

The International and National Response to the Problems of Marine Pollution

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*Joint-winner of the Law Review Prize for 1978

I. INTRODUCTION

The resources of the marine environment are fundamental to man's very existence.¹ Marine organisms (particularly phytoplankton) play a crucial role in the basic oxygen-carbon life cycle, supplying greater than 70 per cent of the world's oxygen needs. The sea supplies man with nearly all his fresh water and is a major determinant of global weather patterns. At present, more than 50 per cent of the world's population relies exclusively on fish for the supply of protein and as the population increases this reliance upon the oceans as a food source will become more important. The world's coastal areas are also becoming increasingly important as a recreational resource.

These uses of the ocean's resources provide ample justification for preserving the marine environment to the fullest extent possible. However man is using the oceans in another way – as a repository for all types and quantities of pollutants – thereby seriously threatening these vital resources. Indeed, a number of distinguished scientists, fearing the imminent desolation of the oceans due to pollution, have called for immediate preventative measures to avert such a catastrophe.²

The purpose of this paper is to examine international and New Zealand responses to the problem of marine pollution. It will be submitted that while a national response to marine pollution is the more effective method for preserving the marine environment (because of the ineffectiveness of the relevant international conventions and because, in any case, most marine pollutants emanate from within the territorial jurisdiction of a nation), New Zealand legislation does not adequately protect that

¹ See generally Bush and Means, "Ocean Pollution: An Examination of the Problem and an Appeal for International Co-operation" (1970) 7 San Diego L. Rev. 574; Mielke, *Effects of Man's Activities on the Marine Environment* (1975), 1; Moorcraft, *Must the Seas Die?* (1972), 19-32.

² Moorcraft, *op. cit.*, 14-15; Singer, *The Changing Global Environment* (1975), 312.

environment. However, a firm understanding of the magnitude and complexity of the problems of marine pollution is essential if this legislation is to be critically evaluated.³ Part II then, will examine the activities which produce the marine pollutants, the quantities and effects of those pollutants, and the vectors by which they enter the oceans. For this purpose, the definition of marine pollution, as accepted by most legal and scientific scholars, may be stated as:⁴

...the introduction by man, directly or indirectly, of substances or energy into the marine environment (including estuaries) resulting in such deleterious effects as harm to living resources, hazards to human health, hindrance to marine activities including fishing, impairment of quality or use of sea water, and reduction of amenities.

II. THE MARINE POLLUTANTS

A. Chlorinated Hydrocarbons

This term refers to a group of pollutants with similar chemical composition which are used for a variety of purposes, and includes such pesticides, insecticides, herbicides, and fungicides as endrin, aldrin, PCB, and dieldrin, and is typified by the infamous pesticide, DDT.⁵

Between 1948 and 1968 the United States manufactured 1.225 million tonnes of DDT, while the annual world production has been estimated at approximately 100,000 tonnes. Its most common form of application is via ground or aerial spraying. The vast majority of DDT which reaches the marine environment is transferred by the atmosphere, as residues evaporate from the surfaces or are enveloped within the wind systems during their application. (In fact, recent tests have revealed that approximately 50 per cent of sprayed pesticides never reach the target area.) The residues are released from the atmosphere primarily by rainfall but also by diffusion across the air-sea interface and by chemical degradation. Each year an estimated 25 per cent of the annual world production of DDT enters the marine environment in this manner. As DDT is highly soluble in animal fats, extremely persistent, and virtually indestructible, (with a half life of between five and fifty years) it concentrates in ever-increasing amounts, as it proceeds through the food chain.

Evidence conclusively shows that DDT at present concentrations in the marine environment, adversely affects the growth, reproduction, and mortality rates of all forms of marine organisms. In addition, the near

³ While great care has been taken to ensure that the data presented in Part Two is generally accepted by most scientists, it must be realised that the study of marine pollution is an extremely complex, multidisciplinary and imperfect science.

⁴ Barros and Douglas, *The International Law of Pollution* (1974), 6.

⁵ The information concerning the chlorinated hydrocarbon group and DDT was extracted from the following sources: Mielke, *op. cit.*, 6-7; Moorcraft, *op. cit.*, ch. 5; Singer, *op. cit.*, 285-299; *UN Joint Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP)* (1973), 29-30; Wilson and Williams, *Mans Impact on the Global Environment* (1970), 25-26, 126-136.

extinction of several predatory marine species, including the brown pelican, the bald eagle, the osprey, and the peregrine falcon, is primarily caused by high concentrations of DDT which have accumulated in the reproductive organs of the birds. Usually the high DDT levels result in weak egg shells which break during incubation. The cumulative effects of DDT on man are yet uncertain, although laboratory tests on animals reveal liver, kidney, and nerve damage, and high levels of DDT have been associated with cancer, hypertension, and liver disease in man.

In New Zealand heavy reliance is placed upon chlorinated hydrocarbons with almost 80 types of herbicides and fungicides and 40 insecticides in common usage.⁶ In 1972 the use of pesticides was found to be increasing at a rate of 25 per cent per annum. Like DDT, many of them are transmitted to the oceans via the atmosphere. However, unlike DDT which remains in the soil once there, many pesticides are susceptible to surface runoff or are leached into drainage waters which eventually spill into coastal waters.

B. Heavy Metals

There are at least 14 heavy metals produced by man which have a serious impact upon the marine environment.⁷ This group (which includes mercury, lead, cadmium, copper, zinc, cyanide and arsenic) is extremely important for industry and agriculture. Most are used throughout New Zealand. Although man's knowledge of the reactions of heavy metals within the marine environment is extremely vague, the group as a whole, has been found to retard growth and increase the mortality rate of a wide range of organisms. Mercury typifies the magnitude of the problem associated with this group.

Mercury is used in the electrical, chemical and pharmaceutical industries and for agricultural purposes. The annual world production is approximately 9,000 to 11,000 tonnes, of which between 35 and 60 per cent, it is estimated, is released into the environment. Of this, a significant amount is thought to enter via the atmosphere, and from rivers flowing into coastal waters. Mercury is released into the atmosphere through the burning of fossil fuels and during mining and refining processes, while agricultural runoff and the discharge of industrial effluents, particularly pulp and paper mill effluents, account for most of the mercury found in river systems. Mercury is extremely persistent and very effectively concentrated. Even when introduced in minute amounts, all heavy metals can be built up over a period of time to lethal dosages in a number of

⁶ *New Zealand Environment National Report to the United Nations Preparatory Committee for the 1972 Conference on the Human Environment*, 14-16.

⁷ The information concerning the heavy metals and mercury was extracted from: Bush and Means, *loc. cit.*, 577-581; GESAMP, *op. cit.*, 34-38; Wilson and Williams, *op. cit.*, 137-138; Moorcraft, *op. cit.*, 87-94; Wurfel, *The Surge of Sea Power* (1973), 91.

marine organisms, many of which contain heavy metal concentrations thousands of times greater than the surrounding sea water.

The effects of mercury on the marine environment are not fully appreciated. The problem is complicated by a synergistic chemical reaction, whereby two elements act simultaneously with far greater effect than would be produced by the sum of each element acting independently. In particular, certain microbial systems in the bottom of mud rivers and estuaries convert what was once believed to be inert, inorganic mercury residues into highly poisonous methylmercury. The harmful consequences of this synergism became apparent with the outbreak of mercury poisoning in Minimata Bay, Japan, the result of discharging effluent containing small amounts of mercuric oxide into the bay. Between 1953 and 1970 at least 46 people died from eating mercury-contaminated fish taken from the bay, while a number of other victims suffered blindness, deafness, lack of co-ordination, and brain damage; a grotesque tribute to man's ignorance. Methylmercury has no known antidote or cure and never decomposes into a totally harmless form.

Mercury at extremely low levels also inhibits the process of photosynthesis in phytoplankton.

C. Petroleum

In 1969 the world production of crude oil amounted to approximately 1,820 million tonnes, while ocean tankers transported approximately 1,180 million tonnes in crude or refined form.⁸ These figures are expected to increase by 1980 to 4,000 million tonnes and 2,700 million tonnes respectively. The total quantity of oil presently entering the marine environment is outlined in Table 1⁹

Oil pollution within the marine environment causes widespread damage. First, the recreational and aesthetic potential of any affected area is reduced significantly. Secondly, oil spills can destroy vast numbers of seabirds. Over 25,000 birds died as a result of the spillage of 30 million gallons of oil, when the *Torrey Canyon* went aground off the coast of England. Thirdly, crude oil pollutants may extensively damage marine life, particularly fish eggs and breeding and spawning grounds, while rendering contaminated fish and shellfish unmarketable. Spillage of refined oil is far more lethal, causing massive, immediate destruction to all forms of marine

⁸ The information concerning petroleum was extracted from: Blumer, "Scientific Aspects of the Oil Spill Problem" (1971) 1 *Environmental Affairs*, 54-73; Blumer, Sanders, *et. al.*, "A Small Oil Spill" (1971) 13 *Environment*, 1-12; Bush and Means, *loc. cit.*, 587-590; Mielke, *op. cit.*, 13-16; Wilson and Williams, *op. cit.*, 102-114; Pearson, *International Marine Environment Policy: The Economic Dimension* (1975), 84-85; Schacter and Serwer, "Marine Pollution Problems and Remedies" (1970) 4 *Unitar Research Reports*, 6-7; *Time*, 10 Jan. 1977, 33-35; *Water Pollution as a World Problem: The Legal Scientific and Political Aspects (Wales Conference)* (1970), 54-60.

⁹ Pearson, *op. cit.*, 84-85.

