FLAGS OF CONVENIENCE AND OIL POLLUTION: A THREAT TO NATIONAL SECURITY?

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INTRODUCTION

Although flags of convenience and oil pollution have long been a subject of international debate, they are now receiving increased attention by international organizations and individual countries, particularly the United States, following a series of tanker accidents in late 1976 and early 1977. The purpose of this article is to examine whether flags of convenience tankers endanger the security of the United States by causing excessive pollution. The growth of flags of convenience and the oil pollution caused by tankers flying such flags, the effects of oil pollution, congressional and executive reactions to recent tanker accidents, the Liberian response to such incidents, and international efforts to diminish pollution are analyzed.

National security is commonly perceived in military terms.[1] While one cannot question the importance of military power and the threat of force in safeguarding the national interests, in a world characterized by interdependence, the security of states is determined by a combination of complex factors. Such factors include access to mineral resources, allies, the world economic and political conditions, and the ability and willingness of states to prevent pollution of the oceans by oil which may damage beaches, tourism, fishing industries, and the general ecology.[2] Oil pollution, because it does not respect the boundaries of indi-

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1. *See* Taylor, *The Exposed Flank of National Security*, 18 ORBIS 1011 (1975). Taylor argues that most people view national security primarily as the protection of national valuables from military threats. For a standard discussion of national security see Trager & Simonie, *An Introduction to the Study of National Security*, NATIONAL SECURITY AND AMERICAN SOCIETY 35 (F. Trager & P. Kronenberg eds. 1973).

2. *See* C. CRABB, AMERICAN FOREIGN POLICY IN THE NUCLEAR AGE 77 (1960). Crabb defines national security policy as the integration of military and political decisions to produce a unified strategy designed to protect the vital interests of the state and to achieve its

vidual nation-states, poses a threat to the security of several countries and points to the need for national security to be defined in global terms and for an international solution to the problem.[3]

Failure by oil tankers to follow the regulations formulated by coastal states, such as discharge restrictions, proper navigational equipment, and trained and competent crews, can endanger the security of states. This is especially true of the supertankers which carry between 200,000 and 450,000 tons. The *Argo Merchant* which spilled 7.6 million gallons of oil off Cape Cod had a capacity of only 23,000 tons. The *Burmah Agate* spilled 16.8 million gallons in Galveston Bay. On the other hand, the *Amoco Cadiz*, a supertanker, ran aground off Porstall, a small fishing town and summer resort in France, and spilled 68 million gallons of oil.[4] Since 94% of all oil imported by the United States is transported primarily by flags of convenience tankers,[5] it is appropriate to analyze the growth of flags, the pollution resulting from their activities and its effect on the ecology of the oceans.

I. WHAT ARE FLAGS OF CONVENIENCE?

Under the current rules of international law, each state has the right to allow ships to fly the state's flag under certain conditions. Generally, flags of convenience may be defined as "the flags of certain countries whose laws allow . . . and indeed, make it easy for . . . ships owned by foreign nationals or companies to fly these flags."[6] Article 5, Section 1 of the Geneva Convention on the High Seas states that:

each state shall fix the conditions for the grant of its national-

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foreign policy goals. The term *political* is given a broad connotation to include economic, psychological, cultural, and other aspects of national policy. *See also* Brown, *Redefining National Security*, FOREIGN SERVICE J. 10 (May 1978); R. KEOHANE & J. NYE, POWER AND INTERDEPENDENCE: WORLD POLITICS IN TRANSITION (1977).

3. OFFICE OF TECHNOLOGY ASSESSMENT, OIL TRANSPORTATION BY TANKERS: AN ANALYSIS OF MARINE POLLUTION AND SAFETY MEASURES 76 (1975) [hereinafter cited as OFFICE OF TECHNOLOGY ASSESSMENT]. For the concept of innocent passage, see Convention on the Territorial and the Contiguous Zone, *done* April 29, 1958, 15.2 U.S.T. 1606, T.I.A.S. No. 5639.

4. N.Y. Times, March 18, 1978, at 50, col. 5 (late Jersey edition). For a general discussion of very large crude carriers (VLCC) see N. MOSTERT, SUPERSHIP (1974); N.Y. Times, Nov. 14, 1979, at 12, col. 3; N. CLINGAM & L. ALEXANDER, HAZARDS OF MARITIME TRANSIT (1973); R. M'GONIGLE & M. ZACHER, POLLUTION, POLITICS, AND INTERNATIONAL LAW (1979). An Organization for Economic Cooperation and Development (OECD) study indicates that while the growth of the larger ranges of tankers has fallen off significantly, the largest group of all, the supertanker, nearly doubled between 1975 and 1976. OECD, MARITIME TRANSPORT, 1976, at 74-75 (1977). Each year OECD's Maritime Transport Committee publishes a study on the shipping industry. Developments relating to flags of convenience are included in these studies entitled, *Maritime Transport*.

5. OFFICE OF TECHNOLOGY ASSESSMENT, *supra* note 3, at 19.

6. Argiroffo, *Flags of Convenience and Substandard Vessels: A Review of the ILO's Approach to the Problem*, 5 INT'L LAB. REV. 437, 438 (1974).

> ity to ships, for registration of ships in its territory, and for the right to fly its flag. Ships have the nationality of the state whose flag they are entitled to fly.[7]

However, there are other important restrictions, namely:

> there must exist a genuine link between the state and the ship; in particular, the state must effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag.[8]

What exactly is meant by a genuine link has not been clearly determined,[9] despite the fact that *Liechtenstein v. Guatemala*[10] afforded the International Court of Justice (ICJ) an opportunity to clarify this issue to some extent in relation to citizenship. A better understanding of the meaning of flags of convenience can be obtained by examining the reasons for the adoption of such flags by shipping interests and, to a lesser extent, why nation-states grant them.

II. REASONS FOR ADOPTING FLAGS OF CONVENIENCE

Shipping interests, primarily multinational corporations, adopt flags of convenience for basically the same reason they operate in certain countries or have many subsidiaries doing different things in different countries, namely, profit.[11] Large oil companies, for example, try to reduce costs and increase profits by selecting the flag of a country which offers the greatest advantages at the lowest cost. These advantages include: (1) easy registration of ships, (2) lower taxes, (3) reduced operating expenses, and (4) relative freedom from control by the country of registry.[12]

A. Ease of Registration

Many ships which are registered in flags of convenience countries (FCC's) have never been in the ports of these countries and do not

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7. Convention on the High Seas, *done* April 29, 1958, 13.2 U.S.T. 2312, T.I.A.S. No. 5200.

8. *Id.*

9. McDougal, Burke & Vlasic, *The Maintenance of Public Order at Sea and the Nationality of Ships*, 54 AM. J. INT'L L. 25 (1960); Watts, *The Protection of Merchant Ships*, [1957] BRIT. Y.B. INT'L L. 52, 84.

10. [1955] I.C.J. 4 (Nottebohn case).

11. R. BARNET & R. MULLER, THE GLOBAL REACH: THE POWER OF THE MULTINATIONAL CORPORATIONS (1974); R. VERNON, SOVEREIGNTY AT BAY: THE MULTINATIONAL SPREAD OF U.S. ENTERPRISES (1971).

12. *See* G. VON GLAHN, LAW AMONG NATIONS 346 (2d ed. 1970); H. STEINER & F. VAGTS, TRANSNATIONAL LEGAL PROBLEMS 976 (1976); Osieke, *Flags of Convenience Vessels: Recent Developments*, 73 AM. J. INT'L L. 604 (1979).

meet the requirement of a *genuine link*.[13] In order to register a vessel, the person or corporation wishing to do so does not have to go to the respective country.[14] In the United States, one may register a ship by contacting the Liberian Consul or their shipping offices in New York City.[15]

B. Tax Benefits

Like the average individual, multinational corporations are tax conscious. Ships are registered in FCC's because of lower taxes and the potential for avoiding taxes altogether. Taxes on the incomes from the ships are not levied locally or are very low. A registry fee and an annual fee based on tonnage are normally the only charges made.[16] A guarantee or acceptable understanding regarding future freedom from taxation may also be given.[17] Furthermore, because Liberian corporate law does not require the recording of the ownership of holdings, flags of convenience can be used to hide money from the tax collector.[18] It is argued that, while ships registered in the United States are required to pay corporate income tax of approximately 48% on their profits, flags of convenience ships do not. However, U.S. flag operations get investment tax credits, accelerated depreciation, and interest payments which can be applied to reduce U.S. taxes on income from other sources.[19] Therefore, adoption of a flag of convenience may give diminished tax benefits. A decisive factor in determining the choice of a flag seems to be lower operating and construction costs.[20]

C. Reduction in Costs

Generally, ships flying the American flag must be constructed in the United States.[21] Because labor costs are higher in the United States (than in Japan, for example), the typical 200,000 ton supertanker, which cost approximately $90 million in the United States in 1977,

13. *Recent Tanker Accidents, Hearings before the Senate Committee on Commerce*, 95th Cong., 1st Sess. 79 (1977) (statement of R.J. Blackwell).

14. *Id.*; Kifner, *Tankers' Use of Liberian Registry Aids Ship Concerns on Tax and Pay*, N.Y. Times, Dec. 31, 1976, at A1, col. 5; Wiltig, *Tanker Fleets and Flags of Convenience: Advantages, Problems, and Dangers*, 14 TEX. INT'L L.J. 115 (1979).

15. Kifner, *supra* note 14, at A9.

16. Argiroffo, *supra* note 6, at 438.

17. *Id.*

18. Kifner, *supra* note 14, at A1.

19. Loree, *Liberian Flag Ships: The Competition Factor*, N.Y. Times, Feb. 12, 1977, at 20, col. 1. American shipping companies continue to resist UNCTAD's attempt to phase out flags of convenience. *See Shipping: Inconvenient*, ECONOMIST, Dec. 15, 1979, at 77.

