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INTERNATIONAL REGULATION OF MARINE POLLUTION
FROM LAND-BASED SOURCES

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The views contained herein are solely those
of the author.

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I. INTRODUCTION

International efforts to deal with pollution of the marine environment are of relatively recent origin. Two decades ago, agreement was concluded on the first multilateral instrument directly addressed to ocean pollution - the 1954 Convention on the Prevention of Pollution of the Sea by Oil. Concern over the effects of oil spills from tankers, accidental and intentional, was the primary stimulus to the negotiation of this agreement and vessel-source oil pollution has been the principal object of international regulatory action ever since.

Vessels, however, are not the only source of oil release and oil is but one of many toxic or otherwise harmful substances man introduces into the marine environment. Most of the waste products of human society end up in the oceans and the number and quantities of pollutants entering the oceans have been increasing at exponential rates. Recognition of these trends has resulted in expansion of international environmental attention to include sources of marine pollution other than vessels.

Source, in this sense, refers to the pathway through which pollutants reach the sea. Sources of marine pollution, thus, may be classified as follows: vessel accidents and vessel operations; seabed activities - exploration for and exploitation of seabed resources; dumping - the deliberate disposal of matter transported from land for disposal; and direct outfall discharge, river run-off and atmospheric transport of pollutants resulting from activities on land.

The last of these four categories - land-based sources - accounts for the vast bulk of the pollutants reaching the oceans. Effective protection of the marine environment, therefore, must include regulation of land-based sources of marine pollution. In this regard, the first international conventions which specifically aim at control of land-based pollution of the marine environment were negotiated in 1974. The first of these - the Convention on the Protection of the Marine Environment of the Baltic Sea Area - was drawn up by representatives of Denmark, Finland, the German Democratic Republic, the Federal Republic of Germany, Poland, Sweden and the Soviet Union. The convention, which was opened for signature on March 22, 1974 in Helsinki, also covers the other three categories of marine pollution.

The second agreement - the Convention for the Prevention of Marine Pollution from Land-Based Sources - was drawn up by representatives of fourteen western European nations* and opened for signature on June 4, 1974 in Paris. Though neither convention has entered into force, their very conclusion, as well as the thrust of their provisions, offers a stimulus to and a focus for assessment of possible international approaches to deal with land-based pollution of the world's oceans. A necessary first step in such an assessment is to define what is meant by marine pollution and to further delineate the term "land-based sources".

* Austria, Belgium, Denmark, France, the Federal Republic of Germany, Iceland, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom

II. WHAT IS MARINE POLLUTION

The 1974 Convention for the Prevention of Pollution from Land-Based Sources defines pollution of the sea as: "the introduction by man, directly or indirectly, of substances or energy into the marine environment (including estuaries) resulting in such deleterious effects as hazards to human health, harm to living resources and to marine eco-systems, damage to amenities or interference with other legitimate uses of the sea."¹ The Baltic Sea states adopted a very similar definition of marine pollution, with "impairment of the quality of sea water" included as an additional "deleterious effect".² Both formulations are based upon that elaborated in 1969 by the United Nations Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP).³

The GESAMP definition and its derivatives set forth rough criteria for the identification of pollutants in the marine environment and GESAMP itself has engaged in extensive work in compiling lists of such pollutants. This activity was recognized by the 1972 United Nations (Stockholm) Conference on the Human Environment which recommended that GESAMP "re-examine annually and revise, as required, its 'Review of Harmful Chemical Substances', with a view to elaborating further its assessment of the sources, pathways and resulting risks of marine pollution."⁴

Definitions of marine pollution based on the GESAMP language, as well as the identification of specific pollutants, are essentially qualitative in nature . An important distinc-

tion - also qualitative - can be applied to pollutants identified on this basis, separating them into two categories: those pollutants which occur naturally in the marine environment; and synthetic pollutants which, unless introduced by man, are not present in the seas. The latter are perhaps particularly dangerous to marine organisms which may have no biological defenses against them.⁵ However, many pollutants - certain heavy metals, for instance - do occur in the marine environment as a result of natural processes such as erosion or volcanic eruption.

Marine pollution should also be considered in a quantitative context. This quantitative aspect is reflected in definitions of pollution applicable to the marine environment proposed by two distinguished scientists. Athelstans Spilhaus devised the simple formula of "...anything animate or inanimate that by its excess reduces the quality of living."⁶ (emphasis added). John Knauss has defined pollution as "...those processes to which man contributes (and presumably, therefore, processes which man can control) that cause measurable and undesirable effects on the natural world."⁷ (emphasis again added).

From a qualitative perspective, the level or concentration of a pollutant in the marine environment, as well as its potential harm, takes on significance. Some substances may be harmful when present in the oceans in any amount, no matter how small; but for most pollutants there are threshold concentrations at which their potential effects become actual.

Determination of such threshold concentrations is a difficult and often controversial task. It is complicated by the fact that the effects of pollutants may be gradual, cumulative and synergistic. Certain toxic substances, for example, are concentrated by metabolic processes in the living tissues of marine organisms in amounts several orders of magnitude higher than the level of the substances in the surrounding sea water medium.

The utility of establishing threshold concentrations for pollutants, in turn, depends upon two kinds of measurement. The first consists of acquiring adequate information on the marine environment - including measurement of the "normal" levels of potentially harmful substances. The need for such base-line data to serve as standards for assessing the impact of man's polluting activities can hardly be over-emphasized. The second is accurate detection of the entry of pollutants into the marine environment and determination of their rates of entry.

Ultimately, all efforts at delimiting the concept of marine pollution rest upon the assumption that there are limits to the capacity of the world's oceans to assimilate and render harmless the pollutants which are the by-products of human activities. Marine pollution, in this sense, can be considered simply the surpassing of any such limit and can be viewed as a spectrum. At one end, there would be the "polluting incident", in which the assimilative capacity of the sea for a particular substance is temporarily exceeded on a local basis.

