INTERNATIONAL LAW AND RADIOACTIVE POLLUTION BY OCEAN DUMPING: "WITH ALL THEIR GENIUS AND WITH ALL THEIR SKILL..."

I. INRODUCTION

On December 29, 1972, the Ocean Dumping Convention was opened for signature. In addition to its other accomplishments, the Convention completely prohibits disposal of high-level radioactive wastes and other high-level radioactive matter by ocean dumping, and it strictly regulates the dumping of all other radioactive wastes and materials. The ratifying nations agree to impose these restrictions upon themselves and all others over whom they have control, but countries not party to the Convention who dump outside a signatory's jurisdiction are not affected. It is toward these non-signatory nations that the thrust of this comment is directed.

What are the theories of existing and, if necessary, developing environmental international law of the sea under which these non-signatory nations can be prevented from future radioactive dumping? What international legal controls, outside the Convention, can signatory states avail themselves of to prevent the oceans of the world from becoming dangerously contaminated? These questions provide not only an interesting topic for comment, they represent vital and difficult issues for our future environment and survival. Not only is the introduction of radioactive wastes into the marine environment potentially the most dangerous of all ma-

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2. Id., art. IV § 1(a).
3. Id., art. IV § 1(b).
4. Id., art. VII §§ 1, 2.
rine pollution,\textsuperscript{5} the concomitant task of articulating controlling international law is exceedingly arduous, for it is felt that international customary law is an unsatisfactory tool, at its present level of development, for preventing pollution of the oceans.\textsuperscript{6} Indeed, the fact that a Dumping Convention had to be resorted to at all leads one to suspect international legal controls by themselves may not suffice. This comment will attempt to dispel such gloom and present four bases for the legal prevention of nuclear pollution of the oceans resulting from the disposal of radioactive waste products by marine dumping. It is hoped these ideas will provide a meaningful starting point for others concerned with this vital issue.

II. GENERAL BACKGROUND

Before considering the legal aspects of radioactive ocean dumping, the reader should be aware of the enormous dangers inherent in nuclear marine pollution. A cold discussion of the law would not convey the requisite urgency implicit in the subject.

The most disturbing aspect of the entire problem of nuclear marine pollution is the presence of a great number of unknowns. Once nuclear pollutants are released into the oceans, the possible resultant damage is broad-ranging in subject matter and far-reaching in area.

\begin{quote}
Every time radioactive waste is dumped into a stream, buried, dropped into the ocean, discharged into the air, or otherwise released from human control, it passes into the complex world of living things. It will pass from living thing to living thing, sometimes being concentrated, at other times being dispersed, with an efficiency and ingenuity which man has not yet come to understand. At unpredictable times and places, this radioactive waste will reappear in man's food, air, or water. It will not go away, for decades, or centuries, or even millenia.\textsuperscript{7}
\end{quote}

This inability to predict how much damage of what type can be expected from a given quantity of radioactive waste has led to intensive research of the problem. Even though effects of radiation exposure have been studied more extensively than those of any other environmental pollutant,\textsuperscript{8} the only definitive finding so far appears to be that no absolutely safe level of radioactivity

\textsuperscript{5} Ezediaro, \textit{Review of the Legal Aspects of International Water Pollution Control}, 17 \textit{How. L.J.} 69, 83 (1971).
can be asserted. Thus until the long range effects are more thoroughly understood, extreme caution or complete abstention would seem the proper procedure with regard to nuclear ocean dumping.

The information that has been gathered, however, is disconcerting enough. Two general areas of concern seem to have emerged. The first deals with the effect on mankind through his reliance on the ocean as a food supply. The problem is ingestion of radioactive isotopes, and the fact that the organisms have no protection against internal radiation. The effects of external radiation are ameliorated by an organism’s outer covering, by the usual location of vital organs deep within the creature itself and, most obviously, by the ability of the organism to move away from the source of contamination. Once the radioactive material is trapped inside the body however, it is apparent that these protections are no longer available.