20. *See* H. STEINER & F. VAGTS, *supra* note 12; G. VON GLAHN, *supra* note 12.

21. 46 U.S.C.A. § 883 (West Supp. 1981); *See generally* H. STEINER & F. VAGTS, *supra* note 12; G. VON GLAHN, *supra* note 12.

could have been purchased for as little as $40 million in Japan.[22] Therefore, American owned corporations cannot realistically be expected to build their ships in the United States and still be able to compete with ships built in Japan.

Closely related to construction costs are operating costs. Relatively inexpensive labor to operate the vessel seems to be another major reason for using flags of convenience.[23] It has been estimated by shipping interests and by former Secretary of Transportation, William Coleman, that for a 50,000 ton tanker, relatively typical of those bringing oil into American ports, a thirty-two man crew would cost $1.7 million a year at 1977 American wages.[24] By using the Liberian flag, a shipowner can hire crews of other nationalities at the following 1977 rates: all-Italian, $600,000 a year; British, $500,000; Spanish, $450,000.[25] In contrast to lower wages paid to foreign nationals on flags of convenience ships (approximately $5,000 per year), a seaman who is a semi-skilled worker on an American flag ship earns roughly $18,000, including four months of paid vacation.[26]

Furthermore, operating costs are reduced on flags of convenience ships because of the absence of strong unions in the registering country and the lack of wage laws and social security requirements.[27] By avoiding unions, owner/operators are not required to maintain the standard of living aboard ship that would be demanded by unionized crews. Third World wages are lower, and market forces are not free to operate as in the industrialized countries.[28] Many developing countries do not have minimum wage laws and generally ignore standards suggested by the International Labor Organization.[29] Generally, legisla-

22. Kifner, *Liberia: A Phantom Maritime Power Whose Fleet Is Steered by Big Business*, N.Y. Times, Feb. 14, 1977, at 14, col. 1.

23. *Id.*

24. *See Recent Tanker Accidents, supra* note 13, at 33 (Statement by Secretary Coleman).

25. *Id.*

26. Kifner, *supra* note 22, at 14.

27. *Our Ship, Their Flag*, ECONOMIST, Mar. 12, 1977, at 81.

28. *Id.*

29. *Id.* In 1976, the International Labor Organization (ILO) addressed the problem of poorly trained crews. It stressed that seafarers employed on ships registered in its territory are properly qualified or trained for duties for which they are engaged. *See* Int'l Labor Organization: Convention Concerning Minimum Standards in Merchant Ships, *reprinted in* 15 INT'L LEGAL MATERIALS 1288 (1976). In 1976, the Secretary-General of Inter-Governmental Maritime Consultative Organization (IMCO) and the Director-General of ILO agreed that "the formulation of international instruments and documents for guidance concerning maritime training, qualifications or certification is a matter of common interest to both organizations on which there should be consultation with a view to ensuring that standards are up to date and complete, that duplication and conflict are avoided and that the work of the two organizations is mutually supporting." Understanding Between the Director-General of ILO and the Secretary-General of IMCO Concerning a Conference on Mari-

tion in the industrialized countries on pay and working conditions has long since spread from land to sea.[30] Thus, multinationals select flags of convenience for the same reasons they move their operations from the United States to Taiwan, Mexico or Hong Kong.

D. Freedom From Control

Relative freedom from control by the country of registry is another reason why flags of convenience are preferred.[31] The vast majority of FCC's are classified as developing or Third World states. By definition, they have a lower standard of living and are less industrialized. Their economic conditions influence their political and economic leaders to expand and diversify their economy, partly by creating a climate conducive to a variety of investments and business ventures.[32]

It is argued that the country of registry has neither the power to impose domestic or international regulations, nor the wish or power to control the companies themselves.[33] This raises the question of a *genuine link* between FCC's and ships flying their flags. By taking the size and power of multinational corporations into consideration, one can understand the difficulty a poor country would have if it attempted to exercise some meaningful control over them. This is especially true of shipping. Furthermore, it is in the interest of FCC's to encourage foreign ships to register with them. In the case of Liberia, for example, ship registration fees comprise approximately 8% of that country's gross national product.[34] Therefore, it is unrealistic to expect such a country to enforce the stringent standards required by the United States or international organizations, such as the International Labor Organization and the Inter-Governmental Maritime Consultative Organization, in the absence of strong international opinion and regulations formulated by the main maritime nations. This would be contrary to the primary objective of most Third World states, namely, economic development. A brief examination of growth of flags of convenience will demonstrate the advantages to both corporations and developing countries.

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time Training, Qualifications or Certification of Mariners, INT'L LAB. ORG., 65 OFFICIAL BULLETIN, Series A, No. 1, art. 1 (1976).

30. *See* INT'L LEGAL MATERIALS, *supra* note 29.

31. Argiroffo, *supra* note 6, at 438.

32. D. APTER, THE POLITICS OF MODERNIZATION (1965); Curry & Rothchild, *On Economic Bargaining between African Governments and Multinational Companies*, 12 J. MOD. AFR. STUD. 173 (1974).

33. Argiroffo, *supra* note 6, at 438.

34. Loree, *supra* note 19, at 20.

III. GROWTH OF FLAGS OF CONVENIENCE

The first American company to adopt a flag of convenience was the United American Line in 1922. This company, which operated cruise ships, attempted to circumvent a ruling by the Attorney General of the United States which outlawed the sale or transportation of alcohol by vessels flying the American flag, by registering their cruise ships in Panama. It was obvious that the policy of the Attorney General would diminish the capability of American ships to effectively compete with foreign companies whose governments allowed the consumption of alcohol aboard their ships.[35]

Subsequent to this were the United States Neutrality Acts during World War II.[36] The United States, in order to preserve its neutrality during the war, devised a plan that would enable its ships to enjoy freedom of navigation, and simultaneously help Britain. Under the neutrality regulations, American vessels were prevented from entering the European war zone, however, American-owned vessels were permitted to register in Panama, then a neutral country.[37] In this way the United States could assist Britain. Since Panama was small and friendly, it was regarded as being advantageous to United States shipping interests and the country, as a whole, to continue the arrangement.[38] Following the war, Liberia began to emerge as the main FCC because of its close ties with the United States.[39]

Insert table in next paragraph.

The increasing use of the Liberian flag parallels the expansion of the multinational firms and greater commercial competition between firms from different countries. This is especially true in the oil industry. Operating under a foreign flag would enable American oil and shipping industries to compete globally because of lower operating costs and the avoidance of United States taxes.[40] Table 1 demonstrates the rapid growth of tonnage under FCC's, particularly Liberia. This table shows a steady increase in the percentage of tonnage under flags of convenience. Liberia is by far the largest of all FCC's, followed by Panama, Singapore, Cyprus and Somalia. The decline in the number of tons under the Cyprus flag may be attributed to political instability

35. *See* Boczek, *Flags of Convenience*, 4 J. MAR. L. & COM. 231 (1973).
36. *Id.*
37. *Id.*
38. *Id.; See also* Daschbach, *Evolution of American Maritime Policy and Its Implications*, 11 J. MAR. L. & COM. 387 (1980).
39. Boczek, *supra* note 35, at 237.
40. *See* DEP'T OF COMMERCE, MARITIME ADMINISTRATION, EFFECTIVE UNITED STATES CONTROL OF MERCHANT SHIPS 3 (1970); H. STEINER & F. VAGTS, *supra* note 12, at 973. The U.S. generally sympathized with FCCs' opposition to any *genuine link* requirement.

Table 1: Growth of Flags of Convenience

Flag	Millions of tons gross							
	1976	1975	1974	1973	1972	1968	1958	1948
WORLD					268.3	194.2	118.0	80.3
Liberia	73.5	65.8	55.3	49.9	44.4	25.7	10.1	
Japan				36.8	34.9	19.6	5.5	1.0
United Kingdom				30.2	28.6	21.9	20.3	18.0
Norway				23.6	23.5	19.7	9.4	4.3
Greece				19.3	15.3	7.4	1.6	1.3
USSR				17.4	16.7	12.1	3.0	2.1
United States				14.9	15.0	19.7	25.6	29.2
Panama	15.6	13.7	11.0	9.6	7.8	5.1	4.4	2.7
Italy				8.9	8.2	6.6	4.9	2.1
France				8.3	7.4	5.8	4.3	2.8
Germany				7.9	8.5	6.5	4.1	0.3
Sweden				5.7	5.6	4.9	3.3	2.0
Netherlands				5.0	5.0	5.3	4.6	2.7
Spain				4.8	4.3	2.8	1.6	1.1
Denmark				4.1	4.0	3.2	2.0	1.1
Cyprus	3.1	3.2	3.4	2.9	2.0	0.7		
India				2.9	2.6	1.9	0.7	0.3
Canada				2.4	2.4	2.4	1.5	2.0
Brazil				2.1	1.9	1.3	0.9	0.7
Poland				2.1	2.0	1.3	0.5	0.2
Singapore	5.5	3.9	2.9	2.9	0.9	0.1		
Other				29.1	27.3	20.2	9.7	6.4
of which:								
Somalia	1.8	1.8	1.9	1.61	0.87	0.06		
Lebanon				0.12	0.12	0.44		
As % of world total	27	26	24	23	21	18	10	5

Sources: Lloyd's Register, *The Economist*, March 12, 1977, p. 82, and *The International Labour Review* (Nov. 1974), p. 453.

in that country. Liberia seems to possess the most favorable climate for shipping. It is basically stable, has close economic, political, and cultural ties with the United States, and it offers the advantages desired by shipping interests.[41] This fact is evident by looking at the number of tankers under Liberian registry in comparison with other outstanding maritime powers.[42]

41. *See* Clapham, *Liberia*, in WEST AFRICAN STATES 117-31 (J. Dunn ed. 1978).

