Chapter 4

Legislation and Regulation

The question for the industry in this century is what choice will the ship owners and operators make or will the regulators and legislators make it for them? Will they evade the new international standards and civil and criminal liability risk and simply comply by doing only what is expected of them, or embrace the "safety culture"?

One of the important challenges for the maritime industry is whether shipping companies will adopt the concept that the "safety culture", which includes protection of the environment, is "good business". What this policy shift requires is the adoption by ship owners of the International Safety Management Code (ISM Code), reliance upon quality of management in all aspects of ship operation, infusion of money into maintenance, upgrading of ship systems, training qualified individuals, and the employment of professionals, not "cheap crews".

Oil spills result in tangible direct loss of life, injuries, damage to the environment, cargo and vessel. Direct costs measure only part of the total. External costs (indirect and hidden) are harder to quantify. They include, for example, reduced worker morale and productivity, eroding customer base, and in this litigious age, natural resource damage assessment, economic loss claims, increased insurance costs, fines, imprisonment of CEOs and loss to the corporation for their services, public notoriety, lost opportunity, and many other similar losses.

In other words, money spent in the front end saves mega dollars spent later. The *Morris J. Berman* spill in 1994 is a good example. A $9000 towline replacement would have avoided an $87 million dollar oil spill off Puerto Rico, and the $75 million dollar fine levied against the subsidiaries and parent company involved (Ornitz, 1996). Oil spills result in tangible direct loss of life, injuries, damage to the environment, cargo and vessel, loss of time, loss of consumer base and many indirect costs. Perhaps most significantly, a spill can mean loss of freedom due to criminal imprisonment.

The goal of the maritime industry should be to develop a safety mentality in all those engaged in shipping oil. Each member of the safety net surrounding the vessel must be involved in the implementation and enforcement of appropriate rules and standards devised to prevent oil spills and respond to them appropriately. The current more passive inspection culture relies upon regulatory inspections to find the "problems", fix the symptoms without determining what the true root causes are, and reacts with suspicion and disbelief toward regulators. The regulators in turn depend heavily

Oil Spills First Principles: Prevention and Best Response. Edited by B.E. Ornitz and M.A. Champ

The *Morris J. Berman* tank barge on a two-day voyage to St. John, Antigua, pulled by the tugboat *Emily S.* broke an improperly repaired towline and ran aground on a reef off San Juan, Puerto Rico, spilling 798,000 gallons of No. 6 diesel fuel. See Ornitz (1996) for a review of this spill. Photograph courtesy of NOAA Office of Response and Restoration.

on the traditional system of primarily technical compliance, through inspection. The safety culture is a continuous learning process, incorporating lessons learned, proactive activity that address root causes, and an appreciation and understanding of the value of responsible management. The importance of the safety net as it functions within the safety culture is that the substandard operator will be out of the trade and the sustainable company will operate a healthy, self-regulating, quality awareness of shipping worldwide (Voogel, personal interview, 1999).

This section discusses the important US and international regulatory framework that serves as the legal motivation for support for the safety culture by all members of the chain of responsibility for the oil spill industry.

The emerging legal theme for the year 2000 and beyond is “environmental crimes”. Oil spills have become serious business in the US and internationally and equate to real costs for companies sued for oil pollution. Management at the top is becoming the target of criminal investigation. Responsibility for spills affects not only the lowliest mate. Liability touches the Chief Executive Officers of the Responsible Party company, subjecting individuals at all levels to potential imprisonment and large fines. The *Morris J. Berman* oil spill in San Juan, Puerto Rico of almost 798,000 gallons of No. 6 diesel fuel resulted in the largest criminal environmental fine in US history, $75 million, the seizure of some $19.5 million in assets of the three individual companies

involved and also of the parent company, and house arrest of the managing agent. The agent's sentence was later overturned on evidentiary grounds, but the legal doctrines affecting the liability and assets of the corporations remain settled law.

Aggressive litigation on the part of the US Department of Justice (USDOJ) and individual state environmental crimes departments has led to numerous actions, fines and sentences. Examples are: the *North Cape spill* in Rhode Island on 18 January 1996, with its resulting $7 million dollar criminal fine against three companies, additional $1.5 million payment to purchase ecologically sensitive land, $1 million to upgrade safety on ships, $20 million in clean-up costs, and probation for the company president of Eklof Marine and Master of the *Skandia*; the *Royal Caribbean Cruise Line* (RCCL) case with its $8 million criminal fine for the Puerto Rico Case the $1 million criminal fine for the Miami, Florida case; the fine of $18 million for more statutory violations against RCCL (OSIR, 1999b); and the latest case against RCCL for pollution activities in Alaska leading to a $3.5 million settlement (OSIR, 2000).

Internationally, various courts have entered a series of fines and imprisonments for environmental offenders, even including criminal proceedings against senior harbor managers and the port authority of Milford Haven for the 1996 *Sea Empress* grounding in Wales around the Milford Haven port and subsequent 21 million gallon crude oil spill. The Port Authority was fined $8 million (OSIR, 1999a). This fine was reduced at a later date to $1.8 million (OSIR, 2000a).

4.1. The Safety Nets

The players (see below) in the business of shipping can be viewed as interrelated parts in a greater whole. Their objective is to protect the safety of their mariners, prevent pollution of the environment and make money while moving oil and other products around the world. These partners include every facet of shipping. Their interrelationship has been characterized by a series of safety nets surrounding the vessel. In concentric rings, flowing from the innermost to the outermost circle are those responsible for safe tanker shipping:

- Owners and operators;
- Flag States;
- Protection & Indemnity Clubs (P&I Clubs), insurers;
- Classification Societies; and
- Port States (Voogel, personal communication, 1999).

Two types of shipping states control ship owners and their vessels, the *Flag State* and the *Port State*. The Flag State is the country in which the vessel flying its flag is registered and whose issued licenses and certifications mean that the vessel meets applicable provisions of international conventions and national regulations. The Port State is the country whose port receives the vessel. Port States offer the last "safety net" in this web. "When shipowners, classification societies, insurers, Flag State ad-

ministrators have in one way or the other failed to do their job, Port State control comes into the scene. In an ideal world, port State control would not exist but unfortunately, due to inescapable realities, port State control must remain a standard feature in the maritime safety field" (Plaza, 1997).

The International Maritime Organization (IMO) is the world organization tasked by the United Nations with dealing with the shipping industry, in the principle areas of safer shipping and marine pollution control. The organization's slogan is "Safer Shipping and Cleaner Oceans" (IMO, 1998b). IMO emphasizes that each interest in the safety net must be involved in the implementation and enforcement of appropriate international rules and standards in order to eradicate substandard ships and prevent accidents. "It is the joint responsibility of administrations, shipowners, classification societies and all those involved in the day-to-day operations of ships to see that ships conform to the internationally agreed standards, that they are well run, well maintained and do not pollute the marine environment . . . " (IMO, 1997c).

The ship owner/operator organizations are among the more influential members in the system are INTERTANKO, the largest organization representing independent tanker' owners and operators worldwide, describes these safety nets as consisting of three "Chains":

- The Responsibility Chain;
- The Quality Chain; and
- The Image Chain, and likens all players to the "links" forming each chain.

The *Responsibility Chain* is the most comprehensive of the three chains and places responsibility for the highest standard upon all links to uphold the principles of safe transport, cleaner seas and free competition. Those concerned are ship owners/operators in the form of cargo owners, charterers, ship owners, class societies, salvage industry, flag administrations/governments, port authorities with their associated terminals and pilots, the insurance industry of P&I Clubs, cargo and hull underwriters, and the court system. Each is closely connected with the other. The first step in this endeavor is that each participant must get its own house in order (INTERTANKO, 1997).

Among this larger set is a second group of the shipping community occupied with mutually reinforcing the means to improve the standards of tanker operation and safety. This chain is labeled the *Quality Chain*. These players are responsible for implementation of stricter controls of the international treaties, including the ISM Code and national regulations. They include IMO as the main regulator at the center of the chain. IMO sets the standards. Flag States enforce them (or not). The links are forged by systems that each institutes: Owner safety management systems, Charter Company vetting, Class enhanced surveys, Flag State control, Port State control, Terminals check lists. Each influences the other through these activities. For example, "Flag State performance will improve as port states implement selective targeting of the less safety-minded flag states".

By Scott Willis, *San Jose Mercury News*, July 13, 1989.

The final chain brings the public into the concept of safety nets, through what INTERTANKO calls the *Image Chain* (INTERTANKO, 1997). This chain deals with creating and operating channels of communication about the complexity and magnitude of the problems associated with shipping of oil and response when an incident occurs. Those in this chain include politicians, regulators, environmental organizations, the media and the public. The goal of the Image Chain is to improve relationships through better cooperation between all sectors. This means better environmentalist contacts, more participation of regulators who make the laws, increased oil company communication through media response training, and involvement by industry in political lobbying to close important gaps in the regulatory regime. When the safety nets are functioning, the Image Chain helps to improve the public's view of the shipping industry. Then, those in the Responsibility Chain are seen as competent and serious, and industry is regarded as a well managed service industry (INTERTANKO, 1997).

Accidents are complex in their nature, need greater understanding of all members in the chain, and fuller participation by all parties involved to appreciate the causes and then take part in the solutions. As an example of how this chain works, today,

when tanker accidents occur, the public focuses on the ship owner as the guilty party. In fact, many others in the chain of responsibility may be at fault. A fuller understanding of the variables leading to an incident may result in a more comprehensive solution to the real causes behind the oil spill (INTERTANKO, 1997).

What is the ultimate importance of the safety net, with its responsible party links composing these various subsets of chains? The goal is that the substandard operators will be out of the trade and that those remaining will operate a healthy, self-regulating, quality business of shipping worldwide (Voogel, personal interview, 1999).

The Commission of the European Communities has eloquently summarized the call for a safety culture in its recent Communication to the Parliament. After analyzing the weak links in these chains, the Commission poses this challenge to the tanker industry: "What is needed all-in-all is a package of measures which will bring about a change in the culture of the tanker industry. There should be stronger incentives for quality minded carriers, charterers, classification societies and other key bodies. At the same time, the net should be tightened around those who seek short-term personal economic gain at the expense of safety and the marine environment" (Commission of the European Communities, 2000).

4.1.1. Ship Owners/Operators and Their Associations

Operational safety is the responsibility of the ship owners and operators (IMO, 1997d). Although Governments have most responsibility for implementing standards because they ratify the conventions concerned, it is the ship owners and managers who are in the best position to ensure that standards are high" (IMO, 1997d). According to various statistics, tanker safety has improved significantly in the last five years in terms of oil spills, time lost due to groundings, fire, explosion and structural damage. (For further discussion see Chapter 1 of this book.) "This safety improvement did not happen by luck but was the result of a concerted effort by many segments of the tanker industry" (INTERTANKO, 1997). The ship owner, charterer, oil companies, managers they each employ, and the associations representing the major oil companies and the independent tankers, towboats and tugs compromise an important segment of the safety chain. They form the first layer of the safety net around a vessel.

For the ship owner in the business of transporting oil, full commitment to safety is becoming the only recognized and acceptable standard of operations. In the long run, cost cutting means more loss than savings (INTERTANKO, 1997). Public pressure is greatest on oil tankers because of their high visibility and the volume and impact of their spills. Commercial benefits are to be gained not only from good operating practices, but also from the public respect garnered from safe operations. What is lacking and sorely needed, from the ship owner's point of view, is more uniform enforcement of the regulatory regime, not more regulation. If the substandard operator is to be driven out of the trading arena, there must be a "level playing field", with rules applied evenly (INTERTANKO, 1997).

For the charterer, who is the end user and purchaser of maritime transportation, given the aging world fleet, the primary responsibility is to balance quality, price, and risk (following the 1999 *Erika* oil spill) when selecting a ship. Part of the blame for the *Erika* spill is being placed upon the failure of the Classification Societies to maintain their standards of inspection and the practice of vessel owners jumping from class society to class society as their vessels age. Vessels used should be classed by a recognized classification society, not routinely targeted by Port States (for inspections), suitable for their intended destinations, manned by qualified mariners, and operated in compliance with international conventions and national laws. As a result of the *Erika*, the European Commission has proposed several changes for rule amendments for classification societies, as has the International Association of Classification Societies (Rutherford, 2001). Whether a company charters vessels or, like the major oil companies, (such as Chevron Shipping Company or ExxonMobil), owns a significant fleet and charters the rest, the company has a fundamental responsibility to provide safe transportation. Use of inhouse vetting of ships, reference to database tools provided by the industry, and participation in industry forums increases the prospect that the cargo will arrive safely. Since the oil company facility is usually the point of beginning and end for all trips, cargo owners have another obligation. That is to maintain and operate safe facilities.

The ship or vessel owner associations acting on behalf of ship owners have an equally important role in promoting safe transportation of oil by their members. The International Association of Independent Tanker Owners, INTERTANKO, is an industry association, representing 75% of the independent tanker tonnage not owned by oil companies, nor by the government. Their representation includes over 50% of the total tanker tonnage in the world, some 2016 tankers. Starting over 10 years ago, INTERTANKO began an active program of targeting safety, with the goal being that 100% of its members' oil cargo would reach its destination safely. INTERTANKO coined a much used campaign phrase, "the Age of Intolerance" (INTERTANKO, 1997).

> "The Association as a whole and its members individually have become intolerant of substandard practices, both amongst fellow ship operators and in related sectors of the industry. *To match the public's zero tolerance of tanker pollution, INTERTANKO has set the industry a goal of zero accidents*. We have established membership criteria that we have rigorously enforced and will continue to apply rigidly in the future. We are intolerant of those who do not comply, whether they are prospective members of INTERTANKO, current members about to be ejected or operators of other types of vessels".