Added to this is the increasing concentration of radioactive isotopes within the body as one moves up the food chain. Beginning with the billions of tiny plankton which act as a “great biological blotter” in picking up and ingesting marine pollution, it is calculated that 1000 pounds of plankton are assimilated over the course of a lifetime to produce 100 pounds of shellfish or 50 pounds of anchovies and other small fish. These are then eaten by 10 pounds of small carnivores and they in turn by one pound of the large carnivores harvested by man. Thus, a person eating one pound of fish for dinner is ingesting perhaps 1000 times the pollution concentration found in the ocean itself.

Additionally, radioactive isotopes most commonly encountered in nuclear waste do not decay for hundreds of years, and there is no known way to speed the decay process. The radioactivity released into the oceans would therefore build up and correspondingly concentrate within living organisms, man included. The possible effects on mankind are only too obvious. Though it is not yet unanimous, it has generally been accepted that internal radiation

10. See id., at 57.
12. Moore, supra note 9, at 57.
shortens life, produces types of cancer and causes reproductive mutations.\textsuperscript{13}

The second area of general concern regarding nuclear marine pollution is similarly disturbing. It concerns the possible affects on the earth itself initiated by changes wrought in the marine environment, which in turn disrupt the larger organizations of nature in which the oceans play a number of roles.

Thus, the destruction or alteration of the ocean's ecosystems would threaten the earth's supply of oxygen, lead to the possibility of seriously altered climates and threaten destruction of an important source of the world's present and future food supply.\textsuperscript{14} The killing of a marine life or its mutation because of radioactivity might portend a disaster.

Such, then, are some of the recognized dangers incident to radioactive marine pollution. Turning to the question of the origin of radioactive wastes and their introduction into the oceans, it should be noted that radioactive wastes are of two general types. 'Low-level' wastes are the product of nuclear reactor operations and other nuclear facilities. They may consist of contaminated water used as the basis for steam-turbine nuclear power plants, contaminated machinery, parts and other materials from the physical plant of such reactors, or radioactive gases produced in their operation. Such wastes are disposed of by three general methods: 1) diluted and released into the air, rivers or seas; 2) concentrated and stored underground; or 3) encased in cement-filled drums and buried in land or dumped into the ocean.\textsuperscript{15} The second type of wastes are termed 'high-level' for their radioactive intensity is much greater. These wastes are the products of reprocessing the spent nuclear reactor cores, or of manufacturing atomic weapons. Due to the extreme danger of such wastes, they are all stored on or under land to prevent leakage into the environment.\textsuperscript{16}

Of primary concern here are the low-level wastes, for they are most likely to be disposed of at sea, and unfortunately it is already open to debate whether they have caused radioactive pollution of it. The United States, for example, since it first started disposing of radioactive waste by ocean dumping in 1946, has deposited 86,758 containers on the ocean floor.\textsuperscript{17} The drums used may

\textsuperscript{13} Id.
\textsuperscript{14} Klotz, Are Ocean Polluters Subject to Universal Jurisdiction—Canada Breaks the Ice, 6 INT'L LAW. 706, 707 (1972).
\textsuperscript{15} Moore, supra note 9, at 59-60.
\textsuperscript{16} Id.
last less than ten years before decomposing in the corrosive environment. England at the same time had been discharging radioactive liquids from one of its nuclear works directly into the sea through a pipeline extending about three kilometers beyond high water level. While such unfortunate conduct has been abandoned by the United States and Great Britain, other newly developing nuclear powers may be tempted to take advantage of such convenient disposal in the future.

Similarly, the tremendous increase in the amount of radioactive wastes predicted for the remainder of the century may put great pressures on signatories of the Dumping Convention to resume such dumping, since it is clearly allowed under proper supervision. In the United States, for example, 1970 saw 16 nuclear power plants in operation, 55 under construction and 25 permit applications pending. By the year 2000, up to 1000 plants are expected to be in operation. In 1970, 100,000 gallons of liquid radioactive waste was accumulated; by the year 2000 it is expected to be 6,000,000 gallons per year. In the single decade ending in 1980, radioactive solid wastes will triple to a yearly 3 million cubic feet. As the increasing demand for power and the decreasing availability of fossil fuels creates more nuclear generators in the United States, so too will the world increasingly turn to radioactive waste-producing power sources. The world’s total energy consumption is expected to quadruple by the turn of the century.