42. Milius, *Globally, Liberia's Merchant Fleet Is As Safe As Most*, Wash. Post, Jan. 9, 1977, at A8, col. 1. According to Milius, in 1976 there were 5311 tankers in the world, with a total of 309.3 million tons. Nearly one-fifth were registered in Liberia. This nominally Liberian tanker fleet was the world's largest by far (1,014), followed by Japan (531), Russia (462), Britain (459), Greece (345), Norway (332), United States (250) and Panama (238).

The dominance of the shipping industry by ships flying the Liberian flag is also illustrated in the following table.

Table 2: Tankers Carrying U.S. Imports/Exports of Crude and Petroleum Products by Country of Registry

Country of registry	% of total tons of cargo
Liberia	39.77
Greece	10.79
Panama	9.82
Norway	8.63
United Kingdom	4.84
United States	6.34

Source: Maritime Administration (U.S. Department of Commerce) Office of Subsidy Administration, December 1974.

The large percentage of Liberian registered tankers engaged in the transportation of petroleum to the United States account, in part, for the larger number of accidents in which they are involved.[43]

This fact has again focused the attention of the public and government on the dangers of oil spills which result from such accidents. The problem, however, is not simple. The United States is very dependent on foreign oil and larger and larger tankers are bringing oil into the United States.[44] In the first quarter of 1980, approximately a third of all the oil consumed in the United States was imported, or roughly 7.8 million barrels per day.[45]

IV. Recent Tanker Accidents

By the mere fact that 94% of the oil imported by the U.S. is brought by foreign flags, a large proportion being flags of convenience (Table 2), more ships registered in FCC's are involved in accidents resulting in oil pollution.[46] In 1976, twenty tankers, totaling 1,172,000

43. This is supported by data from the Pollution Incident Reporting System supplied by A.R. Adams, U.S. Coast Guard (1978).

44. *See* Ringle, *The Super Ships*, Wash. Post, Jan. 23, 1977, at A1, col. 1. This point is supported by the OECD Study, Maritime Transport, 1975, at 94-97 (1976).

45. World Almanac 185 (1981).

46. *Coast Guard Efforts to Prevent Oil Pollution Caused by Tanker Accidents, Hearings before House Subcommittee on Government Operations*, 95th Cong., 1st Sess., March 21-23 (1977) (Statement by A. McKenzie, Director of the Tanker Advisory Center) [hereinafter cited as *Hearings*]. For more general information *see Losses of Ships Flying Flags of Convenience*, OECD Observer, No. 76 (July-Aug. 1975); *OECD Study on Flags of Convenience*, 4 J. Mar. L. & Com. 231 (1973). In 1976, approximately 56% of major ship losses were attributed to flags of convenience. *See also* OECD, Maritime Transport, 1976, at 71 (1977).

deadweight tons were total losses. That was nearly 50% more tonnage than was lost in 1975. It was six times greater than tanker losses in 1964.[47] In 1977, the U.S. faced a serious threat from pollution. During the first two months of that year, approximately 50 million gallons of oil were spilled in the most productive fishing areas of the U.S. In March 1978, another flag of convenience ship (Liberian), the *Amoco Cadiz*, spilled 68 million gallons of oil off the coasts of France and Britain and is by far the worst oil spill. In November 1979, the *Burmah Agate* (Liberian) discharged 16.8 million gallons in Galveston Bay, Texas.

A look at the causes of these accidents, paying special attention to recent oil spills follows. Table 3 shows the different types of accidents or involvements, the number and percentage for 1969-1973.

Table 3: Tankship Involvements, 1969-1973
Tankships Over 3000 Deadweight Tons

Type of Involvement	Number	%
Breakdown	355	11
Collision	744	24
Explosion	104	3
Fire	197	6
Grounding	790	25
Ramming	473	15
Structural failure	515	16
Other	5	
Totals	3,183	

Source: United States Coast Guard, Office of Merchant Marine Safety, *Tankship Accidents and Resulting Oil Outflows*, 1975.

Of all the above involvements, grounding, collision, and structural failure are the most common. Groundings occur when ships run aground or strike submerged objects. Structural failures include tankships breaking up and reports of "heavy weather damage" ranging from shell plating failure down to damaged piping, catwalks, and failure of structural components due to deterioration with age and inadequate design. Collisions are limited to cases of a tankship striking or being struck by another vessel.[48]

47. *See Hearings, supra* note 46.

48. Lt. Comdr. J. Card, P. Posce & Lt. Comdr. W. Snider, *Tankship Accidents and Resulting Oil Outflows, 1969-1973*, at 205-06 (Washington, D.C., U.S. Coast Guard, Office of Merchant Marine Safety, 1975).

As the following table demonstrates, grounding, collisions, and structural failure also result in more oil pollution.

Table 4(a): Tankship Involvements Resulting in Oil Outflow, 1969-1973, Tankships Over 3000 Deadweight Tons

Involvement Type	Number Resulting In Outflow	Amount of Oil Outflows
Breakdown	11	29,940
Collision	126	185,088
Explosion	31	94,803
Fire	17	2,935
Grounding	123	230,806
Ramming	46	13,645
Structural failure	94	339,181
Other	4	54,911
Totals	452	951,309

Source: United States Coast Guard, Office of Merchant Marine Safety, *Tankship Accidents and Resulting Oil Outflows*, 1975, p. 209.

These three types of accidents also indicate the major causes of tanker accidents and oil pollution, which are human error and substandard ships. Included in the human error category are poorly trained crews, misreading directions, and poor judgment. The substandard ships category includes ships which are old and poorly constructed, as well as those with faulty or inadequate equipment. Table 4(b) shows the primary causes for casualties to commercial vessels in general.

Although many of the flags of convenience ships are well manned, some problems exist in this area. One of the basic characteristics of an FCC is that it allows crews of many different nationalities with questionable skills to operate ships in order to reduce costs. While this does not necessarily mean that more expensive crews are better, the accidents during January and February of 1977 were partly due to the incompetence of the crew. In the case of the *Argo Merchant*, which was registered in Liberia and under the command of George Papadopoulus, approximately 7.6 million gallons of oil were spilled due to improper instruments and the lack of a well-trained crew.[49] The operator passed the lightship only to be grounded. Another example of human error involving a Liberian tanker is the *Arrow*, which ran aground off Nova Scotia in 1970. The ship's third officer, who was on duty when the

49. *See* Clairborne, *Ill-Fated Tanker's Compass was Awry, Captain Testifies*, Wash. Post, Dec. 28, 1976, at A3, col. 5; Seaberry, *Authorities Triple Oil Spill Estimate*, Wash. Post, Feb. 19, 1976, at C1, col. 1.

Table 4(b): Statistical Summary of Casualties to Commercial Vessels (1975-1976)

No. of casualties	4211
No. of vessels involved	7150
No. of inspected vessels involved	2132
No. of uninspected vessels involved	5018
Primary Cause	
Personnel Fault	
Pilot—state	113
Pilot—federal	32
Licensed officer—documented seaman	1170
Unlicensed—undocumented person	428
All others	218
Calculated risk	27
Restricted maneuvering room	210
Storms—adverse weather	405
Unusual currents	10
Sheer, suction, bank cushion	41
Depth of water less than expected	373
Failure of equipment	879
Unseaworthy—lack of maintenance	31
Floating debris—submerged object	168
Inadequate tug assistance	28
Fault on part of other vessel or person	2483
Unknown—insufficient information	531

Source: United States Coast Guard, *Statistics of Casualties*, 1976 (Washington, D.C.; U.S. Coast Guard, 1977) p. 59.

accident occurred, did not have a license, and none of the crew but the captain had any navigational skill.[50] Another example is the barge owned by Stewart Petroleum Company, which spilled 735,000 gallons of oil into Chesapeake Bay due to the fact that a tankerman secured only one out of the required four bolts on the hatch covering the oil.[51] It is estimated that human error is responsible for almost 50% of all the collision or grounding types of tanker casualities,[52] the most widespread types of accidents.

While there are no statistics available to show that older ships usually employ less capable crews and newer ships highly trained crews, there seems to be some evidence which leads to such a conclusion.[53] For example, the *Golar Freeze* (Liberia), one of the world's most expensive ships, has a captain and crew as "thoroughly trained in opera-

50. *See* Seaberry, *supra* note 49.
51. *Id.*
52. OFFICE OF TECHNOLOGY ASSESSMENT, *supra* note 3, at 47.
53. ECONOMIST, *supra* note 27, at 81. According to the OECD Study, the average age of the world fleet is 9.3 years. MARITIME TRANSPORT, *supra* note 46, at 74.

Table 5(a): Distribution of the Number of Structural Failures a Function of Tanker Age for the Period of 1969-1972

Tanker Age	Number of Structural Failures	% of Total Structural Failures	% of Total Fleet
0-4	14	12	20
5-9	17	15	23
10-14	25	22	25
15-19	37	33	15
20-24	15	13	5
25-29	3	3	7
Over 30	2	2	5
Total	113	100	100

Source: Office of Technological Assessment, *Oil Transportation by Tankers: An Analysis of Marine Pollution and Safety Measures*, 1975, p. 55.