INTERTANKO enforces this concept by its rules for membership, which require:

- That every ship of a member's fleet be classed by a classification society belonging to the International Association of Classification Societies (see Section 4.1.3 of this book).

- That every ship owner be a member in good standing of a recognized Protection & Indemnity Club (see Section 4.1.4 of this book).
- That each ship of the fleet carries a valid International Safety Management Certificate and that an active management system be in place and maintained. INTERTANKO's members have reached 100% compliance with the ISM Code (INTERTANKO, 1997).

INTERTANKO maintains a Fleet List for each of the ships owned by its members, identifying the classification society, the Flag State, the P&I Club, and the ISM Code certification status. Staff members determine compliance with the Rules in each area for each ship. INTERTANKO has found that their membership requirements are an "amazing hammer". Peer pressure makes being included of utmost importance and being ejected from the organization an unacceptable situation for ship owners. Since starting their proactive safety program, INTERTANKO's membership has increased by 200 members. INTERTANKO uses three regional panels to accomplish its ambitious work of being the "leading link" in the Chain of Responsibility (INTERTANKO, 1997; du Moulin, personal interview, 1999).

The ship owner who follows this policy of "getting its own house in order" realizes bottom line results. According to Richard du Moulin, past Chairman of INTERTANKO and President of his own shipping company, Marine Transport Corporation, fleet incidents in his company have decreased in just two to three years from 58 incidents annually to 12 a year. An incident is defined as any breakdown or event costing more than $25,000 or six hours, or any pollution, grounding, collision, or injury, or any loss time for an employee due to an accident of more than six hours (du Moulin, personal interview, 1999).

The world's largest shipping association, The Baltic International Maritime Council, (BIMCO) uses information age tools to accomplish its goals of creating the safety culture for its members. BIMCO represents more than 2650 ship owners, ship brokers, agents, P&I Clubs from 110 countries, which control more than 55% of the world merchant fleet. The secretariat for BIMCO is in Denmark. BIMCO has extensive databases for its members, which touch upon almost every aspect of shipping, through its Web sites, publications, bulletins, and shipping manuals. While actively engaging in the development of regulations through consultative status in IMO, what BIMCO most encourages for future industry attention is worldwide, uniform application and enforcement of the regulatory regime already in existence (BIMCO, 1998).

BIMCO is a forum for its members to air views about the most pressing issues in the business and for them to receive information from others involved in the chain. For example, BIMCO has formed several working partnerships with the US Coast Guard, with ongoing initiatives addressing the challenges for the millennium, like the question of ballast water exchange, introduction of non-indigenous species into new marine environments, and others. In the recent past, there has been an active exchange of information from the US National Oceanic and Atmospheric Administra-

tion (NOAA) representatives about natural resource damage assessment, particularly about the move to include restoration "endpoints" in the most initial stages of any clean-up. (For further discussion of reducing environmental damage, see Section 3.2 of this book.) During the last two years, BIMCO has concentrated its efforts upon improving the quality of its members and getting rid of or upgrading the performance of substandard operators through a series of educational courses held worldwide. These courses have educated ship owners about regulatory changes in OPA 90, STCW 95, the ISM Code, what these treaties or laws require of ship owners, how they can best achieve compliance and what the goals of quality should be.

BIMCO can apply considerable peer pressure on its members who are not meeting the high standards of the association. The link deserving the most attention in this next decade is the charterer. Charterers must not charter ships to substandard operators. When charterers award contracts to the lowest bidder, who does not necessarily have a quality operation, they place the quality operator at a commercial disadvantage. Even the big companies who speak of careful vetting have more work to do. Their policy of quality may not be filtering down to the people who initiate the charters (Kime, personal interview, 1999).

The Commission of the European Communities echoes Admiral Kime's concerns. In a March 2000 Communication, the Commission points to the increasing trend of the competitive charter market, where finding the cheapest charter, not necessarily the safest one, is "an essential part of the business". Short-term charters are replacing long-term contracts. The result is that there seems to be little reward economically for the quality charterers, companies with good reputations. Rather, use seems more focused on small, low-cost operators (Commission of The European Communities, 2000).

American Waterways Operators (AWO) is the "brown water" peer to the "blue water" deep draft associations like INTERTANKO and BIMCO. AWO is a national trade association that represents the owners and operators of tugboats, towboats and barges transporting cargo on the rivers and inland waters and the coastal commerce of the US. AWO has 375 members and has been in existence since 1944. AWO regards its members as having an affirmative duty to be leaders in marine safety. The association believes that industry and not regulatory government, has the necessary understanding to implement practical, reasonable and meaningful standards in terms of reducing accidents and fatalities. With this leadership goal and self-regulatory approach in mind, in 1994, AWO started the Responsible Carrier Program (RCP), which has become a model for the industry.

Initially begun on a voluntary basis, this code of standards and practices for all aspects of tug/tow shipping, became a mandatory condition for membership in AWO as of April 1998. AWO uses a national network of more than 70 auditors who conduct third party audits of its members to determine operational compliance with the RCP. These auditors are themselves qualified through an internal AWO process. RCP is a complementary program to the International Safety Management Code. Both codes

focus upon management commitment and the use of documented policies and procedures to ensure safe vessel operation. AWO's membership roster is limited to those companies who, through their compliance with the RCP, demonstrate a commitment to invest in safe management practices and policies.

The results have been dramatic. Peer pressure comes in to play. Repeat customers form the basis of the profitable tug business. These clients now ask if a company is part of the RCP, and if not, why not. Instead of losing membership, as AWO at first feared because of the mandatory RCP requirement, their membership base has increased significantly since its inception. Members report better efficiency of operations with resultant reduction in costs due to less incidents. AWO believes its best industry practice, as symbolized by its RCP, will go far in creating a safety culture even in an independent culture like the "brown water" trade (Allegretti, personal interview, 1999; AWO, 1998a, b).

Chevron Shipping Company (Chevron Shipping) is in a unique position to produce a safety culture in all aspects of its marine transportation services. Chevron Shipping's primary responsibility is to provide marine transportation services to the Chevron group of companies. Through an integrated system, Chevron Shipping has control over all marine functions, whether through its own vessels or those chartered by it in a fleet that trades worldwide.

The Chevron Shipping fleet consists of 60 oil tankers, 35 of which are owned by Chevron, and the rest of which are chartered after "serious" inhouse vetting by Chevron (Moore, 1999). Chevron Shipping is the support transportation arm for the oil and gas business of its parent company. In this role, the primary driver for Chevron Shipping is "downside protection", delivering services safely, on time, and without negative impact to the financial bottom line. Accidents detract from the bottom line. "Avoiding incidents is a top priority" in everything that Chevron Shipping does (Moore, 1999).

Developing the safety culture in protecting people and the environment is a way of life for Chevron Shipping. The implementation strategy that Chevron Shipping has utilized to do this over a number of years can serve as an example for the industry. The approach is:

- Leadership at all levels. The President of Chevron Shipping has applied a total "hands on" management and by his example, requires all others in the management chain to be personally responsible for their actions and accessible to all employees of the company;
- "Success sharing" means reinforcing the concept that safety pays. Chevron Shipping monetizes safety, by compensating its employees in the form of a performance dividend of up to 4% for meeting safety driven targets and maintaining an incident free operation. Reference is made to OSHA criteria to establish acceptable levels of personal injury incidents. Oil spills refer to any oil released to the water, which has a visible sheen. The real impact of this program is to

personalize the strength of the safety culture, to bring its value into the individual consciousness of every employee;

- Risk management takes place at every level of company activity and involves making prudent decisions based on assessment, prevention, and control;
- High-end education of senior officers, such as requiring captains to do simulator training and ship handling training, creates better-qualified management. Integration of the team concept is a part of the management system in every ship. The "Total Quality Management" concept applies to all ship operations. Its goal is to create multiple layers of defense and to engage people in the idea of accountability. For example, team based training is used for the bridge. For every voyage, the bridge team has a goal of a successful voyage, a voyage plan to promote that goal, and a working inter phase between the pilot and the team to reach the goal. Each ship has its vessel management team of two masters, two chief engineers, and shoreside mentors to promote the quality of management;
- Development of a set of operating manuals for ISM Code compliance, with an organized tier system of policies, manifestations of the policies, and reference material. When conditions are detected, that are inconsistent with the regulations, they are to be responded to within a short time and the manuals reviewed to see if relevant sections function as anticipated; and
- The Safety Bulletin is a magazine produced monthly by Chevron Shipping, whose aim is to share experience and information and promote safety. The Safety Bulletin acts as an inhouse communication tool (Moore, personal interview, 1999).

What these and other programs equal is a strong contrast between good operators and what Moore calls "rogue" operators. Chevron Shipping reaps the benefit of their controlled system: they use their own ships which are manned by Chevron officers, carrying Chevron cargo, calling at Chevron facilities, and bearing the hallmark of Chevron on the stack. They also use third party ships that have been inspected to insure that the operator has a commitment to safety consistent with Chevron's commitment. Unfortunately, for the public and the environment, Moore believes that, because substandard operators still trade, we have yet to see the worst oil spill. He foresees the future when a spill even worse than *Exxon Valdez* may well happen unless rogue ship owners and operators are driven from the business (Chevron Shipping Co, 1999a, b; Moore, personal interview, 1999).

The company formerly known as Mobil Shipping & Transportation Company (now SeaRiver Maritime) is another company that provides marine transportation services to its parent, oil giant Mobil Oil Corporation (now Exxon Mobil. All references will be to the former subsidiary and parent corporations). Mobil Shipping is the support arm for the parent, moving product by use of four fleets, based in the US, UK, France and Australia. Mobil Shipping owns and operates some 33 deep draft vessels worldwide, some 20 barges and 7 tugs in the US, and charters others. At any one time, about 5% of the oil moved by water is being moved by Mobil Shipping.

The company vets all charter vessels, using as general guidelines those established by The Oil Companies International Marine Forum (OCIMF). The company makes extensive use of the OCIMF Ship Inspection Report Programme (SIRE) database maintained in London, which contain data about the ship's condition, certifications, and operations resulting from inspections performed by OCIMF inspectors. The company depends as well upon reports from its own inspectors. A revised SIRE inspection system now uses standardized inspection questionnaires to facilitate inspections of tankers by charterers or ship owners. Mobil Shipping relies upon this system and will not use a charter if the report is negative from SIRE or its own inspectors, or the indices are that the charter vessel has major problems (OCIMF, 1993; Huber, personal interviews, 1998, 1999).

Safety is not a new concept for Mobil, as their well-developed Environmental Health and Safety Management System (EHSMS) indicates. According to Charles Huber, former Manager of Environmental Affairs, safety is a way of life with Mobil Shipping. Their top management is committed to the policy of enhancing marine transportation for Mobil Corporation while conducting such commercial business in a manner most conducive to preservation of life and protection of the environment. "To the goal of zero accidents, that of zero environmental incidents was added. Zero oil spills had always been a prime goal, but the chances of achieving it were now much better. The new goal of absolutely no insults to the environment calls for an increased level of environmental responsibility and awareness, if our grandchildren are to inherit the planet in the condition they should" (Mobil, 1998; Fullwood, 1997).

The cornerstones of the EHSMS are: open communication with all employees; an established management system; continuous improvement process; and annual peer-assessment. Key activities of the program are the following:

- Employees with accountabilities and responsibilities for each of 11 elements and 56 expectations in the EHSMS are designated in writing and annually peer assessed. Any gaps or areas for improvement are documented, prioritized and become part of the annual work plan for the succeeding year;
- A major portion of employee compensation is based on safety and environmental performance;
- Each incident is investigated using the Tap Root process and the lessons learned are shared throughout all of the fleets as soon as they are available;
- Risk-based analysis and management techniques are used throughout the company to focus attention and resources on the highest priority areas for improvement;
- An awards program for employees and contractors is in place which provides awards up to $3000 for suggestions that provide significant safety, health or environmental improvements;
- Safety meetings are held monthly on each vessel. Senior fleet managers with

responsibility for safety, health and environment meet twice a year to develop work plans and review the progress made;
- All Fleets have attained both ISM Code and ISO 9002 compliance. Additionally, the US fleet of tugs and barges was one of the first to receive Responsible Carrier certification by AWO. These safety and quality service certifications require annual internal and periodic external auditing of each vessel and Fleet Management group; and
- Two marine response teams are established with all members also holding key positions on the larger Mobil Regional Response Teams. Members of these teams are highly trained in Mobil's incident response system to work together as a team and they participate in at least one major exercise annually.

In 1997 EHSMS philosophy was so successful that Mobil Shipping experienced zero oil spilled to the environment (Huber, personal interview, 1998; Rowland, 1998; personal interview, 1998; Mobil Corporation, 1997; Mobil Shipping, 1998).

The hands-on, top-down, self-regulating safety approach of the large companies works equally as well for a small ship owner/operator. Inland Marine Service is a towboat company with four boats and 60 employees, based in Hebron, Kentucky and operating on the regional rivers for one primary customer. Its president, Cathy Shantz-Hammond gained her experience at sea. Inland Marine takes seriously its charge by its main customer to operate safe vessels. In 1994, the company joined AWO and became an ardent supporter of the RCP. What Shantz-Hammond stresses are policies, which she believes, mean safer operations for any company, large or small. These are

- Keeping in mind that, at bottom, reputation for safe operations is all that a company has;
- Access to the top, 24 hours a day for all employees;
- People-oriented management, where people are the most valuable commodity of the business;
- Hands on touch—personal involvement of the President in daily operations;
- Safety meetings weekly; and
- Cooperative work with the authorities, such as involvement in the US Coast Guard Cooperative Towing Vessel Program (Shantz-Hammond, personal interview, 1999).