The trend for the future seems clear; more power demand creates more nuclear reactors which create more nuclear waste. The threat of this peril to our oceans is more apparent when it is realized that right now some rusty United States drum may be leaking radioactivity into the marine environment. The grave dangers are real and they are now.

These containers at the time of disposal possessed activity of 94,673 curies. One curie equals about the activity of the radium on 1,000 wristwatch dials. Id., at 236.

18. Ezediaro, supra note 5, at 84.
19. Teclaff, supra note 6, at 535.
20. See text accompanying note 26, infra.
23. Ramey, supra note 8, at 33.
24. For a diametrically opposed conclusion by a Commissioner of the U.S. Atomic Energy Commission, see generally Ramey, supra note 8.
III. THE DUMPING CONVENTION OF 1972

The historic Dumping Convention of 1972 is important for what it does, but of vital concern because of what it does not do.\(^{25}\) Within its guidelines, materials are classified into three groups, the first of which is never allowed disposal by ocean dumping, the second requiring a prior special permit for such disposal and the third residual group requiring only a prior general permit.\(^{26}\) Materials included in the first group contain the same high-level radioactive wastes and matter as discussed above,\(^{27}\) while group two contains all other radioactive material.\(^{28}\)

The Convention can therefore be seen as paralleling current trends in that high-level wastes are never disposed of in the seas, while low-level waste dumping is permitted under strict regulation.\(^{29}\) It can only be speculated, however, whether new nuclear powers, not party to the Convention, will self-impose these traditional restrictions.

Signatories to the Convention will be the agency for issuing dumping permits and

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\text{[e]ach Contracting Party shall apply the measures required to implement the present convention to all:}
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- a. vessels and aircraft registered in its territory or flying its flag;
- b. vessels and aircraft loading in its territory or territorial seas matter which is to be dumped;
- c. vessels and aircraft and fixed or floating platforms under its jurisdiction believed to be engaged in dumping.\(^{30}\)

The gaps here are apparent. No authority is asserted over non-party nations who load radioactive wastes from their own territory and ship them on their own vessels or aircraft for disposal in any portion of the ocean outside a signatory’s jurisdiction.\(^{31}\) The current confusion over just how far a nation’s territorial waters are to extend is not of concern here. Suffice it to say that even the 200 mile limit propounded by some countries would leave most areas of the world’s oceans completely devoid of Convention con-

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26. Dumping Convention, supra note 1, at art. IV, para. 1.
27. Dumping Convention Annex I(6).
29. See notes 15 and 16 supra, and related text.
31. The problem of how a Signatory is to enforce the Convention against non-parties who dump within the Signatory’s territorial waters is not discussed here. As suggested by William C. Lynch, Adjunct Professor of Law, University of San Diego, this matter is of utmost importance.
This great loophole in the law of the sea is a subject of study in this article.

The Dumping Convention then is a major step in control of nuclear pollution. But in order to protect the vast majority of the oceans from an as yet undetermined number of nuclear nations, the people of the world must still rely on the existing international law of marine pollution.

IV. INTERNATIONAL LAW AND RADIOACTIVE POLLUTION BY OCEAN DUMPING

International law as it exists today offers no straightforward legal doctrines that can be evoked to prevent a nation from contaminating the oceans with its nuclear wastes. This does not mean, however, that the cause is hopeless. There are a number of basic legal and articulated concepts which, if viewed in the proper manner and supported by certain existing authority, can most advantageously be applied to the problem. The doctrines as expounded give credence to the view that if no international marine pollution law exists at this time, "conditions are ripe" for its emergence and, indeed its "birthpangs" are currently very much in evidence. Beyond this lies the fact that radioactivity, being so much worse than other pollutants, would not only ride in on the coat tails of international pollution law, it might enter first, pulling the rest of pollution in behind it. Four principles or concepts appear to be exceptionally well suited to nuclear pollution problems.