Table 5(b): Distribution of the Oil Outflow from Structural Failures As a Function of Tanker Age for the Period 1969-1972

Tanker Age	Number of Structural Failures	Associated Oil Outflow in Long Tons	% of Total Oil Outflow	% of Total Tanker Fleet
0-4	14	6,053	2.03	20
5-9	17	4,770	2.00	23
10-14	25	30,222	10.11	25
15-19	37	167,928	56.20	15
20-24	15	89,719	30.02	5
25-29	3	90	0.03	7
Over 30	2	17	0.01	5

Source: Office of Technology Assessment, *Oil Transportation by Tankers: An Analysis of Marine Pollution and Safety Measures*, 1975, p. 55.

tional procedure and safety precautions as a nuclear-submarine crew; with a brand-new ship that would be worth $100 million even at the bottom of the market, its American owners are not taking any risks they can spot in advance."[54] Older tankers such as the *Argo Merchant* (23 years old) are not regarded in the same way as the *Golar Freeze*.[55]

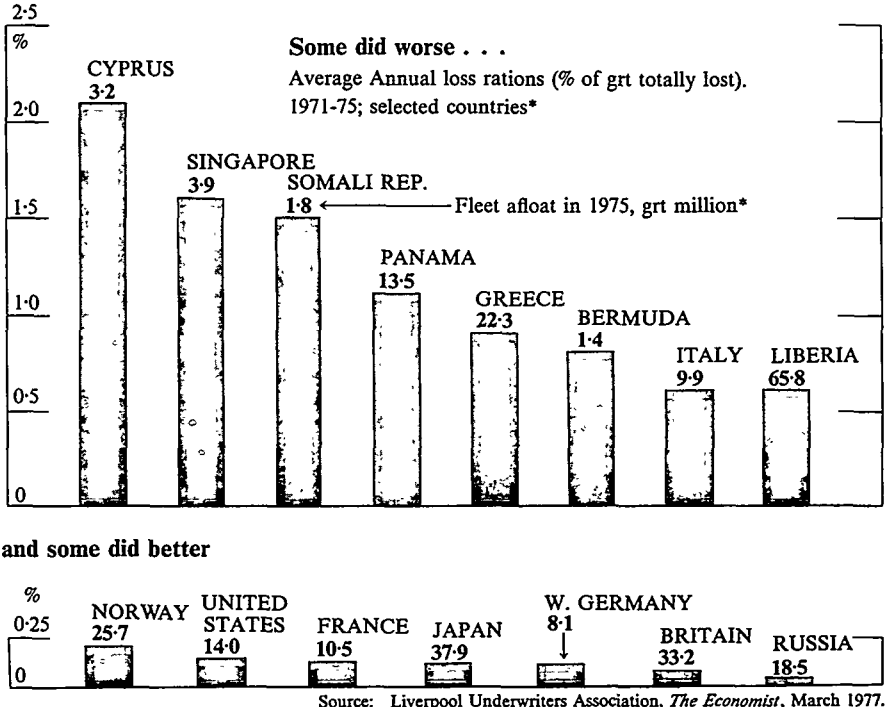
The second major cause of accidents is structural failure aboard ships which are generally older (Table 5(a)). As previously noted, faulty equipment is a part of that category. In the *Argo Merchant* oil

54. ECONOMIST, *supra* note 27, at 81.
55. *Id.*

spill, the ship was almost twenty-five miles off course, primarily because the radar was malfunctioning, the depth finder was off, and the ship was not equipped with standard electronic navigational instruments.[56] Tankers with the highest percentage of structural failures are those between the ages of nine and twenty-five years. There are fewer ships over twenty-five years and the structural failures attributed to them are proportionately small. The same analysis applies to pollution. Tankers between nine and twenty-five years are responsible for more than 96% of the total oil outflow and make up a sizeable portion (more than 45%) of the total tanker fleet.[57] These figures suggest a correlation between safety and age of ships.

Former Secretary of Transportation William Coleman has argued that Liberian ships are just as safe as American ships and that the average age of the United States Merchant fleet is 21.6 years while Liberia's

Table 6: Safety Record according to flag



Source: Liverpool Underwriters Association, *The Economist*, March 1977.
*Ships under 500 grt excluded.

56. *See* Clairborne, *supra* note 49; Kifner, *supra* note 14.
57. OFFICE OF TECHNOLOGY ASSESSMENT, *supra* note 3, at 55.

is only 10.1 years.[58] The argument finds support in a study done by *The Economist*.[59] Essentially, the study disputes the popular assumption that Liberian tankers are generally unsafe. Table 6 shows the safety record for the major maritime countries.

Liberia, which has the largest merchant fleet, had a fairly respectable record prior to 1977, which was an extremely unfortunate year. Table 7 lists only the tankers involved in accidents which resulted in pollution. In less than three months, enough oil was spilled into the oceans that would have met the needs of the American society for an entire day. While accidents between 1976 and 1979 caused widespread pollution, according to a 1977 study by the National Academy of Sciences,[60] wrecks like those shown in Table 7 accounted for only 10%-15% of the two million tons of oil spilled into the oceans yearly during transit.[61]

The major source of oil pollution continues to be the deliberate pumping of oil into the sea by tankers.[62] The vast majority of ships use sea water as ballast subsequent to their deliveries of oil and prior to being refilled with oil, pump the water which was utilized as ballast back into the oceans.[63] In light of the fact that approximately one-fifth of the world's merchant fleet is engaged in transporting oil,[64] this method of disposing of ballast water contributes significantly to ocean pollution. Therefore, flags of convenience *per se* cannot be viewed as the main threat to national security because of their accidents. However, looking at Table 2, it can be argued that since flags of convenience ships are primarily responsible for transporting oil to the United States, and around the world, both sources of pollution may be attributed to them.

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58. *See* Statement by Secretary Coleman, *supra* note 24, at 33.

59. ECONOMIST, *supra* note 27, at 81.

60. *Flags of Convenience Oil Tankers Magnifying Concern About Spills*, N.Y. Times, Feb. 13, 1977, at 1, col. 5. *See also* Springer, *Towards a Meaningful Concept of Pollution in Int'l Law*, 26 INT'L & COMP. L.Q. 547 (1977). Certainly the costs of pollution cannot be measured solely in economic terms. For a discussion of the costs of pollution by several authors see OECD, ECONOMICS OF TRANSFRONTIER POLLUTION (1976).

61. *See* N.Y. Times, *supra* note 60.

62. Gold, *Pollution of the Sea and International Law: A Canadian Perspective*, 3 J. MAR. L. & COM. 13, 15 (1971). The Office of Technology Assessment, found that 7.4 million barrels of oil a year are dumped in standard operations while about 1.4 million barrels per year of oil are spilled by tanker casualties. In addition, 1.5 million barrels are spilled in connection with tanker drydocking activities. OFFICE OF TECHNOLOGY ASSESSMENT, *supra* note 3, at 1.

63. Gold, *supra* note 62.

64. Bergman, *No-Fault Liability for Oil Pollution Damage*, 5 J. MAR. L. & COM. 1, 6 (1973).

Table 7: Recent Tanker Accidents in U.S. Waters or Nearby

Date	Tanker	Gallons Spilled	Location	Flag
Dec. 15, '76	*Argo Merchant*	7,600,000	off Nantucket	Liberia
Dec. 24, '76	*Oswego Peace*	2,000	Thames River	Liberia
Dec. 27, '76	*Olympic Games*	133,000	Delaware River	Liberia
Dec. 3, '76	*Grand Zenith*	8,200,000	off Nova Scotia	Panama
Jan. 5, '77	*Austin*	2,100	San Francisco Bay	U.S.
Jan. 18, '77	*Irenes Challenger*	3,000,000	off Midway Island	Liberia
Jan. 24, '77	*Hawaiian Patriot*	5,000,000	west of Hawaii	Liberia
Nov. 2, '79	*Burmah Agate*	16,000,000	Galveston Bay	Liberia

Sources: The Washington Post, Jan. 6, 1977, A6; Dec. 29, 1976, Al; Dec. 22, 1976, A3; Jan. 23, 1977, Al; The New York Times, Feb. 13, 1977, 46, and Nov. 2, 1979, 1.

V. EFFECTS OF POLLUTION

Because most of the oil spilled by the Liberian tankers has disappeared, one may conclude that the damage to the economy, primarily fishing, is also diminished. However, a study by the Academy of Natural Sciences of Philadelphia contradicts the widespread assumption that "evaporation, wave action and photochemical reaction from sunlight tend to diminish the toxicity of oil spills."[65] When exposed to sunlight, certain types of oil may "produce toxic compounds that are many times more poisonous than the oil itself, and remain in the water for a considerable length of time."[66] It is evident from this research that any oil spill which is exposed to the sun will inflict severe damage to aquatic life.

VI. EFFECTS OF OIL SPILLS ON FISHING

The third largest oil spill in American waters, that from the *Argo Merchant*, was spilled off Georges Bank fishing grounds, one of the richest fishing grounds in the world. According to former Governor Dukakis of Massachusetts, more than thirty thousand persons in Massachusetts are employed in the fishing industry.[67] When one takes into consideration the fact that many New Englanders (as well as crews on foreign vessels) depend on fishing for a livelihood, the economic threat of the *Argo Merchant* is readily apparent.

However, preliminary analysis of the effects of the *Ixtoc I* oil spill

65. Webster, *Researchers Find that Sunlight Intensifies Toxic Effects of Oil Spills*, N.Y. Times, June 8, 1977, at B6, col. 1.

66. *Id.*

67. Schumacher, *Six Million Gallons of Oil Spread from Broken Ship*, Wash. Post, Dec. 22, 1976, at A3, col. 1.

indicates that the 3.1 million barrels of oil which were spilled may not have caused as much environmental damage as originally feared.[68] The federal and state governments spent approximately $16 million to get rid of the oil, and the Texas fishing industry and local industry have filed civil suits totalling $355 million against Sedco and PEMEX.[69]

Sea life, especially fish, is more abundant along the coasts within the 200 mile limit. Much of the oil from Liberian tankers was spilled in the most productive parts of the ocean and close to rivers where fish are spawned. In addition to oil pollution, these portions of the sea receive chemicals, insecticides, refuse, and other pollutants brought to the area by rivers, streams, and man, thus compounding the problem.