TABLE 1

		Millions of Tonnes	
MARITIME ACTIVITIES	a) Routine Tanker Operations (bilge, ballast, tank flushings)		0.9
	b) Oil Tanker Accidents		0.1
	c) Other (including spillage from non-tankers and off shore oil wells)		0.5
DIRECT ACTIVITIES			
	a) Discharge of Waste Oil from Autos		1.03
NON-MARITIME ACTIVITIES	b) Discharge of Waste Oil from Industrial Machinery		0.7
	c) Other		0.27
SUBTOTAL			3.50
INDIRECT ACTIVITIES	– Improper Combustion in Internal Combustion Engines (usually faulty carburettors) and		
	– Evaporation During Transfer Processes (from oil tanker to auto gasoline tank)		10.0
(Note: The atmosphere is the principal vector)			13.50
TOTAL			13.50

life. In addition it has recently been established that oil-laden sediments move with bottom currents contaminating areas far from the initial spill site. Having observed a refined oil spill for 18 months, one research group concluded that the polluted area was at least ten times greater than the initial spill site and that the original marine population had not yet been re-established. Secondary effects of oil pollution include the fouling of boats, docks, and equipment, and the creation of fire hazards, particularly in harbours. At present there is no effective method for cleaning up oil spills. Approximately 95 per cent of New Zealand's oil must be imported. More than 80 supertankers (at least half of which are registered in flag-of-convenience states) visit Marsden Point annually, carrying more than 5.5 million tons of oil.¹⁰

As New Zealand has one of the highest car-population ratios in the world the amount of hydrocarbons entering the marine environment from motor vehicle emissions must also be significant.¹¹ In urban areas

¹⁰ Harris *et. al.*, *Energy Scenarios for New Zealand 1977*. 43; *New Zealand Herald*, "Marsden Pt. May Become Oil Tanker Superport" 23 Mar. 1973; *New Zealand Herald*, "The Oil Spill Kiwis Don't Want" 12 July 1977.

¹¹ *Report of the Clean Air Council for the Year Ended 31 March 1974* App. J.H.R. 1974, E.22, 10.

concentrations of hydrocarbons, lead, and nitrogen oxides often exceed the levels recommended by the World Health Organisation.

D. Organic Wastes

Detergents, agricultural fertilizers, domestic sewage and effluents from industrial processes all contain significant levels of organic wastes.¹² Such wastes, when introduced into the marine environment will, during their decomposition, deplete the oxygen vital to the survival of all forms of marine life. Moreover, while nutrients, such as nitrate and phosphate compounds, themselves exert no oxygen demand, they rapidly induce the excessive growth of photoplankton "blooms" on the surface of the water. Very heavy oxygen demand is encountered when these blooms die and begin to decay; when deprived of oxygen, other forms of marine life die and decompose, and so the cycle continues, (a process known as "eutrophication"). Organic wastes can also contain parasites, and high bacterial concentrations, posing serious human health hazards.

Organic wastes enter the marine environment in a variety of ways. Agricultural fertilizers do so through the runoff from feedlots and the erosion of topsoil. Industrial wastes may be directly dumped by barges or through outfall pipes. And while both domestic and industrial waste often runs through sewage treatment plants before being discharged into water systems, even assuming that it is subjected to a well-functioning tertiary treatment process, the two most damaging nutrients, nitrate and phosphate (and some oxidizable organic wastes) cannot be satisfactorily removed.

Table 2 summarises the findings of a recent survey of the industrial and domestic sewage disposal processes in major coastal centres around New Zealand.¹³

TABLE 2

Number of Regions	Population Served	Type of Receiving Water	Degree of Treatment			
			A	B	C	D
5	303,000	estuaries	1	2	1	1
7	660,000	enclosed harbours	4	0	2	1
12	537,000	coastal water	11		?	

A untreated

B primary treatment

C secondary treatment

D oxidation ponds

¹² The information concerning organic wastes was extracted from: GESAMP, *op. cit.*, 28-29, 61-63; Mielke, *op. cit.*, 8-10; Wilson and Williams, *op. cit.*, 145; Moorcraft, *op. cit.*, 60-64, 94, 103; National Water and Soil Conservation Organisation "Problems of Water Pollution" (1973), 1-4; Wales Conference, *op. cit.*, 144-147.

¹³ Knox, "Sewage Disposal in the Coastal Zone" unpublished document, (1977), 1-3.

E. Radioactive Wastes, Solid Material Wastes, and Waste Heat Disposal

The exact amount of radioactive wastes within the marine environment is uncertain.¹⁴ Nuclear testing has provided the greatest source of radioactivity in the seas. However, releases from nuclear power plants transmitted to the sea by the atmosphere during normal operating procedures, will likely become the most significant source of low-level radioactive marine pollution. Nuclear vessels also introduce minor amounts of radioactive wastes into the oceans, and present a grave danger in the event of damage. Some states containerise their high-level radioactive wastes and dump them far out to sea, hoping that the wastes will leak out only very slowly, to be diluted by the surrounding waters. However these containers have disintegrated more quickly than anticipated, and in any case, there is no evidence to suggest that even vastly diluted radioactive wastes will not harm the marine environment. The effects of a major escape of high-level radioactive waste are generally well known; all forms of life within the affected area will be destroyed or severely mutilated. Conversely, dangerously little is known about the effects to the marine environment of continual exposure to low-level radioactivity, except that it may cause severe hereditary and genetic damage.

Solid material wastes include everything from microscopic particles carried by rivers flowing into the seas to large loads of inert wastes such as obsolete machinery or demolition debris dumped deliberately into the oceans.¹⁵ By volume, dredge spoils are the greatest single source of such wastes. Although not in themselves harmful, they often destroy the entire ecosystem of the disposal area, by smothering all forms of marine life. Small solids such as bits of plastic and polystyrene have caused intestinal blockage and death in many fish species. Solid wastes also interfere with fishing and navigation and, when close to the shore, reduce the amenity value of the affected area.

Many industries and power plants are developed in coastal areas because their processes require a cheap cooling agent to remove unwanted heat.¹⁶ This is accomplished by passing sea water through the cooling units; the water itself becomes heated and is subsequently discharged into the sea. Heated water (itself containing less oxygen) increases the metabolic activities of marine flora and fauna causing their oxygen demand to rise significantly, thereby mitigating the eutrophication process. Hot water also encourages the development of undesirable marine organisms while retarding a number of commercially valuable fish species. The effects of

¹⁴ The information on radioactive wastes was extracted from: Mielke, *op. cit.*, 18-22; Moorcraft *op. cit.*, 124-127; Schacter and Serwer, *loc. cit.*, 18-19.

¹⁵ The information on solid material wastes was extracted from: GESAMP, *op. cit.*, 63-65; Mielke, *op. cit.*, 10; Pearson, *op. cit.*, 30.

¹⁶ The information on waste heat disposal was extracted from: GESAMP, *op. cit.*, 62; Mielke, *op. cit.*, 17.

other pollutants might also be increased, as heat often speeds up their reaction rates.

F. A Summary

The problem of marine pollution can be attributed almost exclusively to the tremendous rate of industrial expansion in the 20th Century, and to the rapid rise in the world's population.¹⁷ These phenomena have led to the release, in ever-increasing amounts and types, of material into the marine environment. The effects of marine pollution vary greatly and are at best, imperfectly understood. They may involve chemical, geological, physical, or geographical reactions or any combination thereof, the nature and extent of which may be immediate and obvious or long term and subtle. Fundamental knowledge is also lacking as to the biological, chemical, and physiological mechanics of the ocean itself. Man's ignorance of much that occurs in the marine environment should dictate a policy of extreme caution as regards the control of marine pollution. Unfortunately, as will be seen in Part III, all of the relevant international conventions provide only minimal protection for the marine environment.

III. THE INTERNATIONAL RESPONSE TO MARINE POLLUTION

A. The Oil Pollution Convention 1954 as Amended

As a response to coastal oil pollution, the International Convention for the Prevention of Pollution of the Sea by Oil was opened for signature in May 1954 (in force, July 1958).¹⁸ Essentially the Convention attempts to prevent the deliberate pollution of the oceans by tanker cleaning operations. Article III establishes prohibited zones, extending from 50 to 150 miles from the coast, within which commercial ships of over 500 tons gross tonnage are not permitted to discharge oil or any oily mixture which would foul the surface of the sea. The Inter-Governmental Maritime Consultative Organisation,¹⁹ which was established in 1959 to supervise the Convention, called a second conference in 1962.²⁰ The most noteworthy amendments from the conference (in force, May 1967) were the extension of the prohibited zones from 50 to a minimum of 100 miles and a reduction of the classes of ships exempted from the provisions of the Convention (Articles II, III; Annex A).

¹⁷ See for example Schacter and Serwer, *loc. cit.*, 4; Singer, *op. cit.*, 311-325; Bornes, *Estuarine Biology* (1974), 53-57.

¹⁸ All of the international conventions discussed in Part III are reproduced in full in Lay, Churchill and Nordquist (eds), *New Directions in the Law of the Sea*, Vols. 1-4. All information in this paper concerning the ratification of the conventions is current until 31 March 1977.

¹⁹ Hereafter referred to as IMCO.

²⁰ For a brief history of IMCO see IMCO, *The Activities of IMCO in Relation to Shipping and Related Maritime Matters* (1974).

Even as amended, the Oil Pollution Convention has a number of serious defects which preclude it from effectively fulfilling its task. First, it places no controls whatsoever on the discharge of any type of oil outside prohibited zones (Article III). Secondly, the Convention is not universally accepted and therefore cannot prevent the discharge of oil within prohibited zones by ships whose flag states are not parties to the Convention.²¹ Thirdly, any violators are exempt from prosecution if the discharge was necessary to secure the safety of ships, to prevent damage to ships or cargo, to save life at sea, or if the discharge was caused by ship damage or unavoidable leakage, provided that all precautions were taken to reduce the harm caused by the pollution (Article IV). This last exemption effectively prevents the regulation of any type of accidental discharge. The fourth, and perhaps most fundamental defect of the Convention, relates to the enforcement provisions. Article III does not place an absolute prohibition on oil discharges but merely on discharges of oily mixtures containing 100 parts or more of oil in one million parts of the mixture. In view of this fact, and given the vast areas to be policed and the speed with which oil slicks disperse, the detection of the source of a particular oil discharge is extremely difficult,²² even with visual surveillance. Yet the Convention remains silent on the surveillance issue because of the powerful support for absolute flag state sovereignty at the conferences.²³ The enforcement issue is further exacerbated by the provisions of the Convention which leave the prosecution for offences committed beyond the territorial sea entirely to the discretion of the flag state (Articles VI, X). Even if a violator is convicted, the flag state may prescribe penalties only as severe as those imposed within its own territorial waters for similar offences (Article VI). The weakness of such provisions is clearly demonstrated by the registration of more than 36 per cent of the world's tanker fleet in Liberia, Panama, and Greece.²⁴ These nations, notoriously referred to as flag-of-convenience states, have extremely lax maritime laws and virtually no enforcement procedures.