At the other end of the spectrum would lie the accumulation of a substance, or substances, beyond the assimilative capacity of an entire marine region or even the marine environment as a whole. This long-term pollution would result in impairment or even destruction of the life-sustaining and regenerative qualities of the marine area concerned - regional or global - and would be irreversible within any reasonable time frame.

III. LAND-BASED POLLUTION

The concept of marine pollution discussed above does not serve to distinguish land-based from other sources of marine pollution. It applies equally to vessels, dumping, seabed operations, as well as to land-based sources. The four-fold classification of pollution by source, then, is not founded on generic distinctions between the pollutants each source contributes to the marine environment. (Oil, for instance, enters the oceans from all four sources.) Rather, this classification can be viewed as a function of two factors, which do serve to differentiate land-based from the other sources: first, the relative susceptibility of instances of marine pollution to separation into discrete, identifiable actions; and second, the relative willingness of states to accept international restraints on the exercise of their sovereignty over activities under their jurisdiction.

The first factor refers to the possibility of breaking down marine pollution into specific acts which can be regulated. Vessels, off-shore drilling platforms, barges used for

dumping dredge spoil or industrial wastes can be indentified as individual units. In effect, they can be considered as point sources and treated as such for regulatory purposes. With the exception of direct outfalls, however, land-based sources - river run-off and atmospheric transport - are non-point sources at the time of their entry into the marine environment (even if they originated as point source discharges). It is extremely difficult to identify and isolate as regulatory components the constituent elements of land-based pollution.

Second, there is a correlation between the classification of pollution by source and the willingness of states to agree to international regulation of potentially polluting activities under their jurisdiction. The four sources can be ranked in order of nations' disposition to accept internationally agreed as opposed to nationally determined norms for their regulation. States have shown themselves most willing to accept international standards for their flag vessels and least inclined to do so for seabed and land-based sources of marine pollution. A number of international agreements have been negotiated under the auspices of the Inter-Governmental Maritime Consultative Organization (IMCO) to regulate vessel-source pollution, following the 1954 Oil Pollution Convention, most recently the 1973 International Convention for the Prevention of Pollution from Ships (not yet in force). In 1972, an international treaty on ocean dumping was concluded - the Convention on the Prevention of Marine Pollution by the Dumping

of Wastes and Other Matter (not yet in force).

Neither seabed-source nor land-based pollution have been the subject of international agreements seeking universally applicable standards, though the establishment of minimum internationally agreed standards for seabed pollution has been proposed at the Third United Nations Conference on the Law of the Sea. Establishment of such standards for land-based pollution is considered by the vast majority of participating governments as beyond the Conference goal of agreement on a jurisdictional framework for protection of the marine environment. Law of the Sea Conference discussion of marine pollution has made apparent the position of most states that competence to set standards for regulating land-based sources is national, not international, and should remain so for at least the near future.

Land-based pollution of the marine environment, thus, poses a major dilemma. Land-based sources are responsible for most of the pollutants reaching the oceans - more than all other sources combined. Since pollutants, once in the marine environment, do not recognize jurisdictional limits and are transported across man-made boundaries by physical forces - winds and currents, for instance - their effects are international in extent. This fact, coupled with the magnitude of the potential harm from land-based sources has led some observers to contend that only a new international organization with broad powers to set effective standards can protect the oceans from irrevivable degradation.⁸

On the other hand, land-based pollution, in addition to the intrinsic difficulties of its regulation, is the least amenable to international remedial action. The authority to determine what regulations, if any, to impose on land-based activities which release pollutants to the sea rests with the state in whose territory these activities take place. There are generally powerful national pressures against subjecting such activities to potentially costly controls, particularly since their harmful effects are often far removed from their source - in time, in space, or both.

However, even though internationally agreed rules applicable on a global basis to land-based sources of marine pollution are not a realistic prospect in the immediate future, there remains a considerable field for multilateral undertakings, more limited in scope and objective, to combat land-based pollution. The Convention for the Protection of the Marine Environment of the Baltic Sea Area and the Convention for the Prevention of Marine Pollution from Land-Based Sources, as will be seen, illustrate these opportunities. Before turning to the approach to land-based pollution reflected in these two conventions, it is necessary to examine ongoing efforts to establish a general, and universally applicable, obligation upon states to protect the marine environment from all sources of pollution, including land-based sources. The delineation of such an obligation became a controversial subject at the 1972 Stockholm Conference on the Human Environment and explicit treaty recognition of the obligation is a major issue at the Law of the Sea Conference.

IV. THE OBLIGATION TO PROTECT THE MARINE ENVIRONMENT

Though the principle of state sovereignty is a basic foundation of the relations among states, there is general recognition in international law that sovereignty is not absolute - that it is limited by the inherent duty of states not to act in disregard of their neighbors. States can be said to be bound by an obligation not to take action which would cause injury or damages in areas under the jurisdiction of other states.

There is, further, growing agreement among legal commentators that this obligation extends to transnational environmental matters. The decisions or dicta of international arbitral panels in the Trail Smelter Arbitration (1941) and the Lac Lanoux Arbitration (1957), as well as the decision of the International Court of Justice in the Corfu Channel Case (1949), have been cited as bases for this interpretation.⁹ The panel in the Trail Smelter Arbitration held that a state is obliged neither to use nor to permit use of its territory in such a manner as to cause injury in or to the territory of another or to persons or property therein.¹⁰

Universal realization of this obligation would lead to the full liability of states for damages to others resulting from polluting activities under their jurisdiction. Experience in the international regulation of vessel-source pollution indicates that liability provisions, though an important supplement to, are not a substitute (as a deterrent) for standards designed to prevent polluting acts. Proof of pollution dam-

ages and determination of responsibility is very difficult in the marine environment, particularly for incidents deriving from land-based sources.

In addition, the duty of states not to engage in or permit activities causing harm to other states or their citizens applies only to marine areas under national jurisdiction. Most of the marine environment, however, lies beyond the limits of national jurisdiction (and is indivisible in terms of pollutant transport). Thus, there exists no general legal obligation not to pollute the oceans. Filling this gap - recognition by states of a positive duty to protect the marine environment - would be an important step toward creation of a comprehensive international legal framework for dealing with ocean pollution.

