpensively and in large quantities with the ultimate objective of full scale commercial operations.

Summa Corporation, a firm privately owned by Howard Hughes, has expended \$100,000,000 on research and equipment for the purpose of mining the manganese nodules. It has been joined in this project by three other well known American companies--Global Marine, Lockheed, and Honeywell.<sup>28</sup> Summa is reported to have ordered a 35,000 ton prototype deep sea mining ship capable of operating in depths of more than 10,000 feet. This ship went into operation sometime this year.<sup>29</sup> Tenneco Corporation, the parent company of Deepsea Ventures, involved in mining manganese nodules, has invested \$20,000,000 in operations similar to those of the Summa Corporation.<sup>30</sup> For the past few years their fully equipped vessel, the Prospector, has been in use in extracting nodules.<sup>31</sup> Kennecott Industries, another American based company, has also invested a sum of \$20,000,000 in a similar manganese nodule mining project.<sup>32</sup> These three corporations make use principally of a huge vacuum system to recover the nodules from the seabed, while a Japanese Government supported consortium has successfully tested a continuous line bucket system for recovering nodules at water depths of 12,000 feet.<sup>33</sup> Other countries such as Japan, the Soviet Union, Germany and France are as advanced in this area as the United States.<sup>34</sup> With the imprecise and inadequately defined limits of the continental shelf as either 200 meters depth or technological "exploitability"<sup>35</sup> and the rapid technological advances which have been made in virtually every part of the ocean, it is evident that some form of further international legislation will be necessary to take the place of the presently ambiguous jurisdictional definitions.

#### Present Law

The ambiguity of the law at present concerning the exploitation of the deep ocean seabed arises in part from the uncertain terms used by the Geneva Conference on the Continental Shelf in establishing the exact limits of the shelf. Article I of the 1958 Convention defines the continental shelf to include the "seabed and subsoil of the submarine areas adjacent to the coast...to where the depth of the superjacent waters admits of the exploitation of the natural resources."<sup>36</sup> The disadvantage of this

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<sup>26</sup>This author personally participated in these recovery operations.

<sup>27</sup>Uses of the Sea 24.

<sup>28</sup>Newman, The Sea, Mysterious Nodules at Bottom of Ocean May Yield a Treasure, The Wall St. J., Sept. 21, 1973, at 1, col. 6. [hereinafter cited as Wall Street Journal].

<sup>29</sup>Auburn, The Deep Seabed Hard Mineral Resources Bill, 9 San Diego L. Rev. 491, 492 (1971-2) [hereinafter cited as Auburn].

<sup>30</sup>Wall Street Journal at 1, col. 6.

<sup>31</sup>Id.

<sup>32</sup>Id.

<sup>33</sup>Auburn 492.

<sup>34</sup>Id.

<sup>35</sup>See supra note 8, at Art. VI.

<sup>36</sup>Id.



definition is that the criterion of exploitability is uncertain to the extent that it does not limit the rights of the coastal state.<sup>37</sup> In fact, under the "depth-of-exploitability" definition, the rights of the coastal state over seabed territory will increase indefinitely as the world's technology for such exploitation improves. While it is universally accepted that the coastal state enjoys special rights in areas of the sea adjacent to its coasts, some coastal nations have claimed additional rights that are strongly disputed and would seem to violate the basic principle of freedom of the seas. Freedom of the seas for all has meant that no state had the authority to exclude others. This would include any interference with navigation from mining operations, exclusion of mining on the seabed by another state claiming rights under the "adjacency clause" or violation of the rights to the free use of the sea, including mineral resources, of technically underdeveloped or landlocked states. So, while the boundary of continental shelf and deep sea floor remains a question, the law governing the extraction of minerals from the deep ocean suffers from other uncertainties as well.

Freedom of the seas in the past has meant freedom for all nations to exploit sea resources, and the problem arises as to whether the resources on or beneath the seabed are similarly subject to appropriation by anyone. Until very recently, only the seabed within the 200 meter depth of the 1958 Convention was feasibly exploitable. If, however, it is possible for any nation to extract minerals in any part of the sea, far from any coast, by what authority may it do so and by what law can it rightfully keep what it extracts? The right of a state to acquire such rights has long been a subject for debate, based on the central question, "who owns the seabed?" Some have suggested that the seabed belonged to nobody (res nullius) and therefore was subject to any appropriation or sovereignty by any nation so capable. Others have stated that the seabed belonged to everybody (res communis) and thus not subject to any appropriation or sovereignty at all.<sup>38</sup> The solutions which are applicable to the problems of navigation, fishing, or subsoil mining are not those which can be applied to the questions presented by elaborate manganese mining operations in mid-ocean.<sup>39</sup> In other words, the simple application of the rules governing the continental shelf culminating in the principle of the freedom of the high seas will soon turn out to be inadequate and insufficient.