The US Coast Guard instituted the Cooperative Towing Vessel Program in 1997 in cooperation with industry, to implement a system of examinations of towing vessels and to reward companies committed to quality. The mutual goals were to decrease the number of unscheduled boardings for operators who run a quality business, thus allowing the US Coast Guard to focus its towing vessel inspections more on the substandard operators. Instead of unscheduled boardings, participating companies can qualify for Phase I status, schedule examinations annually, conducted by Coast Guard and industry personnel. A decal is issued, avoiding further examinations for that year.

Phase II companies are those which have an approved quality program to manage their vessels based upon guidelines like the RCP of AWO. The qualifying company can issue its own decal, which avoids unscheduled examinations and is good for one year (USCG, 1997). Inland Marine is a Phase II company and can issue its own decals, thus regulating its own compliance with safety management programs.

The results for Inland Marine have been a near perfect safety record, with no accidents affecting the environment in the last six years. Inland Marine proves that not all "Mom and Pop" businesses are substandard operators, These smaller companies can in fact be as safety conscious and environmentally friendly as the industry giants (Shantz-Hammond, personal interview, 1999).

Ship owners and operators face substantial challenges in creating a strong link in the safety chain. Many ship owners are faced with a shortage of experienced and seafarer employees with proper training and a safety culture orientation. Part of the problem is that many ship owners and operators are subject to irregular supplies of personnel and to using less well trained merchant seamen to make up minimum crews, just to get to sea on time. The qualification system of STCW 95 should minimize this problem with its impact upon training and qualification (for further discussion of STCW 95, see Section 4.2.3 of this book). According to Capt. Martin Rowland, (Manager, Human Resources Fleet Personnel of International Marine Transportation Ltd, an ExxonMobil subsidiary) even the majors face certain gaps which must be addressed in all aspects of safety management for all ship owners/operators: increased input into industrial hygiene, drug/alcohol screening for each vessel trip, completing installation of a risk analysis system to capture problems before they create incidents and basic problems such as mariner fatigue and training the wrong man for the job (Rowland, personal interview, 1998).

Perhaps the most ironic point made by both the smallest and largest of operators is to be wary of success, meaning a lower number of accidents. The industry has not faced a major oil spill like *Exxon Valdez* (of such high notoriety) since 1989. Success can lull companies into complacency. With increasingly strong safety records and no major quantities of oil spilled, there is a great potential for a company to sit back, rest on its laurels and not maintain constant vigilance. Proactive work means a constant evaluation of potential and new risks, assessment of opportunities for improvement in operations, and keeping ahead of the regulatory requirements through self-regulation. Some ship owners and operators argue that the greatest challenge for an already challenged industry is to increase public awareness and build up a positive perception of the unique role which tankers and tank barges perform. The "Age of Intolerance" may apply, not only to the elimination of substandard shippers, but also to the creation of a more positive public view of the good ship owner/operator (Shantz-Hammond, personal interview, 1999; Moore, personal interview, 1999).

The European Commission in Brussels is attempting to produce a maritime industry charter for quality operations, supported by all ship owners and their associations. The purpose of this charter is to create a concise document which sets forth

The *Mega Borg* spilled 100,000 barrels (5.1 million gallons) of oil as the result of a lightering accident and subsequent fire, 60 nautical miles south-southeast of Galveston, Texas on 8 June 1990. Photography courtesy of NOAA OR&R Photo Databank.

in "concrete" form the operational principles of the industry that promote a "quality culture". They have focused on five key principles:

- Each link "shall make safety considerations an integral part of its activities";
- Participants shall use only ships of good standards of quality;
- Participants shall "embrace an attitude of intolerance toward substandard practices in any part of the maritime industry", promote dialogue and cooperation with other links including public authorities, and share relevant information with partners about compliance. This means "greater transparency" in the industry;
- Charters of associations shall reflect these principles and be observed by members; and
- Participants shall cooperate with relevant public authorities in evaluating progress towards this charter (Commission of the European Communities, 1999).

While this charter focuses on key and laudatory goals, its implementation is far from completion. Admiral Kime voices industry concerns: the problem of sharing relevant information with competitors and with regulators/public authorities who can "black list" members, the problem of vague and ambiguous wording, where nuances mean different things to different people, and a lack of standard construction of meaning (Kime, personal interview, 1999). In spite of these significant concerns, what such

a charter shows is how far the ship owner quality of vision has come. Stated in the charge are emerging principles that will shape the future of the industry. What the disagreements about the charter show, is that consensus about how that vision will be realized is still many years off in the future.

4.1.2. Flag State Control

The Flag State assumes a primary role in ensuring safe maritime oil transportation. In the past, the traditional, national shipping concept meant that ships flying the flag of a country were closely associated with that country. This positive connection between ship and flag more substantially guaranteed enforcement by the Flag State administration of its responsibility to implement international treaties like SOLAS, MARPOL, STCW 95 and others (for further discussion of these treaties, see Sections 3.5, 4.2 of this book). The Flag State is responsible to ensure, establish and maintain measures for the effective application and enforcement of the international conventions, the relevant instruments of which they are a party (UNCLOS, Arts. 94 and 217). When a flag becomes a signatory to and ratifies an IMO Convention, the Flag State for consistency purposes, ship owners then makes the convention part of its national law, and is bound by the treaty terms (IMO, 1996).

The modern era has seen a substantial erosion of this fundamental maritime concept (IMO, 1996). The new age has brought about multinational crews, absentee owners, and open registers, whereby a ship, by registering at a given port, attaches the nationality of that port to the ship without, in many cases, meaningful connections between the ship and the country and the trend in ship owners shifting between classifications societies as vessels age. These open registers are often referred to as "flags of convenience". The good open registers more than adequately exercise their international and national obligations (IMO, 1996; Plaza, 1998). Other Flag States may not have the resources of the more traditional shipping nations like the UK, Norway, and others. The more entrepreneurial open registers, whether because of inability or unwillingness, do not execute their shipping responsibilities. In some cases, these governments simply certificate a vessel as being in compliance with various treaties in exchange for money paid by the ship owner, without taking responsibility for determining whether the ship actually conforms to regulations.

Additionally, many of the other entities involved in the shipping enterprise have no ties with the Flag State and are outside its jurisdiction. This contributes to less interest in compliance. "Traditionally, the flag State is responsible for ensuring that IMO statutes and regulations (standards) are enforced. Yet the increasing diffusion of the industry means that many of the other components involved in shipping—the managers, insurers, builders, classification societies and so on—are all outside the Flag State's jurisdiction. This becomes a matter of greater concern when the Flag State is relatively new to shipping and has neither the knowledge, experience nor resources

of the traditional shipping nations" (IMO, 1996, 1998; Plaza, 1998; Pearson, personal interview, 1999).

The end-product is a system of Flag State administration which has been described as "flawed", with standards and regulations being inconsistently applied. Evidence of this result is that casualty rates and statistics vary between fleets and from flag to flag (IMO, 1996, 1997; 1998; Pearson, personal interview, 1999).

In order to improve this unacceptable situation, in 1992 IMO established a new Sub-Committee on Flag State Implementation (FSI) as a subsidiary to its two main technical bodies, the Marine Safety Committee (MSC) and the Marine Environment Protection Committee (MEPC). The purpose of FSI is to assist Flag States in their implementation of IMO conventions and other instruments on ships flying their flag (IMO, 1998). Since its first session in 1993, FSI has made in roads into the Flag State implementation problems and has, among a long list of actions produced these resolutions and circulars:

- Developed interim guidelines to help Flag States discharge their responsibilities more effectively (Resolution A.740(18), 1993; A.847(20), 1997; IMO, 1997e).
- Issued guidelines authorizing organizations such as classification societies to act on behalf of the Administration to carry out such tasks as surveys, ensuring compliance with ISM Code and other IMO standards (Resolution A.739(18), 1993; MSC/Circ. 788, MEPC/Circ. 325; IMO, 1995b).
- Created a model agreement and specifications for survey and certification functions by recognized organizations (MEPC/Circ. 307; MSC/Circ. 710).
- Drafted guidelines on the implementation of the ISM Code and for Port State control by Port States and Port Administrations (A.787 (19), 1995; MSC/Circ. 890; MEPC/Circ. 354; IMO, 1998)
- Drafted guidelines to assist Flag States in implementation of IMO instruments and in general, for the implementation of the ISM Code (A.847(20), 1997; A.848(20), 1997; A.880(21)).
- Drafted a Code for the Investigation of Marine Casualties and Incidents (A.849(20), 1997).
- Developed a draft circular for harmonizing reporting procedures in reports on marine casualties and incidents (MSC/Circ. 827; MEPC/Circ. 333).
- and with respect to Port State control (see discussion in Section 4.1.5 of this book), adopted Port State control procedures, dealt with training and encouraged development of regional Port State control systems (Resolution A.787(19); Resolution A.882(21), 1995; IMO, 1995b, 1996, 1997d, 1998, 1999; Plaza, 1998).

At the insistence of the IMO Secretary-General, IMO, through its FSI Sub-Committee has taken a significant step toward strengthening the role of Flag States. In December 1998, the Maritime Safety Committee approved a Self-Assessment Form to be used by Flag Administrations who are parties to IMO, as soon as possible. The

creation of such a form was in response to opinion voiced by many Member States and those in industry that they expected significant global improvement in maritime safety and pollution prevention and looked to FSI to help eliminate substandard ship owners/operators. The Self-Assessment Form establishes a uniform set of internal and external criteria which allow a country to evaluate, along with other data, how its Maritime Administration is discharging its safety net obligations by:

- Assisting Flag States to obtain a picture of how they function, based upon agreed criteria;
- Enabling Flag States to determine any deficiencies in their administrative operations and what steps to take to overcome them; and
- Helping Flag and Port States to act in a more cooperative fashion by making decisions on a bilateral basis so that problems can be solved in a cooperative way, (rather than the Port States making unilateral decisions leading to targeting and detention of foreign Flag State vessels) (Plaza, 1998). The draft Assembly Resolution on Self-Assessment was adopted at the November 1999 21st IMO Assembly (IMO, 1999, 2000).

Flag Administrations and those in industry view these IMO assisted actions as being crucial to creation of and support for a workable safety culture, a culture which must become a policy of the Governments charged with implementing existing IMO and national standards. Capt. Marvin Pontiff is the former Chief of the US Coast Guard Office of Compliance, a veteran of 24 years with the Coast Guard. The US has at least two significant roles, both as a Port State for the foreign vessel tonnage visiting US ports and as a Flag State for US deep draft tank vessels operating as domestic freight. There are about 2600 tank barges and ships comprising the US-flagged fleet, of which 200 are tank ships. In the area of compliance, the US Coast Guard applies a rigorous system of inspection, from initial plan review, construction inspection in the shipyard, to periodic lifetime inspection of US flag vessels that receive an US Coast Guard certificate of inspection, subject to an annual inspection. Inspectors are trained at the US Coast Guard's training center in Yorktown. Inspections can be performed by:

- US Coast Guard inspectors;
- Partially, by the ship owner company itself through the Streamlined Inspection Program (for further discussion, see Section 2.1 of this book); or
- By other recognized organizations, like the American Bureau of Shipping (ABS), Lloyd's Register, Det Norske Veritas classification societies through the Alternate Compliance Program (NVIC, 2-95).

The results of such inspections are captured in the US Coast Guard Marine Safety Information System, and become data available to Port States (Pontiff, personal interview, 1999).

Pontiff supports the IMO Self-Assessment Form initiative as a positive step toward bolstering Flag State administration so that Port States are not doing Flag State work. The form helps a Flag State to see what kind of structure it might need to fulfil its obligations towards vessels flying its flag, the kind of organization which is in place, how well trained its inspectors are, whether they have written standards for their inspections, and how effectively a flag does its job. Pontiff views the form as a "work in process" a way for Flag States to open the dialogue about incentives for allowing vessels to fly their flags. Other countries take an adversarial point of view and are skeptical about how the assessment form will be used. They raise questions about what actions IMO will take and how those actions will impact the sovereignty of a country, if the forms reveal deficiencies (Pontiff, personal interview, 1999).

Those representing classification societies support IMO's actions in allowing other recognized organizations to perform Flag Administration duties. Steven R. McIntyre, Director of Regulatory Affairs for American Bureau of Shipping (ABS), applauds the new guidelines drafted by IMO to assist Flag States in their responsibilities and the IMO imposed mandatory standards for recognized Organizations who act on behalf of Flag States in the effective application and enforcement of international safety conventions. What is required for effective functioning of the Recognized Organization is a "close working relationship" between the Flag State and its agents. These IMO generated actions are seen as necessary to developing a safety culture:

> "For a true safety culture to begin to pervade this industry, all elements within the industry must subscribe to that ideal. In the same manner that we must become intolerant of the substandard owner or manager, of the substandard classification organization and of the Port State which welcomes deficient tonnage into its waters, we must be intolerant of Flag States which have neither the will, nor the ability, to exercise the responsibilities which are placed upon them" (ABS, 1998).

As a representative of a Flag State administration, Ivar Manum, of the Norwegian Maritime Directorate emphasizes two areas in which Flag States can encourage development of the safety culture. One is in the positive implementation of the ISM Code, which can "lay the foundations of a renewal of Flag State control and follow-up of each individual ship". The other area relates to a positive recognition by flag administrations of those companies taking proactive action in ensuring that the technical condition of their ship goes beyond the minimum regulatory requirements. For these companies, the Norwegian Maritime Directorate is recommending financial incentives, reduced "green dues" and fees, much like the Green Award (Rotterdam Port) of reduced port charges and other rewards for a certain rating obtained within the port's appraisal scheme (INTERTANKO, 1997; Ullring, 1996b).