A. The Freedom of the Seas Principle

It may seem strange that a principle proclaiming freedom can be used to limit it. However, in two important aspects the principle of Freedom of the Seas does provide limits on the legal right of nations to pollute the oceans, especially with radioactive wastes. To begin with, the 'Freedom' proclaimed is a rule of inter-

33. See, e.g., text accompanying note 6, supra.
34. Teclaff, supra note 6, at 543.
35. Id., at 562.
national law that the open sea is not, and never can be, under the sovereignty of any state whatever. Since the open sea is the territory of no state, no one, as a rule, has a right to exercise its legislation, jurisdiction, or police power over parts of the open sea.36

The very fact that the sea is so independent of any one nation’s control, however, suggests that everyone must therefore have equal rights to the use of it. As stated by Grotius in 1609, “the sea is common to all, because it is so limitless that it cannot become a possession of any one, and because it is adapted for the use of all . . . .”37 From this point it is but a short step to Oppenheim’s “general principle of international law” which prohibits states from exercising their rights under Freedom of the Seas in a manner neglectful of the legitimate rights of other states or general international interest.38

This restriction is apparently a combination of two other legal theories, the first dealing with the Roman maxim sic utere tuo ul alunum non laedas,39 the second being the “Abuse of Rights” principal.40 Concerning sic utere tuo, the International Court of Justice, in deciding the Corfu Channel Case,41 noted in passing that the doctrine obliges states to use their national territory with regard to the rights of other states.42 It should be pointed out, however, that this principle of international law has not been extended to the high seas. But if the use of national waters for nuclear dumping introduces radioactive pollution into the sea which then spreads to another state’s territorial waters or to the high seas where other nations fish, it may be argued a logical extension to hold the dumping state responsible under the law. This result can also be seen as supported by the Trail Smelter Case,43 which under different circumstances is held to have established strict national liability for pollution originating within its territory.44

38. Oppenheim, supra note 36, at § 185aa.
39. One must use his own not to injure another.
40. Ezediaro, supra note 5, at 72.
43. The Trail Smelter Arbitration, 3 U.N.R.I.A.A. 1905 (1938 & 1941) as reproduced in Judicial Decisions, 35 AM. J. INT’L L. 684 (1941). The case also involved spreading pollution, but of the smoke and fume variety. It held Canada liable for damages done private property located in the United States by aerial pollution originating from a smelter plant within Canadian territory. Id.
44. Goldie, International Principles of Responsibility for Pollution, 9
The "Abuse of Rights" principle, on the other hand, holds that a state may not exercise its rights solely to cause mischief or injury to another state. This concept requires an intentional use of otherwise innocent national rights to do another nation harm. The intentional aspect of this principle might cause problems with respect to nuclear pollution because it is hard to imagine anyone carrying out intentional hazardous dumping to damage one state when the effects are potentially so far reaching. But if radioactive pollution is viewed as being a grave threat to mankind, and the amount of dumping increases in the future without adequate safeguards, the dangers of further dumping could be so obvious that a nation engaged in any dumping would be held to know the potential consequences. So knowing, the state that continued to dump would be considered as intentionally causing harm to another state, or states, and the requirement is met.

These two separate concepts then can be seen as comprising the international legal principle that a state must not use the oceans in a manner neglectful of the legitimate rights of other states. Since radioactive pollution could easily harm other nations’ right to freedom of fishing, for example, the theory could be extended to cover the effects of pollution-producing nuclear dumping.

The second aspect of limitation over the traditional Freedom of the Seas concerns the "reasonableness" of the use to which it is put. This is perhaps best explained in the words of the Geneva Convention on the High Seas:

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\text{Freedom of the high seas ... shall be exercised by all states with reasonable regard to the interests of other states in their exercise of the freedom of the high seas.}
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The test of "reasonableness" is the most relevant one used in mod-
ern times for judging the legality of uses of the high seas, and has been interpreted as "clearly" limiting.

The next step is fairly straightforward. Under the "reasonableness" test there must eventually come a point where the detrimental effect of pollution becomes so great that the use of the sea engendering it is unreasonable. This argument is even more persuasive when one is talking of the greater dangers of radioactive pollution from nuclear dumping as opposed to regular pollution.

Two limiting aspects on the Freedom of the Seas have been presented. While they may in reality constitute two aspects of the same principle concerning their legal theories, it is a reasonable deduction that they can provide a foundation for international law restrictions preventing radioactive marine pollution.