Investigations of the effects of oil pollution on fish have demonstrated that some fish are killed soon after coming into contact with oil.[70] Extensive trawling and dredging of Buzzards Bay, which was contaminated by oil in 1969, revealed that many varieties of fish, shellfish, worms, crabs and other aquatic life died from oil pollution. Approximately 95% of all the animals recovered from the shallow waters were dead.[71]

Oil pollution in the coastal zone may upset the ecological balance of the oceans by poisoning some animal and plant life or encouraging the growth of one species to the detriment of others. Since the oceans comprise a system, if one aspect of that system is affected negatively the other parts are also affected. As Schachter and Serwer observed:

> Marine life is interconnected in a web of interrelated food chains, all of which depend in the end on the chemical situation in the marine environment. Diversity of species is an essential characteristic of these food webs, for diversity is frequently associated with stability in ecological systems.[72]

Oil spills may have the same effect on the coastal fishing zones as chemicals, pesticides and other pollutants have on Lake Erie. The life in a lake or ocean depends on the food web. In the oceans, phytoplanktons, tiny plants which are an essential element of the food chain, float on the surface of the sea and thus come into direct contact with oil spills. Bearing in mind that phytoplanktons are responsible for the primary production of approximately 90% of the living material in the

68. *Counting Costs of an Oil Spill*, NEWSWEEK, Aug. 4, 1980, at 8.

69. *Id.*

70. M. Blumer, H. Sanders, F. Grassle & G. Hampson, *A Small Oil Spill*, in MARINE ECOLOGY: SELECTED READINGS 502, 507 (J. Cobb & M. Harlin eds. 1976).

71. *Id.*

72. Schachter & Serwer, *Marine Pollution Problems and Remedies*, 65 AM. J. INT'L L. 87 (1971).

sea,[73] contamination of them by oil is likely to be destructive to higher marine life and ultimately to human beings at the top of the food chain.

Scientists at Woods Hole Oceanographic Center have argued that hydrocarbons remain essentially unchanged as they pass through the food chain. Thus, humans consuming fish or clams may be vulnerable to poison or cancer from carcinogenic compounds found in the fish or clams.[74] Because some fish are global travellers and pollution is carried to other shores by waves and currents, the problem cannot be treated as entirely local or even national.

VII. EFFECTS OF RECENT OIL SPILLS ON WILDLIFE AND BEACHES

Birds are particularly vulnerable to oil pollution and many have died following the rash of tanker accidents. Oil on feathers diminishes the ability of birds to stay upon the water or fly, and those which attempt to preen their feathers are ultimately affected by poisonous components of oil.[75] Following each spill, large numbers of birds are washed ashore. Immediately after the *Argo Merchant* contaminated the area off Nantucket, approximately 500 dead birds were discovered on the shore, while fishermen were reported to have seen many more dead ones at sea. In addition to birds, other wildlife was threatened by the *Argo Merchant*. Two endangered species, the finback whale and the grey seal, were susceptible to oil pollution from the tanker.[76]

The threat of oil pollution is also quite serious to tourism; especially in an area such as Cape Code, where tourism is an important commercial activity. Despite the fact that the beaches of Nantucket and Cape Cod were not polluted, many saw the *Argo Merchant* as the most formidable challenge to their livelihood—tourism. The same can be said of the *Ixtoc 1* oil spill, the largest in history.

An indirect effect of the massive oil spill was the slowing down of offshore drilling in the New England area at a time when President Carter was pursuing a national energy policy that would cut down on oil imports. The central question is whether heavy dependence on foreign oil should be diminished by an increase in offshore production, despite the environmental dangers. But there is a second question, namely, how can the need for energy and the possibility of pollution be made compatible with preserving the 10,000 square mile plateau which

73. *Id.*
74. Blumer, *Oil Pollution of the Ocean*, in OIL ON THE SEA 10 (D. Hoult ed. 1969).
75. W. MARX, OILSPILL 26 (1971).
76. Allis, *Nantucket Facing One of the Gravest Threats in Its History*, Wash. Post, Dec. 22, 1976, at A3, col. 1.

comprises Georges Bank, the richest fishing area in the Atlantic?[77] The *Argo Merchant* has helped to focus attention on these two critical issues. Although oil companies may now drill in the New England area, the issues remain controversial and unsettled.

In addition to the direct and indirect effects of the oil spilled by tankers, primarily Liberian, there are costs which must be paid by U.S. taxpayers. As is examined later, the extent to which polluters are liable for damages is still being debated at national and international levels. What is clear is that the cleanup costs are usually not all paid by the ship owners or operators and that taxpayers shoulder a direct cost of pollution. The following table demonstrates the disparity between what shipping companies are charged for pollution and how much they actually pay.

Table 8: Summary of Oil Pollution Fund Charges, Assessments, and Reimbursements U.S. Coast Guard, Fiscal Years 1971-1976

Fiscal Year	Fund charges by year of incident	Net assessed/billed for same incidents	Net collected same incidents
1971	$ 286,465	$ 17,867	$ 5,376
1972	3,677,627	442,190	293,373
1973	6,579,910	4,768,760	487,918
1974	4,432,142	2,536,880	447,360
1975	7,520,363	3,692,616	556,570
1976	14,120,080	1,676,607	115,595
Total	$36,616,587	$13,134,920	$1,906,192
Outstanding obligations*	1,233,085		
Total	$37,849,672		

*Outstanding obligations in the Third, Seventh, and Eighth Districts not included in detailed schedules.

Source: The General Accounting Office (GAO). Reprinted in *Coast Guard Efforts to Prevent Oil Pollution Caused by Tanker Accidents*. Hearings before Subcommittee of the Committee on Government Operations, House of Representatives, 95th Cong., March 21 and 23, 1977, p. 492.

Numerous accidents involving flags of convenience and the fact that many ships do not pay for pollution, along with public awareness of the threat of pollution to the nation's sea resources and recreational activi-

77. *See Halt to Offshore Drilling Environmentalists Urge*, Wash. Post, Dec. 24, 1976, at A4, col. 1.

ties, have all combined to influence Congress and the executive branch to try to find solutions to the problem of substandard vessels. Many of these ships, though registered in FCC's, are owned or operated by American companies, a fact that complicates the issue for Congress and the President. Furthermore, a nation which depends on ships to bring foreign oil supplies vital to its economy must weigh the problem carefully.

VIII. LEGISLATIVE AND EXECUTIVE RESPONSE TO FLAGS OF CONVENIENCE

Efforts to minimize pollution by all ships, particularly flags of convenience, have focused on improving the design of the ship and increasing the competence of the captain and crew. The latter is designed to reduce accidents attributed to human error or faulty equipment which should be spotted by the ship's captain. Congress and the executive branch have also emphasized liability of owners and operators of ships polluting the U.S. waters, and the development of a Tanker Boarding Program.[78] Congress, as well as the President, has recommended finding an international solution to this transnational problem.[79]

Among the measures recommended to improve safety are: double bottoms, inert gas systems, segregated ballast, backup radar systems, and emergency steering.[80] The first three have been most controversial and will be examined briefly. Double bottom means that there are two separate but continuous and watertight plating structures along the length and width of a ship's bottom.[81] The rationale for double bottoms is that in case of groundings, ships would be less vulnerable to damage. The Senate Commerce Committee approved the Tanker and Vessel Safety Act of 1977[82] which would require double bottoms on vessels contracted for or actually started after January 1, 1978. The American Institute of Merchant Shipping has traditionally opposed this regulation, contending that while double bottoms are helpful in

78. 33 U.S.C.A. § 1321(p) (1978). Department of Transportation Navigation Safety Regulations, 33 C.F.R. § 164.11 (1980).

79. 33 U.S.C.A. § 1320 (1978). Message from the President, March 21, 1977, on Oil Pollution: Proposals to Deal with Oil Spills. Message referred to the Committees on Merchant Marine and Fisheries, and Public Works and Transportation. *See also* Comment, *Unilateral Action Versus Universal Evolution of Safety and Environmental Protection Standards in Maritime Shipping of Hazardous Cargoes*, 20 HARV. J. INT'L L. 127 (1979).

80. Message from the President, *supra* note 79; *see also* Pedrick, *Tankship Design Regulation and Its Economic Effect on Oil Consumers*, 9 J. MAR. L. & COM. 377, 378 (1979).

81. OFFICE OF TECHNOLOGY ASSESSMENT, *supra* note 3, at xvii.

82. Cooper, *Oil Spills: Tanker Safety Legislation Pushed*, CONG. Q. WEEKLY REPORT 34 (May 7, 1977), at 861. Tanker and Vessel Safety Act of 1977, S. Rep. No. 682 (May 26, 1977) (act failed to pass Congress as a whole).

some minor accidents in preventing oil leakage, they do not think that double bottoms will protect ships in serious accidents; in fact, they might increase the amounts of oil spilled.[83] Despite this opposition, double bottoms are regarded as a protective measure, along with inert gas systems.

The inert gas is used to fill empty space in cargo tanks to minimize the possibility of explosions which could result from petroleum fumes mixing with air. The inert gas is usually boiler exhaust gas which contains only insignificant amounts of the free oxygen necessary for an explosive mixture.[84] Another preventative measure is requiring segregated ballast. As has been mentioned previously, utilizing the same tanks for oil and ballast water is by far the main source of oil pollution and waste. The Coast Guard has been actively implementing new rules that require all new tankers contracted for after 1979 to have segregated ballast. Approximately 2,400 tankers, the vast majority of those bringing oil to the U.S., are under the new regulation.[85]

Despite concern with problems relating to design, much of the legislative efforts are focused on assisting owners and operators to reduce accidents due to human error.[86] While the qualifications of crews cannot be determined solely by the United States, until an international solution is obtained the Department of Transportation has set basic guidelines for operators of vessels to follow.[87]

During transit through United States waters to U.S. ports, the person in charge of a tanker has certain responsibilities which include making sure that: (1) the wheelhouse is constantly manned by persons who (a) direct and control the movement of the vessel and (b) fix the vessel's position; (2) each person performing a duty is competent to perform the duty; and (3) the position of the vessel at each fix is plotted on a chart of the area and the person directing the movement of the vessel is informed of the vessel's position.[88] The regulations also emphasize having the appropriate electronic and navigational instruments to assist in avoiding accidents.[89]

The operator of the vessel is required to see that: "(1) [r]udder

83. AMERICAN INSTITUTE OF MERCHANT SHIPPING, TANKER DOUBLE BOTTOMS: YES OR NO? 1 (1974).

84. OFFICE OF TECHNOLOGY ASSESSMENT, *supra* note 3, at xviii. Federal regulations now require inert gas systems in tankships carrying oil. *See* 46 C.F.R. § 32.53 (1980).