Initial efforts to secure international recognition of a positive obligation to protect the oceans, at the 1972 Stockholm Conference on the Human Environment, immediately became the subject of controversy as the basic economic and political nature of this issue, underlying its legal formulation, became apparent. Debate of such a duty mirrored the basic divergence in viewpoint among states at the Conference over the relationship between economic development and the environment. For many developing countries, facing profound economic challenges with limited resources, anti-pollution measures seem a luxury, often incompatible with the goal of rapid economic development. From this perspective, the objective of environmental protection is clearly subordinate to the requirements of eco-

conomic growth. Therefore, most developing country participants resisted Conference endorsement of an unqualified general obligation to protect the oceans - the type of duty which, in their view, could restrict national economic development policies and burden their economies with costs that developed nations did not have to bear in their industrialization.

On the other side, states advocating the need for a general obligation to protect the marine environment - primarily industrialized nations - argued that an unqualified duty should apply to all, recognizing that the ability to take measures pursuant to it varies among countries. Often supplementing this position was the general view that the short-run costs of environmental protection are less than the long-run costs of unregulated pollution.

The Conference, not suprisingly, did not resolve the divergence and the Declaration on the Human Environment drawn up by the conferees recorded both positions. Principle 7 of the Declaration asserts that: "States shall take all possible steps to prevent 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."¹¹ Other general provisions stressed the need to consider economic as well as ecological factors in policies affecting the price or earning power of primary commodities or raw materials, upon which developing countries depend (Principle 10); the need for the environmental policies of all states to "enhance and not adversely

affect the present or future development potential of developing countries..."(Principle 11); and the need for financial and technical assistance to developing countries to help defray costs resulting from incorporation of environmental safeguards into their development planning (Principle 12).

Principle 21, however, specifically displayed the split over the obligation: "States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction."¹²

Inherent in the developing position expressed at the Stockholm Conference is the belief that the responsibility of a state to prevent ocean pollution should be related to its level of economic development. Developing countries, thus, would be permitted to observe lower standards than those applying to developed nations. This "double standard" has been justified further on the grounds that developed countries, having contributed almost all of the pollution of the marine environment that has occurred to date, are primarily responsible for remedial action.

The implications of the "double standard" have become clearer in the continuing law of the sea negotiations. Since the Law of the Sea Conference, unlike the Stockholm Conference,

aims at the conclusion of binding treaty articles, debate over the nature of state responsibility to protect the marine environment has exhibited, in greater detail, the dichotomy which arose at Stockholm. The issue is reflected in four of the tentative draft and alternative texts of treaty articles on marine pollution which were drawn up by an informal drafting and negotiating group during the second session of the Conference (June-August, 1974, in Caracas, Venezuela).¹³ These texts include: basic and particular obligations to protect the marine environment, as well as drafts on the right of states to exploit their own natural resources and on the relevance of economic factors in considering whether states have discharged their obligations.

The proposed basic obligation is simple: "States have the obligation to protect and preserve the marine environment..."¹⁴ It is followed by a draft article on the right of states to exploit their own natural resources:

Nothing in this Convention shall derogate from the sovereign right of a State to exploit its own natural resources pursuant to its environmental policies and programmes for economic development and in accordance with its duty to protect and preserve the marine environment.¹⁵

The inclusion of this article in a law of the sea treaty is supported by most developing countries and opposed by a number of the developed.

The proposed text on particular obligations is quite detailed. It consists of four paragraphs. The first provides:

States shall take all necessary measures to prevent, reduce and control pollution of the marine environment from any source using for

this purpose the best practicable means at their disposal and in accordance with their capabilities, individually or jointly, as appropriate, and they shall endeavour to harmonize their policies in this connexion.¹⁶

Various developed nations, including the United States, consider that this provision, by itself, does not risk imposing undue burdens upon developing nations, that differences in the economic capacity of states to discharge the duty are recognized by the "best practicable means at their disposal and in accordance with their capabilities" language. Developing countries disagree and have proposed a second paragraph to qualify the first: "States shall fulfill these obligations in accordance with their national environmental policies and their duty to protect and preserve the marine environment."¹⁷

The third paragraph of the proposed text on particular obligations contains three alternatives, regarding state responsibility to ensure that activities under its jurisdiction do not cause damage to those areas of the marine environment beyond, as well as within, the limits of national jurisdiction. The alternatives encompass disagreement over how explicitly this responsibility is to be formulated, specifically whether states shall take all necessary measures: (I) "to ensure that activities under their jurisdiction or control do not cause damage (hazard)..."; (II) "requiring that activities under their jurisdiction or control are so conducted that such activities do not cause damage (hazard)..."; or (III) "to ensure that marine pollution arising from activities under their jurisdiction or control does not spread outside their jurisdiction."¹⁸

The fourth paragraph of the proposed text on particular obligations states that:

The measures taken pursuant to these articles shall deal with all sources whatsoever of pollution of the marine environment. These measures shall include, inter alia:

(a) those designed to minimize (to the fullest possible extent) the release of toxic and harmful substances, especially those which are persistent:

- (i) from land-based sources;
- (ii) from or through the atmosphere;
- (iii) by dumping.

(b) those designed to minimize (to the fullest possible extent) pollution from vessels...

(c) those designed to minimize (to the fullest possible extent) pollution from installations and devices used in the exploration or exploitation of the natural resources of the sea-bed and subsoil...

(d) those designed to minimize (to the fullest possible extent) pollution from all other installations and devices operating in the marine environment...¹⁹

Perhaps the most controversial of the preliminary texts relating to state obligations to protect the marine environment, however, is that on the discharge of such obligations. There are two alternative texts for this suggested article. The first was proposed by a group of developing countries led by Brazil and India:

In considering whether a State has discharged its obligations under this Convention in respect of preventing, reducing and controlling marine pollution, due regard must be paid to all relevant factors including in particular the economic and financial ability of a State to provide the resources necessary for the discharge of such obligations and the stage of economic development of the State.²⁰

The second alternative, proposed by Jamaica and others, sets forth identical qualifications but applies them only to

land-based sources rather than to all sources of marine pollution.²¹ The United States and others have formally proposed deletion of this article, expressing strong opposition to inclusion of such a provision (particularly the first alternative). The ultimate impact of adoption of this article would be to reserve to each state the decision as to the nature of its duty, if any, to protect the oceans from pollution - from all sources of pollution in the first case, from land-based sources only in the second. It could constitute a general escape clause from the obligation to protect and preserve the marine environment.