B. The Right of Self Defense

A second relevant principle of international law is the right of self protection. This principle is by no means as straightforward as one might believe. As embodied in the United Nations Charter, self-defense is closely tied to an actual "armed attack" on the state raising the right. There is disagreement in the international legal community over whether this armed attack is the sine qua non, or if a more general threat can evoke the right into being. A good example of this disagreement is reflected in the legal commentary that was produced following the Cuban missile crisis of 1962. On one hand the view was expressed that the right of self defense in international law was codified in the U.N. Charter, and as a result, required within this framework an actual armed attack before self defense actions could be justified. This was countered by others who maintained that the right of self defense is available where there is reasonable cause to fear that the national existence is threatened by a known and dangerous course of action. It was felt that an excessively strict interpretation of "armed attack" is out of step with the law and tempo of twentieth century society.

50. Klotz, supra note 14, at 714.
51. Teclaff, supra note 6, at 531.
52. U.N. CHARTER art. 51.
55. Id., at 532.
They believed the importance of the Cuban missile crisis lay in its implication that such a clarification and application of the concept of self defense can effectively be made, and that nations do not have to choose between the historic restraints of international law and their own survival.\footnote{56. McDougal, Editorial Comment: The Soviet-Cuban Quarantine and Self-Defense, 57 Am. J. Int'l L. 597, 598 (1963).}

The relationship between this controversy and radioactive dumping should be apparent. Some states have already claimed jurisdiction on the high seas adjacent to their territorial waters by relying on the right of self protection against activities threatening the survival of industry vital to that state's economy.\footnote{57. Oppenheim, supra note 36, at § 199(ii).} That fishing is of such importance to some countries as to constitute a vital interest of that nation and that a grave danger to fishing can therefore be an actionable threat to the nation's very existence should not be doubted. In Iceland, for instance, the fishing industry accounted for 82% of the exports in 1969, employed 1/3 of the labor force and accounted for 1/5 of the total GNP.\footnote{58. Bilder, The Anglo-Icelandic Fisheries Dispute, 1973 Wis. L. Rev. 37, 43 (1973).} Even Great Britain, currently embroiled with Iceland over the latter's recent extension of its territorial waters to 50 miles, has in the past admitted the vital importance of fishing to Iceland's survival.\footnote{59. Id., at 94.}

The vital economic interests of a nation have also been given official recognition in international law. In 1951, the Anglo-Norwegian Fisheries Case,\footnote{60. [1951] I.C.J. 116 as reproduced in [1951] Ann. Dig. 86 (No. 36).} was decided by the International Court of Justice. In holding that Norway was legally justified in drawing its territorial waters' borderline with straight lines instead of the traditional paralleling of the coastline's contours, and sanctioning the resultant expansion of Norway's territory to include rich fishery areas, the Court viewed the fact that all the inhabitants of the coastal areas derived their livelihood essentially from fishing as a "reality which must be borne in mind."\footnote{61. Id., at 90.} It felt that such economic interests peculiar to a region should not be overlooked.\footnote{62. Id., at 95.}

This clear instance of a vital economic state interest being used as a partial basis for decision has potentially important ramificat-
tions. Following it, a parallel can be drawn between the right to use force to protect political and territorial sovereignty, and a right to protect a vital state economic interest threatened by outside destruction. Under the modern, broader definition of self defense expounded above, a grave threat to a paramount state industry might be held legal justification for protective action. This presents a basis in international law which could be used to prevent nuclear ocean dumping, for radioactive pollution of fisheries vital to a state's economic, and therefore political and territorial survival, might then be actionable by the threatened state. Nuclear dumping with its current unknowns concerning pollution would invoke self defensive action; dumping would be illegal.