It is evident that the law at present gives to the coastal state complete control of the resources in its territorial sea as well as in additional areas that are "adjacent" to the coast within the meaning of the Convention on the Continental Shelf. Whether any nation can stake out permanent areas of seabed for exclusive use beyond the continental shelf, regardless of size or conservation measures, and can claim total rights to all resources found upon the tract has not as yet been determined.<sup>40</sup> This uncertain situation demands an expeditious resolution. In order to insure the legacy of the freedom of the sea and, at the same time, make available for

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<sup>37</sup>K. GUTTERIDGE, THE REGIME OF THE CONTINENTAL SHELF 77, 80-81 (1958).

<sup>38</sup>Henkin 25.

<sup>39</sup>Id. at 29.

<sup>40</sup>Id. at 31.

profitable use the nodules heavily laden with valuable mineral resources, it is clear that new laws must be proposed to meet this challenge.

#### Criteria for the Establishment of a New Law

Since the area beyond the continental shelf does not presently fit within any existing legal regime and does not come under the authority of any national state, the problem presents itself of how to establish order and avoid possible clashes between different exploring and exploiting groups.<sup>41</sup> Who should be entitled to exploit the mineral resources on the seabed beyond the shelf, and what limitations, if any, should be placed upon such exploitation? These are questions which are providing much debate in the considerations for a new law of the sea. Before possible answers to these questions can be formulated it is necessary to examine some of the criteria and issues which must be considered as necessary to the foundation of the new law.

The first criteria necessarily involves the extent to which the old law, or present law, can be used. As stated, the realm beyond the shelf has virtually opened a new frontier not subject to previous jurisdictions. Once deep sea mining becomes feasible, the possibility exists that the deep ocean will be opened to many other areas of human activity (sea farming, communications and transportation) not now covered by present law.<sup>42</sup> This opening of the new territory for use and exploitation in the face of existing law, marked by irregularity and uncertainty makes it evident that this present legal structure must be abandoned, as extension of the present law to fit these new realms would only prove cumbersome to the establishment of peace and order. Past concepts, including that of res nullius, will probably be abandoned in favor of legislation seeking to avoid undertones of 'colonialism'.<sup>43</sup> There will undoubtedly be attempts at lessening competition and conflict with a promise that profits be distributed among developed and non-developed countries alike. International bodies, in particular the United Nations General Assembly, will probably advocate some principle of community interest.<sup>44</sup> Louis Henkin notes, however, that the sharpest differences with respect to the establishment of a new law will revolve around just how the common interest can best be served.<sup>45</sup>

There are basically two schools of thought concerning how best to advance the welfare of mankind. The first advocates the efficient extraction of minerals from the seabed in order to increase their market availability, thus aiding all the countries who could benefit from their use.<sup>46</sup> This would, of course, encourage the expansion of mining operations already begun by the technologically advanced nations. This is very similar to the "Flag State Approach"<sup>47</sup> in which a nation would have territorial authority

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<sup>41</sup>Andrassy 129.

<sup>42</sup>Id. at 130.

<sup>43</sup>Henkin 49.

<sup>44</sup>Id. at 50.

<sup>45</sup>Id.

<sup>46</sup>Uses of the Sea 89.

<sup>47</sup>Andrassy 131.

over an area of the ocean "lasting as long as the vessels and other means of exploration and exploitation flying the flag of the state concerned are actively involved in such activities in the area."<sup>47</sup> The idea is that exploration and exploitation should not be needlessly delayed for lack of a legal structure to control a situation which has not yet become a problem. In time, as operations increase and the risk of conflict becomes greater, nations would develop their own codes of competition.<sup>48</sup>

The second school adheres to the principle that the sea and its resources are a common heritage belonging to all mankind and, therefore, steps should be taken for the establishment of a "Preventive Law."<sup>49</sup> This law would try to prevent a race to the sea in which advanced nations might possibly try to establish exclusive sovereignty over the seabed to the exclusion of underdeveloped nations. Thus, a law of this type seeks to decrease any possibility that the gap between the rich nations and the poorer nations be widened.<sup>50</sup> The concept is that ground rules for exploitation should be developed, not as conflicts arise, and not by advanced countries alone; but now, before hostilities begin, and by all the nations of the world.

A successful law of the deep sea must incorporate the best elements of both schools. It must include safeguards which assure peaceful and orderly exploitation, while encouraging efficient extraction of the sea's minerals. The new law should contain elements for the protection of those who engage in deep sea mining as well as for uninterrupted use of the sea. It must consider the interests of both countries rich and poor, technically advanced and underdeveloped, landlocked and coastal. "Over all, new law must be acceptable to enough nations so that it will have the quality of law, induce compliance with it, warrant reliance upon it, and reduce international conflict."<sup>51</sup> Thus, the question arises, in view of the two opposing schools of thought currently prevalent, as to what type of regime would be the most appropriate.<sup>52</sup>

The issues before any body given the task of studying and developing an international law of the sea will of course reflect in large part the different positions taken by governments and these positions seem to fall within the scope of the two schools of thought mentioned above. Those who propose a form of national autonomy subject to minor international control suggest a "national regime" in which new rules concerning mining would be established and enforced by agreements among the nations in a more or less traditional way.<sup>53</sup> On the other hand, proponents of the international system suggest operation along the lines of a "vertical authority" in which an international body would objectively control to a large degree most of the actions of the national states with regard to deep sea mining.<sup>54</sup> Even if the new law were to fall completely within the realm of either a "national

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<sup>48</sup>Uses of the Sea 89.