85. *Strict Standards Are Proposed for Tankers Using U.S. Ports*, Wash. Post, May 14, 1977, at A17, col. 2.

86. 46 U.S.C.A. § 391(a) (West Supp. 1981); 33 C.F.R. § 164.11 (1980).

87. 33 C.F.R. § 164.11 (1980); *see also* Conrad, *Oil Spills: Policies for Prevention, Recovery and Compensation*, 28 PUB. POL'Y 143 (1980).

88. 33 C.F.R. § 164.11 (1980).

89. *Id.* § 164.11(f).

orders are executed as given; (2) engine speed and direction orders are executed as given; (3) magnetic variation and deviation and gyrocompass errors are known and correctly applied by the person directing the movement of the vessel; and (4) a person whom he has determined competent to steer the vessel is in the wheelhouse at all times."[90] Furthermore, the captain of the ship or the person in charge must have technical knowledge of navigational hazards of the area and is required to make the necessary adjustments.[91] For example, in the area being navigated, the operator should be cognizant of tides, current velocity and direction, density of marine traffic, local vessel speed limit, general weather conditions, visibility, and size of the channel.[92]

While the vessel is at anchor, the captain is responsible for making sure that an anchor watch is maintained. If the vessel begins to drag its anchor, action should be taken to "ensure the safety of the vessel, structures, and other vessels, such as being ready to veer chain, let go a second anchor, or get underway using the vessel's own propulsion or tug assistance."[93]

In addition to these requirements, former President Carter suggested the development of a Tanker Boarding Program and a U.S. Marine Safety Information System, directing the U.S. Coast Guard to "board and examine each foreign flag tanker calling at American ports at least once a year and more often if necessary"[94] in order to force ships navigating U.S. waters to meet more stringent safety and environmental standards. Ships which are unwilling or unable to follow the guidelines may be prevented from entering U.S. ports or denied the right to leave until deficiencies have been corrected.[95] With the information obtained from the boarding program, the Coast Guard will find it easier to identify those tankers which are poorly maintained and accident prone.[96]

It is estimated that compliance with and enforcement of the above regulations cost the American taxpayer approximately $17,300,500 during the first year and will cost $7,800,500 in each of the following nine years.[97] Direct costs to the shipping industry will be around

90. *Id.* § 164.11(g)-(j).

91. *Id.*

92. Section 164.33 states that certain navigation charts and information must be obtained from the appropriate U.S. government agency.

93. *Id.* § 164.19(c).

94. Message from the President, *supra* note 79, at 2. These programs were ultimately adopted by Congress. *See* 46 U.S.C.A. § 391a(15)-(16) (West Supp. 1981).

95. *See* 46 U.S.C.A. § 391a(15)-(16) (West Supp. 1981); 33 U.S.C.A. § 1321(p) (1978).

96. *Id.* The U.S. Coast Guard currently inspects every tanker that arrives in any U.S. port and files the information with a central computer. *Oil and Tankers*, ECONOMIST, Jan. 5, 1980, at 50; *Oil Tankers: Time for a World Register*, ECONOMIST, Sept. 15, 1979, at 88.

97. 42 Fed. Reg. 2947, 5980 (1977).

$6,979,500.[98] On the other hand, the benefits are seen as outweighing the costs. Benefits include less vessel damage or loss, and less port vessel casualty costs, including investigation, search and rescue costs.[99] The largest monetary benefits come from less pollution cleanup costs which are estimated at $30,000,000 to $35,000,000 per year.[100] Above all, there would be less injury and loss of life, and pollution would decrease, resulting in a cleaner environment[101] and a healthier fishing and tourist industry.

IX. FINANCIAL LIABILITY

In order to augment the above regulations, it must be determined who is liable for damages caused by oil pollution. This has been a central problem and an impediment to the adoption of rules that would assist in providing for the security of the United States. The complexity of large multinational corporations makes it difficult to determine who is responsible for any given oil spill. Was it the owner, the operator, the company which built the ship, or the flag state? In late 1976, Congress discussed legislation that would make the owner and operator liable for damages caused by oil pollution.[102] If the owner and operator did not willfully violate the regulations dealing with operating standards, or refused to cooperate with the federal government in cleanup operations, or if the accidents were not caused by gross negligence, large ships would be required to pay $300 per ton or $250,000, whichever is greater, up to a maximum of $30,000,000 in damages.[103] Ultimately, Congress adopted certain measures setting broad guidelines within which the President can make regulations concerning financial responsibility for oil spills.[104]

In 1977, President Carter recommended approval of the Comprehensive Oil Pollution Liability and Compensation legislation, stating that:

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98. *Id.* Oil company officials, led by Exxon's marine chief, are considering a plan for revealing the problems with tankers worldwide so that charterers could avoid bad ships and thereby reduce pollution around the world. ECONOMIST, Sept. 15, 1979, at 88.

99. *See* 42 Fed. Reg. 2947, 5980 (1977).

100. *Id.*

101. *Id.*

102. COMMITTEE ON MERCHANT MARINE AND FISHERIES, OIL POLLUTION LIABILITY—BILL H.R. 14862, H.R. REP. No. 94-1489, 94th Cong., 2d Sess. 4 (1976). Section 103 states that claims may be asserted for (1) removal costs; (2) injury to, or destruction of, real or personal property; (3) loss of use of real property; (4) injury to, or destruction of, natural resources; (5) loss of use of natural resources; (6) loss of profits or impairment of earnings capacity due to injury or destruction of real property or natural resources; and (7) loss of tax revenue for a period of one year due to injury to real or personal property.

103. *Id.* at 5. Mendelsohn & Fidell, *Liability for Oil Pollution: U.S. Law*, 10 J. MAR. L. & COM. 475 (1979).

104. 33 U.S.C.A. § 1321(p) (1978).

> this legislation is designed to replace the present fragmented, overlapping systems of Federal and State liability laws and compensation funds. It will also create a $200 million fund to clean up oil spills and compensate victims for oil pollution damages.[105]

This legislation, by placing most of the responsibility for damage on the owner and operator, will diminish the threat posed by pollution to the national interests, particularly fishing industries. The House of Representatives after much debate, voted in favor of the President's recommendation in September 1980.

Another approach to solving the problem of transnational pollution and reducing the danger to United States security is the suggestion that 9.5% and eventually 30% of all oil imports should be brought in American flag vessels. The proposed legislation, the Safe Tanker Preference Act of 1977,[106] introduced by Senator Ernest F. Hollings of South Carolina, is extremely controversial. The issue is whether national security would be protected by imposing a mandatory number or percentage of American flag ships involved in the transportation of oil to the United States.

Interest groups favoring such legislation include the Marine Engineers Beneficial Association, the Seafarers International Union of North America (AFL-CIO), the United States Conference of Mayors, the Propeller Club of the United States, the National Maritime Council, and the Navy League of the United States. Among those opposed are the United States Chamber of Commerce, the American Farm Bureau Federation, American Enterprise Institute, Consumers Union, and the Federation of American Controlled Shipping.[107]

Supporters of the legislation argue that having more American ships would improve the security and defense of the United States, create more jobs, provide for more effective enforcement of regulations designed to prevent pollution, contribute to the fight for energy independence, and close current tax loopholes available to American corporations utilizing flags of convenience.[108] Opponents contend that it

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105. Message from the President, *supra* note 79, at 2. Congress voted to approve the proposal on Sept. 19, 1980. For Congressional debate on the bill *see Comprehensive Oil Pollution Liability and Compensation Act: Hearings on H.R. 85 Before the Subcomm. on Water Resources of the House Comm. on Pub. Works and Transp.*, 96th Cong., 1st Sess. (1979).

106. *Recent Tanker Accidents: Legislation for Improved Safety: Hearings Before Comm. on Commerce, Science and Transportation*, S. REP. No. 26139, 95th Cong., 1st Sess. 540 (1977).

107. Dillin, *Congress Gets 'Slow' Signal on Ship-Cargo Bill*, Christian Sci. Monitor, Oct. 11, 1977, at 3, col. 1.

108. *See Recent Tanker Accidents, supra* note 106, at 115 (statement of P. Hall, President of Seafarers International).

would be far too expensive to build ships in the United States.[109] It is debatable whether the cargo-preference legislation would automatically produce benefits for the United States. It is estimated that the taxpayer would pay between $200 and $800 million per year in higher oil prices due to construction and operating costs.[110] Furthermore, the federal government, which already allocates approximately $236 million to ship construction subsidies and another $388 million for operating subsidies, would have to substantially increase its subsidies to the shipping industry.[111] Although the legislation would create jobs, the cost to consumers would be astronomical—as high as $110,000 per job.[112]

In light of the fact that multinational corporations are companies involved in the transportation of petroleum, adoption of an American flag would not automatically result in closing tax loopholes due to the transnational characteristics of these enterprises. A transnational approach to taxation would be more effective, if obtained. Furthermore, since the United States is so heavily dependent on other countries for its oil supplies, the extent to which the United States can demand that the oil be brought by American ships is certainly limited.

The recent oil spills and the push for a cargo-preference bill by interest groups have helped to influence the oil companies and the principal FCC—Liberia—to consider more stringent requirements for ships registered in that country.[113] Oil company officials have been considering a plan to identify problem ships and to warn companies which charter ships. The Liberian Shipping Council, an organization of sixty-two U.S. and foreign companies, mostly major oil concerns owning Liberian registered ships, recommended that Liberia impose tougher standards.[114] Liberia has responded by requiring annual inspections of ships which are over twenty years old and those which are accident prone. This change is not surprising since Liberia's shipping policy has been supported by the United States and approximately one-fourth of the ships registered there are owned by American corporations.[115] This action by the oil companies seems to be designed to lessen the negative feelings in Congress and elsewhere against flags of convenience ships.