Ultimately, there must be a policy shift in the underlying philosophy of those involved in the safety nets. For Flag State implementation, this means shifting the emphasis from creating new regulations to effectively implementing existing stand-

ards. The focus on the human element is the engine that must in the long run empower the Flag States to adopt the safety culture as the most effective way to protect life at sea and the marine environment (Plaza, 1998).

4.1.3. Classification Societies

Private Classification Societies are an integral part of the third safety net involving ship owner/operator, designer and builder of vessels. The concept of ship classification emerged as the maritime trade expanded from wood to iron, to steam, to steel ships and merchants around the world faced increasingly greater risks of loss of the ship, the cargo and crew as ships foundered, grounded and disappeared. By definition, classification means "... that a vessel is structurally sound and mechanically fit to provide for the safety of the lives and cargo it may carry". Classification societies set rules of design and construction. Then, they survey and evaluate vessels for their seaworthiness. Those ships "likely to reach their destination" were classified "A1" (Evans, 1999a; ABS, 1994).

The oldest such society was Lloyd's Register of London, initially organized in the 1700's as an underwriters' institution. This organization pioneered the concept of classification, whose main function is to provide independent technical assessment of a ship's fitness for sea. As international conventions were developed by the International Maritime Organization (IMO), convention codes and the Rules set by the classification societies evolved to define the way an assessment is performed. The class rules set target safety levels, historically focused upon the technical aspects of the ship, its design, construction, and operational condition. Surveys and assessments are scheduled on a regular pre-determined basis. The inspections determine if the ship is maintained in accordance with the Rules. If the vessel meets the standards, then the insurer underwrites the risk. To determine the seaworthiness of a ship, the classification societies review outline and detailed plans, undertake extensive stability calculations and perform studies of noise, vibration, fire risk and other structural aspects affecting safe operations (INTERTANKO, 1998; Evans, 1999a; Ullring, 1996a).

An individual society writes it own rules regarding all parts of the ship, hull, machinery, and navigation and sets standards by its rules which the vessel must meet. The major classification societies formed an association for their members, The International Association of Classification Societies (IACS) Council. IACS has another set of rules to be followed by all member classification societies. IACS members certify almost 97% of the world's fleet. IMO rules and regulations, as established by the international conventions, set the framework for the assessments. The Flag Administrations, increasingly, have authorized classification societies to carry out surveys on their behalf, and issue safety certifications under various conventions, in their name ((IMO, Res. A.739 (18)). The Port States notify the owner and "if appropriate", the classification society, in the event an inspection reveals major non-conformities

or deficiencies in the vessel's structure and operation (INTERTANKO, 1997; 1998; Evans, 1999b; Pearson, personal interview, 1999).

The job of the classification societies has expanded with the increasing recognition of the role that human error plays in injuries and accidents. No longer can the technical aspects of the ship's structure stand alone. Ship personnel, management onshore and aboard ship, technology, and risk management are primary, interdependent parts necessary for successful protection of the ship and its cargo, for safeguarding human life, and for prevention of adverse impacts on the marine environment. This augmented awareness has led one of the societies, Det Norske Veritas (DNV) to develop a "Total Safety Approach" which is unique in the field of classification. This approach recognizes that humans, their organizations and their equipment are interrelated, with one influencing the performance of the other. Marine accidents are seldom isolated, one-off incidents. Rather, they are the result or consequence of a chain of events, arising from the causal relationship of each of the interdependent elements. In addition to focusing on the roles of seafarers, shipboard and shoreside management and technology, DNV's classification rules also incorporate statutory regulations as part of its Total Safety class approach (Ullring, 1996a).

This new approach has propelled other classification societies into a proactive stance in support of the safety culture. While differences in programs exist amongst them, classification societies are involved actively in all factors that influence safety, in the hardware, i.e., the ship, the human ware, i.e., personnel, and the software, i.e., the organization and management of companies (Tor-Chr. Mathiesen, 1997). Enforcement of the maritime safety regime through classification and certification has taken on new meaning as classification societies, like others involved in the safety nets, move from a reactive to a proactive stance.

The increased scope of classification societies mirrors the underlying and evolving legal safety structure. "The early IMO conventions, like Safety Of Life At Sea (SOLAS 1929, 1948, 1960, 1974), International Convention of Load Lines, (1930, 1966) and Prevention of Pollution from Ships (MARPOL 73/78) are prescriptive. Safety goals are never stated, no attempt is made to educate the reader to the rationale for the specific requirement, and the focus is on consequence mitigation". The ISM Code, STCW 95, OPA 90 and its almost unlimited liability for polluters more clearly define:

- Safety and qualification standards;
- Quality management systems; and
- Responsibilities onshore and aboard ship of all involved in the transportation enterprise (Ullring, 1996a). (For further discussion, see Sections 3.5, 4.2.3 and 4.3.1 of this book.)

With these new regulations and requirements in place, classification societies now perform additional functions, each of which is, in part, geared toward targeting and eliminating substandard vessels and their substandard operators. As Dr. Tor-Christian

Mathiesen, Chairman of IACS Council states so succinctly, "A ship does not deteriorate by itself, but, rather, as the result of poor management" (INTERTANKO, 1997). Member classification societies to IACS are involved in these types of defining activity:

- Development and implementation of the Enhanced Survey Programme (ESP) for bulk carriers, oil and chemical tankers by IACS and the shipping industry;
- Review, development and implementation of improved safety standards;
- Development and adoption of a Transfer of Class Agreement between classification societies, to prevent a ship owner from class hopping to avoid repairs and other safety requirements required by a particular society (Collins, personal interview, 1999; INTERTANKO, 1997);
- Development of a quality certification scheme by IACS members to ensure high standard achievement and maintenance, which extends inspections beyond traditional technological safety areas; and
- Focus upon consistent and uniform ISM Code certification, and establishment of a database available on the Internet, which registers the name and number of all ships with Safety Management Certificates certified by IACS members. This has been referred to as the IACS "White List" (INTERTANKO, 1997).

The Commission of the European Communities stresses the position a classification society can play, for good or ill, in the overall safety culture picture. Classification societies, by application of the highest standards, are essential to ensuring the "structural integrity of the tanker fleet". The Commission is concerned about "class-hopping", a trend in which owners switch class to what the Commission regards as an increasing number of societies with varying standards. To remedy this problem, the Commission recommended among others: improved class surveys, sanctions against recognized organizations which do not perform their job according to high quality standards, and disclosure to Port State authorities of the condition of a ship and its complete history whenever a vessel changes societies (Commission of the European Communities, 2000).

In 1997, IMO recommended approving guidelines for the application of a Formal Safety Assessment system as a tool, using principles of risk assessment to perform a rational and systematic analysis of the rule making process affecting any shipping activity. IMO intends to apply a five-step process to an objective assessment of the need for and contents of safety regulations. The steps include:

- Hazard identification—a list of accident scenarios, their causes and outcomes;
- Risk assessment—an evaluation of risk factors;
- Risk Control options—measures available to control, then reduce risk;
- Cost-benefit assessment—an evaluation of the costs and the benefits of each option; and
- Decision-making recommendations—about hazards, their risks, the cost-effectiveness of the options to reduce risk (IMO News, 1997b; Tor-Chr. Mathiesen, 1997).

Classification societies have adopted this Formal Safety Assessment system to reassess their own Rules and requirements for every aspect of ship classification. For example, ABS has undertaken a formal reassessment of its own regulations, based on a similar rational and systematic analysis of risk. First, ABS defined safety, determined how risks could be mitigated, established a risk template to create new Proposed Machinery Rules, and took the old rules and mapped them within a risk model of a ship. Using this model as a template, ABS intends to perform a comprehensive reassessment of all other rules. ABS's review of its Rules for their modern applicability, given technological advancements, will be coordinated with IMO's efforts to introduce risk- and reliability-based criteria into all rule making. The end result should be greater consistency for owners in designing safer ships and for classification societies, in a more uniform application of their Rules (INTERTANKO, 1997).

An examination of actions taken by two of the major classification societies to promote the safety culture shows just how effectively these entities can influence ship owners toward adoption of the safety culture. ABS is one of the three largest classification societies worldwide, which is recognized as qualified to act on behalf of Flag Administrations. This is not a given carte blanche. Each individual Flag must recognize ABS in order for it to act in this capacity. First called the American Shipmasters' Association, incorporated in New York, in 1862, it had a primary purpose of developing the Merchant Marine of the US Since that time, ABS has evolved into a global organization with its non-for profit organization represented in 81 countries and its for profit organization of ABS Group of Companies, represented in 20 countries. ABS classes over 47% by number of the world's fleet of self-propelled vessels of more than 100,000 gross tons (ABS, 1998)

ABS has committed its more than a thousand employees to the safety culture concept, based upon the belief that a ship can no longer be viewed in isolation, but rather is seen as a part of the activities of the whole company, from risk management and training of personnel to maintenance. Safety pays. The ISM Code, STCW 95 requirements, ISO 9000 quality standard and ISO 14000 environment standard provide the foundation for the safety culture. Within this setting, ABS sees its job as deleting technological standards which are obsolete, clarifying those which remain applicable, and ensuring that the vessels it classes are implementing international convention standards fully (Pearson, personal interview, 1999). Unfortunately, as ABS points out, some classification societies have not been doing their job. Adoption of a proactive stance and willingness to be part of an industry which regulates itself is the only way forward, says the Chairman of ABS:

> "The safety net is being tightened by a growing band of increasingly well informed and very conscientious Port State regulators .... Do we want an industry which is regulated by governments? Or do we want an industry which is perceived by those governments as having the maturity, ability and the collective will to regulate itself" (INTERTANKO, 1997).

ABS meets the challenge of self-regulation by these types of actions:

- Instituting a training program for Lead Surveyor and Veteran Surveyor to build on the professional skills of the most experienced surveyors and disseminating these experts throughout the worldwide network of ABS surveyors as valuable resources;
- Updating Guidelines for Port State Inspections for owners, masters and crew to understand what areas will be the subject of scrutiny by Port State control inspectors;
- Using the Formal Safety Assessment concept promoted by IMO to review all ABS Rules from a systematic, risk-based approach;
- Developing Guidance Notes on the Application of Ergonomics to Marine Systems, to incorporate the concept of the human element into the design of vessels so that they are conducive to an effective operation of the ship;
- Acting as a Recognized Organization for almost 100 Flag Administrations;
- Creating the *SafeHull* ship design and structural assessment method, a state of the art engineering approach aimed at evaluating each structural component and the entire structure of a ship based on a determination of where the greatest stresses will be experienced within the hull and what the required strength of the components will need to be, all within a living, non-static environment. This approach serves as a guide to ship designers to construct stronger, safer ships (ABS, 1998); and Creating the "SQE" management notation.

SQE is the Marine Safety, Quality and Environmental Management Systems Guide (Pearson, personal interview, 1999). This Guide's requirements are founded on the standards of the ISM Code, ISO 9000, and ISO 14000. The Guide has been written as a series of integrated management system requirements encompassing the full scope of safety, quality and environmental management. The Guide identifies which requirements apply to the distinct aspects of safety, quality and environmental management and illustrate how they interrelate. Ship owners/operators can plan and develop management systems suitable to their individual company's objectives and then expand systems as their objectives change. The SQE Guide may also include the Bureau's own prescribed requirements. These requirements are applied within the Guide where ABS identified a need for more effective or defined control. This includes, for example, enhanced management system requirements, specific aspects and impacts which must be addressed, and specified objectives. The Guide will be updated annually. Companies are allowed one year after revision of the Guide to comply with changes to requirements. Companies select from four choices of certification to the SQE Guide requirements in accordance with the scope of the management system they operate. Certification is evidenced by certificates issued to the Company's office, and each ship certified under the program. In addition, ABS-classed ships certified under the program have a compliance notation placed in the ABS record. The following notations will be used to evidence compliance in the ABS record: S indicates

compliance with ISM Code and Guide safety requirements; SE indicates compliance with ISM Code and Guide environmental requirements; SQ indicates compliance with ISM Code and Guide quality requirements; SQE indicates compliance with ISM Code and Guide safety, environmental, and quality requirements.

DNV is a leading ship Classification Society, established in Norway in 1864. Today, DNV has over 300 offices in 100 countries, classes more than 4400 vessels, of which 750 are oil tankers, representing 15% of the world's fleet (Evans, 1999a). DNV takes its mission of safeguarding life, property and the environment very seriously. DNV has developed what it terms the "Total Safety Class", which involves an integrated approach to classification by linking technology, operational matters and the human element with environmental protection. These factors and consideration that company management of the vessel on board and ashore is crucial to safety influenced DNV to develop a model safety management system for the industry, its Safety Management and Environmental Protection Certification, referred to as *SEP*. This is a voluntary classification notation which certifies that a company has a safety and quality-assurance assessment system in place which is in full compliance with the ISM Code and appropriate elements of the ISO 9000 quality management standard. More importantly, many of the SEP requirements are based upon DNV's loss control principles and include consideration of sound operational practice (Evans, 1999c; Collins, personal interview, 1999).

DNV's Total Safety Class initiatives include these:

- Including within the traditional classification of ships, certification of management systems in compliance with ISO 9000 and ISO 140000, as requested;
- Providing consulting services in the area of risk and reliability, built on Loss Control Management;
- Project Risk Management;
- Loss Control Management;
- Incorporating statutory requirements into DNV Rules and conducting statutory surveys as a Recognized Organization for more than 130 Flag Administrations;
- Certification of crewing agents, maritime academies and training establishments, under STCW 95. DNV has certified the quality standard systems for the three leading training centers in the US (for further discussion of STCW 95, see Section 4.2.3 of this book); and
- Introducing the concept of risk-based machinery survey rules, to institute in the system of inspection a more functional based view of inspections based upon risk-based inspection techniques and risk analyses. This means, in practical terms, that equipment will be opened at intervals depending upon probability or likelihood of failure, as well as criticality and severity, and not only during a scheduled survey (Evans, 1999c; Collins, personal interview, 1999).