<sup>49</sup>Id.

<sup>50</sup>Henkin 51.

<sup>51</sup>Id. at 53.

<sup>52</sup>Andrassy 132.

<sup>53</sup>Henkin 59.

<sup>54</sup>Id.

regime" or international control (which would be unlikely as the direction seems to point to a combination of the two), the debate then would focus on the extent to which either national or international authority would be exercised. What follows is a look at the solutions which have been proposed within the context of the two categories. The feeling, of course, is that whichever regime would eventually constitute the basis of the law, it might be rendered more workable if it were embellished or modified by some elements of the opposing regime. Though the scope of this paper does not permit review of all the proposals for a new law, it will consider some of the more well known from each of the opposing schools.<sup>55</sup>

### Proposals for the New Law

Though most authorities seem to agree that the new law should lean more toward the international regime, several plans have been submitted which favor the opposing view. The first of the latter regards the seas as "international lakes" and proposes that any new laws operate under the principles set up by the Geneva Convention on the Continental Shelf.<sup>56</sup> This plan would give the coastal states alone the right to exploit resources from the ocean floor; in effect the continental shelf would be extended indefinitely. Where these extended "shelves" meet (sooner or later) in mid-ocean, the boundaries and rules protecting rights would be set by agreement of the nations directly concerned. There would, of course, be several advantages to a plan of this type but obviously it would favor the coastal states, many of which are numbered among the richer nations of the world. Even though tempered with elements of an international regime, the power gained by the coastal nations, both politically and economically, in a plan of this nature would greatly upset the existing international balance.

One of the more common plans offered by those in favor of a national regime is that of regulated "homesteading."<sup>57</sup> This plan adopts the principle that the seabed and subsoils are res nullius. Any nation would be free to stake out a claim and international control would be limited only to the establishment of safeguards concerning freedom of navigation and other such uses of the sea.<sup>58</sup> Nations would be responsible for formulating codes of behavior among themselves. Though unlike the international lakes plan in that, ideally, all states would have fair chance at the sea's resources; in practice, the wealthy and more advanced states would again profit. Henkin notes, "For many nations the principal objection would be that this plan opens the seas to the kind of competition that troubled the age of discovery, aggravated by additional uncertainties due to the special environment of the sea and the special problems of mining its bed."<sup>59</sup>

The majority of proposals submitted for the new law have been inclined toward the international approach in which an international body would decide when and where the states would operate and exercise substantial control over the states' operations. The most popular plan of this example is one which calls for a system of licensing.<sup>60</sup> Only states

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<sup>55</sup>Other excellent articles are: Gorove, The Concept of "Common Heritage of Mankind": A Political, Moral, or Legal Innovation?, 9 San Diego L. Rev. 390 (1971-72) and Sohn, The Council of an International Seabed Authority, 9 San Diego L. Rev. 404 (1971-72).

<sup>56</sup>Henkin 60.

<sup>57</sup>Uses of the Sea 94.

<sup>58</sup>Id.

<sup>59</sup>Henkin 63.

<sup>60</sup>Andrassy 133.

with licenses issued by an international bureau would be allowed to mine the ocean floor and the number of licenses per nation would be limited. Licenses would be obtained, according to the particular system chosen, either on a first-come basis (for the asking), by competitive bidding, or by using some principle of "geographic distribution."<sup>61</sup> The international council would set up regulations on the size of areas mined, terms of leases, fees, and royalties or taxes to be paid into an international fund set up for the benefit of the entire community. While satisfying the principle that the wealth of the seas belongs to all nations, this plan is criticized primarily by those who fear that such a system may be an opening wedge for other international controls.<sup>62</sup> Another plan proposing an international regime would give a monopoly to exploit resources to an international corporation which would contract for services, personnel and equipment.<sup>63</sup> All nations could invest in shares of this international company. Although this plan avoids the difficulties of setting up a licensing system, it would put the international company in competition with national bodies in the marketing of resources.

The Maltese government, in August, 1967,<sup>64</sup> and the United States government, in August, 1970,<sup>65</sup> submitted drafts of similar plans also in the realm of an international regime. Other comprehensive proposals of an international nature have been offered by individuals such as Elisabeth Mann Borgese in her 1972 edition of Pacem in Maribus and Senator Claiborne Pell of Rhode Island in his 1966 book, Challenge of the Seven Seas.<sup>66</sup>

### Conclusion

Taking all facts into consideration, it is likely that for security reasons, most nations, the Great Powers included, will want to protect the submarine environment from any exclusive control by individual states to the greatest extent consistent with the profitable and efficient exploitation of its mineral resources. For political reasons, they will want a regime so designed as to allow the developing states to share in the wealth of this area. Economically, and because of the pressure exerted on government by business, it will be necessary to construct a regime which is capable of providing a degree of security to those who invest in mining operations. Without such necessary "ground rules," exploitation will present unacceptable risks and undue restrictions will hinder exploitation of a sort beneficial to mankind.