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109. *Id.*
110. *Id.*
111. *The Great Ship Robbery*, N.Y. Times, Aug. 6, 1977, at 16, col. 1; Loree, *supra* note 19, at 20.
112. *See* N.Y. Times, *supra* note 111.
113. *See Tanker Group Urges Liberia to Tighten Its Safety Standards*, Wall St. J., Mar. 3, 1977, at 23, col. 1; ECONOMIST, *supra* note 27, at 82.
114. *See* Wall St. J., *supra* note 113. For the oil company response, *see* ECONOMIST, Sept. 15, 1979, at 88.
115. *See* ECONOMIST, *supra* note 114.

Congressional seriousness about pollution is evidenced by passage of legislation extending United States jurisdiction over the dumping of oil and other dangerous substances out to two hundred miles.[116] The new legislation, an amendment to the Clean Water Act,[117] gives the Environmental Protection Agency responsibility for controlling dumping beyond the previous twelve-mile limit. Ostensibly, this unilateral action is intended to protect the environment. But, the security interests of the United States must be seen as an ulterior motive. While congressional action may seem to be the best alternative available to the United States to control pollution, actions by other governmental bodies should not be overlooked.[118]

Former President Carter and members of his cabinet preferred an international solution to pollution which would take into consideration other security matters.[119] For example, unilateral action by the United States might influence other countries to implement regulations impeding the passage of merchant vessels, naval ships and submarines. This interference with freedom of navigation on the high seas would be a threat to U.S. security and therefore an undesirable side effect of pollution control. The question remains unanswered whether unilateral action can solve the pollution problem without jeopardizing other national security interests. An even more fundamental question is whether unilateral action by any particular state can deal effectively with transnational pollution. Unilateral action, without cooperation from other nation-states, can solve only part of the problem. Given the transnational characteristics of the petroleum and shipping industries and the interdependence of nation-states, a transnational approach to the problem would be preferred. The problem of pollution is a good example of how national security is intertwined with international security. It also points to some of the difficulties involved in getting nations to cooperate for the benefit of all rather than focusing on immediate national interests.

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116. Clean Water Act of 1977, 33 U.S.C.A. § 1321 (West Supp. 1981).

117. *Id.* § 1321(b).

118. *See* Editorial, *Haste, Waste, and Virtue at Sea*, N.Y. Times, Jan. 15, 1978, at E20, col. 1; Shabercoff, *Officials in Dispute Over 200-Mile Ocean Jurisdiction Agree to Seek a Single U.S. Policy*, N.Y. Times, Jan. 8, 1978, at 20, col. 1. Such action could have an impact on the Law of the Sea negotiations and associated U.S. interests.

119. Learson, *Department Discusses International Approaches to Problem of Oil Spills from Vessels*, 76 DEP'T STATE BULL. 113 (Feb. 7, 1977). *See Transfrontier Pollution: Towards a Common Approach*, OECD OBSERVER 29 (Sept.-Oct. 1975); OECD, ENVIRONMENTAL STANDARDS: DEFINITIONS AND THE NEED FOR INTERNATIONAL HARMONIZATION (1974); OECD, PROBLEMS IN TRANSFRONTIER POLLUTION (1974); *Impediments to Effective Regulation of Oil Tanker Traffic in U.S. Waters*, 51 U. COLO. L. REV. 77 (1979).

X. INTERNATIONAL ACTION IN RELATION TO POLLUTION AND FLAGS OF CONVENIENCE

The earliest international response to transnational pollution was the International Convention for Prevention of Pollution of the Sea by Oil, which opened for signature in London in May 1954, and entered into force in July 1958.[120] This convention is virtually ineffective as a preventative measure because of numerous loopholes which allow tankers to continue discharging oil into the ocean.[121] The prohibitions do not apply to oil pollution resulting from accidents or unavoidable leakage "if all reasonable precautions have been taken after the occurrence of the damage or discovery of the leakage for the purpose of preventing or minimizing the escape."[122] Later amendments to this convention (1962, 1969, 1971) failed to impose stringent measures against pollution.[123]

In 1972, several European nations signed the Convention of Marine Pollution by Dumping from Ships and Aircraft.[124] This convention was designed to give states more control over pollution. Article 1(a) states that:

> the parties shall take individual and collective measures appropriate to prevent marine pollution caused by the dumping of harmful matter from vessels and aircraft and shall harmonize the policies in this regard.[125]

Later, in 1973, an international agreement to prevent pollution, the International Convention for the Prevention of Pollution from Ships, was formulated by maritime countries in London, but has largely been ignored by the signatories, including the United States.[126] Failure to im-

120. 12 U.S.T. 2989, T.I.A.S. No. 4900. The Sept. 9, 1966 amendment appears at 17 U.S.T. 1523, T.I.A.S. No. 6109. According to the Convention, the discharge of oil or oily mixture is prohibited except when the following conditions apply: (1) The tanker is proceeding en route; (2) There is less than 100 parts oil per 1,000,000 parts mixture; and (3) if the tanker is more than fifty miles from the nearest land.

121. *See* 1966 Amendment, *supra* note 119, arts. III-V.

122. *Id.* art. III(b).

123. J. RARROS & D. JOHNSON, THE INTERNATIONAL LAW OF POLLUTION, 203-09 (1974). Three approaches to the control of transfrontier pollution advocated by OECD are: (1) preventing it; (2) harmonizing existing regulations; and (3) setting forth minimum obligations and duties while forbidding certain types of conduct. *See Transfrontier Pollution: Towards a Common Approach*, OECD OBSERVER 29 (Sept.-Oct. 1975); OECD, GUIDING PRINCIPLES ON THE ENVIRONMENT (May 26, 1972); Juda, *IMCO and the Regulation of Ocean Pollution from Ships*, 26 INT'L COMP. L.Q. 558-84 (1977); and Higgins, *Pollution: International Conventions, Federal and State Legislation*, 53 TUL. L. REV. 1328 (1979).

124. Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft, 11 INT'L LEGAL MATERIALS 262 (1972).

125. *Id.*

126. *See* R. HALLMAN, TOWARDS AN ENVIRONMENTALLY SOUND LAW OF THE SEA (1974). For general information on international law and pollution see Handl, *Territorial Sovereignty and the Problem of Transnational Pollution*, 69 AM. J. INT'L L. 50 (1975); Angelo,

pose strict standards demonstrates, to some extent, the fact that any attempts to fight oil pollution, especially on the high seas, collide head-on with a fundamental principle of international maritime law, namely, freedom of the seas,[127] a concept which is strongly supported by nations interested in maintaining the right to relatively free navigation. Furthermore, due to the power of multinational corporations, nation-states are reluctant to agree to provisions which are regarded by the companies as detrimental to their interests and ultimately to the country's own interest.

The Third United Nations Law of the Sea Conference has addressed the twin problems of flags of convenience and ocean pollution.[128] The coastal state and the FCC are given certain responsibilities

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International Environment Protection: Policy, Legal and Trade Aspects, PROCEEDINGS OF THE AM. SOC'Y OF INT'L L. 48-68 (April 21-23, 1977), and M'GONIGLE & ZACHER, *supra* note 4. In 1973, the Marine Environment Protection Committee (MEPC) was established by IMCO in an attempt to improve the overall efficiency of that organization. The MEPC concentrates on matters relating to the protection of the marine environment. Its major objectives include prevention and control of pollution from ships and promotion of cooperation with regional organizations concerned with the prevention of marine pollution from ships. *See IMCO Assembly Resolutions on the Establishment of a Marine Environment Protection Committee*, Res. A. 297 (VIII) *adopted* November 23, 1973, *reprinted in* 13 INT'L LEGAL MATERIALS 476 (1974).

In 1971, a resolution dealing with tank size was adopted due to the construction of large supertankers which are capable of causing serious environmental pollution—especially if the internal arrangement of cargo tanks remained the same. *See* Amendments to the International Convention for the Prevention of Pollution of the Sea by Oil, 1954, Concerning Tank Arrangements and Limitation of Tank Size, *adopted* October 15, 1971, *reprinted in* 11 INT'L LEGAL MATERIALS 267 (1972).

For additional information on the international response to oil pollution see J. HARGROVE, INSTITUTIONS AND THE GLOBAL ENVIRONMENT (1972); Sohn, *The Stockholm Declaration on the Human Environment*, 14 HARV. INT'L L.J. 423 (1973); *The Human Environment: New Challenge for the U.N.*, 8 U.N. MONTHLY CHRON. 35 (1971); IMCO Report on the Questionnaire on Pollution of the Marine Environment, IMCO Doc. OPS/Circ. 15 (May 13, 1969); and International Convention for the Prevention of Pollution from Ships, IMCO Doc. MP/Conf./WP. 35 (Nov. 2, 1973), *reprinted in* 12 INT'L LEGAL MATERIALS 1319 (1973).

127. *See* Dinstein, *Oil Pollution by Ships and Freedom of the High Seas*, 3 J. MAR. L. & COM. 363 (1972). It is generally argued that participants at conferences on pollution are more likely to protect the interests of shipping than the environment. *See* Mendelsohn, *Ocean Pollution and the 1972 U.N. Conference on the Environment* 3 J. MAR. L. & COM. 385 (1972).

128. Enforcement by Coastal States, United Nations Third Conference on the Law of the Sea: Informal Composite Negotiating Text from the Sixth Session, *reprinted in* 16 INT'L LEGAL MATERIALS 1185 (1977). The issue of pollution and flags of convenience was also discussed in earlier sessions of the conference. *See* 1 UNITED NATIONS, THE THIRD U.N. CONFERENCE ON THE LAW OF THE SEA 65-67 (1975). Both the U.N. Conference on Trade and Development and the Int'l Labor Organization collaborate on certain aspects of shipping and related matters.