V. EMERGENCE OF A REGIONAL APPROACH TO LAND-BASED MARINE POLLUTION

Debate at the Stockholm and Law of the Sea Conferences has reflected a consensus that control of land-based polluting activities is primarily a field for national action. The value of international recognition of a general obligation to protect the marine environment would, in the first instance, lie in its stimulating effect upon states to undertake regulation of land-based sources. In this spirit, Recommendation 87(f) of the Action Plan for the Human Environment, adopted at Stockholm, calls upon governments to: "Strengthen national controls over land-based sources of marine pollution, in particular in enclosed and semi-enclosed seas..."²²

At the same time, the recommendations of the Action Plan regarding land-based pollution are not limited to exhortations to national action. Recommendation 92(b) urges: "That Govern-

ments take early action to adopt effective national measures for the control of all significant sources of marine pollution, including land-based sources, and concert and co-ordinate their actions regionally and where appropriate on a wider international basis."²³ The approach outlined at Stockholm to deal with land-based pollution implies building from the national level to the regional and where necessary the international level. Regional measures in such a gradual strategy would be facilitated by, but are not dependent upon, universal or near-universal acceptance of a clear obligation to protect the marine environment.

Emphasis upon regional measures, in fact, has become the dominant element in the United Nations Environment Programme (UNEP) treatment of the issue of land-based pollution of the oceans. The Governing Council of UNEP at its first session (June 12-22, 1973) approved as a program guideline the following "detailed objective": "To detect and prevent serious threats to the health of the oceans through controlling both ocean-based and land-based sources of pollution and to assure the continuing vitality of stocks;..."²⁴ The Governing Council further requested UNEP's Executive Director (and thus the organization) to perform a number of specific tasks including, with respect to the oceans, the following:

(iii) to assist nations in identifying and controlling land-based sources of pollution, particularly those which reach the oceans through rivers;

(iv) to stimulate international and regional agreements for the control of all forms of pollution of the marine environment, and especially agreements relating to particular

bodies of water;...

(vi) to develop a programme for the monitoring of marine pollution and its effects on marine ecosystems, paying particular attention to the special problems of specific bodies of water including some semi-enclosed seas, if the nations concerned so agree;...²⁵

The UNEP Governing Council, at its second session (March 11-22, 1974), approved the following activities within the priority subject area of the Environment Programme relating to oceans:

(ii) Priority should be given to regional activities, with the possible establishment of programme activity centers in the Mediterranean. The importance of activities in the Caribbean, the Baltic, the Persian Gulf, the Indonesian and Phillipines archipelagoes, and parts of the Atlantic and Pacific Oceans was stressed;

(iii) UNEP should encourage and support the preparation of regional arrangements or conventions on the protection of specific bodies of water from pollution, particularly from land-based sources. High priority should be given to supporting activities to protect living resources and prevent pollution in the Mediterranean;...²⁶

The Governing Council, also, decided to give the Executive Director discretion in selecting areas of concentration within the Programme, but suggested that particular attention be paid to specific items which included: "Protection of the marine environment - regional arrangements."²⁷

The emergence in the United Nations Environment Programme of primary reliance upon a regional approach to land-based marine pollution, then, has been impelled by growing awareness of the seriousness of the pollution problems of

such semi-enclosed seas as the Mediterranean and of the inadequacy of national action by itself to handle these problems.

Precedent for regional approaches to land-based marine pollution may also be found in international regulation of marine-based sources of pollution. The 1973 IMCO International Convention for the Prevention of Pollution from Ships recognizes that there are marine regions of particular environmental vulnerability in which particularly high standards for vessel-source oil pollution should apply. These "special areas" are defined in Annex I of the Convention as "sea area(s) where for recognized technical reasons in relation to (their) oceanographical and ecological condition and to the particular character of (their) traffic the adoption of special mandatory methods for the prevention of sea pollution by oil is required."²⁸ Five "special areas" are designated in the Convention (all enclosed or semi-enclosed seas): the Mediterranean Sea area, the Baltic Sea area, the Black Sea area, the Red Sea area and the "Gulfs area" (the Persian or Arabian Gulf, plus the Gulf of Oman).²⁹

In addition, international regulation of ocean dumping began with a regional convention - the Oslo Convention (the Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, signed in Oslo in February, 1972 by Belgium, Denmark, Finland, France, the Federal Republic of Germany, Iceland, the Netherlands, Norway, Portugal, Spain, Sweden and the United Kingdom). The Oslo Convention was both a model and a stimulus for the 1972 London Ocean Dumping Convention, which is global in scope.

VI. TWO APPLICATIONS OF THE REGIONAL APPROACH

The negotiation in 1974 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area (Baltic Sea Convention) and the Convention for the Prevention of Marine Pollution from Land-Based Sources (Land-Based Convention), thus, represent the first concrete expression of a regional approach to land-based pollution of the oceans. The Baltic Sea states, in the preamble to their convention, note that "relevant recent international conventions even after having entered into force...do not cover all special requirements to protect and enhance the marine environment of the Baltic Sea area."³⁰ The Land-Based Convention includes specific acknowledgement of the influence of the recommendations of the Stockholm Conference and the Oslo Convention.³¹