Despite all the uncertainties which exist in the consideration of the new law, the following have been established as fact. It is fact that the seabed of the deep seas is rich in natural resources which will benefit man. Their exploitation, due to the progress of science and technology, has become increasingly possible as no area of the sea is any longer inaccessible to man. It is also a fact that as man extends his empires into this territory where past laws have limited applicability, the question of a new legal regime will present itself with increasing frequency. It is a

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<sup>61</sup>Henkin 65.

<sup>62</sup>Id. at 67.

<sup>63</sup>Uses of the Sea 93.

<sup>64</sup>Andrassy 137.

<sup>65</sup>U.N. Doc. A/AC 138/25 (1970).

<sup>66</sup>Andrassy 145.

fact that present law contains too many inequalities and uncertainties to support effectively an ordered regime for the deep sea. Lastly, it is a fact that as all nations express an interest in the heritage to which all mankind lays claim, an international agency of some form must be established. All who seek to exploit the oceans, and all who look forward to the orderly, rational, and beneficial development of ocean resources must realize these facts and act quickly to safeguard that which belongs to us all.

Under no circumstances...must we ever allow the prospects of rich harvest and mineral wealth to create a new form of colonial competition among 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.<sup>67</sup>

--President Lyndon B. Johnson

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<sup>67</sup>Uses of the Sea 82.

THE NORTH CAROLINA OIL POLLUTION CONTROL LAW;

A MODEL FOR STATE EFFORTS

TO CURB POLLUTION OF THE SEA

Jonathan V. Maxwell

Oil has never before been so much in the forefront of world affairs as in the wake of the most recent Arab-Israeli confrontation. Correspondingly, the literature on the effects of oil on inland waters as well as the oceans has proliferated as people are beginning to appreciate the seriousness of the situation.<sup>1</sup> Oil pollution is the prime culprit in the eyes of many observers,<sup>2</sup> particularly as the presence of large quantities of oil underneath the continental shelf makes extensive exploitation of this area inevitable.<sup>3</sup> Giving greater force to the situation is Arab political pressure on President Nixon and the corresponding insistence by major oil companies to be allowed to develop continental shelf reserves in order to render the United States less vulnerable to this type of coercion. Development of these deep sea resources will itself create opportunities for direct conflict with other countries in an energy-hungry world,<sup>4</sup> thus presenting a dilemma of primary magnitude.

Recently, the oil pollution problem has surfaced in North Carolina and other South Atlantic states. Several states in this region have been vying for deep water ports as the United States becomes increasingly more dependent upon oil imports to meet its needs.<sup>5</sup> Since the eastern portions of the states in contention are the more economically depressed areas of North Carolina, South Carolina, and Georgia, competition is keen. The new supertankers require twice as much water depth as ordinary ships, as tanker capacity has increased tremendously in recent years. The inherent pollution potential is a source of alarm to those who value the unique beauty of the North Carolina coast.

Another cause for concern is the fact that the waters over the potentially oil-laden continental shelf off the Atlantic seaboard are shallowest out to the farthest distance on the North Carolina coast. Therefore, exploration off the North Carolina coast would be the least expensive for major oil companies.<sup>6</sup> In summation, when the environmental and economic "progress" of the magnitude which accompanies oil discovery is at

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<sup>1</sup>Cousteau, Our Oceans Are Dying, N.Y. Times, Nov. 14, 1971, at 13, col. 2.

<sup>2</sup>See Hennessee, Legal Action to Curb Pollution of the Sea, in THE SURGE OF SEA LAW 119 (1973) [hereinafter cited as Hennessee].

<sup>3</sup>An educated estimate places the quantity of submarine oil at around 1000 billion barrels, while the same source estimates on-land supplies at 50 billion barrels. M. McDOUGAL & W. BURKE, THE PUBLIC ORDER OF THE OCEANS 570 (1962).

<sup>4</sup>Address by Admiral Thomas H. Moorer to the Duke Univ. Int'l Law Soc'y, Nov. 1, 1973.

<sup>5</sup>Eyewitness News, WTVB-TV, Channel 10, Durham, N.C., Oct. 30, 1973.

<sup>6</sup>The author witnessed with some surprise the presence of a major company oil rig at Stumpy Point, N.C., on October 21, 1973.

issue, the realistic prognosticator must assume vast changes in the area will take place and endeavor to prevent excesses.

It should be pointed out that some view with great skepticism any plans to build a deep water port in North Carolina on the grounds that the project would be too expensive to be economically feasible due to the generally sandy composition of the seabed off the North Carolina coast and the comparatively shallow depth of most of it.<sup>7</sup> These factors, though, would not preclude the mooring of the large tankers a mile or so off the coast and the funneling of oil through huge permanent pipelines to facilities on shore.<sup>8</sup> Some consolation for the environmentalists might lie in the fact that utilization of such carefully constructed, well-protected, and responsibly regulated pipelines is thought by many to be the most ecologically sound method of moving large quantities of oil from sea to shore. This author wonders, however, what effect the notoriously treacherous currents of the "Graveyard of the Atlantic" might have on an otherwise sound method.