These and other activities of DNV make it a leader in its field. Sven Ullring, the President and CEO, has delivered many keynote addresses throughout the world,

encouraging the shipping industry to move from an "evasion or compliance" culture to a "safety culture". He argues eloquently that the "cluster of actors in shipping" must actively engage in this shift.

> "We believe that it will be required to bring about a change from the current position of rather prescriptive regulations in shipping and for some owners reluctant compliance, to a state also including more self-motivated and partly self-regulated improvement in all relevant aspects. Economic forces are drivers in shipping. Financial incentives, rather than punishment, may be a more dynamic way to obtain lasting improvement with regard to overall environmental performance of the maritime industry as well as other industries. All stakeholders have a responsibility in this enterprise. Insurance companies, port operators, etc. are in positions to give financial reward to high environmental performance based on measurements and credible documentation of environmental performance" (Ullring, 1996b).

ABS, DNV and other classification societies can perform their evaluation function and help shape the industry response to the challenges of the millennium. In the final analysis, the more extensive and inclusive evaluation function of classification societies may be one of the strongest links in the responsibility chain. Their focus centers on not just technical inspections, but also on inspections of operational, human element aspects. As recognized organizations for Flag Administrations, classification societies can recommend denial of a ship owner's right to trade for those ship owners/operators who do not have a quality management system in place, nor trained and qualified mariners manning their ships, nor vessel certification in compliance with the latest technological standards. Appropriate use of this power can do much to eliminate or reform substandard shipping.

4.1.4. Protection and Indemnity (P&I) Clubs/Insurance

The insurance industry with its various forms of marine insurance is part of the "cluster of actors" in the business community of shipping, which can create the "safety culture". The Protection & Indemnity clubs (P&I), cargo and hull underwriters and other insurers are responding to these changing times. The industry is influenced by both financial and political/public pressure. While there are actual environmental collaborations, such as that formed by leading companies working with the United Nation's Environmental Program, the real avenue of change may come from the positive influences these companies can have from within upon their own insureds, the ship owners/operators (Ullring, 1996b).

Marine insurance is one of the oldest forms of insurance, dating back several thousand years in its connection to shipping. Maritime trade has depended upon insurance in the form of mutual marine insurance clubs and individual insurance companies for

transporting cargo around the world. "A well-developed insurance network is a pilar of almost any modern economic system. By reducing the economic risk and spreading potential loss to several parties, the different insurance organizations have, to a large degree, created the base for economic expansion and security in a variety of fields, perhaps particularly in the shipping field". Protection is needed for not only the ship and its cargo, but also to cover the threats which shipping poses to humans and the environment. In its simplest form, merchant mariners need three types of insurance: marine insurance, war risk insurance and P&I insurance (Thowsen, 1998).

The system is internationally based, with the primary companies reinsuring their risks among themselves and in the international market. The insurance industry depends upon the classification societies to minimize the risk that the insurance institution may face. Through construction supervision and the surveys and inspections performed by these societies, they provide insurance companies with a rating basis for their premium calculations. Just as importantly, classification societies perform a loss prevention function. Insurers and classification societies are interdependent parts of the safety net (Thowsen, 1998).

"... Marine insurance is the oldest form of indemnity of which there is any record". Many diverse risks are included within the basic classes of coverage, outlined generally as hull, cargo, freight and marine liabilities (Rave, 1991). Marine insurance for any vessel is complex. One vessel may have many separate policies with different underwriters, with coverage placed in multiple countries. The principal types of coverage, most applicable to oil spills, are:

- *Hull insurance*—covers the vessel, machinery, liabilities arising from collisions, general average and salvage charges from physical damage and losses due to certain "named perils", including errors in navigation and accidents. After a substantial threat of pollution or spill is under control, primary responsibility for salvage of the vessel may rest with the hull insurer.
- *Cargo/container insurance*—covers general insurance for loss of cargo for the owner of the cargo. The ultimate payment of loss is based upon an allocation of liability for the loss.
- *Protection & Indemnity insurance*—covers most liabilities not provided for in the hull policy. Historically, "Protecting" risks, were those such as personal injury, loss of life, dock damage, wreck removal. "Indemnity" risks were those arising from the ship owner's contractual undertakings, such as cargo claims. This insurance is in respect to third party liabilities. As in the case of those clubs belonging to the International Group of P&I Clubs, (The Group) pollution risk by oil or other substances is covered up to the present limit of $500 million (This limit may be increasing, to $750 million or even $1 billion), (Martowski, personal communication, 1999).
- *Excess* P&I insurance—covers losses in excess of the primary layer of P&I insurance, when those limits have been reached.

- *Miscellaneous insurance*—covers many other losses, such as tower's liability for tug and tow vessels involved in a casualty, freight, total loss only, war and strike (Garger, 1999; Martowski, 1998a).

Oil pollution risk coverage under standard P&I Club rules generally includes these items:

- Liability for loss, damage or contamination;
- Loss, damage or expense which the owner incurs or for which he is liable as a party to a specific contract which the Club directors approve;
- Costs of any measures "reasonably" taken to avoid or minimize pollution, or loss resulting from such measures;
- Costs of measures to prevent imminent danger of discharge; and
- Costs or liabilities incurred in compliance with an order or directive given by a government or authority to prevent or reduce risk of pollution (UK P&I Club, 1999).

Each of these compensable items is subject to further limitations as the Directors may determine under other Rules of the Club. These rules track consistently with the general principles of compensation for oil spills established by the International Oil Pollution Compensation Funds (For further discussion, see Section 4.3.3 of this book). Such oil pollution coverage may be conditioned further by the Directors' determination that the owner must pay an additional premium for certain trade. For example, in order to trade in the US, the UK P&I Club Rules require ship owners to pay an incremental premium (UK P&I Club, 1999).

P&I Clubs are the predominant providers of P&I insurance against exposure to third parties arising from vessel operations, as well as liabilities for excess collision risks and loss or damage to cargo. P&I Clubs provide the underwriting for almost 95% of the world shipping fleet (Etkin, 1998). P&I Clubs use the form of the small mutual hull clubs of ship owners in England to share hull risks on a mutual basis. The first such club was established in 1855. Clubs are essentially non-profit making, composed of ship owners and time charterers who share their liabilities on a mutual basis. Clubs are governed by a Board of Directors and run by Managers who are responsible to the Directors. "Mutuality" of sharing loss is the governing principle—the member clubs pool their larger claims, and are provided with layers of insurance and reinsurance by a set scheme (The amounts described apply to the 1999 policy year). As an example:

- Five million dollars per claim for each individual club's retention;
- Claims exceeding $5 million and up to $30 million fall into the "Group Pool";
- Claims in excess of $30 million and up to $2 billion are within the Group's second layer of reinsurance, placed on the world insurance market; and
- The UK P&I Club provides a catastrophe reserve of further protection in the approximate amount of $230 million.

A P&I Club is not the guarantor for its members, but rather it is the source of funding insured liabilities. As such, the clubs are "indemnity underwriters", reimbursing the member after the member pays the claim or expense in the first instance. At the beginning of each year, the club levies an "advance call" on each ship owner at an agreed dollar rate per gross ton "... based on the risk that each member brings to his fellow club members—that is the type, age and condition of his vessels, the quality of his management, masters, officers and crews, his trades, and of course, his loss record, and so forth". The advance calls are invested and that fund is used to pay claims, and administrative and reinsurance costs. A "supplementary call" is levied if the advance call is insufficient to pay that year's claims (Martowski, 1998a, b).

The Group, which represents 14 clubs and their ship owner/charterer members, was first formed in 1899. The Group insures over 450 million tons of owned or chartered tonnage, about 94% of the world's ocean going shipping. Each club's liability in The Group for oil pollution risks is presently limited to $500 million, (which amount may be increasing) for each entered ship for each accident or occurrence. Again, the concept of "mutuality" is important for pollution prevention and safety. The peer pressure of mutuality works to ensure that each member of the club and each group club maintain proper standards on ship and ashore, as each participates in the general risk-sharing venture (Martowski, 1998a; INTERTANKO, 1997).

The Water Quality Insurance Syndicate (WQIS) provides a different system of insurance in the United States than that of the P&I Clubs. WQIS consists of a group of 18 insurance companies from the American market, who have entered into a contract between themselves to provide marine insurance for pollution liabilities imposed by OPA 90 and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC Sections 9601 et seq). WQIS insures approximately 40,000 vessels. WQIS is the largest domestic insurer of such marine pollution. Each of the different companies in WQIS agrees not to compete in certain areas of business, so that the same coverage at the same rates is provided for vessels that are subject to OPA 90 and CERCLA regulation and are of 100 to 20,000 gross tons.

Coverage is available from WQIS in connection with traditional P&I Club coverage in those cases where the P&I Club chooses not to cover pollution damage. Unlike the P&I Clubs, WQIS acts as a direct guarantor for ship owners and operators under the OPA 90 requirement that vessels operating in US waters must evidence financial responsibility to meet maximum liability imposed by that law (See Section 4.3.5 of this book for further discussion). WQIS is the largest such provider of such financial guarantees, accounting for more than 28% of all Certificates of Financial Responsibility which the US Coast Guard issues to evidence a vessel's compliance (Hobbie, 1995; personal interview, 1999).

Whether insurance is provided for a vessel under the P&I Club or the American scheme, certain basic principles govern the rights and responsibilities of the assured and insurer. It is within the context of these legal relations, that the insurers can effect the greatest change upon substandard operators. The duties and obligations between

insured and insurer arise from direct contract language and from common law principles. Most marine insurance contracts contain standard clauses which set forth the scope, conditions and special areas of coverage.

Certain standard clauses are:

- The duty of *dealing in utmost good faith*—which requires forthright disclosure by the assured. This includes, for example, typical warranties in cargo policies as to value and quality of shipments (Rave, 1991);
- The *Sue and Labor Clause*—which requires the assured to exercise care to protect the property insured from loss. This obligation occurs after an incident, such as an oil spill. The obligation has been defined as follows: "(A)n assured has the duty toward his underwriter to exercise the care of a *prudent uninsured* owner to protect insured property in order to minimize or prevent the loss from the occurrence for which the underwriter would be liable under the policy" (*Reliance Insurance Co. vs. The Escapade*, 280 F.2d 482, 1961 AMC 2410 (5th Cir.1960), n108). This indemnification clause provides that, if the assured acts in a reasonably prudent fashion, the insurer will pay the company back for the liability incurred. Reasonable does not necessarily mean cheap, but rather refers to what is prudent under the circumstances. For example, an initial response to an oil spill in the US may mean that the master of the vessel orders 1000 feet of boom to be placed around the hull, then makes the notifications required under OPA 90 to the National Response Center, the US Coast Guard, and finally, WQIS if that is the insurance carrier (Rave, 1991; Carden, personal interview, 1999; Hobbie, personal interview, 1999).
- Under typical P&I Club rules, such liability may extend only to costs and expenses incurred with the agreement of the Club Managers or which the Directors, in their discretion, decide to reimburse to the owner (UK P&I Club Rules, 1999, Rule 2, Section 25A). A breach of this all important obligation may lead to rejection in whole or part of an owner's claim (UK P&I Club Rules, 1999, Rule 5M).
- *Seaworthiness*—the ship must be sent to sea and maintained in a seaworthy condition. Because it is the job of the clubs or pooled insurance companies to insure and pay claims of their members, this clause is applied to deny coverage only in those situations where the owner "knew or ought to have known" of a defective condition and could have taken timely action to intervene and prevent loss. The rule does not generally apply to revoke coverage in the case of mere negligence, such as an act by master or crew over matters of maintenance. For this defense to be available to the insurer, there must be willful misconduct of the insured or active knowledge. This area of warranty and defense to liability may be changing with the changes in the ISM Code (see discussion below), (Det Norske Veritas, 1997, Section 3-22; Carden, personal interview, 1999).

- *Compliance with all Flag Administration Statutory Requirements and Class Rules*—public authorities, such as the Flag Administrations, issue their own safety regulations, based upon International Maritime Organization conventions. Ship owners must comply with all requirements concerning all levels of operation, technology, and the ISM Code. Classification societies incorporate these regulations into their own set of Rules, that govern all physical and operational aspects of the ship. Ships must be classed with an approved classification society during the term of coverage. Repairs required by such a society must be undertaken. The ship owner must insure that the ships in his fleet remain in compliance. Once classed, the ships must continue to meet these conditions. The ship owner is required to report any change in classification society to his club.
- The Flag State, classification society and insurer may conduct a series of periodic surveys and inspections to determine compliance. While insurers do not regard themselves as policemen, assessments of ships before they enter the P&I Clubs and during a ship inspection program determine if the ship owner is complying with the statutory requirements in practice. Breach of this condition may limit liability of the insured to loss not caused by the breach. For special safety regulations set out in the insurance contract, negligence of any person responsible on the ship for the regulation is imputed to the ship owner (Det Norske Veritas, Section 3-25; Carden, personal interview, 1999; UK P&I Club Rules, 1999, Rule 5K).

As Richard Hobbie, President of WQIS, states so succinctly, the impact on the ship owner of these insurance clauses will eventually drive the substandard owner out of the industry: "If the shipowner is not in compliance with the statutory requirements, they will be charged higher premiums or will not receive coverage from any insurer. If the owner has losses while covered, which are a result of noncompliance, he will be denied coverage" (Hobbie, personal interview, 1999).