In 1969 and 1971, following the *Torrey Canyon* disaster, IMCO adopted further amendments to the Oil Pollution Convention. The 1969 Amendments eliminate the prohibited zone concept and substitute stricter prohibitions on oil discharges. A tanker can only discharge oily mixtures (redefined to mean a mixture with any oil content) when the rate of discharge does not exceed 60 litres per mile, the total quantity of the oil discharge on a ballast voyage does not exceed 1/15,000 of the total

²¹ See Legault, "The Freedom of the Seas: A Licence to Pollute?" (1971) 21 U. Toronto L.J., 213; Ross, *Oil Pollution as an International Problem* (1973), 86.

²² Legault, *loc. cit.*, 213; Mostert, *Supership* (1975), 47-49. Ships very often illegally release large amounts of oily mixtures at night or close to major oil spills or in heavy traffic areas, to avoid detection.

²³ Legault, *loc. cit.*, 212; Pharand, *The Law of the Seas of the Arctic* (1973), 214.

²⁴ Pearson, *op. cit.*, 104; Mostert, *op. cit.*, 49-58; *Time*, 10 Jan. 1977, 34.

cargo-carrying capacity, and the tanker is more than 50 miles from the nearest land (Articles I, III). The purpose of the 1971 amendments is to limit the loss of oil in the event of accident by regulating the construction of large tankers. The 1969 and 1971 amendments are not yet in force.

No doubt the 1969 and 1971 amendments place greater restrictions upon tankers which deliberately discharge oil. However if the oceans are to be spared, an absolute prohibition must be imposed upon all vessels against deliberate discharge of any type of oil in any area of the seas. The discharge of 1/15,000 of the total oil-carrying capacity of a tanker seems minimal until one realises that modern supertankers have enormous capacities. Japan's *Globtik Tokyo*, which can carry 476,292 tons of oil,²⁵ could legally discharge 32 tons of oil on a single ballast voyage. Finally, the two most serious defects of the Convention, concerning the very broad exemptions given to violators and the exclusive right of prosecution of the flag state, were unaffected by the 1969 and the 1971 amendments. Thus, even if those amendments do come into force, the Oil Pollution Convention will remain a weak instrument in controlling deliberate shipborne oil discharges.

B. *The Geneva Conference on the Law of the Sea 1958*

In 1958 the Geneva Conference on the Law of the Sea adopted three conventions containing provisions related to maritime pollution. The Convention on the High Seas provides that "every state shall draw up regulations to prevent pollution of the seas by the discharge of oil from ships or pipelines or resulting from the . . . exploration of the seabed. . ." (Article 24). States are also obliged to "take measures to prevent pollution of the seas from the dumping of radioactive wastes. . ." (Article 25). The Convention on the Territorial Sea and the Contiguous Zone allows a coastal state, in a zone on the high seas contiguous to its territorial sea, to exercise the control necessary to prevent "infringement of its. . . sanitary regulations within its territorial sea. . ." (Article 24). The Convention on the Continental Shelf obliges states to undertake "all appropriate measures for the protection of the living resources of the sea from harmful agents" in zones extending up to 500 metres from installations used during the exploration and exploitation of the shelf (Article 5).

A number of inadequacies in these Conventions negate their effectiveness in preventing marine pollution.²⁶ In essence, they do little more than codify existing international law and express the desire of states to control pollution. The fundamental questions of enforcement, jurisdiction, and compensation are not determined, while definitions in the Conventions are

²⁵ *Time*, 10 Jan. 1977, 33; Mostert, *op. cit.*, 17-21 notes that over 30 per cent of the present world tanker fleet consists of ships with capacities of over 200,000 tons and several 550,000 ton tankers are near completion.

²⁶ See Mielke, *op. cit.*, 38; Pearson, *op. cit.*, 42; Ross, *op. cit.*, 162.

often severely limiting. Most of the operative terms, such as "take measures", "infringement" and "harmful agents", have proven too broad to be effective. Finally, only the states party to the Conventions are obliged to co-operate.

C. The 1969 Brussels Conference

In response to the *Torrey Canyon* disaster, which revealed a number of shortcomings in the international law regime in terms both of regulation and liability, IMCO sponsored the Brussels Conference of 1969, resulting in the adoption of three conventions.

1. The Intervention Convention

The most obvious defect of the International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Damage (not yet in force) is that it is totally remedial, rather than preventative in outlook, for it does not empower coastal states to establish safety standards upon the high seas.²⁷ Yet once an accident has occurred, a coastal state still may not act unless it is clear that there has been a maritime casualty resulting in material damage to the ship or the cargo, that there is a "grave and imminent" danger to the coastline or related interests of the state, and that the pollution by oil will result in "major harmful consequences" (Articles I, II). Further, before any action is taken, coastal states must consult with other states affected by the casualty, and give notice to those who might be affected by the measures to be taken (Article III). A state may only disregard these prerequisites in cases of "extreme urgency requiring measures to be taken immediately". Any party adopting measures beyond what was reasonably necessary to protect its coastline is obliged to compensate the ship and cargo owners for any resultant loss (Articles V, VI). Clearly the Convention places onerous restrictions upon states intervening to protect their interests once the oil pollution has occurred. Finally, the Convention is restricted solely to the spillage of oil, which is narrowly defined as crude, fuel, diesel, and lubricating oils. Warships, non-commercial government ships, and installations used for exploring or exploiting the resources of the seabed are exempted from the terms of the Convention (Articles I, II).

2. The Civil Liability Convention

The International Convention on Civil Liability for Oil Pollution Damage (in force, June 1975) is limited to damage caused within the

²⁷ The Canadian delegation rejected the Convention primarily because of this defect and instead passed the Arctic Waters Prevention Act. This domestic legislation allows for the intervention on the high seas of ships to ensure compliance with very strict *preventative* measures. See Pharand, *op. cit.*, esp. 206-253; Legault, *loc. cit.*, 214-221.

territorial jurisdiction of a contracting state resulting from the escape of persistent oils from a ship carrying oil in bulk as cargo (Articles I, II). Although Article III provides that the owner of the ship shall be liable for such damage, a number of defences including act of God, war, intentional acts by third parties, and negligence by the afflicted state, are made available to him. Liability, it is submitted, should be absolute because carriage of oil is accepted as an ultra-hazardous activity. Moreover, liability for such damage should be joint and several in respect of both shipowner and cargo carrier. The cargo carrier would then be forced to select his carriers carefully.²⁸

The shipowner may, unless the damage was his fault, limit his liability to approximately \$132 for each ton of the ship's tonnage or \$14 million whichever is the less (Article V). The gross inadequacy of such a provision becomes obvious when examined in the light of the *Torrey Canyon* incident.²⁹ Using the tonnage test the owners could have limited their liability to \$8 million. Yet the claims by the British and French Governments alone amounted to over \$16 million. Moreover the *Torrey Canyon* is a relatively small tanker compared to modern supertankers. Canadian experts have estimated that damage from a supertanker mishap in the Strait of Georgia would cost Canada \$100 million,³⁰ without accounting for aesthetic and wildlife losses. Ship and cargo owners appreciate the risks involved in carrying oil, reap the profits therefrom, and can insure against those risks. Thus, the Convention should have adopted a policy of unlimited liability.³¹

3. *The International Compensation Fund*

Recognising the shortcomings of the Civil Liability Convention, IMCO, in 1971, adopted the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (not yet in force). While this Convention clearly mitigates some of the defects of the earlier Convention, it is still inadequate. Compensation payments are limited to approximately \$36 million (although this amount may be increased to \$72 million in certain circumstances). Damages under the Civil Liability Convention are included in the \$36 million ceiling (Articles 4, 5). Moreover the Convention does not accept absolute liability for all damage; oil pollution damage resulting from acts of third parties or the victim, the negligence of the victim or of government-owned vessels, are not covered by the Fund (Article 5). Finally, the Convention only applies

²⁸ The Canadian delegation refused to accept Art. III for these reasons. Pharand, *op. cit.*, 221.

²⁹ Wurfel, *op. cit.*, 113.

³⁰ Ross, *op. cit.*, 170.

³¹ The American delegates proposed a \$60 M. limit, others suggested a \$100 M. limit while the Canadians advocated unlimited liability to protect innocent victims. Wurfel, *op. cit.*, 113.

to accidental damage caused by certain types of oil within the territorial waters of states party to the Civil Liability Convention (Articles 1, 3).

D. *The Ocean Dumping Convention*

In 1972, 80 nations adopted the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters (in force, August 1975).³² The objectives of the Convention outlined in Article I are to ". . .take all practicable steps to prevent the pollution of the sea by the dumping of wastes 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". To this end Article IV prohibits the dumping of certain wastes (such as organohalogen compounds, mercury, cadmium, high-level radioactive wastes, and biological and chemical warfare products), while the dumping of certain other wastes (such as low-level radioactive wastes, and wastes containing significant amounts of certain listed pesticides, chemicals, or heavy metals) requires a *special* permit, and the dumping of all other wastes requires a prior *general* permit. Contracting states must designate an authority to issue the special and general permits and to keep records of the quantity and nature of all materials that are dumped (Article VI). The authority must issue permits when the matter to be dumped is either loaded in its territory or is loaded into a vessel flying the flag of, or registered in, its territory. Before issuing any permit the authority must consider several factors, including the composition of the matter to be dumped, the dumping site, and the method of disposal (Article VI; Annex III).