North Carolina has recognized the threat that oil pollution could pose to the environment since at least 1945.<sup>9</sup> Moreover, following the federal example of the National Environmental Policy Act of 1970, North Carolina enacted legislation recently to insure that environmental considerations would be adequately weighed when the state government was significantly involved in any activity that might adversely affect the environment.<sup>10</sup> Other states have recently enacted legislation dealing more directly with the oil pollution problem.<sup>11</sup> Such statutes were enacted in response to the emergence of oil pollution as a major problem as well as to an implicit suggestion from Congress that the states draw such legislation.<sup>12</sup> The 1973 session of the North Carolina General Assembly joined the small group of states which have taken action by enacting the "Oil Pollution Control Act of 1973,"<sup>13</sup> effective September 1, 1973. The North Carolina Act is a well-drawn piece of legislation drafted with the capable assistance of professionals at the Institute of Government at the University of North Carolina at Chapel Hill.<sup>14</sup>

The Act commences with a general statement of its purpose which is "protecting the land and the waters over which this State has jurisdiction from pollution by oil, oil products and oil by-products."<sup>15</sup> It then declares that this legislation is not intended to conflict with any federal law but rather "to support and complement applicable provisions of the Federal Water Pollution Control Act."<sup>16</sup>

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<sup>7</sup>Interview with Thomas J. Schoenbaum, Associate Professor, U.N.C. School of Law, Nov. 2, 1973.

<sup>8</sup>Id.

<sup>9</sup>See N.C. Gen. Stat. § 113-378 (1971).

<sup>10</sup>N.C. Gen. Stat. § 113A-1 (1971).

<sup>11</sup>See, e.g., Ore. Rev. Stat. §§ 449.155-.175, (1971); Wash. Rev. Code Ann. §§90.48.315-65 (Supp. 1971); Me. Rev. Stat. Ann. tit. 38, §§ 541-57 (Supp. 1972).

<sup>12</sup>The Water Quality Improvement Act, 33 U.S.C. § 1161 (o) (2) (1970) states that such act is not intended to preempt any state's imposing "any requirement or liability with respect to the discharge of oil" into state waters.

<sup>13</sup>N.C. Gen. Stat. §§ 143-215.75-.99 (Supp. 1973).

<sup>14</sup>Schoenbaum interview, supra note 7.

<sup>15</sup>N.C. Gen. Stat. §§ 143-215.76 (Supp. 1973).

<sup>16</sup>Id.



This Act's definitions section<sup>17</sup> foresees many problems of interpretation which may arise. The controlling agency is the North Carolina Board of Water and Air Resources.<sup>18</sup> "Discharge" is very broadly defined; "[discharge] shall mean but shall not be limited to, any emission, spillage, leakage, pumping, pouring, emptying or dumping of oil into waters, or upon land in such proximity to waters that oil is reasonably likely to reach the waters,..."<sup>19</sup> but is not defined so broadly as to be practically unenforceable, since there is provision for allowance of insignificant amounts, as determined by the board.<sup>20</sup> Since the Act defines parties liable under it in terms of who has control over the oil at the time of the infraction, "having control over oil" is carefully defined.<sup>21</sup> Other important terms defined in this section are "oil," "oil terminal facility," "person" (which includes various business entities and other organizations), "restoration" (the importance of this definition will become clearer upon discussion of remedies under the Act later in this paper), and "vessel."<sup>22</sup> The definition of "waters" is particularly important and comprehensive:<sup>23</sup>

"Waters" shall mean any stream, river, creek, brook, run, canal, swamp, lake, sound, tidal estuary, bay, reservoir, waterway or any other body or accumulation of water, surface or underground, public or private, natural or artificial, which is contained within, flows through, or borders upon this State, or any portion thereof, including those portions of the Atlantic Ocean over which this State has jurisdiction.

In reference to the above definition of "waters," it is appropriate to note that North Carolina's jurisdiction over the Atlantic Ocean extends approximately three miles.<sup>24</sup>

Section 143-215.79 provides the procedure whereby members of the Board may gather information as to degree of compliance by a regulated party. Reasonable inspections are allowed upon the presentation of credentials. Confidential information of the regulated party thus discovered is protected except to the extent that it may be required to be revealed by law or by lawful order or process.<sup>25</sup>

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<sup>17</sup>N.C. Gen. Stat. §§ 143-215.77 (Supp. 1973).

<sup>18</sup>Id.

<sup>19</sup>Id.

<sup>20</sup>Id.

<sup>21</sup>Id.

<sup>22</sup>Id.

<sup>23</sup>Id.

<sup>24</sup>N.C. Gen. Stat. § 141-6(a) states that North Carolina's eastern boundary extends "one marine league eastward from the Atlantic seashore, measured from the extreme low water mark." § 141-6(b) adds that the state "shall continue as it always has to exercise jurisdiction over the littoral waters and ownership of the lands under the same within the boundaries of the state, subject only to the jurisdiction of the federal government over navigation within such territorial waters."

<sup>25</sup>N.C. Gen. Stat. §§ 143-215.80 (Supp. 1973).