A second concept, the "Protective Principle" enunciated by the Restatement, is also valuable. While it lacks the force of law implicit in international legal principles such as that of "self defense", it is still a beneficial starting point for discussion and the American Law Institute deemed it of sufficient importance for inclusion. As this concept is enunciated:

A state has jurisdiction to prescribe a rule of law attaching legal consequences to conduct outside its territory that threatens its security as a state or the operation of its governmental functions, provided the conduct is generally recognized as a crime under the law of states that have reasonably developed legal systems.63

... The range of conduct that threatens the security of a state or the operation of its governmental functions, within the meaning of the rule stated in Subsection (1), is not clearly established.64

Comparing this statement to the previous discussion, it has been shown that radioactive contamination of vital fishing waters can threaten a state's economic viability and perhaps political and territorial sovereignty, thereby meeting one requirement. As to the necessity that the act in question, nuclear dumping in the context of this comment, be conduct "generally recognized as a crime", it can be pointed out that the United States and Canada, for example, hold nuclear dumping illegal under national law. The Federal Water Pollution Control Act65 and the Arctic Waters Pollution Prevention Act66 both forbid dumping of certain radioactive wastes or any material that would make waters detrimental to use by man

63. RESTATEMENT (SECOND) OF THE FOREIGN RELATIONS LAW OF THE UNITED STATES § 33(1) (1965) [hereinafter cited as RESTATEMENT].
64. Id., comment d.
or by any animal, fish or plant that is useful to man. Under these concepts, then, the conditions of the Restatement rule have been met and it could be applied to international marine pollution law.

Combining the Restatement concept with the self-protection principle discussed earlier in this section, the right of self-defense may be viewed as a viable tool in the legal prevention and control of radioactive pollution from nuclear dumping.

C. The “Effect” Concept

A third concept in international law that lends itself to the control of nuclear dumping is the Restatement’s “Effect Principle.” Once again, it should be recognized that the Restatement’s views lack the force of established law, but this should not discourage their use as a valuable source of new ideas. As expressed by the American Law Institute:

Jurisdiction to Prescribe with Respect to Effect Within Territory.
A state has jurisdiction to prescribe a rule of law attaching legal consequences to conduct that occurs outside its territory and causes an effect within its territory, if either
(a) the conduct and its effect are generally recognized as constituent elements of a crime or tort under the law of states that have reasonably developed legal systems, or
(b) (i) the conduct and its effect are constituent elements of activity to which the rule applies; (ii) the effect within the territory is substantial; (iii) it occurs as a direct and foreseeable result of the conduct outside the territory; and (iv) the rule is not inconsistent with the principles of justice generally recognized by states that have reasonably developed legal systems.

Following this definitional guideline, a step-by-step analysis is possible for determining in what manner the principle may aid legal controls on dumping. To begin with, the “conduct” which threatens is nuclear dumping, and the effect within the state’s territory can either be the radioactive pollution which drifts into its territorial waters or the economic effects caused within the nation if radioactive-polluted fish gravely injure its vital fishing industry.

Subsection (a) may be met by the prior discussion of United

67. Id., at § 2(h).
68. Restatement § 18.
States and Canadian legislation, and by adding the Dumping Convention which binds the signatories to prevent certain types of nuclear dumping in areas within their control.

Subsection (b) provides a number of items, all of which can be met with regard to radioactive dumping. Requirement (i) can be fulfilled by clear wording dealing with nuclear dumping and radioactive contamination. Number (ii) has been discussed earlier in regard to the food supply or economic survival of the country. The foreseeability of (iii) has been discussed and appears a reasonable extension, and (iv) can be met by pointing out that no legislation has been found in which a nation specifically grants its citizens the right to contaminate the ocean with radioactivity.

Additional authoritative support exists. *The Trail Smelter Case*, for example, has been viewed as supporting an international law principle which would generally limit action that one nation may take which would cause injury within another state's territory. Concerning the famous *Lotus Case*, the American Law Institute views the decision as clearly holding that the effect within any territory, from conduct occurring outside it, provides the affected state with a valid basis of jurisdiction under international law. This view is also supported by the recent U.N. Declaration on the Human Environment (Stockholm Declaration). The nations attending stated that under international law a state has a responsibility to ensure that acts within its jurisdiction or control do not damage the environment of other states or of areas beyond the limits of any national jurisdiction. That the dumping of nuclear wastes into the high seas is sufficiently within that particular state's control seems apparent. Enforcement would close the high sea loophole.