The Baltic Sea Convention is clearly a response to the special pollution problems of semi-enclosed seas. The Convention applies to "the Baltic Sea proper with the Gulf of Bothnia, the Gulf of Finland and the entrance to the Baltic Sea..."³² The convention area extends to the territorial sea, but not to the internal waters, of the contracting parties, though each party undertakes to ensure that the purposes of the Convention will be obtained in its internal waters. The Land-Based Convention defines the "maritime area" to which it applies as a wedge-shaped sector of the Atlantic and Arctic Oceans and dependent seas bounded on the south by a line of latitude approximately parallel with the Straits of Gibraltar, on the west by Greenland and a line of longitude extending

down from the southern tip of Greenland, and on the east by a line of longitude bisecting the Barents Sea.³³ The "maritime area" includes the North Sea and English Channel, but explicitly excludes the Baltic and Mediterranean Seas.³⁴ The area covered by the Land-Based Convention is identical to that of Oslo Convention. In terms of jurisdiction, the "maritime area" is delineated as "the high seas, the territorial seas of Contracting Parties and waters on the landward side of the base lines from which the breadth of the territorial sea is measured, extending, in the case of watercourses, up to the freshwater limit, unless otherwise decided (by a commission of the parties to be established)".³⁵ The "freshwater" limit means "the place in the watercourse where, at low tide, and in a period of low freshwater flow, there is an appreciable increase in salinity due to the presence of sea water."³⁶ The "maritime area" covered by the Land-Based Convention, thus, extends to internal waters and, unless decided otherwise, to estuaries.

In both the Baltic Sea and Land-Based Conventions, the contracting parties undertake not to implement their obligations in such fashion as to result in the transfer of marine pollution from the respective convention areas to other parts of the marine environment.

The two conventions differ in defining the sources of land-based marine pollution. The Baltic Sea Convention considers land-based pollution as "pollution of the sea caused by discharges from land reaching the sea waterborne, airborne or directly from the coast, including outfall from pipelines."³⁷

The Land-Based Convention refers to pollution from land-based sources as pollution of the "maritime area": "i) through watercourses; ii) from the coast, including introduction through underwater or other pipelines; (and) iii) from man-made structures placed under the jurisdiction of a Contracting Party within the limits of the area to which the present Convention applies."³⁸ The Land-Based Convention, thus, does not cover pollutants transported through the atmosphere, but apparently does place under its purview at least some seabed sources of pollution (an area addressed as a category distinct from land-based sources in the Baltic Sea Convention).

The heart of each convention, however, consists of three interrelated elements: the identification and classification of the specific polluting substances to be covered; the general and specific obligations set forth to regulate entry of these substances into the sea; and the standards or measures agreed upon to achieve these objectives. On the first point, the Baltic Sea and Land-Based Conventions both reflect the influence of the classification set forth in the Oslo and London Ocean Dumping Conventions - what has become known as the "black list/gray list" system. These latter two agreements delimit three categories of substances to be dealt with: first, the "black list" - those pollutants, considered most dangerous, whose disposal at sea is prohibited (except when essential to protect the safety of life at sea or in other limited emergency circumstances); second, the "gray list" - those polluting substances whose disposal at sea requires

special care (and special permits); and third, all other substances, for whose disposal at sea clear regulatory criteria are to be developed (and for which "regular" permits would be required). With this in mind, the two 1974 conventions dealing with land-based pollution will be considered in terms of the three elements listed above.

The Baltic Sea Convention sets forth a general obligation to prevent pollution of the Baltic (from all sources): "The Contracting Parties shall individually or jointly take all appropriate legislative, administrative or other relevant measures in order to prevent and abate pollution and to protect and enhance the marine environment of the Baltic Sea Area."³⁹ The parties further agree that they "shall take all appropriate measures to control and minimize land-based pollution of the marine environment of the Baltic Sea Area."⁴⁰

The specific obligations of the Baltic Sea Convention are linked to a threefold classification of potential pollutants from land-based sources (similar in structure, though not in content, to the "black list/gray list" scheme of the ocean dumping treaties). The contracting parties "undertake to counteract the introduction, whether airborne, waterborne or otherwise, into the Baltic Sea Area of hazardous substances..."⁴¹ This first category of "hazardous substances" (Annex I of the Convention) consists of DDT and its derivatives and the polychlorinated biphenyls (PCBs).⁴² The second category - "noxious substances and materials" (set forth in Annex II) - is a detailed listing of pollutants, broken down into seventeen groups,

with mercury, cadmium and their compounds singled out for "urgent consideration".⁴³ Noxious substances and materials "shall not be introduced into the marine environment of the Baltic Sea Area in significant quantities without a prior special permit, which may be periodically reviewed, by the appropriate national authority."⁴⁴ The "appropriate national authority", in turn, "will inform" the Commission (to be established under the Convention) of the amount, concentration, and means of discharge "if it considers that significant quantities of (noxious) substances and materials...were discharged."⁴⁵ The parties further agree to endeavor to establish and adopt common policies for issuing permits for discharge and "...to endeavor to use best practicable means in order to minimize the airborne pollution of the Baltic Sea Area by noxious substances."⁴⁶ The Convention also binds the parties to cooperate in the development of "specific programmes, guidelines, standards or regulations concerning discharges, environment quality, and products containing (noxious) substances and materials and their use."⁴⁷

Annex III of the Convention identifies goals and criteria to control and reduce to a minimum pollution of the Baltic resulting from discharge of municipal sewage, industrial wastes and cooling water from nuclear plants or other industrial activities.⁴⁸ The parties agree to work for the attainment of these goals and criteria, and designate the Commission (to be established) as a mechanism for their delineation.⁴⁹

The Convention for the Prevention of Marine Pollution from

Land-Based Sources, in Article 1, restates the substance of Principle 7 of the Stockholm Declaration on the Human Environment. The parties "pledge themselves to take all possible steps to prevent pollution of the sea..."⁵⁰ The same Article also provides that the parties "shall adopt individually and jointly measures to combat marine pollution from land-based sources in accordance with the provisions of the present Convention and shall harmonize their policies in this regard."⁵¹ This Convention, like the Baltic Sea Convention, divides potential polluting substances into three categories - Annex A, Parts I, II and III. The content of each category is quite distinct from the pattern of the Baltic Sea accord.