The Convention only applies to the deliberate dumping of wastes, but not to the disposal at sea, deliberate or otherwise, of wastes derived from the normal operations of ships, aeroplanes, and off-shore installations (Article III). Because dumping is defined as "any deliberate disposal at sea of wastes. . .from vessels, aircraft, [or] platforms. . .at sea" (Article III), the Convention does not cover marine pollutants derived from land-based sources or from atmospheric outfalls. More significantly, Article V states that Article IV shall not apply where it appears that dumping will be the only way of averting a threat to the safety of life, ship, off-shore installation, or aircraft. Furthermore, any contracting state can disregard the prohibited list and issue instead, a special permit for prohibited substances, if it feels that an emergency exists which poses unacceptable risks relating to human health, and there is no other feasible solution (Article V). The vagueness of such terms as "emergency", "unacceptable risk", and "feasible" allows for varying interpretations, thereby presenting

³² For a detailed coverage of the Dumping Convention see "Legislative Developments" (1974) 6 *Law & Pol. Int'l. Bus.*, 575; Duncan, "The 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes at Sea" (1973-74) *S. J. Maritime L.*, 299.

nations with legitimate means of defeating the spirit of the Convention.³³ Yet the most serious shortcomings of the Convention involves the lack of effective enforcement procedures. Each party must take "appropriate measures" within its jurisdiction to prevent and punish violations. With regard to surveillance, the parties have agreed "to co-operate in the development of procedures for effective application of the Convention. . . , including procedures for the reporting of. . . dumping in contravention of the Convention" (Article VII). The Convention remains silent as regards a state which refuses to act against alleged violations. Under this system wide divergence will undoubtedly be exhibited among nations in the monitoring, apprehension, and prosecution of violators. A strict, universal system for monitoring and prosecuting violators is required, but will not be attained while enforcement remains the responsibility of each signatory.

E. *The Convention For the Prevention of Pollution From Ships*

In 1973 the International Convention for the Prevention of Pollution from Ships (not yet in force) was adopted by IMCO.³⁴ Annex I, regulating pollution by oil, retains the oil discharge criteria described in the 1969 amendments to the Oil Pollution Convention, except that the maximum quantity of permitted discharge in a ballast voyage has been reduced from 1/15,000 to 1/30,000 of the amount of cargo carried.³⁵ Oil is very broadly defined as ". . . petroleum in any form. . ." while the definition of oily mixture as "a mixture with any oil content" has also been retained (Annex 1, Regulation 1). Oil discharges from non-tankers are also regulated (Annex 1, Regulation 9). The discharge restrictions are subject to Regulation 11 which authorises the release of oil when necessary to secure the safety of the ship, or to save life, or, if the discharge results from damage to a ship and the master or shipowner was not negligent and took all reasonable steps to minimise the discharge. Within one year of the effective date of the Convention each party must provide adequate readily available facilities for the reception of oil wastes from ships (Annex 1, Regulation 12), so that shipmasters will no longer need to discharge bilge, ballast, or tank flushings intentionally into the sea. Comprehensive provisions dealing with the constructional, equipment and safety aspects of new tankers (Annex 1, Regulations 13-25) indicate a genuine desire to take effective *preventative* measures to control deliberate and accidental discharges.³⁶

³³ See "Legislative Developments", *loc. cit.*, 584.

³⁴ This Convention is covered in detail in Kern, "No Dumping in this Ocean: Nearing the End of Ship-Generated Pollution" (1974) 7 N.Y.U.J. Int. L. & Pol., 545; Pearson, *op. cit.*, 84-105.

³⁵ See pp.217-218 ante.

³⁶ While these facilities provide great potential for eliminating intentional discharges they are extremely expensive to build and maintain. See Kern, *loc. cit.*, 556-558.

Annex II deals with pollution by noxious substances. Some 250 substances have been categorised according to their potential as pollutants. Detailed discharge criteria and control measures are established for each category (Annex II, Regulation 5) although exceptions identical to those for oil discharges are allowed (Annex II, Regulation 6). There are similar provisions for reception facilities as well as requirements aimed at minimising accidental pollution (Annex II, Regulations 7-11). Annexes II, IV and V regulate pollution by harmful substances carried in packaged form, and discharges by ships of sewage and garbage. However, these three Annexes are expressed in very general terms and, more importantly, may be the subject of reservation by contracting parties (Article 14).

There is no doubt that this Convention is a substantial improvement over the previous Conventions purporting to regulate shipborne pollution. Nevertheless, one major defect could defeat the spirit of the Convention, for any violation of the Convention on the high seas is punishable under the law of the flag state (Article 4). Thus the Convention has not avoided the problems associated with the registration of vessels in flag-of-convenience states. The directive that penalties should be 'adequate in severity to discourage violations' (Article 4) is probably too vague to be effective. Adequate surveillance provisions are also lacking. Parties are merely requested to investigate violations "to the extent that they are reasonably able to do so" and to "co-operate in the detection of violations and the enforcement of provisions. . ." (Annex I, Regulation 9; Article 6). Another aspect of the enforcement problem is the expense involved in the implementation of procedures and the acquisition of equipment needed to detect and combat pollution discharges.³⁷ Unless specific enforcement procedures are established many states will be lax in prosecuting violations when compliance might prove costly. But perhaps the crucial weakness of the Convention is that it presents such a radical, expensive departure from the *status quo* that the international community may simply refuse to ratify it. Article 15 states that the Convention will enter into force 12 months after it has been ratified by no less than 15 nations, the combined merchant fleets of which constitute not less than 50 per cent of the gross tonnage of the world's merchant shipping. As of January 1975, no state had ratified the Convention.³⁸

F. Radioactive Pollution Controls

Seven international agreements deal with marine pollution by radioactive wastes, but all suffer from fatal limitations.³⁹ For example, Article 25 of the Geneva Convention on the High Seas merely requests that states

³⁷ Kern, *loc. cit.*, 573.

³⁸ *Idem.*

³⁹ See "Legislative Developments" *loc. cit.*, 585; Mielke, *op. cit.*, 38-39; Shinn, *The International Politics of Marine Pollution Control* (1974) 115-116.

take "appropriate measures" to regulate the dumping of radioactive wastes. The Conventions dealing with shipborne pollutants do not effectively control the deliberate disposal of radioactive wastes because such activities are generally carried out by military vessels which are invariably the subject of exemption. But the most severe hindrance to these agreements is the fact that they have not been ratified by all nations possessing nuclear weapons, ships, or power plants. Thus the 1963 Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water is somewhat ineffectual because France and China are not parties.

G. Some Conclusions

The traditional concept of the law of the sea rests upon two cornerstones; freedom of the high seas, and the exclusive sovereignty of coastal states.⁴⁰ Within the territorial sea, a coastal state generally has jurisdiction over any ship regardless of nationality. However on the high seas ships are subject only to the jurisdiction of their flag state. Thus Article 2 of the 1958 Geneva Convention on the High Seas states that "the high seas being open to all nations, no State may validly purport to subject any part of them to its sovereignty". This concept was developed over a period of centuries by the major maritime powers which had a vested interest in restricting the assertion of coastal state authority, in order to promote a *laissez-faire* regime conducive to the operation of their huge navies, and merchant and fishing fleets.

Naturally the control of marine pollution is of particular concern to coastal states, a concern inimical to the demands of shipping states for unrestricted ocean passage.⁴¹ Nowhere has this conflict been more evident than at the various international conferences which have attempted to deal with the problems of marine pollution. The conventions testify to the dominance of the interests of the shipping nations.

However, international marine pollution controls are inadequate not only because of the inherent weaknesses built into each convention, but also because they are simply not directed to many of the sources of marine pollution. Industrial and domestic waste discharges, waste heat disposal, military activities, dredging, industrial and agricultural processing wastes, and incomplete combustion generate a myriad of harmful pollutants which impose enormous strains on the marine environment. Yet no convention specifically provides for the regulation of these activities; most are ignored or exempted, while the rest are dealt with in broadly-stated preambles or

⁴⁰ See generally Colombos, *The International Law of the Sea* (1959), 62; Legault, *loc. cit.*, 211.

⁴¹ For more detailed comment on the struggle between coastal and shipping states see Legault, *loc. cit.*, 214-216; Sweeney "Oil Pollution of the Oceans" (1968-69) 37 *Fordham L. Rev.*, 189-193; Wales Conference, *op. cit.*, 207-213.

resolutions which are seldom binding on contracting parties.⁴² The traditional piecemeal, compromise approach to international issues, dictated by rigorous adherence to sovereignty, is quite unsuited to dealing with the problems of marine pollution. There is no time left to engage in lengthy negotiations which ultimately produce weak, remedial conventions which fail to deal comprehensively with these problems. The only viable alternative would seem to be then, for nations to enact effective domestic legislation to overcome these weaknesses. In any case, a national response is probably the most effective method for preserving the marine environment because, as outlined in Part II, most marine pollutants emanate from within the territorial jurisdiction of a nation. Part IV therefore outlines all of the significant legislation in New Zealand which directly or indirectly regulates marine pollution. Unfortunately it will be seen that this legislation does not adequately deal with the problem.

IV. THE NEW ZEALAND RESPONSE TO MARINE POLLUTION

A. *The Marine Pollution Act, 1974*

The purpose of the Marine Pollution Act, as stated in the long title, is to "make better provision for preventing and dealing with pollution of the sea. . ." Part One of the Act attempts to give effect to the Oil Pollution Convention as amended. Section 4 provides *inter alia* that if oil or pollutant is discharged or escapes into the sea outside New Zealand waters, from any New Zealand ship, the owner of the ship commits an offence. In addition, the owner of any ship, pipeline or offshore installation, or the occupier of land, from which oil or pollutant is discharged or escapes into New Zealand waters commits an offence (section 3).⁴³ The term "owner" in relation to any ship includes any person "interested" in the ship and any agent, charterer, or operator of the ship.⁴⁴ Oil is broadly defined as "oil of any description in any form". The phrase "discharge and escape" is also broadly defined to include spilling, leaking, pouring, etc., however it occurs, but does not include dumping. New Zealand waters include "internal waters. . .and the territorial sea" which, by section 3 of the Territorial Sea and Exclusive Economic Zone Act 1977, now extends 12 nautical miles from the baseline. Regulations may be enacted under sections 7, 8 and 9 requiring New Zealand ships, and ships in New Zealand waters and the owners of pipelines and offshore installations to have

⁴² Essentially the Conventions deal with pollution caused by vessels operating in the marine environment and all other activities generating marine pollutants are ignored.