Perhaps the single most important innovation in the control over substandard ships is the incorporation into the standard policy of marine insurance of the condition of compliance with the International Safety Management Code (ISM Code). In October 1997, The Group recommended to their respective Club's Boards that each Club's Rules be amended to incorporate as a minimum standard these requirements:

- That each member be in possession of a valid ISM Code certificate;
- That the member be denied the right to recover any claims for a period during which ISM Code requirements are not fulfilled; and
- That clubs include ISM Code requirement checks during their ship inspections to make sure that there is an effective safety management system in place (Martowski, 1998b).

All group clubs have adopted such minimum language and some have amplified the same with even stronger requirements about ISM Code compliance. WQIS has

similar code language requiring compliance by the owner with the provisions of the ISM Code if the vessel's Flag Administration requires that. The operator must ensure that the vessel is operated in accordance with such provisions (WQIS, 1999). P&I Clubs will not accept new tonnage, without proof that the owners have valid ISM certifications, nor will they renew memberships without similar evidence of ISM Code compliance.

The question remains: will the clubs enforce such compliance and/or refuse coverage in the event of an incident resulting from ISM Code compliance failures such as the vessel failing to have a functioning safety management system, continuous repair audits, a high ranking official onshore to whom the ship reports in the event of an incident, and any one of the many other elements of an operational and effective ISM Code system. (See Section 3.5 of this book for discussion of the ISM Code.) This is an emerging issue for the insurance industry. On the one hand, insurance policy seems to favor, as a mutual club or pool, covering losses unless there has been willful misconduct on the part of the owner. If such a safety management system is not in place and an incident results, under this traditional view, there is a reluctance to deny coverage.

On the other side of the picture, there is a growing belief that the requirement of a paper trail, of self-audits leading to disclosure of non-conformities, improperly functioning equipment, and lack of safety management systems, each of which deficiency is to be reported to the designated high ranking person in the company, will increase the "transparency" of operations. The end result may be that the insurer has a greater chance of understanding what led to an incident and may be able to assert non-compliance as a defense to coverage. In this period of transition, the managers of the clubs prefer to use their "Omnibus Rule" power to determine on a case by case basis whether or not costs or expenses, and claims of the insured should be covered. Certainly, this is an area which bears watching in the future, as the proper application of the ISM Code will make it increasingly difficult for an owner not to know what is transpiring in his company. The goal of the ISM Code contract clause and the other loss prevention provisions of the policies is to have safer and more reliable ships, with fewer incidents (Carden, personal interview, 1999; Ostensen, personal interview, 1999; Hobbie, personal interview, 1999).

On the practical side, the insurance industry has used these warranty clauses to institute prevention programs that are having a lasting effect on safety. The Group has specific rules, which the individual group clubs personalize:

- All vessels must be classed by a classification society approved by the Club Managers;
- Each club must have a ship survey programme for quality control in place;
- ISM Code certifications are a condition of coverage, in keeping with the concept that mutuality demands compliance with high standards
- Members are to develop quality control and loss prevention strategies (INTERTANKO, 1997).

The UK P&I Club is the largest of the clubs with more than 100 million tons of owned and chartered tonnage, representing 700 fleets with 6000 ships, flying the flags of 85 countries. The UK P&I Club serves as an example of the special action undertaken to implement The Group's outlined requirements:

- In October 1997, effective as of 20 February 1998, the UK Club amended its Rules (Rule 5K) to require compliance with the flag's statutory requirements, and particularly with the ISM Code, making this a condition of coverage.
- In 1998 the UK Club adopted a regional structure for handling claims, with three key zones, Europe, the Americas and Asia, and with chief correspondents in each, for more efficient handling of claims.
- The club serves as a leading source of data for the industry by providing a Major Claims Analysis of the causes for claims of $100,000. This has been regarded as the "industry bible" on liability claims. The latest edition was published in 1999.
- Research and development into the human factor produced a model study about the role of fatigue on safety in ship manning, the publication titled *The Human Factor: A Report on Manning*.
- In 1990, the UK Club launched its all important Ship Inspection Programme which is summarized in the UK Club's publication, Ship Inspection Report. The program was established in response to P&I claims which peaked in 1990. As a result, the UK P&I Club was determined to carry out its own ship visit program, with its own inspectors employed by the club, who visit worldwide between 500 and 600 ships annually, picked on a random basis. The purpose of the inspections is to look at the ships from an insurance risk basis and determine if the companies are conducting business with the highest standard of care and in compliance with all statutory regulations. ISM Code compliance has been highlighted. These inspections supplement, rather than supplant classification society inspections, and focus upon factors relevant to the liability of the club, including crew experience and training, safe working practices, safety management policy and pollution control (Martowski, personal interview, 1999; Carden, personal interview, 1999; UK P&I Club, 1996a, b, 1998).
- In 1996, the UK P&I Club launched a pre-spill networking initiative with the US Coast Guard Captains of the Ports and other federal and state environmental authorities. This basic presentation, which has to date covered 20 of 30 states in the US, sets forth the club's structure, coverage, reinsurance contracts and other relevant information and is intended to build working relationships with the decision makers prior to the occurrence of a major casualty.

David Martowski, Chairman of Thomas Miller (Americas), believes that the ship inspection program is the most effective loss prevention initiative that a P&I Club can undertake. As a result of its inspection program, the UK P&I Club has asked 4 million tons of unsuitable shipping to go elsewhere, and has seen an increased compliance with safety by its members, such that the number of ships failing the

program has decreased from a high of 15% in 1990 to just 4% in 1998 (Martowski, personal communication, 1999). These inspections focus upon the human element as well as ship maintenance by those involved in the program, which accounts for its success. Leadership follows from the top down. The fleets owned/managed by the UK P&I Club's Directors were the first to be inspected when the system first started. As indicated by this leadership action, the members at large were motivated to take this loss prevention/safety initiative very seriously (Martowski, personal interview, 1999).

There is one other area in which the insurance component of the safety net can promote good shippers, while discouraging the bad. This is in the area of premiums. The occurrence of spills appears on a company's loss record and impacts rates for a number of years following the spill. In determining rates, the club will look at the manner of operation, the type of trade, US or international, the seaworthiness of the vessels, whether the vessels are single or double hull, their age, and what type of operator the company is. Mutuality, the pooling concept, guarantees that there is a clear rate differential between the good and poor operators (O'Connor, personal interview, 1999).

However, while the various underwriters/insurers agree upon the need to penalize the substandard ship owner, the current "soft" market conditions make for a difficult time in rewarding those who are responsible operators. All clubs are running underwriting deficits, i.e., they are not bringing in enough premiums to cover the outgoing risk. There is intense market competition for a relatively fixed market. Ship owners can shop their business. These conditions lead some in the insurance business, like Richard Hobbie, President of WQIS, to state that the insurance industry can not have a meaningful impact by reducing rates, because of the already bare bones premiums charged to good operators (Hobbie, personal interview, 1999). The Norwegian marine insurance industry points to the weak market as making it exceedingly difficult for effectuating price differentiation for hull insurance, or for those in marine insurance such as the marine underwriters, to be proactive, to "take firm effective action by imposing restrictive terms" (INTERTANKO, 1997).

The long-term view, in spite of a short lived economic downturn in the insurance market, is that the soft market will "harden" and quality underwriting will make a difference. The P&I System is based on the fundamental principle of mutuality. First-class ship owners are unwilling to share club losses with substandard operators unwilling to pull their weight.

4.1.5. Port State Control

Plaza (1998) has described Port State control as the last of the safety nets protecting human life and the environment from accidents and oil spills. Port State control provides the "teeth" Flag State administrations lack when they do not implement regulatory provisions of basic international conventions. Certain of these treaties allow Governments the right to inspect ships visiting their ports to ensure that they meet

convention requirements. "Envisaged very much as back-up action by the flag State, port State control (PSC) has become much more important in the last few years, partly because flag State implementation alone has proved unable to detect and eliminate substandard shipping" (Plaza, 1998).

Until increasing pressure upon Flag Administrations has global impact, Port States, perhaps unfairly, must perform the Flag States' job. The Secretary-General of IMO described the inevitability of this system: "It has been pointed out that this division of enforcement responsibilities means that port States are taking on the job which flag States have failed to do satisfactorily, and some are complaining about the costs involved. But what is the alternative? . . . Anyone who believes that the cost of preventing accidents is too high needs only to look at the costs involved when an accident does happen" (IMO, 1996).

Initially, Port State control was limited to enforcement of technical aspects of the major conventions. The scope of inspections ("examinations" in US parlance) expanded, beginning with the new chapter XI, Regulation 4 of SOLAS in May, 1994, (in force as of January, 1996) to include the right of a Port State control officer to check operational requirements if "clear grounds" existed: i.e., "when there are clear grounds for believing that the master or crew are not familiar with essential shipboard procedures relating to the safety of the ship". IMO annex to Resolution A.742(18), 1993, defines such clear grounds as being:

- Operational shortcomings;
- Improperly conducted cargo operations;
- An incident involving the ship which is operational/human error based;
- An absent up-to-date muster list;
- Failure to meet minimum manning regulations; and
- Evidence of the inability of key crew to communicate amongst themselves.

MARPOL 73/78 has similar provisions to the SOLAS "clear grounds" (IMO, 1997d, Secretariat of PMOU, 1996). The ISM Code and STCW 95 provide even stronger authority for Port State control officers, who can inspect for operational aspects affecting safety management systems, competency of crew, fatigue and other human element oriented problems. (For more information see discussion in Sections 3.5 and 4.2.3 of this book.)

Relevant sections of international conventions containing provisions for Port State control, include, among others:

- "SOLAS 74, regulation I/19, regulation IX/6 and regulation XI/4;
- Load Lines 66, article 21;
- MARPOL 73/78, articles 5 and 6, regulation 8A of Annex I, regulation 15 of Annex II, regulation 8 of Annex III, and regulation 8 of Annex V;
- STCW 78, article X and regulation I/4; and
- Tonnage 69, article 12" (IMO, 2000a).

Port State control can be costly because enforcement requires an active administration: a team of surveyors and inspectors, training and maintenance of these individuals, and data control. Energy and time of the administration is directed toward a common goal of eliminating substandard ships. Recognizing the cost issue and also the value of sharing data between Port States, IMO initiated a policy to create a global network of regional Port State control systems, composed of countries in linked regions who collectively operate under memoranda of understanding or agreements. Acting together, the regions and in turn the global system can increasingly diminish the sphere of operation of substandard ships. IMO effectuated this global concept from Resolution A.682(17) on regional cooperation on Port State control in 1991 (Plaza, 1998).

The oldest and most established such regional agreement is the Paris Memorandum of Understanding on Port State control ("the Paris MOU"), adopted in Paris, France in January, 1982, (effective 1 July 1982) by a group of what has now become 18 countries. The geographical scope includes European coastal states and costal states of the North Atlantic basin from North America to Europe (Secretariat PMOU, 1996). The Paris MOU, with its secretariat in Den Haag, Netherlands, has succeeded and has served as a model for five other regional agreements. To date, these are the other regions and agreements of effective cooperation in Port State control:

- The Acuerdo de Vina del Mar (Latin-American Agreement), signed in Chile, 5 November 1992;
- The Memorandum of Understanding on Port State control in the Asia-Pacific Region (Tokyo MOU), signed in Japan, 1 December 1993;
- The Memorandum of Understanding on Port State control in the Caribbean Region (Caribbean MOU), signed in Barbados, 9 February 1996;
- The Memorandum of Understanding on Port State control in the Mediterranean Region (Mediterranean MOU), signed in Malta, 11 July 1997;
- The Indian Ocean Memorandum of Understanding on Port State control (Indian Ocean MOU), signed in South Africa, 5 June 1998 (Plaza, 1998); and
- The Memorandum of Understanding on Port State control for the west and central African Region (Abuja MOU), signed in Abuja (Nigeria), 22 October 1999 (IMO, 2000a).
- The Memorandum of Understanding on Port State control for the Black Sea region, signed in Istanbul, Turkey, on 7 April 2000 (IMO, 2000h).

"Port State control is a system of harmonized inspection procedures designed to target substandard ships with the main objective being their eventual elimination from the region" (Secretariat PMOU, 1996). In reaching this goal, each of these accords shares common characteristics, one of the chief being a target inspection rate for ships visiting the ports in the agreement region. Generally, such inspections are unannounced and do not take place within six months of a prior inspection unless "clear grounds" exist. For ships of non-parties to the international conventions, who do not have

certificates on board which show satisfactory compliances, there is an international principle which applies. The "no more favourable treatment" principle means that these ships are subjected to a more detailed inspection, but the Port State control officer must follow the same guidelines provided for ships who are parties to the treaties (Secretariat, PMOU, 1996).

To facilitate the global initiative and consummate adoption of MOUs by other regions, IMO developed a standard practice. This systematic approach focuses upon four stages: a review of the region's maritime safety infrastructure for surveys and inspections; convening of regional meetings of experts to discuss a draft agreement; convening of a meeting of Heads of Maritime Administrations and Governments officers to establish a training plan and sign the MOU; and preparing a strategy and future plan of action for implementing the agreement (Plaza, 1998; IMO, 2000a).

Fernando Plaza, the Senior Deputy Director of IMO's Maritime Safety Division, regards the MOUs as being the beginning, not the endpoint of the Port State control process. IMO's new millennium project is to facilitate harmonization of procedures, cooperation, and most importantly, exchange of information between the various regions, starting in the year 2000. Shared data on substandard ships, about, for example, those detained for failure to comply with the requirements of international and national agreements, are possibly the most important step to be undertaken by the countries who are members to the various MOUs. With fewer places to hide, the bad shippers will be out of business.