The dicta in these two cases, the U.N. Declaration and the Restatement "Principle" all lend weight to the view that the responsibility of one state for damage it causes within another is generally

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69. See text accompanying notes 65 and 66, supra.
70. See text accompanying note 30, supra.
71. See text accompanying notes 7-14, supra.
72. See text accompanying and following note 45, supra.
73. *Supra* note 43.
76. RESTATEMENT § 18, Reporter's Notes 1 (1962).
78. *Id.*, at Principle 21.
recognized.\textsuperscript{79} Within this framework, the “effect” concept can be extended to include the creeping effects of radioactive pollution on all nations, and in this respect represents another instance where existing legal principles may be used for protection of the total marine environment.\textsuperscript{80}

D. Protection of Certain General Interests—“Offenses Against the Law of Nations.”

The final principle of international law to be applied to marine radioactive pollution is perhaps the most exciting and most challenging—Offenses against the Law of Nations. This concept is at present comparatively nebulous, but its enormous potential for growth and development may offer the best opportunity yet for emergence of international environmental law.

As set forth by the High Seas Convention, piracy and slave trading are at present the only black letter international crimes given pervasive recognition.\textsuperscript{81} However, the Restatement mentions other possible crimes: traffic in women for prostitution, traffic in narcotic drugs and war crimes.\textsuperscript{82} It further states that certain other crimes are universally, or almost universally, condemned and have been made the subject of multilateral international conventions aimed at their elimination.\textsuperscript{83}

The problem is whether radioactive marine pollution engendered from intentional ocean dumping of nuclear wastes can be classified as a newly emerging “crime against the Law of Nations.”\textsuperscript{84} Step one in the resolution of this issue is determining


\textsuperscript{80} At this point a caveat is in order. The broadness of this “effect” concept is a two-edged sword and before relying on it as a basis for new international law, deep thought is necessary. Opening a new Pandora's Box which allows states to prevent any actions which have some real or imagined effect on them would be clearly undesirable. But so too is refraining from its consideration due to these possible consequences. This concept could be a valuable tool and detailed study of it is required to enhance its benefits and minimize its possible liabilities.

\textsuperscript{81} High Seas Convention arts. 13-21.

\textsuperscript{82} RESTATEMENT § 34, Reporter's Notes 2 (1962).

\textsuperscript{83} Id.

\textsuperscript{84} [T]he present-day polluter is more dangerous to the order of the oceans than the pirate has ever been.” Teclaff, supra note 6, at 564.
whether the international community has a right to an uncontaminated marine environment. This leads immediately to the current partial recognition of the seabeds as the "common heritage of mankind."

It would be misleading to characterize the concept as accepted international law, however. It is unfortunate that perhaps the majority of authorities agree that the ocean floor as a common heritage of mankind is not a legal principle but rather "only a reflection of political aspirations and, at best, moral commitments . . . ."85 This conclusion has been sustained by the view that the oceans are res nullius. Fortunately, however, a growing segment of the commentators have begun to view things differently, perhaps in response to the increasing concern with ocean pollution and its effects on a dwindling world food supply. This second group finds the seas being res communes, and while neither theory is universally accepted, a trend toward res communes may be discerned.86

This common heritage concept is not without its supporters, however. While not all may agree that "[t]he oceans have always been considered the common heritage of mankind and essential to his survival,"87 former U.N. Secretary General U. Thant recently stated just that in one of his messages.88 The U.N. Seabed Declaration,89 while it only directed itself to the seabeds, has already been interpreted as "clearly indicating" that ocean itself is res communes.90 These instances alone will not alter the accepted principle of res nullius, but the tide may be changing, and as concerns the issue of radioactive pollution,

. . . it can be expected that the longer the international community lives with even the verbal identity of such rights formulations, the easier it will become to claim that disregard of them constitutes an international offense.91

This leads to the important step forward. If the oceans may be held as a common heritage, if this concept is on the rise and moving toward eventual world-wide recognition, then it seems logical that those who through their polluting activities radioactively be-

88. 8 U.N. MONTHLY CHRON. 23 (April, 1971).
89. See note 86, infra, at art. 1.
90. Klotz, supra note 14, at 716.
foul it are committing a crime against mankind. If this is so, a way has been cleared for holding nuclear contamination by ocean dumping an illegal act, a crime actionable on the part of any other state, in any location on earth, under the principle of “offenses against the law of nature”.