The first category of pollutants (Part I, Annex A) is composed of substances included:

- i) because they are not readily degradable or rendered harmless by natural processes; and
- ii) because they may either
 - (a) give rise to dangerous accumulation of harmful material in the food chain, or
 - (b) endanger the welfare of living organisms causing undesirable changes in the marine eco-systems, or
 - (c) interfere seriously with the harvest of sea foods or with other legitimate uses of the sea; and
- iii) because it is considered that pollution by these substances necessitates urgent action.⁵²

Part I, which is quite similar to the ocean dumping "black list", includes organohalogen compounds, mercury and mercury compounds, cadmium and cadmium compounds, persistent synthetic (solid) materials and persistent oils and hydrocarbons of petroleum origin.⁵³ The parties undertake "to eliminate, if necessary by stages, pollution of the maritime area from

land-based sources of (Part I substances)" and to implement, jointly or individually as appropriate, programs and measures "for the elimination, as a matter of urgency, of pollution of the maritime area from land-based sources by (Part I substances)." ⁵⁴

The second category of pollutants - Part II, Annex A - is made up of substances which "although exhibiting similar characteristics to the substances in Part I and requiring strict control...seem less noxious or are more readily rendered harmless by natural processes." ⁵⁵ The listing includes those organic compounds of phosphorous, silicon and tin which are biologically harmful in the marine environment; elemental phosphorous, non-persistent oils and hydrocarbons of petroleum origin; and arsenic, chromium, copper, lead, nickel, zinc and their compounds. ⁵⁶ The parties to the Convention undertake to "limit strictly pollution of the maritime area from land-based sources of (Part II substances)." To this end, "the Contracting Parties, jointly or individually as appropriate, shall implement programmes and measures...for the reduction or, as appropriate, elimination of pollution of the maritime area from land-based sources by (Part II substances). These substances shall be discharged only after approval has been granted by the appropriate Authorities within each contracting State. Such approval shall be periodically reviewed." ⁵⁷

The Convention further provides that the programs and measures required to fulfill the obligations to control pollution from substances listed in Parts I and II of Annex A shall

include "specific regulations or standards governing the quality of the environment, discharges into the maritime area, such discharges into watercourses as affect the maritime area, and the composition and use of substances and products and shall take into account the latest technical developments."⁵⁸ These programs and measures "shall contain time-limits for their completion."⁵⁹ One of the duties of the Commission to be established pursuant to the Convention is to assist in drawing up and developing such programs and measures.⁶⁰

Part III of Annex A consists of radioactive substances, including radioactive wastes.⁶¹ These materials are treated separately from the other pollutants in recognition of the fact that they are and have been the object of considerable international regulatory activity (through the International Atomic Energy Agency, for instance). Parties to the Convention agree "to adopt measures to forestall and, as appropriate, eliminate pollution of the maritime area from land-based sources by radioactive substances" and "to take full account" of the recommendations and recommended monitoring procedures of the appropriate international organizations and agencies.⁶²

The Baltic Sea and Land-Based Convention both allow for inclusion of new substances in their respective pollutant classification systems. The parties to each convention further agree to cooperate in scientific research and data exchange on land-based marine pollution, with emphasis upon identifying specific pollutant pathways and developing new methods

for treatment, disposal and elimination of polluting substances. Each Convention includes an undertaking to establish permanent monitoring systems to obtain baseline data and information on existing levels of pollution, as well as to assess the effectiveness of actions taken pursuant to the two Conventions.

VII. THE BALTIC SEA CONVENTION AND THE LAND-BASED CONVENTION: AN ASSESSMENT

Though they are the first examples of regional agreements to deal with land-based marine pollution, the Baltic Sea Convention and the Land-Based Convention rest upon different concepts of region. The former is specifically organized around a semi-enclosed sea. Semi-enclosed seas generally are characterized by slow rates of flushing by currents and, thus, are often unusually susceptible to the build-up of pollutants, particularly from land-based sources. Common perception of the vulnerability to pollution of the Baltic, given the concentration of industrial activities along and near its shores, provided a basis for common action by states which, as a group, have little past history of political or economic cooperation.

The geographical area covered by the Land-Based Convention, unlike the Baltic Sea, is not circumscribed by natural features. Its determination seems to reflect a need to define an area (excepting the Mediterranean and the Baltic) sufficient in extent to embody the marine interests of the participating nations. The basis for common action in this case lies

in the tradition of political and economic cooperation among Western European nations. In a sense, the Convention represents the application, or extension, of a pre-existing concept of region to respond to newly perceived problems.

As indicated by the detailed examination of their provisions, however, the Baltic Sea and Land-Based Conventions display far more similarities than differences. There is strong resemblance in their objectives and in the measures contemplated to fulfill the obligations posited to protect the respective convention areas from land-based pollutants. In effect, the two Conventions seek to "move upstream" the "black list/gray list" permit system incorporated in the Oslo and London Ocean Dumping Conventions. Both the Baltic Sea and the Land-Based Convention identify: first, a group of most harmful pollutants ("black list") for the most stringent regulation - elimination, in phases if necessary, of their discharge into the marine environment; and second, a larger category of pollutants ("gray list") requiring a permit issued by the appropriate national authority prior to any discharge into the convention areas.

The two Conventions, however, do not go beyond the outlines of a regulatory system. The details - the critical discharge standards, environmental criteria and specific control measures - remain to be filled in. The entry into force of the Conventions will not bring regulatory schemes into being, but rather, will bind the parties to individual and collective efforts to develop and implement such standards, criteria and

measures. Each Convention provides for establishment of a commission to assist in this process. Though the Land-Based Convention specifies that programs to be developed should contain time-limits for their completion, neither Convention sets forth definite target dates for the activation of a regulatory system. From the perspective of effective control of the pollutants in question, then, the two Conventions represent tentative first steps.

The preliminary character of the Baltic Sea and Land-Based Conventions in part reflects uncertainty on the part of the states involved about the kinds and magnitudes of costs attendant upon control of land-based pollutants. There is no doubt that measures to secure effective regulation of land-based pollution of marine areas will impose substantial economic costs. The justification for such measures is that their long-range benefits far outweigh their costs. The problem - inherent in the "double standard" issue, for instance - is that the costs must be borne from the outset, while some time may elapse before materialization or manifestation of the benefits. Negotiation of the Baltic Sea and Land-Based Conventions indicate preparedness - declarations of intent by the participating states - to begin to assume the costs of regulation. Translation of this intent into actual regulatory systems could have a significant impact, initially at least, upon the economies of parties to the Conventions. This, in turn, highlights the importance of the nature of the standards, criteria and measures to be devised and explains, in large de-

gree, why the states involved felt unable to detail them in the Conventions.