Information sharing signals a policy change. "Armed with the information made available as a result of regional cooperation in PSC we must work towards a change of attitude within the shipping industry, where a long tradition of secrecy too often results in problems being hidden and ignored rather than revealed and solved. The development of port State control gives us a chance to challenge that culture and replace secrecy with openness" (Plaza, 1998).

An example of the power of data sharing under Port State control MOUs is the inspection campaign waged by the Paris MOU. From 1 July to 30 September 1998, Port State control officers conducted a Concentrated Inspection Campaign, on implementation of the ISM Code, focused upon ships entering the 18 member countries making up the Paris MOU (The US and Iceland are associated as "cooperating maritime authorities". Members of the Toyko MOU attend Paris MOU meetings as well.) During this period, 1575 ships, representing about half of the ISM Code obligated ships entering the region, were inspected and tested for key elements of their safety management systems. (For discussion of the ISM Code, see Section 3.5 of this book.)

The results were mixed, 81 ships were detained for major non-conformities, a rate of 5.1%. Three were banned from the region for failure to have ISM certificates on board. The bulk carriers were the largest non-complying category of ships, with chemical and then oil tankers next in line for safety management system failures. Twelve Flag States had more than 10 ISM inspections with high rates of non-compliance. Five classification societies responsible for classing the ships on behalf of the Flag States

had ships with rates of detention in excess of 9%. The main areas of management system failure were basic to a functioning ISM Code, such as lack of certificates, no "designated person", no maintenance routine and no records. (According to Richard du Moulin, former Chairman of INTERTANKO, those vessels detained were smaller tankers, operated under weaker flags.) Less than one-third were INTERTANKO members, although the association of international ship owners/operators makes up almost two-thirds of all tankers), (du Moulin, personal communication, 1999).

All these data are available to other Port States by internet access and through the Paris MOU's SIRENAC database, which will be made accessible to any interested user in the near future. The database is administered in St. Malo, France. In keeping up with technological advances, communication features have been enhanced and windows software has been installed for better on-line access as of 1998 (Paris MOU, 1998; Secretariat PMOU, 1999). As a further significant step, the Paris MOU will make more information available to all users of the system called EQUASIS (European Quality of Shipping Information System) in support of the worldwide Quality Shipping Campaign. Such information will include, among others, a monthly listing of companies whose ships have been detained more than once or which have more than one ship detained within the previous twelve months. Data as to the performance of classification societies vis-à-vis detentions will be available as well (Paris MOU, 1999b).

The Commission of the European Communities stressed the importance of greater transparency regarding tankers by proposing amendments to prior Council Directives, particularly involving EQUASIS information:

> "Greater *efficiency*: inspectors will have more information on the ships to be inspected via mandatory consultation of the EQUASIS database on ship quality. In addition, inspectors will be required to state in their reports the nature of the inspections carried out. This will help to avoid the same inspection being repeated by the inspector in the next port of call" (Commission of the European Communities, 2000).

The EQUASIS information system was initiated in January 2000, when the maritime administrations of France, United Kingdom, Spain, Singapore and the European Commission signed an MOU. The United States Coast Guard and the maritime administration of Japan have expressed their intention of joining as signatories. Safety related information for the database system will be supplied by Port State control authorities and relevant industry, such as classification societies (IMO, 2000a).

Another Concentrated Inspection Campaign of the Paris MOU targeted the structural safety of bulk carriers of more than 30,000 gross tons and more than 15 years old. The Deputy Secretary for the Paris MOU, Capt. Michael Voogel, believes that this type of campaign is necessary due to the increasing problem of an aging world fleet and resultant incidents from structural failures in this trade.

Deficiencies found during an inspection may result in an instruction to the master to rectify the problems before departure or may extend to detention. Costly follow-up inspections, unfavorable peer pressure and the embarrassment of a ship being listed in the monthly list of detentions issued by the Paris MOU, should result in better control of non-complying operators. (Paris MOU, 1999a; Voogel, personal interview, 1999).

The Paris MOU points to the decreasing numbers of detentions as evidence that focused Port State control is working, from an all time high of 17.6% in 1995 to 14.3% in 1998. The number of substandard ships which trade in the region is less each year (Voogel, personal interview, 1999).

Dr. Chen Tze Penn, Director-General of the Maritime and Port Authority of Singapore, emphasizes the important role of Port State control in one of the busiest ports in the world. In 1997, Singapore received the most shipping tonnage since 1986, in excess of 800 million gross tons. Singapore port serves as the focal point for 400 some shipping lines. "Port authorities contribute to enhanced safety by exercising the powers of port state control provided in international conventions. Ships are inspected in port and those found with safety deficiencies are not permitted to leave port until the deficiencies are rectified. Cooperation amongst countries on port state control has proven to be effective in enforcing safety standards on substandard ships" (INTERTANKO, 1997).

Penn's comments find support from industry about the validity of Port State control. The big trading countries, like Australia, Japan, Europe, the US, are getting better at enforcement. Where before, ship owners regarded Port State officials as the "enemy", now they are becoming industry's greatest ally to rid ship owners and those in the chain of responsibility of the poor operators. Detention lists are available on the internet, in major classification society web sites, such as Lloyd's Registry, and in industry association sites. The effect of such an open system is to put pressure on ship owners and charterers to run good ships and to enhance the power of third parties to enforce international criteria of safe shipping. Trade organizations are assisting regulators to do their job, instead of viewing authorities as yet another obstruction to getting to the business at hand. The hoped for end result is that the substandard shipper will be "homeless" (du Moulin, personal interview, 1999).

The US, as an active recipient of foreign flag vessels, has a well-refined Port State control system. Almost 8000 non-US ships arrive at US ports annually. Of those, 95% are passenger ships and 75% carry cargo (Pontiff, 1999). The US starts with the basic assumption that the Flag State has performed its job properly and that certificates issued evidence compliance with international treaties. Documents are checked to determine effective dates, expiration and issuing compliance with the basic treaties. The Port State control officer performs a cursory examination, including emergency drills as appropriate, and develops a general impression. Then, based upon that general view, the US Coast Guard officer makes certain conclusions about the operational compliance of the vessel with international and national standards. If necessary, the officer conducts an expanded scope examination, digging deeper into operational

issues, based on the "clear grounds" rule. Capt. Pontiff, former Chief of the US Coast Guard Office of Compliance interprets the basic Port State control authority for examinations as being subject to a practical Rule of Thumb for field inspectors. As long as the inspector is finding problems, he/she can continue the examination (Pontiff, personal interview, 1999).

Pontiff describes the US Coast Guard's Port State control program as a necessary "resource allocation tool". The boarding priority program was developed in response to a 1994 Congressional mandate aimed at eliminating the substandard vessel from US waters (1994 Department of Transportation Appropriations, Pub. L. No. 103-122). Under the law, the US Coast Guard was tasked with developing a system for conducting boardings, which would hold "... those most responsible for substandard ships accountable, including owners, classification societies, and flag states". The resulting program was designed to target for boarding those vessels of a higher risk than others. A matrix was created to rank vessels, helping the Port State control officers determine which of the many entering a given port should be boarded.

Any foreign vessel, greater than 300 gross tons, entering a US port must give 24 hour advance notice to the Marine Safety Office of the US Coast Guard responsible for that port (Advance Notice of Arrival, 33 C.F.R. 160.207). Based upon the information in the Marine Safety Information System, the database used by the US Coast Guard, the port can determine whether the ship is a "risky" ship, and where the vessel falls within the boarding matrix. First targeted for boarding are ships not boarded within the past year. After that, the US Coast Guard uses a point system, assigning a certain number of points to a vessel based upon these factors:

- Owner/operator—targeted are ship owners who have been detained in the US more than once in the previous 12 months;
- Flag State—targeted flags are countries with an intervention ratio higher than the average for all Flag States for vessels operating in US waters, and more than one intervention in the past 12 months;
- Classification Society—targeted is the classification society not recognized by the US Coast Guard or whose performance is below expectation due to high numbers of interventions on vessels classed by that society;
- Vessel Boarding History—targeted vessels are those detained one or more times within the past twelve months; and
- Vessel Type—points are assigned based on type. For example, 1 point is assigned for an oil/chemical tanker.

The port makes a determination about whether to examine a foreign flag vessel based upon the total accumulated points and assigns Priorities 1 through 4 to each vessel. Priority one vessels are boarded 100% of the time, while Priority four vessels are rarely boarded. The decision is made locally by the Captain of the Port. There are 45 such Captains of the Ports throughout the US Boardings of Priority 1 vessels take place prior to the vessel entering the US port, or if not possible, prior to any cargo

or fuel oil being transferred. The examination will deal first with the cargo transfer operations, so that those might be conducted while the rest of the examination takes place over a half day period, unless the examiner makes findings such that the cargo system must be shut down entirely.

Under US Port State control authority, one of several outcomes may result:

- Detention until a technical, operational or safety matter is satisfactorily resolved. The challenge occurs when a safety management system is not in place as required by the ISM Code. Then, the classification society charged with conducting the audit may, when contacted by the Flag Administration for the vessel, actually conduct training on the ship while it sits at the dock until the master and crew are properly oriented and trained.
- Targeting of a ship in the future for boarding each time it calls at a US port with the attendant delays that creates.
- Contact of the Flag Administration for convention violations, which may lead, in the case of ISM Code violations, to a complete audit of the company's Document of Compliance and loss of the right to conduct trade.
- The stigma of being listed in various databases as a detained vessel.
- Penalty provisions, such as Section 408 of the Coast Guard Authorization Act of 1998 which prohibits a detained vessel, determined to be substandard, from transporting Government-impelled cargo, for violation of an international convention of which the US is a ratifying Party (48 USC Section 2302(e)(1)(A).

Two Navigation and Vessel Inspection Circulars (NVICs) act as guidelines for Port State control inspectors, NVIC 3-98 for STCW 95 compliance and NVIC 4-98 for ISM Code. Additionally, several chapters of Vol. 2 of the US Marine Safety Manual apply to Port State control of foreign flag vessels (US Coast Guard, Website, PSC, 1999). Decisions of the US Coast Guard inspection officer may be appealed to the Captain of the Port, then the District Commander, and finally, to national headquarters, to Pontiff's Office of Compliance (33 CFR 160.7) (Pontiff, personal interview, 1999; Sahatjian, 1999; NVIC 4-98).

International detentions follow much the same rules as the US system. For example, under the Paris MOU, guiding principles for deficiencies found during inspections are:

- "Master instructed to rectify deficiency before departure";
- Ship detained and if the deficiency is "hazardous to safety, health, and the environment", the hazard must be rectified before the vessel leaves;
- Flag State informed;
- Vessel prohibited from performing an operation;
- Where the rectification cannot take place in the port where found, then the ship may sail to another port if this is not a hazard to safety of the environment; and

- All costs accrued by the Port State control officers due to suspended inspections are paid by the ship owner/operator before he leaves that port (Secretariat PMOU, 1996).

The most significant challenge to effective Port State control is the shipping community's acknowledgment that Port State control is here to stay and that Port State control is an effective part of the overall system of safety and pollution prevention. The next major step is to quantify how well the targeting system is working in reducing substandard shipping, much like the work being performed by the Paris MOU. The Coast Guard Authorization Act of 1998 required the US Coast Guard to report back to Congress about the effectiveness of implementation. Analysis indicated declining detention rates and higher compliance. The third area of focus will be coordination with international databases, information sharing with the Paris MOU so that all databases become interconnected. Vessels detained under the Paris MOU are entered in the Marine Safety Information System as a "vessel of particular interest", which provides yet another piece to the matrix puzzle.

Like the finding by the Paris MOU that detentions are declining, US figures show that Port State control is working in the US:

- Declines in 1998 in the number of detentions, with a 32% drop from 1997; and
- A decreasing number of vessels detained attributable to class—35% in 1995, 23% in 1997, and down to 14% in 1998. This is due in part to the working partnership and ongoing communication between the classification societies and the US Coast Guard (Pontiff, 1999).

In the international community, Port State control is regarded as the "teeth" needed to close the gaps in the safety nets and bring the "cluster of actors in shipping" into the new era. Fernando Plaza, Senior Deputy Director at IMO, summarizes the work ahead for the industry:

> "The best way ahead seems to be, however, to continue the process already started by increased control in the various regions and strive for a better and more efficient implementation by the States (acting as Flag States) on their own ships rather than as a port State acting on foreign flag ships. Effective regional agreements, common criteria for inspections; harmonized inspection and detention procedures; internationally approved qualification of control officers; an internationally applied Code of Conduct; transparency through increased information within regions and inter-regionally are the answers as port State control is here to stay" (Plaza, 1998).

Active adoption and pursuit of the safety culture by each of the players is the foundation for the global vision expressed by Plaza and other leaders involved in the extensive web of maritime transport of oil. Each member of the three chains, of responsibility, quality and image, cooperating together can make the safety nets function so that the business of transporting oil across the oceans remains truly viable.

4.2. Regulation of Oil Spills—Control By International Conventions

The International Maritime Organization (IMO) has become the forum for the implementation of international conventions related to oil spills and response has been increasing control over the shipping and oil industry. Historically, international law governing vessel-source oil pollution has been hampered by jurisdictional issues, slow maturing of technological innovations, and a less than active role of maritime states in preventing pollution. This short-sighted focus has changed in recent years due to an unfortunate series of international oil spills. Over time the increased consciousness of the maritime countries has led to a well developed body of international law for vessel-source oil pollution conventions. In the 50+ years of its existence, IMO initiatives have created these important international conventions amongst others:

- International Convention for the Prevention of Pollution from Ships, 1973, adopted by IMO conference from 8 October to 2 November 1993 (MARPOL); as modified by the Protocol of 1978. The Convention as modified is know in short form as MARPOL 73/78;

On 26 November 1997, the M/V *Kuroshima*, a 368-foot frozen seafood freighter, broke away from its anchorage during a severe storm and ran aground at Summer Bay on the Aleutian island of Unalaska spilling an estimated 39,000 gallons of Bunker C fuel oil.