Liberia's representative at the Caracas Session, Mr. Collins, pointed out that, "Liberia was not opposed to the idea of coastal states being empowered to set standards in excess of the requirements of multinational agreements for all vessels traversing its internal waters." He added that, "Liberia was not opposed to the concept of a coastal state enforcing jurisdiction over marine pollution offenses committed outside its territorial waters; but it did believe that the primary responsibility for enforcement lay with the flag state." *Id.* at Vol. 2, 315. For more information on the Law of the Sea Conference and the preservation of the marine

and rights in order to prevent pollution of the oceans by oil. Specifically, the coastal state may establish appropriate rules to eliminate or reduce the threat of pollution from vessels in its territorial sea, or within the commonly accepted twelve-mile limit.[129] If an oil tanker registered in Liberia, for example, should violate pollution regulations of the coastal state, that state may "undertake a physical inspection of the vessel relating to the violation and may, when warranted by the evidence of the case, cause proceedings, including arrest of the vessel, to be taken in accordance with its laws."[130] This approach is favored by the United States, which already has legal jurisdiction over all vessels entering its territorial sea. Article 219, section 1 of the Informal Composite Negotiating Text extends the jurisdiction of a port state beyond the 200-mile economic zone in order to control pollution from ships.[131] However, despite the discretion granted to the coastal and/or port state, most of the emphasis is placed on the flag state.

Under the proposed international regulations, the responsibilities and obligations of the flag state have been increased significantly. Countries under which ships are registered shall ensure that such vessels comply with international standards of navigation and that they are inspected periodically to demonstrate that the actual condition of the vessels meets the required standards. Furthermore, flag states are required to ensure that vessels follow certain requirements in relation to design, construction, equipment, and training of crews in order to avoid pollution.[132] In essence, each state "shall effectively exercise its

environment see Oxman, *The Third U.N. Conference on the Law of the Sea: The 1976 N.Y. Session*, 71 AM. J. INT'L L. 247-70 (1977). Art. 221 of the Informal Composite Negotiating Text states that the coastal country may try individuals who pollute the waters in the 200-mile economic zone.

129. *See* Enforcement by Coastal States, *supra* note 127, art. 221.

130. 16 INT'L LEGAL MATERIALS 1185, art. 221, ¶ 5.

131. *Id.* at 1183. Article 219 states that when a vessel is voluntarily within a port or an off-shore terminal of a State, that State may undertake investigations and, where warranted by the evidence of the case, cause proceedings to be taken in respect of any discharge from that vessel in violation of applicable international rules and standards.

132. *Id.* Article 218: Enforcement by Flag States. (1) States shall ensure compliance with applicable international rules and standards established through the competent international organization or general diplomatic conference and with their laws and regulations established in accordance with the present convention for the prevention, reduction and control of pollution of the marine environment, by vessels flying their flag or vessels of their registry and shall adopt the necessary legislative, administrative and other measures for their implementation. Flag States shall provide for the effective enforcement of such rules, standards, laws and regulations, irrespective of where the violation occurred. (2) Flag States shall, in particular, establish appropriate measures in order to ensure that vessels flying their flags or vessels of their registry are prohibited from sailing, until they can proceed to sea in compliance with the requirements of international rules and standards for the prevention, reduction and control of pollution from vessels, including the requirements in respect of design, construction, equipment and manning of vessels. (3) States shall ensure that vessels flying their flags or of their registry carry on board certificates required by and issued pursuant to international rules and standards. Flag States shall ensure that their vessels are peri-

jurisdiction and control in administrative, technical, and social matters over ships flying their flags."[133]

According to Article 218, Sections 6, 7, and 8 of the Informal Composite Negotiating Text,

> 6. Flag States shall, at the written request of any State, investigate any violation alleged to have been committed by their vessels. If satisfied that sufficient evidence is available to enable proceedings to be brought in respect of the alleged violation, Flag States shall without delay cause such proceedings to be taken in accordance with their laws.
> 7. Flag States shall promptly inform the requesting State and the competent international organization of the action taken and its outcome. Such information shall be available to all States.
> 8. Penalties specified under the legislation of Flag States for their own vessels shall be adequate in severity to discourage violations wherever the violations occur.[134]

Article 218 also deals specifically with standards that should lessen pollution.[135] The question which still remains is whether a country such as Liberia, despite the fact that it is requiring more stringent standards, has the ability to fully comply with international regulations. A second question relates to the continued attractiveness of FCC's. Since the officers of ships, as well as the crew, would have to have the appropriate qualifications, shipping interests might have to pay higher wages and suffer other increased costs. This might not be in the interest of the FCC. Nevertheless, the new standards seem to be a step in the right direction. It should be obvious that transnational pollution in a world which is becoming increasingly interdependent must be solved by the cooperation of several states.[136]

This does not mean that states, in the absence of international regulations, should do nothing. Pollution and unsafe oil tankers are clearly a threat to national security, and each country should take reasonable measures to prevent or diminish this threat. The United States is not the first state to extend its jurisdiction over what is known as the high seas. Canada, with the passage of "An Act to Prevent Pollution of

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odically inspected in order to verify that such certificates are in conformity with the actual condition of the vessels. These certificates shall be accepted by other states as evidence of the condition of the vessel and regarded as having the same force as certificates issued by them, unless there are clear grounds for believing that the condition of the vessel does not correspond substantially with the particulars of the certificate.

133. *Id.*

134. *Id.*

135. *Id.*

136. *See* McCaffrey, *Pollution of Shared Natural Resources: Legal and Trade Implications*, in PROCEEDINGS, *supra* note 126, at 61.

Areas of the Arctic"[137] extended its jurisdiction over a hundred miles of "territorial" sea for the purpose of preventing pollution. This action followed Canada's disillusionment with the international attempts to control pollution.[138] The United States is following a similar course after the large oil spills off its coasts in early 1977, as well as attempting to find an international solution to the problem.

In 1978, an international conference attended by 62 countries, was called by the Inter-Governmental Maritime Consultative Organization at the request of former President Carter. The objective of the conference was to formulate international rules which would diminish the amount of pollution caused by oil tankers. Despite disagreements between various maritime powers present, safety rules were adopted and, once ratified by the respective governments, will constitute an important development in the international law relating to pollution. These new guidelines include the following requirements:

> (1) All new crude oil carriers of 20,000 tons deadweight or more will be equipped with segregated ballast tanks, distributed so as to minimize the risk of oil spillage in the event of accident. (2) All existing crude carriers of 40,000 tons or more are to have either segregated ballast tanks or a system known as crude oil washing which cleans oil without the use of sea water that would later have to be jettisoned. (3) Tankers of more than 20,000 tons will be fitted with equipment for using inert gas while tank washing is taking place, thus cutting fire risk. (4) Improved steering and radar systems are to be made standard in larger tankers. (5) Inspection and certification standards will be tightened.[139]

In light of the extensive damage caused by recent oil spills, it seems as though the United Nations, other international organizations, and individual countries will be less reluctant to actually enforce the new rules once they are ratified.

CONCLUSION

Recent oil spills by tankers registered in Liberia lead to the conclusion that flags of convenience ships are a threat to the security of the United States. Upon further investigation, however, one discovers that Liberian tankers are only part of the problem. In fact, the Liberian

137. Arctic Waters Pollution Prevention Act, CAN. REV. STAT. c. 47 (1969-70).

138. *Id.* Macleod, *Tanker Safety, Anti-Spill Rules Drafted for World's Fleets*, Christian Sci. Monitor, Feb. 22, 1978, at 3, col. 1; 43 Fed. Reg. 16886 (1978); Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships, *reprinted in* 17 INT'L LEGAL MATERIALS 546 (1978).

139. Protocol, *supra* note 138.

safety record is quite respectable when compared with that of major maritime nations, including the United States. Another widely held view is that ships registered in Liberia are generally older and would fail rigorous United States standards. This is not entirely accurate; despite the fact that some substandard ships are registered in Liberia, many of the most modern and sophisticated tankers are also registered there. Research findings also contradict the assumption that the crews of the flags of convenience ships are not properly trained. While improvements should be made in this area, one must take into consideration that the majority of tanker owners do not deliberately select an incompetent group of individuals to be in charge of their ships. Furthermore, in light of the large number of foreign registered oil tankers navigating U.S. waters, it is not surprising that such tankers are responsible for many of the accidents.

Flags of convenience ships are an economic and environmental threat because of the pollution they cause. However, the vast majority of vessels registered in the United States, Britain, Japan, and other major maritime countries also contribute to pollution by deliberately dumping ballast water into the oceans and by occasional spills which result from accidents. Thus, oil tankers, in general, post a greater threat to national security. Such a threat must be balanced against the vital function of the transportation of oil to consuming nations. Actions taken by Congress, the President, and the Coast Guard seem to be a step in the right direction. All tankers, American and foreign, should meet minimum safety requirements as outlined by the government. Compliance with the laws should result in less pollution, less waste of much-needed petroleum, and in the long run, prove beneficial to ship owners and operators, as well as taxpayers. Despite the merit of unilateral action (expanding U.S. jurisdiction over spills to 200 nautical miles), it is only a temporary and partial solution to the transnational problem of pollution. Pollution and its effects are not restricted to one part of the ocean; the waves, currents, and tides, help to internationalize pollution. Therefore, a more comprehensive approach is needed. International organizations have recognized this for some time, but lacked the strong support of maritime powers, such as the United States. However, the growing concern about environmental decay in the United States should assist in strengthening the power of international bodies concerned with pollution of the ocean by oil.

Uniform rules are essential if the objective of reducing pollution is to be achieved. The international community will have to reach an agreement on minimum construction requirements, design, and other standards which ships transporting petroleum should meet. In the pro-

cess of formulating and implementing the international rules, provisions should be made for the participation of multinational enterprises and others involved in shipping oil from one country to another. Another solution, one that would diminish the possibilities of pollution, is to impose restrictions on the size of tankers. Those which are extremely large are far more difficult to manage and pose a greater threat to national security, whether registered in Liberia or the United States.