Section 143-215.81 assures that the legislature has not inadvertently replaced some of the Board's powers and authority under another act with the powers and authority vested in it by this Act in expressly stating that the Board retains all authority received under other provisions of law. Only when other provisions "conflict directly" with this Act are they displaced. Likewise, important in this section is the delegation of power to the Board to "adopt such rules and regulations as are necessary to administer and carry out the purposes of this Article." Section 143-215.82 essentially effectuates this same goal of complementary regulation with regard to situations where the provisions of this Act might be interpreted to displace local ordinances in this area of the law.

Part 2, entitled "Oil Discharge Controls", is the heart of the Act. Section 143-215.83, dealing with discharges,<sup>26</sup> makes such discharges unlawful "regardless of the fault of the person having control over the oil, or regardless of whether the discharge was the result of intentional or negligent conduct, accident or other cause." Hence, a violation of the law can be proven by the mere showing of a proscribed discharge and the existence of the particular party in control of the discharged oil. Sub-section (b) of 143-215.83 lists exceptions, six in number, when the discharge is not unlawful; (1) when the discharge was authorized by an existing board regulation, (2) when an act of God was instrumental, (3) when the discharge was the result of an act of war or sabotage, (4) when there was governmental negligence involved, (5) when the discharge was the result of an act or omission of a third party (potentially a broad exculpatory provision), or (6) when act or omission or direction of a law enforcement officer or fireman was involved. Part (c) of this section provides for the issuance of permits to discharge oil, which may be granted in the Board's discretion.

So, an unlawful discharge has occurred and the law has been violated; what next? Under section 143-215.84 (c), the violator is required to "immediately undertake" to clean up the discharge to the extent of putting the area in its prior condition or, if that is not feasible, to disperse or otherwise treat the discharge by taking all "practicable" steps toward that end. However, the violator is not to worsen the situation by the introduction of treatment materials that will be detrimental to the environment. Part (b) provides that where the Board participates in the clean-up operation, it shall keep records of amounts expended in protecting the public interest and public property, including salaries paid to state employees involved. Section 143-215.85 requires that any owner of, or person in control of, any oil discharged notify the Board of the discharge and of steps being taken to alleviate the situation.

Section 143-215.86 protects against what is often a major shortcoming in state legislation of this sort, namely, the piecemeal approach. It provides for cooperative effort by other state agencies including the Highway Commission, the Department of Conservation and Development, the Wildlife Resources Commission, and "any other agency of this State."

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<sup>26</sup>See text accompanying note 19, supra.

The Oil Pollution Protection Fund is established by section 143-215.87. All monies allocated by the General Assembly for oil pollution control as well as any monies collected for violations of the Act (see below) "shall be paid" to this fund. Money paid by way of criminal penalty, however, does not go to the fund under this section.

Under section 143-215.88, the agencies submit their costs to the polluter who "shall be directly liable to the State for the necessary expenses of oil cleanup projects...." Refusal to pay such expenses subjects the offender to suit by the state Attorney General. The strength or weakness of this provision depends on the extent of the discretion exercisable by the Attorney General. Section 143-215.88, thus, deals with reimbursement by the polluter to the state for costs incurred in cleaning up the discharge. Very important to the scheme of the Act is section 143-215.90 which provides that, in addition to paying for the cost of clean-up, the polluter must also pay for damages to the public resources affected. The section, in pertinent part, reads:

Any person who violates any of the provisions of this Article, or any order, rule or regulation of the board adopted pursuant to this Article, or fails to perform any duty imposed by this Article, or violates an order or other determination of the board made pursuant to the provisions of this Article,...and in the course thereof causes the death of, or injury to, fish, animals, vegetation or other resources of the State or otherwise causes a reduction in the quality of the waters of the State below the standards set by the Board of Water and Air Resources, shall be liable to pay the state damages in an amount equal to the sum of money necessary to restock such waters, replenish such resources, or otherwise restore...to their condition prior to the injury....

The section similarly gives the Attorney General the power to bring enforcement suits.

The question now arises: What if the violator negligently or intentionally discharged the oil? Section 143-215.91 provides civil and criminal penalties. The civil penalty for intentional or negligent discharge is not to exceed five-thousand dollars for each violation<sup>27</sup> and is in addition to any other provided by law.<sup>28</sup> Anyone who aids or abets is a violator and subject to this section.<sup>29</sup>

Part (b) of 143-215.91 provides for criminal penalties. This provision, as with most criminal statutes, requires intention to be proved. Imprisonment may not exceed six months for this misdemeanor, nor may the

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<sup>27</sup>N.C. Gen. Stat. § 143-215.91 (a) (Supp. 1973).

<sup>28</sup>Id.

<sup>29</sup>Id.

fine exceed ten thousand dollars. Both forms of punishment may be imposed in the court's discretion. Under this section the rule against double jeopardy applies to prevent a person's being tried pursuant to this Act when he has been tried criminally under another law on the same facts. Criminal statutes have generally been more effective than civil fines for the reason that companies would much rather pay a relatively small fine, which appears to be much like a tax and thus a cost of doing business, than withstand the stigma of having an executive in jail for any period of time.

Section 143-215.93 deals with liability for damage caused by the violation. First, this section restates what was said earlier with regard to strict liability for damages to public property.<sup>30</sup> Further, this section extends such liability to injuries caused by the discharge to private property or to any person. This is a significant addition to the amount of a violator's liability.