⁴³ Note that the scope of the MPA is far broader than that of the Oil Pollution Convention. Most of the Conventions expressly state that a contracting party is not limited by the minimum requirements of the Convention but may, within its own territory, impose conditions which are stricter than those of the Convention. See e.g. Art XI of the Oil Pollution Convention.

⁴⁴ All definitions are outlined in s.2 of the M.P.A.

available equipment to prevent, reduce, remove, or disperse any oil or pollutant that is discharged or escapes into the sea. Every person who commits an offence under sections 3-9 is liable on summary conviction to a fine not exceeding \$50,000 plus the cost of cleaning up the pollutants from New Zealand waters (section 10). Regulations may also be enacted requiring the keeping of detailed oil record books, the immediate reporting to New Zealand authorities of any release of oil or pollutants, and the establishment of shipping traffic controls and sea lanes (sections 11, 16, 18).

However, certain fundamental weaknesses inherent in Part One of the Act negate its potential. First, a foreign vessel cannot be criminally prosecuted for the discharge or escape of oil or pollutants which occurs adjacent to New Zealand waters, even if the pollutant and the vessel subsequently enter New Zealand waters.⁴⁵ Secondly, a defendant has a number of wide defences to a charge under sections 3, 4, or 5 of the Act. It is a total defence to prove that it was reasonably necessary to discharge the oil or pollutant for the purpose of saving life, securing the safety of any ship or installation, preventing damage to any ship or cargo, or that the oil or pollutant escaped in consequence of major structural damage to the ship or installation without the defendant's negligence or deliberate acts, and that he took all reasonable steps to reduce the escape (section 6). The occupier of land from which oil or a pollutant is released has similar defences (section 6). Furthermore, the Act authorises the making of regulations which can exempt any party, either conditionally or absolutely, from the operation of sections 3 and 4. Thirdly, the Regulations which could make a number of the sections in Part One extremely effective have not yet been adopted. For example, the strength of Part One of the Act is its continual focus on "any oil or pollutant". "Pollutant" means any substance declared by the Governor-General to be a pollutant (section 2). The Governor-General may, by Order in Council, declare to be a pollutant any substance which in his opinion contaminates waters "so as to make the waters unclean, noxious, or impure, or as to be detrimental to the health, safety, or welfare of any person, or as to be poisonous or harmful to marine life of any description in any waters" (section 2). Unfortunately, no substances have yet been declared to be pollutants. Therefore, all reference to "pollutants" throughout the Act are inoperative.

Part Two of the Act is designed to give effect to the Ocean Dumping Convention 1972. If any wastes are dumped in New Zealand waters, or by a New Zealand ship, aircraft, or installation into any of the world's oceans, or if, without a special permit, wastes are loaded in New Zealand territory for the purpose of dumping, the owner commits an offence and is liable on

⁴⁵ This is made clear by the wording of s.3 and the definition of "discharge or escape" in s.2(3).

summary conviction to a fine not exceeding \$50,000 plus the cost of dealing with the wastes in New Zealand waters (sections 20, 21). Wastes are broadly defined to mean "material and substances of any kind, form, or description" and include substances not declared by regulation as "pollutants" (section 2). A special permit must be obtained from the Minister of Transport before each occasion that waste is dumped. In determining any permit application the Minister must have "special regard to" certain criteria, including the characteristics and composition of the wastes, the characteristics of the dumping site, the method of disposal, and the practical availability of alternative land-based disposal methods (sections 22, 24).

"Dumping" is restricted solely to the "*deliberate disposal*" of wastes into the sea and excludes any disposal of wastes from land-based sources or incidental to the normal operations of ships, aircraft or installations, or during the construction of harbour works (section 2). Because Part Two also preserves flag state jurisdiction it cannot control disposal of wastes by foreign vessels outside New Zealand waters, unless the vessel has taken on the wastes in New Zealand territory. Unlike the Ocean Dumping Convention, Part Two does not prohibit the dumping of certain elements recognised as being particularly dangerous. At most, regulations may be made prescribing that a permit shall not be issued for the dumping of specified types of waste (section 22(4)), but as yet none has been enacted. Moreover, the guidelines to be used in granting permit applications must also be strengthened. Merely "regarding specifically" criteria so fundamental to the quality of the marine environment, can not ensure a rational approach to the granting of permits. Finally, the broad defences available under section 23 to a defendant (similar to those exonerating oil pollution discharges in Part One) should be revoked. Given the dangers of many of the wastes that are dumped and the fact that most deliberate ocean dumping is done for profit, any violation of the provisions of Part Two should entail absolute liability.

Part Three of the Act gives effect to the Intervention Convention. Given certain conditions, the Minister of Transport can take any measures with respect to a ship inside or outside New Zealand waters, in order to prevent pollution (section 25). However, the effectiveness of Part Three is virtually destroyed by the burdensome preconditions to intervention (sections 2, 25). The Minister must first wait until there has actually been a release of oil before he can act. He must then determine whether the release was the consequence of a shipping casualty "resulting in material damage or risk of material damage to any ship or cargo". The oil must constitute a "serious" risk of pollution to the New Zealand coast or waters, or to "related interests". Because "related interests" is so vaguely defined by the Act, it appears that the Minister cannot intervene on the high seas when the oil seriously harms the marine environment directly

adjacent to New Zealand waters, unless there is a grave risk that the oil will directly affect New Zealand waters.⁴⁶ The Minister must then give the shipowners notice of his intended actions, unless the situation calls for urgency. The Minister must also bear in mind that any person who suffers loss as a result of measures taken by the Minister which are later found not to have been reasonably necessary, may recover compensation from the Crown (section 27). At the very least these provisions confuse a potentially dangerous situation, and impede quick, rational responses. Finally, Part Three only applies to oil discharges, as "pollutants" have not yet been defined by Regulation. The intervention rights do not apply to the discharge of wastes.

Part Four of the Act gives effect, in part, to the Civil Liability Convention. Where oil or a pollutant is discharged or escapes, or where wastes are dumped (other than from a ship to which section 32 applies) the shipowner is liable for all damage occurring in New Zealand waters, but limited to about \$100 for each ton of the ship's tonnage (section 31). Section 32 establishes special provisions for any ship, including a New Zealand ship, carrying persistent oil in bulk as cargo. If oil is released without the privity of the owner, the owner is liable for pollution damage occurring in New Zealand waters attributable to that release. Liability is limited to approximately \$134 for each ton of the ship's tonnage or \$14 million, whichever is least.

Part Four contains many of the weaknesses which rendered the Civil Liability Convention ineffective. First, the shipowner is given a number of wide defences to a charge under sections 31 or 32, including act of God, war, intentional acts by third parties, and negligence by the afflicted state (section 33).⁴⁷ Secondly, the scope of Part Four is limited. The pollution damage must occur within New Zealand waters before civil liability might arise. The release of "pollutants" is not yet covered, as none have been defined by Regulation. More significantly, section 32 expressly applies only to oil damage, and for that purpose oil is very narrowly redefined to mean "persistent oil" (section 32(9)). Thus, any ship, wherever registered, carrying oil in bulk, whether in New Zealand waters or not, is free to release wastes, pollutants, and any but persistent oils without fear of civil liability.⁴⁸ Moreover, because the term "owner" has been narrowly redefined for the purposes of section 32, any claim brought under that section, must be against the actual registered owner of the ship (section 32(9)). In an oil spill incident involving the *Olympic Goal*, the Northland Harbour Board absorbed the \$21,000 clean-up costs because the owners were not in New Zealand, and the Act did not allow recovery against the

⁴⁶ "Related interests" is too vaguely defined by the M.P.A. (s.25(8)) to confer intervention rights onto the Minister if the pollution remains outside New Zealand waters. Curry "The Marine Pollution Act 1974" (1975), 6 N.Z.U.L.R., 303.

⁴⁷ See p.220 ante for a discussion as to why liability should be absolute.

⁴⁸ See s.32 and esp. s.34(1).

agents of the New Zealand charterer.⁴⁹ Finally, the liability limits imposed by sections 31 and 32 are grossly inadequate, given the actual damage suffered by the victim of a major oil spill.⁵⁰

Part Five of the Act incorporates almost verbatim the International Compensation Fund Convention and consequently suffers from the same weaknesses.⁵¹ Part Five can only come into force once the Fund Convention has been ratified.

Of the miscellaneous sections in Part Six of the Act, three are of particular importance. Section 65 exempts all non-commercial ships and aircraft belonging to foreign states from the provisions of the Act, while New Zealand naval vessels are exempted from all but sections 30-35, 40, 41 and 43. Section 66 empowers the Minister to exempt any ship from any of the provisions of the Act, either conditionally or absolutely. There is no right of appeal against such a decision, and no guidelines are established governing the exercise of this discretion. Finally, section 69 provides that the Marine Pollution Act does not apply to any substance discharged into the sea under the Water and Soil Conservation Act 1967.

New Zealand may enact whatever measures it deems necessary to prevent the pollution of its territorial interests by any vessel within its jurisdiction. All vessels in New Zealand waters and all New Zealand vessels on the high seas fall within this jurisdiction. With a 3,000 mile coastline supporting extensive maritime interests, New Zealand has good reason to enact strong marine environmental legislation. Yet the Marine Pollution Act simply fails to meet the challenge. Its major deficiencies can be briefly summarised as follows: (a) the Act relies far too heavily on discretionary regulations, many of which have not yet been enacted; (b) specific defences should not be made available to defendants; (c) there is no mention of a policing system to monitor and enforce the provisions of the Act; (d) the scope of the Act is appreciably reduced by certain inherent limitations, (the absence of a prohibited dumping list, special status confined upon oil tanker owners by section 32, inadequate civil liability provisions, ineffective intervention powers) and because, as regards land-based pollutants, it only deals with pollutants directly released into the marine environment from land-based sources via navigable rivers for which a water right has not been obtained under the Water and Soil Conservation Act; (e) the Act follows too strictly the mandates of the various international conventions with their concomitant weaknesses (although by enacting international conventions in domestic legislation without foreign objection, New Zealand may be gaining the consent of the major shipping nations to its control of pollution from their flag ships on the high seas adjacent to New Zealand's territorial sea. However, the

⁴⁹ Curry, *loc. cit.*, 305.

⁵⁰ See p.220 ante.