Effective control of land-based marine pollution will require use of both qualitative and quantitative standards and criteria. A tentative breakdown between qualitative and quantitative standards is inherent in the pollutant classification systems of the Baltic Sea and Land-Based Conventions. Pollutants, whose entry into the marine environment is to be eliminated, are properly the object of qualitative standards: immediate prohibition of discharge, use or production; or phase out of discharge, use or production.

Regulation of other land-based pollutants (the much longer "gray lists") raises the difficult task of establishing specific quantitative restrictions on their entry into marine areas. The permit system envisaged in the Baltic Sea and Land-Based Conventions implies first, the identification of land-based activities which introduce pollutants into the sea; and second, determination of specific limits for each pollutant released by each source. Such limits - effluent or emission control standards - involve fixing the maximum amount of a pollutant that may be discharged over a given time period, the maximum permissible concentration of a pollutant in the effluent or emission, or the maximum amount of a pollutant that may be discharged per unit of production.

Effluent or emission control standards, however, can not be fixed in a vacuum. There must be a frame of reference for their determination. Two such yardsticks have emerged in

United States' efforts to regulate water pollution: water quality criteria and the best available pollution control technology, with current emphasis upon the latter.⁶³ In the former case, limits upon pollutant discharges or emissions are established in relation to the maintenance or attainment of desired levels of quality (maximum pollutant concentrations) of the receiving environment. The relativity of this approach coupled with the difficult value judgments it demands have led to a shift in philosophy toward requiring limitation of all pollutant releases to the maximum extent possible with the best existing control technology.

The "best available technology" approach seems a promising bench mark for considering pollution control standards, one which could be a logical goal for a permit system such as that envisaged in the Baltic Sea and Land-Based Conventions. At the same time, it should be emphasized that effluent or emission control standards can be imposed upon identifiable point sources, but not upon sources which can not be isolated - the non-point sources, from which significant quantities of pollutants reach the oceans. Application of specific effluent or emission control standards without allowing for these non-point sources may permit continued degradation of the marine area concerned. For this reason, effective regulatory systems for land-based pollutants must also face the problem of determining the tolerances of marine areas for these substances. Some form of marine water quality criteria, then, is necessary for assessing the adequacy of regulatory

standards and the effectiveness of their implementation, even if the standards derive from a frame of reference other than the criteria themselves (from the "best available technology" approach, for instance).

Elaboration of water quality criteria for entire marine regions is a very long-range goal, though probably a very important one for enclosed or semi-enclosed seas. However, development of water quality criteria for rivers entering the marine environment (including estuaries) could well be incorporated into the approach embodied in the Baltic Sea and Land-Based Conventions and serve as initial regulatory targets. Treating rivers as point sources where they enter the marine environment would fit in with the stress upon control of "riverborne" or "watercourse" transported pollutants in the two agreements.

From an economic perspective, effective regulatory standards for land-based pollutants should perform two complementary functions: the creation of maximum incentives to use existing techniques to abate and prevent introduction of polluting substances into the sea; and the creation of maximum incentives to develop necessary new non-polluting technologies. Efforts to regulate land-based pollution must of necessity begin with emphasis upon the first function, but the basic linkage between the two can not be ignored in the long-run.

The question of economic incentives points to another important impetus to regional arrangements such as the Baltic Sea and Land-Based Conventions: the need for some sort of

equity among similarly situated states in assuming the costs of controlling land-based pollution. Individual national action could place a state at a competitive disadvantage - temporary at least - with respect to other states not regulating land-based sources. The coordination of national policies - the agreement to assume similar burdens - implicit in these two Conventions can be an important catalyst for the very initiation of policies and programs in this field.

VIII. CONCLUSION

As this discussion has attempted to show, the emergence of the regional approach to deal with land-based marine pollution reflects growing perception of the dangers posed to specific marine areas by pollutants from this source, combined with recognition of existing international political and economic realities. The negotiation of the Baltic Sea and Land-Based Conventions demonstrates that measures to control land-based sources of marine pollution need not await the emergence of an international consensus that states are obligated to protect the marine environment from such sources. Securing agreement on a positive duty to protect the oceans from all sources of pollution is an important international objective. However, even if the Law of the Sea Conference succeeds in establishing such a positive obligation, the prospect of effective global measures to regulate land-based pollution would still be remote.

At the same time, conclusion of regional agreements is

not in and of itself evidence that effective regulation of land-based marine pollution lies just around the corner. Neither the Baltic Sea Convention nor the Land-Based Convention have yet entered into force; nor, for that matter, has any of the marine pollution treaties, general or regional, cited in this discussion, except for the 1954 Oil Pollution Convention. It would not be wholly cynical to recommend that more international energy be directed toward bringing existing instruments into force than toward negotiating new ones. In addition, as noted, agreements along the lines of the Baltic and Land-Based Conventions are not self-executing upon entry into force. Further detailed agreement, further exercise of collective political will - perhaps through the "commissions to be established" - will be required before effective regulation is instituted.

Nonetheless, the Baltic Sea Convention and the Land-Based Convention are important achievements and evidence growing opportunities for multi-lateral efforts, less than global in scope, to control land-based marine pollution. Realization that the health of entire marine areas is threatened by existing rates of pollutant release - largely from land-based sources - can be a powerful stimulus to action. The two Conventions provide important examples of the concept of region within which responses to this problem can be framed: that based upon the semi-enclosed sea and that based upon adaptation of pre-existing experience of regional cooperation to new circumstances, respectively. There also may be scope for

moving in the direction of functionally-defined, as well as geographically-determined regions - specifically, toward delineation of "regions" encompassing states, wherever located, sharing common pollution problems. A "region" of this nature can be envisaged made up of those countries which are both primary contributors and primary victims of land-based marine pollution. This group would consist of developed, industrially advanced states. Spreading the costs of regulating land-based pollution to this "region" could reinforce incentives for the development of non-polluting technologies in those states with the maximum potential for devising them. In the long-run, perfection and application by developed countries of such non-polluting technologies offer the best hope for a solution to the "double standard" as a political and economic issue.