Part 3 of the Act incorporates some first steps into the area of oil terminal regulation. Section 143-215.95 establishes the Secretary of Natural and Economic Resources as the administrator of Part 3. He is instructed to keep abreast of developments in this area so as to be able to intelligently advise the General Assembly on the need for further legislation.

Section 143-215.96 provides that any operator of an oil terminal facility in North Carolina shall register before November 10, 1973, stating, among other things, his proposed procedures in the event of an oil spill. This section also requires any new oil terminal facility to be registered thirty days after commencing operations. Violators of any provision in Part 3 are subject to imprisonment for not more than thirty days, a fine of not more than fifty dollars, or both.

Section 143-215.99 deals with the allowance of oil refinery permits. Criteria are set out therein which must be satisfied before a permit may be granted.

Although the Act has been in force for only a few months and there is little "feedback" as to what the problem areas will be, some observations may be made as to the strong and weak points of the Act. First, the Act is well drafted. A good example of this is the definitional part of the Act. Little is left to conjecture as regards intended meaning of the defined words. The Act is multi-tiered to cover various types of conduct; there are provisions aimed at strict accountability<sup>31</sup> and penalties for negligent and intentional conduct.<sup>32</sup> Both the state and private parties are protected.<sup>33</sup>

Another commendable provision is § 143-215.86 which provides a multi-agency approach to the problem and avoids the "tunnel vision" often

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<sup>30</sup>See discussion of § 143-215.90 *supra* page 55.

<sup>31</sup>N.C. Gen. Stat. § 143-215.88 and § 143-215.90 (Supp. 1973).

<sup>32</sup>*Id.* § 143-215.91.

<sup>33</sup>*Id.* § 143-215.93.

characteristic of state regulatory efforts. The presence of criminal sanctions<sup>34</sup> is also laudable, for the Act thereby applies a sanction more meaningful to business than a mere fine for pollution.

A very promising aspect of the Act is its orientation toward the future. Much remains to be done in this area, particularly by way of establishing regulations governing oil terminal facilities and refineries.<sup>35</sup> Sections 143-215.95 and 143-215.97 provide that the Secretary of Natural and Economic Resources research this area and make occasional reports to the General Assembly relating to needed improvements and legislation.

A needed provision, not present in the Act, would be an allowance for more personnel either on the Board of Water and Air Resources or at the Attorney General's Office. The situation at the Attorney General's Office has reportedly improved<sup>36</sup> due to the fact that two or three persons there spend some time in environmental enforcement at present as compared to no such coverage eighteen months ago. The Department of Water and Air Resources has almost a standing plea at the General Assembly for more personnel to enforce the recent battery of environmental protection laws but assistance at this time does not appear to be forthcoming.<sup>37</sup> Some mention of increased staff within the Act itself would have been encouraging, though the addition of staff is not generally dealt with by a public act.

A provision for citizen suits would have increased the effectiveness of the Act. While common law suits by citizens are gaining better reception in the courts in the environmental area,<sup>38</sup> a clear-cut statutory right to sue would arguably further the ultimate goal of the Act.<sup>39</sup>

One last potential weakness is part (c) of section 143-215.83 which provides for the granting of permits to allow otherwise unlawful discharges of oil. The legislative guidelines for the delegation of their power could be stated more carefully to better assure that the public interest is carefully considered before allowance of such a permit.

Federal and state authorities have disagreed on the question of federal water pollution control and state control over the same activities.<sup>40</sup>

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<sup>34</sup>Id. §§ 143-215.91(b), 143-215.93.

<sup>35</sup>Schoenbaum interview, supra note 7.

<sup>36</sup>Id.

<sup>37</sup>The Daily Tar Heel, Sept. 6, 1973, at 2, col. 3 reported that the Office of Water and Air Resources is seeking funds for around thirty new people, with prospects dim that these funds will be found.

<sup>38</sup>Standing has been broadened, as a result of Association of Data Processing Services v. Camp, 397 U.S. 150 (1970) and its progeny. Also, ingenious theories are emerging under which citizens may more easily sue. See Sax, The Public Trust Doctrine in Natural Resource Law; Effective Judicial Intervention, 68 Mich. L. Rev. 473 (1970).

<sup>39</sup>Some writers feel that citizen suits, being based on narrow personal economic interests, are too constricted in scope to offer much help to the environment. See, e.g., Schoenbaum, The Efficacy of Federal and State Control of Water Pollution in Intrastate Streams, 14 Ariz. L. Rev. 1 (1972). I believe, however, that any time that citizens are allowed to argue on behalf of the environment, for whatever reason, the environment is the long-term winner. No real changes can occur until the average citizen gets involved.

<sup>40</sup>See, e.g., 2 Env. Rep. Curr. Dev's 251-253 (July 2, 1971) for typical dialogue between state and federal officials.