⁵¹ See pp.220-221 ante.

Marine Pollution Act, with the possible exception of section 25(1)(a), does not extend New Zealand's traditional jurisdiction).⁵² Strong domestic controls are viewed by some as ineffective, if pollution continues unabated in areas outside a nation's jurisdiction. However this argument is untenable because most pollutants entering the marine environment do so within national territories, so that the international conventions are themselves ineffective. In addition New Zealand's unique geographic position ensures that the vast majority of commercial vessels travelling the adjacent high seas will eventually dock at one of its ports. So while New Zealand can do nothing about a foreign oil tanker releasing oil 12.5 miles off its coast, that tanker is likely destined for Marsden Point and, once inside New Zealand waters, can be the subject of a claim or prosecution. Finally, most of the international conventions expressly allow a contracting state to enact provisions stricter than those of the convention.⁵³ There is then, no valid excuse for enacting weak legislation.

The Marine Pollution Act is not the only domestic legislation affecting the marine environment. The impact of the Water and Soil Conservation Act 1967 must now be examined.

B. *The Water and Soil Conservation Act 1967*⁵⁴

1. *Scope and Administration of WASCA*

As outlined in Part Two of this article, a significant quantity of a variety of pollutants enter the marine environment directly from land-based sources or via waterways, usually as a result of the deliberate discharge of industrial, domestic or agricultural wastes, or via land runoffs. The broad objectives of the WASCA, as outlined in the long title, are "the conservation, allocation, use and quality of natural water. . . , promoting and controlling multiple uses of natural water. . . [and] ensuring that adequate account is taken of the needs of primary and secondary industry, water supplies of local authorities, fisheries, wildlife habitats and all recreational uses of natural water". The term "natural water" means all forms of water including sea water (within New Zealand's territorial sea) (section 2). It is thus clear that the WASCA plays a vital role in regulating substances which might pollute the marine environment. The dual functions of the WASCA, in managing water resources and in controlling water pollution, as they relate to the marine environment, will therefore be examined, to determine how effectively the Act protects that environment.

Policies concerning the management and quality of water are determined by a pyramidal organisation including, at the top, the National

⁵² Mapp, "The Marine Pollution Act 1974: Is it Obsolete Within Six Months of the Enactment?" (1972-75) 2 A.U.L.R., 34-35.

⁵³ See n.43 supra.

⁵⁴ Hereafter referred to as WASCA.

Water and Soil Conservation Authority,⁵⁵ the Water Resources Council⁵⁶ and, at the local level, the Regional Water Boards⁵⁷ (sections 4, 18). Most of their powers and functions (listed in sections 4-20) are aimed at fulfilling the objectives of the Act as outlined in the long title. In particular, water classification is the responsibility of the WRC, while the RWBs determine applications for water rights (sections 21, 26C). Although these functions and powers could, if properly implemented, allow for rational water management and quality control, this potential is undermined by the vague wording of most of the provisions, and the wide discretionary powers given the agencies. Sound guidelines must be clearly set out in the legislation and where appropriate, duties imposed upon the agencies to ensure effective control over the marine environment.⁵⁸

These problems are compounded by the fact that representation from the private sector on those agencies, heavily favours the major polluters of water (sections 5, 7). The WRC, for example, has one member who represents all recreational interests in water. The other four private members represent the manufacturing, dairy, meatworks and farming industries, which generally have a vested interest in promulgating low water quality standards.⁵⁹ Moreover no agency member from the government sector represents the Ministry of the Environment. Yet it is clear that a *rational* water management plan can only be effectively implemented by non-partisan representatives.⁶⁰

2. Classification of Natural Water – sections 26A-26K

One of the most important aspects of the WASCA regarding the control of the marine environment involves the classification of natural water into nine water quality standards, so that the natural water so classified shall be maintained, in order to promote in the public interest the conservation and best use of that water (section 26H). Outlined in the Schedules to the Act are water quality standards for five classes of coastal waters and four classes of fresh water. The duty of preparing the classifications lies with the WRC which initially prepares, publicly notifies and circulates a preliminary classification, calling for objections to be lodged within a

⁵⁵ Hereafter referred to as NWSA.

⁵⁶ Hereafter referred to as WRC.

⁵⁷ Hereafter referred to as RWBs.

⁵⁸ *Report of the Committee Convened by the NWSA in March 1974 to Review the Water and Soil Legislation*, (1976), 7-8; Environmental Council, *Report by the Subcommittee Requested to Consider Matters Relating to WAS Legislation*, 1; *Review of WAS Legislation Submissions of EDS* (1974), 9-13, 18, App. A.

⁵⁹ Approximately 75 per cent of the polluted water in New Zealand comes from organic wastes with the dairy, meatworks and farming industries accounting for at least 74 per cent of this total. See NWSA, *op. cit.*, (n.12 supra), 1-4.

⁶⁰ Proposals aimed at eliminating partisanship within the agencies include the election of representatives by popular franchise and increasing the number of appointed members representing public interest groups. The method of representation for the Clean Air Council (see p.238 post) is certainly far superior to the method used for the agencies under the WASCA.

period of not less than two months (sections 26C, 26D). The WRC must consider any objections properly lodged against the preliminary classification, and may hear or consider any evidence it considers relevant (section 26E). It may then publish a final classification against which any body or person "claiming to be affected" can appeal within two months. Three months after the date of final classification all water rights authorising a discharge of wastes terminate, unless a RWB authorises the discharge to continue "for such period and. . . subject to such conditions as the [RWB] thinks fit" (section 26K). The WRC may reclassify the water and may cancel any classifications or any part thereof (sections 26I, 26IA).

At its inaugural meeting in 1972 the WRC resolved that it would normally impose classifications which were the minimum allowable to provide for multiple use of the water and to ensure flexibility for future water uses.⁶¹ This minimum standard approach, which ensured that most water in New Zealand could degrade from a high to a low level of quality, was overturned in the Southland decisions.⁶² Cooke J. stated in the Supreme Court that while a final classification must be arrived at after balancing all relevant considerations, there was a presumption that classification should follow existing water quality as a minimum standard.⁶³ Following this decision the WRC established a committee to review its classification procedure.⁶⁴ The committee concluded that the decision was unworkable and drafted amendments to the current WASCA which would effectively override the decision. The object of the classification system as stated in the redrafted section 26H would be a declaration of "the present and likely future predominant public uses of the natural water so classified. . ." The WRC has presently ceased classifying waters in the hope that amendments to the WASCA, currently under review, will reflect their "minimum classification for maximum public use" approach. Such a system would mean that over a period of time, large quantities of pollutants will enter the marine environment, causing serious irreparable damage. Legislation should be enacted to provide that the procedures the WRC employs to classify water, conform with the guidelines proposed in the Southland decisions.

The granting of unrestricted objection, hearing and appeal rights throughout the classification process would ensure more informed, equitable decisions and is therefore an essential step in safeguarding the marine environment. Unfortunately the hearing rights granted by section 26 are severely restricted. The WRC calls for objections only after all

⁶¹ NWSCO, *Report of the Committee on Water Quality Control* (1976), 1-3.

⁶² The Southland decisions comprise a series of cases heard together by Mr Justice Cooke in the Supreme Court of New Zealand in 1975. For a general comment on the cases see Palmer, *Planning Law in New Zealand* (1977), 256-259; *Report of the Committee on Water Quality Control, op. cit.*, 3-10.

⁶³ *Water Resources Council v. Southland Skindivers Club Inc* (1975) 5 N.Z.T.P.A. 239, 247.

⁶⁴ *Report of the Committee on Water Quality Control, op. cit.*, 10.

investigations have been completed and a preliminary classification has been formalised (section 26D). A procedure allowing public input at the investigatory stage would avoid the dangers of entrenching a particular classification, and would result in a more responsive preliminary classification, thus reducing the number of objections.⁶⁵ Every member of the public may object to a preliminary classification without question of *locus standi* or expertise arising (section 26D). However, the WRC need only *consider* such objections and there is no absolute right to a hearing. Even if a hearing is convened the WRC may listen to only such evidence "as it considers relevant" before preparing a final classification (section 26E). Finally, the right to appeal against a final classification is restricted to any body or person "claiming to be affected" by the classification (section 26G). The Southland decision held that "affected" meant affected in a manner different from, or to a degree greater than the general public.⁶⁶ Until these restrictive hearing rules are displaced by an inexpensive and informal mode of public participation, the WRC will not have the benefit of varied information which would make the classification procedure more equitable, and responsive to the needs of particular water areas.

The nine Classification Schedules ultimately determine the uses and quality of a particular body of water, but are rendered virtually useless by certain fundamental errors. The technical standards specified for the various classes are often scientifically unsound. For example, the Schedules' sampling procedures are ineffectual, the level of dissolved oxygen specified for class "D" or "SD" waters is inadequate to support most aquatic life, and references to coliform bacteria do not describe what was intended to be defined.⁶⁷ Terms used in the Schedules such as "substantially free" and "to a conspicuous extent" are too vague to enforce effectively. In addition, the Schedules cannot provide adequately for the peculiarities of certain water bodies, because they consider only two broad water categories – coastal water and all other water. The coastal water classifications for example, ignore the fact that there are fundamental differences between estuaries, lagoons, harbours and open coastal waters.⁶⁸

3. Water Right Applications – sections 21-25

The purpose of the WASCA is to vest in the Crown all water use rights by granting it the sole right *inter alia*, to discharge water or waste into any

⁶⁵ Environmental Council Report, *op. cit.*, 2.

⁶⁶ *Water Resources Council v. Southland Skindivers*, *supra*. 243.

⁶⁷ Bellamy, "Water Classification" (1974) 37 *Town Planning Quarterly*, 19; *Review of WAS Legislation – EDS, op. cit.*, 12.