In the meantime, there is compelling reason to initiate steps to control land-based pollution of the oceans, to develop regulatory frameworks which can be later expanded and modified as new data on the effects and abundance of pollutants, as well as new techniques for dealing with them, become available. In the preamble to the Land-Based Convention, the contracting parties express the conviction that "international action to control the pollution of the sea from land-based sources can and should be taken without delay, as part of progressive and coherent measures to protect the marine environment from pollution whatever its origin..."⁶⁴ This declaration applies not only to the Land-Based Convention but also serves as a general justification for a flexible, regional approach to land-based marine pollution.

FOOTNOTES

1. Convention for the Prevention of Marine Pollution from Land-Based Sources, Article 1
2. Convention on the Protection of the Marine Environment of the Baltic Sea Area, Article 2, Paragraph 1
3. Arnold W. Reitze, Jr., Environmental Law, (Washington, D.C., 1974: North American International)
4. United Nations Conference on the Human Environment, Action Plan for the Human Environment, Recommendation 88(a)
5. Willard Bascom, "The Disposal of Waste in the Ocean", Scientific American, Volume 231, No. 2, (August, 1974), p. 24
6. Ibid., p. 18
7. John A. Knauss, "Ocean Pollution: Status and Prognostication", in Law of the Sea: The Emerging Regime of the Oceans, Edited by John King Gamble, Jr., and Giulio Pontecorvo, (Cambridge, Massachusetts, 1974: Ballinger Publishing Co.), p. 315
8. E.W. Seabrook Hull and Albert W. Koers, "A Regime for World Ocean Pollution Control", in International Relations and the Future of Ocean Space, Edited by Robert F. Wirsing, (Columbia, South Carolina, 1974: University of South Carolina Press), pp. 101-116
See also, Richard A. Falk, "Environmental Policy as a World Order Problem", Natural Resources Journal, Volume 2 (April, 1972), pp. 161-171
9. Reitze, op.cit., pp. 42-45
10. Ibid., p. 44
11. United Nations Conference on the Human Environment, Declaration of the United Nations Conference on the Human Environment, Principle 7
12. Ibid., Principle 21
13. United Nations Third Conference on the Law of the Sea, Results of consideration of proposals and amendments relating to the preservation of the marine environment, A/CONF. 62/C. 3/L. 15, 22 August, 1974

14. Ibid., p. 1
15. Ibid., p. 1
16. Ibid., p. 2
17. Ibid., p. 2
18. Ibid., p. 2
19. Ibid., p. 3
20. Ibid., p. 5
21. Ibid., p. 5
22. United Nations Conference on the Human Environment,
Action Plan for the Human Environment, Recommendation 86(f)
23. Ibid., Recommendation 92(b)
24. "Decisions of the Governing Council of the United Nations Environment Programme at its First Session", in International Legal Materials, Volume XII, No. 5 (September, 1973), p. 1184
25. Ibid., p. 1189
26. "Decisions of the Governing Council of the United Nations Environment Programme at its Second Session", in International Legal Materials, Volume XIII, No. 4 (July, 1974), p. 1035
27. Ibid., p. 1044
28. International Convention for the Prevention of Pollution from Ships, 1973, Annex I, Chapter I, Regulation 1
29. Ibid., Annex I, Chapter II, Regulation 10
30. Convention on the Protection of the Marine Environment of the Baltic Sea Area, Preamble, Paragraph 7
31. Convention for the Prevention of Marine Pollution from Land-Based Sources, Preamble, Paragraphs 3 and 7
32. Convention on the Protection of the Marine Environment of the Baltic Sea Area, Article 1

33. Convention for the Prevention of Marine Pollution
from Land-Based Sources, Article 2
34. Ibid., Article 2
35. Ibid., Article 3, Paragraph a)
36. Ibid., Article 3, Paragraph b)
37. Convention on the Protection of the Marine Environment
of the Baltic Sea Area, Article 2, Paragraph 2
38. Convention for the Prevention of Marine Pollution
from Land-Based Sources, Article 3, Paragraph c)
39. Convention on the Protection of the Marine Environment
of the Baltic Sea Area, Article 3, Paragraph 1
40. Ibid., Article 6, Paragraph 1
41. Ibid., Article 5
42. Ibid., Annex I
43. Ibid., Annex II
44. Ibid., Article 6, Paragraph 3
45. Ibid., Article 6, Paragraph 4
46. Ibid., Article 6, Paragraphs 5 and 8
47. Ibid., Article 6, Paragraph 2
48. Ibid., Annex III
49. Ibid., Article 13
50. Convention for the Prevention of Marine Pollution
from Land-Based Sources, Article 1, Paragraph 1
51. Ibid., Article 1, Paragraph 2
52. Ibid., Annex A, Part I
53. Ibid., Annex A, Part I
54. Ibid., Article 4, Paragraphs 1 a) and 2 a)
55. Ibid., Annex A, Part II
56. Ibid., Annex A, Part II
57. Ibid., Article 4, Paragraphs 1 b) and 2 b)

58. Convention for the Prevention of Marine Pollution
from Land-Based Sources, Article 4, Paragraph 3
59. Ibid., Article 4, Paragraph 3
60. Ibid., Article 16
61. Ibid., Annex A, Part III
62. Ibid., Article 5
63. Robert Zener, "The Federal Law of Water Pollution Control", in Federal Environmental Law, Edited by Erica L. Dolgin and Thomas G.P. Guilbert (St. Paul, Minnesota, 1974: West Publishing Co.), pp. 682-791
64. Convention for the Prevention of Marine Pollution
from Land-Based Sources, Preamble, Paragraph 5

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