This classic confrontation can best be understood by following a recent major decision in the area.<sup>41</sup> In the Askew case, the Florida equivalent of the North Carolina Oil Pollution Control Act was involved. The waterways operators contended that the act was invalid due to the fact that the federal legislation in the field<sup>42</sup> pre-empted state legislation. The district court held that the Water Quality Improvement Act pre-empted this area.<sup>43</sup> It read the admiralty clause of the Constitution<sup>44</sup> as conferring exclusive regulatory jurisdiction to the federal government.<sup>45</sup> Further, the district court said that the uniformity necessary in maritime commerce required federal legislation to the exclusion of the diverse standards that might be applied to shipping if states were allowed to regulate in the area. It so held in spite of the fact that the federal act expressly states<sup>46</sup> that it is not intended to prevent any state's imposing "any requirement or liability with respect to the discharge of oil" into state waters.

Criticism of the decision was prompt.<sup>47</sup> It was asked how a clause dealing with maritime jurisdiction and the courts (the admiralty clause) could be carried over to infer legislative pre-emption in the maritime area.<sup>48</sup> Further, it was urged that where there are gaps in the federal legislation, the states should be able to exercise valid police powers,<sup>49</sup> particularly where as here the viability of the federal legislation would not be hampered. Finally, it was argued that the advantage of having more local enforcement and regulation had not been given the weight in the argument which it deserved.<sup>50</sup>

In a unanimous decision, the United States Supreme Court reversed.<sup>51</sup> The court reasoned basically that the Water Quality Improvement Act presupposes a coordinated effort to control oil pollution. The court said: "To rule as the District Court has done is to allow federal admiralty jurisdiction to swallow most of the police power of the States over oil-spillage...."<sup>52</sup> The court was obviously impressed with statistics revealing the magnitude of the oil pollution problem. Also, the court noted that federal law reached only the costs of cleaning up and not the damages incurred by the state and citizens of the state, recoverable under the Florida statute.<sup>53</sup> Since the North Carolina Act is basically identical to the Florida statute, it may be believed that the North Carolina Act is safe from being held invalid on the grounds of federal pre-emption.

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<sup>41</sup>Askew v. American Waterways Operators, Inc., 411 U.S. 325 (1973).

<sup>42</sup>Water Quality Improvement Act, 33 U.S.C. § 1161 (1970).

<sup>43</sup>335 F. Supp. 1241 (M.D. Fla. 1971).

<sup>44</sup>U.S. CONST. art. III, § 2.

<sup>45</sup>335 F. Supp. at 1245 n.10.

<sup>46</sup>33 U.S.C. § 1161 (o) (2) (1970).

<sup>47</sup>Swan, Challenges to Federalism: State Legislation Concerning Marine Oil Pollution, 2 Ecology L.Q. 437 (1972).

<sup>48</sup>Id. at 440.

<sup>49</sup>Id. at 446.

<sup>50</sup>Id. at 449.

<sup>51</sup>411 U.S. 325 (1973).

<sup>52</sup>Id. at 334.

<sup>53</sup>Id. at 336.

It would be misleading to end this paper without a short treatment of the question whether even a good state oil pollution control law, such as North Carolina's, is worth the trouble in view of the magnitude of the international pollution problem. There are success stories from the states,<sup>54</sup> but by "success," I mean that there are examples where pursuant to state legislation, oil spills have been removed from waters within the state. This probably has some value in lessening pollution of the international sea.<sup>55</sup> The fact still remains that few states have tight oil pollution control laws. Regional laws very possibly would have greater effect<sup>56</sup> and federal laws would be an even stronger deterrent. But, will any law short of international regulation even approach solution to this tremendous problem? Several writers in this area think not.<sup>57</sup>

Any real solution will have to be international. A discussion of the numerous hurdles to such a solution is beyond the scope of this paper,<sup>58</sup> but exposure to a small sampling of the voluminous writing on the problem should convince even the arch isolationist that present state and federal legislation, well-drawn though it may be, is only on the ladder to a larger solution.

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<sup>54</sup>Williamson, Water Quality Control From A State Viewpoint, 5 Nat. Res. Lawyer 230 (1972).

<sup>55</sup>The logic is seductive. "Because all rivers eventually find their way to the sea, most of the pollutants dumped in the internal waters of a state get there as well; and what began as a local problem, becomes a state problem, becomes a national problem, becomes an international problem." Hennessee 120.

<sup>56</sup>See Roberts, River Basin Authorities: A National Solution to Water Pollution, 83 Harv. L. Rev. 1527 (1970); Schoenbaum, supra note 39.

<sup>57</sup>See, e.g., Pendergrass, The Law of Maritime Oil Spills, in THE SURGE OF SEA LAW 116-118 (1973); Note, Continental Oil Shelf Disasters: Challenge to International Pollution Control, 55 Cornell L. Rev. 113 (1969).

<sup>58</sup>A chief hurdle is jurisdiction. See, e.g., Hennessee 124-25. Another common one is lack of international enforcement. Another is the strength of the vested interests involved and people with the oil get stronger every day. Still another is the antagonistic attitude of the great majority of the people of the world whose countries are in the developing stage and who see environmental legislation as an attempt to rob them of their long-awaited prosperity. See Wadford, The Attitude of Developing Countries Toward International Agreements on Environmental Control of the Ocean, in THE SURGE OF SEA LAW 68 (1973).

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