⁶⁸ Knox, "Water Quality and Management In New Zealand" (1977) (unpublished manuscript), 5.

water (section 21(1)).⁶⁹ Any body or person may apply for a discharge right, to any RWB. Subject to certain restrictions and after a hearing where objections are received, the RWB may grant the right, subject to such terms as it may specify (sections 21(3), 24). If the discharge right application affects water which has been classified, the RWB is generally obliged to impose conditions to ensure that, after allowing for reasonable mixing, the discharge will not result in the lowering of the quality of the water as classified, the discharge is substantially free from suspended solids, grease, and oil, and no discharge of any undisintegrated waste is made into class "SE" water (section 21(3A)). If the water has been declared by the Governor-General to be of national importance, discharge rights may only be granted with the consent of the NWSA (section 21(3D)). A RWB must publicly notify the receipt and nature of every water right application. Any body or person may object on the ground that the right would prejudice its or his interests, or the interests of the public generally (section 24). The applicant has no specific legal onus to establish, to obtain the discharge right. The RWB should determine the merits of the application and then publish its decision.⁷⁰ Any decision under sections 21 or 24 is subject to appeal within 28 days, by the applicant or any objector (section 25). The Appeal Board has all of the powers and duties of the RWBs in relation to the application, and may amend, defer or cancel the decision of the RWB as required by the merits.⁷¹ Any Minister of the Crown may, in respect of any development by the Crown, apply to the Minister of Works for the right to discharge water or waste into water. The Minister must refer the application to the NWSA for consideration. A copy of the application is sent to the relevant RWB which must consider the matter, and forward a report and recommendations to the NWSA. The NWSA then publishes its decision. A right of appeal is available to any body or person claiming to be detrimentally affected by the decision (section 23(1)-(6)). If however, the Governor-General declares any water to be of national importance, the Crown need only apply to the Minister of Works for the right, and the decision of the NWSA, after considering the reports of the RWBs, is binding (section 23(7)).

The debate over the best method of conserving coastal water standards has traditionally centred around the issue of whether it is more efficient to place standards on the water into which wastes are discharged, or to control the pollution at the source of the discharge, before it enters the

⁶⁹ S. 21(1) also grants exclusive rights to the Crown to dam rivers, divert or take water, etc. This article will limit itself to a discussion of the rights to discharge water or wastes into water as these are the major uses which affect the marine environment. However the reader is cautioned that other water uses may also affect the oceans either directly or indirectly.

⁷⁰ Palmer, *op. cit.*, 267.

⁷¹ *Ibid.*, 272.

water.⁷² In New Zealand heavy emphasis has been placed on the former system rather than on the latter. The WASCA itself allows the direct discharge of untreated wastes into water systems. Provided the classification standard is met, the discharger is not obliged to treat effluents, other than to eliminate certain suspended solids and some grease and oil, so that quantities of damaging pollutants do enter the marine environment. Because water classification systems alone, no matter how efficient, cannot control marine pollution, equal emphasis should be placed upon effluent control systems operating at the source of the discharge.⁷³ Although powers exist within the WASCA allowing RWBs to specify effluent quality (i.e. section 20(5)(a), (c), (d), (e), (g); section 20(6)), such standards have not been established, or have been extremely lax when specified.⁷⁴ New Zealand has taken for granted the use of water as a desirable transport system for all types of wastes, so that serious damage to the marine environment is inevitable. Because a very high proportion of these pollutants are identifiable and derive from a select number of major water users, and because, in many instances, reasonable technology for treatment has been identified,⁷⁵ positive measures must be enacted to oblige RWBs to impose as a condition of any discharge right, the use of reasonably available technology to treat effluent before it enters any waters.

The rights of objection and appeal on water right applications under sections 24 and 25 are extremely broad. No question of standing arises for any body or person unless the evidence tendered has plainly no connection with the purposes of the WASCA.⁷⁶ Conversely, section 23 grants no right of objection to any body or person, in relation to a Crown water right application, regardless of interest. Under section 23(3)-(5) appeals against a decision of the NWSCA granting a right to the Crown, are restricted to those claiming to be "detrimentally affected" by the decision. But should the Crown invoke section 23(7) to declare the water to be of national importance, neither objection nor appeal rights are available. The basic objectives of the WASCA in preparing a national plan for water management include the protection of public and environmental interests. Yet interest groups prepared to make enlightening contributions to the water planning process are often thwarted by procedures imposing restrictive standing requirements, or have no objection or appeal rights at all. If the WASCA is to pursue a balanced policy of water management, the restrictive standing provisions must undoubtedly be made to conform with the standing provisions of sections 24(4) and 25(1), for the issues are just

⁷² E.g. Bellamy, *loc. cit.*, 19.

⁷³ *Ibid.*, 21; *Review of WAS Legislation - EDS, op. cit.*, 13.

⁷⁴ *Review of WAS Legislation - EDS, op. cit.*, 13.

⁷⁵ Bellamy, *loc. cit.*, 21-22; *Review of WAS Legislation - EDS, op. cit.*, 13.

⁷⁶ *Metekingi v. Rangitikei-Wanganui RWB [1975] 2 N.Z.L.R.*, 153.

too complex to deny the right to be heard, simply because of non-compliance with procedural technicalities.⁷⁷

4. Trade Waste Bylaws and Enforcement Provisions

Any local authority may make bylaws not inconsistent with the NWSCA, relating to the discharge of any trade wastes into any sewer controlled by that authority (section 26L). The discharge of domestic sewage into a sewer pursuant to the bylaws of the local authority, or the discharge of any trade wastes into a sewer in accordance with bylaws made under the WASCA shall not constitute a breach of any provision of the WASCA. However, the authority is not immune from liability for any discharges made in breach of the Act (section 26S).

A NWSCA pamphlet suggests that trade waste bylaws are "a unique agreement between industry and a sewage treatment authority, whereby the authority levies a charge for receiving wastes into its sewers, and then treats the wastes. This resolves the need for each industry to provide its own treatment. . ." ⁷⁸ Yet the same pamphlet points out that while it is possible to filter out 99 per cent of the organic pollutants in sewage, such treatment is prohibitively expensive. No mention is made of the extreme difficulties involved in, or the success rate of, extracting the dangerous non-organic pollutants from effluent. Normally, local authorities discharge sewage into water systems after primary treatment or in untreated form, because they cannot afford more sophisticated treatment facilities.⁷⁹ The WASCA should then, expressly provide for the establishment of in-plant waste processing to regulate discharges before they enter sewage systems,⁸⁰ by way of a uniform, national trade wastes policy, controlled by RWBs under strict guidelines. Domestic sewage bylaws should be similarly controlled. Finally, the general public must be given the power to object to, and appeal from, any domestic and trade waste bylaws, and all sewage discharge applications.

Any person who commits an offence against the WASCA, as outlined in section 34, is liable on summary conviction to a fine not exceeding \$2,000 plus \$100 for each day the offence continues, except that a discharger who contravenes any trade wastes bylaw is liable to a fine not exceeding \$1,000 plus \$100 for each day the offence continues (sections 26N, 34(2)). Any person can lay an information within six months of the date of the offence, and any of the WASCA administrative agencies or a local

⁷⁷ Empirical studies have exploded the theory that the floodgates to a multiplicity of actions will result if the standing rules are liberalised. See Soil and Water, "In Defence of the Environment: Locus Standi" 1977, Vol. 13; and see esp. Williams "Environmental Law-Recurring Issues" (1973-76) 3 Otago L.R., 377-383.

⁷⁸ NWSCO, "Problems of Water Pollution" *op. cit.*, 7, 11.

⁷⁹ See Table 2 at p.214 ante.

⁸⁰ The advantages of controlling effluents at their source as discussed at pp.234-235 ante, apply here as well.

authority can apply to the Court for a civil remedy, to force a respondent to end any default under the Act within a specified time (section 34B).

The enforcement of the WASCA is woefully inadequate because the legislation is extraordinarily complex, exceptionally vague, and tends to be laxly enforced by some RWBs which appear overly sympathetic to the groups they supposedly regulate.⁸¹ To ensure adequate enforcement, RWB officials should be obliged to investigate alleged offences and commence criminal proceedings when a breach is discovered. Investigators who wilfully fail to perform their legal duties should also be liable to suitable penalties. Finally, to be an effective deterrent, the maximum penalty provisions should be substantially increased, and minimum fines for certain offences added.⁸²

5. Conclusions

The two broad inter-related, yet distinct purposes of the WASCA are the regulation of water uses within New Zealand and the control of water pollution. By definition, these purposes have an enormous impact, either immediately or ultimately on the marine environment. The logical goal of water control is clearly to allow optimum use while demanding optimum quality. Unfortunately, the WASCA under its present structure, cannot accommodate this goal. The present water right application and classification procedures are simply too weak to adequately protect the marine environment, a stated intention of the Act. This default is devastating because the WASCA is the principal act responsible for controlling water quality, including that of coastal waters, within New Zealand. Nor does the Marine Pollution Act 1974 fill the gaps left by the WASCA for section 69(3) of that Act expressly states that its provisions have no effect where the provisions of the WASCA are operative. The marine environment is affected to a very great extent by discharges of industrial, agricultural and municipal wastes dumped directly or indirectly into coastal areas. Unless the WASCA is quickly amended and significantly strengthened in a number of crucial areas, the marine environment will suffer irreparable damage.

C. The Clean Air Act 1972

As outlined in Part Two of this article, a large number of pollutants enter the marine environment from land-based sources via the atmosphere. The Marine Pollution Act and the Water and Soil Conservation Act, the principal legislation dealing with the marine environment, do not even contemplate the control of pollutants entering the oceans via the atmosphere. However the purpose of the Clean Air Act, as stated in the

⁸¹ *Review of WAS Legislation – EDS op. cit.*, 21-23.

⁸² *Ibid.*, 20; *Report of the Committee Convened by NWSA, 1974, op. cit.*, 33.

long title is “to promote the conservation of the air and the abatement of the pollution thereof”. How effectively does the Act satisfy its stated objects?