Another definition of international offenses is offered at this time;

... any violation of an elemental individual, group, national or international value so basic and permanent in importance that the necessity for its protection is recognized by most of the recognized actors of the world scene.

The issue as to whether radioactive pollution-free oceans is an “elemental value” has been covered above. Suffice it to say that if the oceans are the common heritage of mankind, clean oceans would meet the required criteria.

This leads to the second requirement, that the value is so important that the “necessity for its protection” is well recognized. With respect to this point a general growth of recognition may be seen through a substantial number of international agreements on the subject.

Perhaps the best way to illustrate the existing international pacts that recognize the danger inherent in marine pollution, both radioactive and conventional, is to present the important agreements and the language used. Chronologically, these agreements are:

1. The Geneva Convention on the High Seas, a generally accepted codification of law of the sea:

   1. Every state shall take measures to prevent pollution of the seas from the dumping of radioactive waste.

   2. All states shall co-operate with the competent international organizations in taking measures for the prevention of pollution of the seas or air-space above, resulting from any activities with radioactive materials or other harmful agents.

2. The Seabed Declaration, a major U.N. pronouncement, unani-

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92. Klotz, supra note 14, at 716.
93. Bloom, supra note 91, at 1599.
94. Supra note 47.
95. High Seas Convention art. 25.
96. Declaration of Principles Governing the Sea-Bed and the Ocean Floor, and the Subsoil Thereof, beyond the Limits of National Jurisdiction,
mously adopted, which notably declared positive state obligations to exist:

[States shall take appropriate measures for and shall cooperate in the adoption and implementation of international rules, standards and procedures for, *inter alia*: (a) Prevention of pollution and contamination, and other hazards to the marine environment, including the coastline, and of interference with the ecological balance of the marine environment.]

3. The Oslo Convention, a regional pact of the 13 nations bordering the north-east Atlantic:

The Contracting Parties pledge themselves to take all possible steps to prevent the pollution of the sea by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

4. The Stockholm Declaration, an extensive and inspiring U.N. document more wishful than assertive:

States shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

5. The Dumping Convention, the major treaty described above:

Contracting Parties shall individually and collectively promote the effective control of all sources of pollution of the marine environment, and pledge themselves especially to take all practicable steps to prevent the pollution of the sea by the dumping of waste and other matter that is liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

These conventions and declarations establish the fact that the necessity for protection of the marine environment from radioactive or other pollution is indeed recognized. The second requirement of the instant definition for "international offense" thereby being fulfilled, yet another international legal concept may now be available for preventing radioactive pollution by ocean dumping.

While this concept of radioactive pollution as constituting an international crime is forward-looking, it still appears to be the

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97. *Id.*, at art. 11.
98. *Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft* *as reproduced* in 11 *Int'l Legal Materials* 262 (1972).
99. *Id.*, at art. 1.
100. *Supra* note 77.
102. *Supra* note 1.
103. Dumping Convention art. I.

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best hope for a non-contaminated future. It shows a substantial ability for expansion and growth that already has encompassed actions harmful to mankind. Radioactive pollution arguably would fit well into its framework.

V. CONCLUSION

This comment has attempted to formulate and present ideas on how existing principles and concepts of international law can be used to prevent the radioactive pollution of our marine resources resulting from ocean dumping of nuclear waste products. The four theories suggested may not be the only ones available, but they appear to provide the best existing opportunity for further development of international environmental law of the sea. Attempt has been made to furnish starting points for the international legal community's vital efforts to stop this particularly sinister form of environmental pollution.

In November, 1970, on the occasion of the 25th Anniversary of the United Nations, Secretary General U. Thant eloquently and movingly addressed the Assembly. He said, in part:

... the squandering of natural resources, the pollution of the whole environment: those are problems we have hardly begun to face, and the hour is already very late. As we watch the sun go down, evening after evening, through the smog across the poisoned waters of our native earth, we must ask ourselves seriously whether we really wish some future universal historian on another planet to say about us: "With all their genius and with all their skill, they ran out of foresight and air and food and water and ideas."... 104

If this comment does nothing else, it may supply a few ideas.

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104. 7 U.N. MONTHLY CHRON. 94 (November, 1970).