Section 7 imposes a legal duty upon all occupiers of industrial and trade premises to adopt the best practicable means to collect, control and minimise the emission of air pollutants from these premises and to render any such pollutants harmless and inoffensive. These occupiers are also obliged to prevent the emission, for more than two continuous minutes or four aggregate minutes in one hour, of dense smoke (section 10, Regulation 1975/52). Further, all scheduled industrial and trade premises must be licensed by an appropriate licensing authority (section 23(1)). Licences are subject to any conditions imposed in pursuance of the Act or the Health Act 1956, and, in certain instances, may be refused (sections 26(1), 29(1), (3)). The Act allows a local authority to initiate a proposal for a clean air zone within which a higher standard of air cleanliness is required (section 12). Section 16 makes it an offence for any premises, including domestic premises, to emit even light smoke for longer than two continuous minutes or four aggregate minutes in one hour, within a clean air zone. In addition, domestic premises within the zone must comply with the “best practicable means” provisions of section 7. Section 19 imposes special provisions for various types of engines, including motor vehicle engines. Regulations may be made under section 19 to control invisible emissions from motor vehicles, and may include requirements as to emission control equipment and the composition of fuels. Any person who commits an offence against, *inter alia*, section 7 or section 10 (dense smoke provision) is liable to a fine of up to \$500. Any person engaged in a Part A process who commits an offence against, *inter alia*, section 23 (failure to obtain a licence), or section 26 (breach of a licence condition) is liable to a fine not exceeding \$5,000 plus \$500 a day for a continuing offence, and in any other case \$1,000 plus \$100 for each day the offence continues (section 52). Except in certain instances, the Crown is not bound by section 50, (making any offence under the Act punishable by summary conviction) or by section 52 (section 22). Although the Act provides for various appeal rights (sections 32-41), no status is given to any objector.

Finally, the Act creates the Clean Air Council, a principal function of which is to advise the Minister of Health on matters relating to the prevention and control of air pollution (section 6). The Council consists of a medical practitioner, a meteorologist, an energy resources expert, a chemical engineer, a nominee of the Ministry for the Environment, one representative of local government and one representative of industry, although it can appoint committees consisting of persons who need not be Council members (Third Schedule to the Act).

The underlying premise of the Clean Air Act and, perhaps its most significant defect, is that it regards as acceptable air pollution which does

not create a potential threat to human health. For example, a licensing authority can refuse to issue a licence in respect of a scheduled process if it is satisfied that the process is detrimental to the health of persons living or working in the vicinity of the premises (section 29(1)). However, no refusal is permitted where it is shown that the process is detrimental to other resources, such as the marine environment. Indeed, the exemption powers granted by the Act indicate that air pollution is acceptable when it occurs away from populated areas. A licensing authority may exempt an occupier of a scheduled premise from the dense smoke provisions (section 10) if it is satisfied that, by reason, *inter alia*, of the location of the premises it is impracticable to require compliance (section 10(4)). Section 18 empowers the Minister to suspend the operation of the penalty provisions for clean air zones (section 16) if it appears necessary or expedient to do so. A licensing authority may also, during the currency of a licence, vary, add or delete any conditions to which the licence is subject (section 26(3)). Finally the "best practicable means" test is defined by section 2 to include regard to local conditions and circumstances.

Clearly these provisions do not adequately protect the marine environment. Moreover the Clean Air Act suffers from certain secondary defects. Regulations which could undoubtedly eliminate most of the air pollutants emitted from motor vehicles have not yet been enacted under section 19. Schedules should be appended to the Act establishing rational goals and reasonable implementation methods (such as a prohibition on the use of various fuel additives, especially lead, and the installation of emission control equipment to reduce exhaust fumes containing hydrocarbons, nitrogen oxides and carbon monoxide).⁸³ The Act clearly does not contemplate controlling the deliberate spraying of pollutants into the air. Although many of these activities, such as the domestic use of aerosol cans or spray pumps to combat household and garden pests, are perhaps best controlled with educational campaigns, the more notorious of these activities, particularly the aerial spraying of various pesticides, must be brought within the ambit of the Act.⁸⁴ Finally, although section 7 imposes a moral obligation on all premises to use the best practicable means to control air pollution, legal obligations are only imposed upon domestic premises within clean air zones. While it may be impractical to restrict all forms of domestic incineration, certain practices such as open air domestic incineration in urban areas, should be banned.

The Clean Air Act does not protect the marine environment from air pollution primarily because its scope and intentions are stated and

⁸³ See Clean Air Council, "Report of Motor Vehicle Committee on Proposed Motor Vehicle Emission Standards" (1974), esp. the Minority Report.

⁸⁴ The Agricultural Chemicals Act, discussed at p.240 post, tends to regulate the types of pesticides used rather than the application procedures. The purposes of the Clean Air Act can never be achieved until toxic, persistent pesticides are properly contained.

implemented too narrowly. Provisions do exist within the Act, particularly those concerned with licencing conditions, which *could* effectively protect the oceans from most serious air pollutants. In order to implement these provisions, the exemption measures should be strictly controlled, the licensing agencies should be given strict guidelines to follow and, most importantly, the purposes of the Act should be expanded to include the preservation of the marine environment and its protection from air pollutants.

D. Secondary Legislation Affecting the Marine Environment

Although many domestic enactments might incidentally regulate pollutants affecting the marine environment, a brief outline of the more significant of them will reveal that they are generally not effective, even incidentally, in protecting the marine environment.

Although the Agricultural Chemicals Act 1959 contains a number of provisions empowering the Agricultural Chemicals Board to prohibit the use of any agricultural chemicals polluting the marine environment (see especially sections 12, 18, 20), it is highly unlikely that the Board would feel so inclined, as indicated by its refusal to ban or even impose reasonable aerial spraying controls on the chemical 2,4,5-T, even though extremely serious human health questions had arisen.⁸⁵ The constitution of the Board virtually ensures partisan decisions, for its 11 members include six representing agricultural chemical manufacturers, farmers, vegetable and produce growers, fruitgrowers, grain merchants and grape growers plus a chairperson appointed by the Minister of Agriculture (section 4). In addition, Regulations made under the Act are merely aimed at regulating chemical applications and at imposing conditions on uses rather than prohibiting or strictly controlling certain uses and certain application methods.

The Continental Shelf Act 1964 allows the Governor-General to prescribe regulations protecting the living resources of the sea from harmful agents and restricting activities which could unjustifiably interfere with the conservation of those resources (section 8). Unfortunately, these discretionary powers are too vague and without sufficient guidelines to effectively prevent marine pollution. To date, no regulations have been enacted.

The Fisheries Act 1908 allows the Governor-General to regulate against the pollution of any waters by any matter or liquid, poisonous or harmful to fish (section 83). The scope of the Act is confined solely to fish and, as the terms "poisonous" and "harmful" are not defined, serious problems involving the burden and onus of proof would have to be overcome. In any

⁸⁵ Commission for the Environment, *A Guide to Environmental Law in New Zealand*, (1976), 23.

case, regulations implementing section 83 have not yet been enacted.

The Harbours Act 1950 prescribes penalties for dumping garbage into certain parts of the sea and thereby creating a nuisance or hindering navigation (sections 242, 243). The \$100 maximum fine indicates that these provisions are merely aimed at controlling minor, individual offenders. Moreover, "nuisance" is narrowly defined to mean "injurious to health" or that which "fouls tidal lands".

Sections 60-63 of the Health Act 1956 empower local authorities to deal with health problems associated with the pollution of water. In practice these provisions do not prevent marine pollution because they are discretionary, too vague, and inconsistently applied. No uniform model guidelines are available for use by local authorities. Moreover, the \$200 maximum fine would not deter any but the most innocent of offenders.

Extensive regulations have been made under the Radiation Protection Act 1965 governing the transport of radioactive materials within New Zealand. However, regulations have not yet been enacted governing the disposal of such wastes. The Act places no prohibition on certain types of disposal (such as ocean dumping), and provides no guidelines concerning disposal methods or containerisation.

The Tasman Pulp and Paper Enabling Act 1954 allows that Company to *inter alia*, discharge trade wastes into the Tarawera River. No proceedings relating to nuisance or water pollution in respect of the discharges can be commenced under any other Act (section 12). Quite clearly, to avoid such a situation, all general acts regulating marine pollution should make clear that specific legislation is to be read subject to those Acts.

Under the Wildlife Act 1953, the Governor-General may regulate to prevent the pollution of any waters by the discharge of any substance poisonous or injurious to wildlife, their habitats, or their food sources. The breach of such regulations may result in a fine not exceeding \$2,000 plus \$20 for each day the offence continues (section 72(2A)). The term "wildlife" means any non-domestic mammal or bird or any amphibian but excludes all marine mammals (section 2). While limited in scope, the Act could be effectively used in certain instances to punish marine polluters.

V. CONCLUSIONS

As this article has revealed, rational control policies regulating marine pollution do not yet exist. The weaknesses of the international conventions dealing with marine pollution reflect the fact that the majority of nations see no immediate need for any but the most meagre pollution controls. Because the problems associated with establishing effective international marine pollution controls are almost insurmountable, it would seem that the prevention of marine pollution must be regulated by

domestic legislation. Indeed national, rather than international controls should be more efficient for this purpose because the vast majority of all forms of marine pollutants originate within a nation's territorial jurisdiction. Unfortunately, New Zealand legislation does not adequately prevent the pollution of the marine environment, for the Marine Pollution Act, the WASCA and the Clean Air Act need to be radically strengthened. To this end a non-partisan committee composed of various scientists and legal experts should be commissioned to examine and prepare the changes needed in the three Acts to preserve the marine environment. The committee must be given broad powers, adequate finances and enough time to ensure that a thorough investigation is carried out. Ideally, to avoid any overlapping of jurisdiction, the Marine Pollution Act should govern all activities above, on, in, and under salt water, the WASCA should oversee all activities from land-based sources which introduce pollutants directly into salt water or into waters eventually flowing into salt water, and the Clean Air Act should regulate every activity causing pollutants to enter the marine environment from land-based sources via the atmosphere. Compliance with one of the acts could be deemed to be compliance with them all. To be effective, the control must be based on scientific research, and acceptance that scientific knowledge is not absolute and is not capable of conclusive proof. The control must be strict and strictly enforced. Finally the entire community must participate. To this end the community should be educated as to the intricate complexity of the ocean ecosystem. Only an informed public, cognizant of the inherent limitations of this system, can ensure the successful application of effective legislation which might guarantee the perpetual preservation of one of man's most treasured resources.*

* This article was condensed from a 35,000 word research paper written by Mr Versteeg, which, with extensive footnotes and a detailed bibliography, is filed at the Davis Law Library, University of Auckland.