- International Convention for the Safety of Life at Sea, 1974 (SOLAS) and Protocol of 1978, Protocol of 1988; 1994 amendments thereto introducing Chapter IX, the ISM Code (discussion Section 3.5);
- International Convention on Oil Pollution Preparedness, Response & Cooperation, adopted November 1990 (OPRC); (See Section 2.4)
- International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, adopted July 1978 (STCW) as changed significantly by the 1995 amendments (STCW 95); and
- International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, adopted 29 November 1969 (Intervention Convention).

MARPOL 73/78 and SOLAS are "umbrella documents that set out purpose, intent, and the desired performance in the ship safety and pollution prevention arenas". Their chief function is to regulate ship design for safety and pollution prevention. SOLAS is directed toward ensuring safety of all parts of the marine transportation industry, crew, ports, passengers, ships and their cargo, with inevitable, but indirect impact on the environment. MARPOL 73/78 seeks directly to prevent pollution from accidents and normal operations of the vessel and does this by specifying design, equipment and procedural requirements to prevent pollution from oil and other substances (Lemley, 1999; Guruswamy, 1998).

While these conventions address more technological-oriented concerns, STCW 95 focuses on training and competence of crew, as well as safe manning. OPRC works toward the harmonization and coordination between countries to prepare for and respond to oil spills in regions throughout the world. The Intervention Convention provides for specific control over a threat or actual spill affecting the marine environment or related coastal interests. Together, these and the many other IMO conventions establish the underlying body of law regulating pollution caused by maritime trade on the oceans. The Flag Administrations pass their own enabling national legislation, which laws and regulations are then implemented by the other parties in the "Chain of Responsibility".

4.2.1. MARPOL 73/78

The International Convention for the Prevention of Pollution from Ships, 1973, and its 1978 Protocol, which absorbed the parent convention, are referred to collectively as MARPOL 73/78. This convention is regarded as one of the most important of the IMO conventions on the subject of marine pollution. MARPOL 73/78 sets out a direct scheme for preventing pollution from oil and other substances, caused by normal operational discharges and by accidents. The goal of MARPOL 73/78 is "... the complete elimination of intentional pollution of the marine environment by oil and other harmful substances and the minimization of accidental discharge of such substances" (Preamble to MARPOL 73/78).

Because of the concrete design terms of the convention, a MARPOL vessel represents the standard against which further design changes are to be measured (Guruswamy, 1994). Regulations 13 (F, G) of Annex I contain the requirements for retrofitting tankers to double hulls or alternative structural or operational arrangements of at least the same level of protection.

The Regulations concerning various sources of ship generated pollution (oils, chemicals—noxious liquids, certain types of waste, and most recently in 1997, air pollution from ships) are contained in six Annexes, Annex I being the Regulations for the Prevention of Pollution by Oil. As of 1998, there were 104 Parties to the convention, representing a little more than 93% of the world's tonnage. MARPOL 73/78 essentially replaced its predecessor, the International Convention for the Prevention of Pollution of the Sea by Oil, 1954. MARPOL 73/78 entered into force in October 1983. IMO is considering a seventh Annex to extend the scope of prevention even further into the area of harmful aquatic organisms into new areas of the ocean through release of ballast water. The need for Annex VII is real. Estimates are that about 10 billion tonnes of ballast water, containing invasive, aquatic organisms, are transferred to the marine environment each year (IMO, 1998, and IMO, 1998). Another alternative may be an entirely separate convention on ballast water management to be determined by a conference (MEPC, 1999). Progress is being made in addressing this serious problem. Draft legal regulations, for ballast water management, have been prepared by IMO's Marine Environment Protection Committee (MEPC), although there are still a number of open items to be considered. (IMO, 2000c).

The 1978 Protocol and its amendments contributed substantial improvements to pollution prevention. MARPOL 73/78 provisions are discussed throughout this book, but a few of the more significant as they relate to oil pollution included in Annex I are these:

- New methods for washing oil cargo tanks;
- Limits on the size of cargo tanks;
- Mandated use of inert gas systems to cut down the danger of explosions;
- Mandated *double hull* or an approved alternative design with a phase-in program for existing tankers, by 1992 amendment. Double hulls and bottoms are mandatory for new tankers of 600 deadweight contracted for after 6 July 1993, or keels laid after 6 January 1994, or delivered after 6 July 1996 and for oil tankers of 5000 dwt and above (Regulation 13F). Alternative designs, such as the "mid-deck" design, are permitted so long as they provide the same level of protection. Regulation 13G addresses existing crude oil carriers, meeting the requirements of new oil tankers and existing product carriers of 30,000 dwt. Ships built to MARPOL standards must comply no later than 30 years from date of delivery and Pre-MARPOL, no later than 25 years from date of delivery must have side or bottom protection for at least 30% of the cargo area;
- Designation of the north-west European waters as a "special area", like the Mediterranean Sea, the Baltic Sea, the Red Sea, the Gulfs area, the Gulf of Aden and

the Antarctic area, each of which is a special area, due to oceanographical and ecological conditions. Discharge of oil or oily mixtures from any tanker or ship over 400 gross tons is prohibited in such areas by adoption of a 1997 amendment (Regulation 10);

- Creation of an enhanced program of inspection to apply to all oil tankers 5 years and older, which survey will concentrate on hull and key structural elements. Given the average age of tankers, approximately 15 years, the intention behind the enhanced survey is to find corrosion, fractures, stress caused by structural deterioration. This inspection process will apply to more than 80% of existing tankers. IMO issued guidelines implementing this program, Resolution A.744(18);
- Requirement of a shipboard oil pollution emergency plan approved by the Flag Administration, in accordance with IMO guidelines. The 1991 Amendment mandates that the plan lists contact authorities, describes the emergency action to be taken, and designates the person to be contacted for coordination of shipboard activities with regulatory authorities (Regulation 26). (For more information, see Section 2.4 of this book.); and
- Enlargement of the role of Port State Control officers, giving them the right of inspection for operational, and not just technical, compliance with international conventions and national regulations by 1994 Amendments, "... where there are clear grounds for believing that the master or crew are not familiar with essential shipboard procedures elating to the prevention of pollution by oil" (Regulation 8A) (IMO, 1995a, 1997a, 1998b).

It is in the area of increased Port State Control that MARPOL 73/78 reveals its effectiveness. Article 6(2) of MARPOL 73/78 allows inspection and verification by a Port State to determine if a ship has discharged any harmful substances, requires report of such a violation to the Flag State, and places the onus on the Flag State to cause proceedings to be taken and to impose penalties under its national law sufficient to "discourage violations" of the convention (Article 4(3)). (For further discussion, see Section 4.1.5 on Port State Control of this book.) Taken as a whole, the convention requirements of MARPOL 73/78 directly influence the safety of shipping today.

4.2.2. SOLAS

The International Convention for the Safety of Life at Sea (SOLAS) is considered the most important of all the international conventions dealing with maritime safety, and indirectly, the prevention of oil pollution and vessel impact on the environment. The overall objective of SOLAS is to assure that the crew, ports visited by the ship, passengers, the cargo and the ship itself are safe. SOLAS and implementing Flag State regulations control ship design, shipyard standards, and third party criteria for how to build and operate a ship.

Following the sinking of the *Titanic*, an international conference was held resulting in the first SOLAS convention, but, unfortunately due to World War I, it did not come

into force. A second conference was held in 1929, resulting in the 1929 SOLAS convention. In 1960 during IMO's first international conference, the 1960 Convention replaced the 1948 version. Again, in 1974 a new Convention was adopted to replace the 1960 convention. SOLAS covers a wide range of measures to improve safe shipping: subdivision and stability; machinery and electrical installations; fire protection, detection and extinction; life-saving appliances; radio; safety of navigation; cargo carriage, including dangerous goods, and nuclear ships. The new Convention entered into force on 25 May 1980 and serves as the basic document for enforcement today, along with:

- Two major amendments by means of Protocols: 1978 SOLAS Protocol, in force as of 1 May 1981 and the International Conference on the Harmonized System of Survey and Certification, the 1988 SOLAS Protocol
- Amendments by means of IMO resolutions either by resolution adopted by the Marine Safety Committee or by Conference of the Contracting Parties, or through the 1974 SOLAS "tacit acceptance" provision of article VIII. Tacit acceptance allows an amendment to enter into force on a date specified (within 18 months to 2 years after adoption) unless one-third of the Contracting Parties or Contracting Parties with combined fleets of 50% of world tonnage specifically reject the amendment. This was an important innovation by SOLAS to avoid the formerly cumbersome and protracted IMO amendment process.
- Chapter IX of SOLAS, Management for the Safe Operation of Ships, adopted as part of the May 1994 amendments and effective as of 1 July 1998 contains the ISM Code. For further discussion see Section 3.5 of this book (IMO, 1998d, 1999b).

There are 138 Contracting Parties to SOLAS, representing more than 98.36% of world tonnage. For purposes of marine safety and prevention of oil pollution, SOLAS chapters of the Consolidated text in the annex to SOLAS 1974 and the 1978 Protocol break down into these areas of coverage:

- Chapter I—General Provisions;
- Chapter II-1—Construction: Subdivision, stability, machinery, electrical installations;
- Chapter II-2—Construction: Fire protection, detection and extinction;
- Chapter III—Life-saving appliances and arrangements;
- Chapter IV—Radiocommunications;
- Chapter V—Safety of navigation;
- Chapter IX—ISM Code;
- Chapter X—Safety measures for high speed craft; and
- Chapter XI—Special measures to enhance maritime safety (SOLAS, Consolidated Edition, 1997).

Important amendments to SOLAS have mirrored advancing technology, the increasing concerns of the maritime community for the role of the human element in ship operation and safety, and the need to control substandard operators. Various sections of this book refer to SOLAS as it applies to these goals. The following list includes a highlight of significant amendments:

- 1988 Amendments—Introduced the global maritime distress and safety systems (GMDSS), believed to be the greatest advance in maritime communications since radio (effective 1 February 1999) and introduced the 1988 Protocol with its harmonized survey and certification system.
- GMDSS requires all passenger ships and all cargo ships over 300 gross tonnage on international voyages to carry satellite and radio-communication equipment, for sending and receiving distress alerts and communicating with others general and safety information. IMO believes that with GMDSS " ... no ship in distress can disappear without a trace and that more lives can be saved at sea" (IMO, 1999).
- 1994 Amendments—During the Conference of Contracting Parties, added three new chapters to SOLAS: IX—the ISM Code; new Chapter X—a mandatory Code of Safety for High-Speed Craft; Chapter XI—special safety measures, which include the recognition of organizations entrusted by Flag Administrations to carry out surveys and inspections, provides for enhanced surveys for SOLAS requirements, and gives Port State Control officers augmented inspection authority "when there are clear grounds for believing that the master or crew are not familiar with essential shipboard procedures relating to the safety of ships". (For further discussion, see Section 4.1.5 of this book.)
- 1994 Amendments—Substantial changes to Chapter II-2 to the fire protection section, to make this section more user friendly and to incorporate substantial changes which resulted due to serious fire casualties.
- 1996 Amendments—Revised Chapter III with a new International Life-Saving Appliance Code which became mandatory in July1998, as a result of major accidents in the 1980s and 1990s affecting passenger ships, and to accommodate technological improvements.
- 1998 Amendments—Regulation adopted requiring Contracting Parties to have in place suitable arrangements to register GMDSS ship's call sign and Inmarsat identities, and coordinate rescue operations (IMO, 1995, 1996a, 1998b, 1998e).

Implementation of the SOLAS treaty requires the interrelation of each of the players creating the safety nets around the vessel:

- **Ship owner/Third Party Association Standards:** Ship owners have a primary responsibility to crew, operate and maintain their ships in compliance with their corporate quality standards, national and international rules and regulations and classification society requirements. Industry consensus standards set the rules

for ship construction and operation in all areas, such as construction materials, pressure vessels, equipment specifications and many others. These standards supplement those produced by IMO and the national regulatory bodies.

- **Flag States:** Governments are obligated to have maritime organizations issue the rules and oversee operation for compliance for those ships that fly their flag. Vessels that comply with these international treaties are issued "certificates" by their government attesting to compliance and these certificates permit vessels to trade in foreign ports and not be subject to ship design, operations laws, and rules of the Port State. There are important exceptions to Flag State control. OPA 90 and certain international treaties provide significant Port State control. For further discussion, see Section 4.1.5 of this book. While SOLAS sets forth the general requirements in each of several areas for safe operation of a ship, it is the job of the Flag Administration to specify more detailed standards.
- **Classification Societies:** SOLAS, like MARPOL 73/78 (see discussion Section 4.2.1) requires that vessels are in class with a "recognized" ship classification society to receive SOLAS certification. The classification societies can act on behalf of the Flag Administration in enforcing regulation, and particularly, in the case of SOLAS inspections, assure that ships are designed, constructed and maintained in compliance with structural/operational requirements and with the detailed technological standards of the class rules (June 1996 amendment to Chapter II-1; IMO, 1996).
- **Insurers/P&I Clubs:** Coverage depends upon the ship being classed with a recognized classification society during the period of insurance and with the owner complying with all statutory requirements of the ship's flag relating to construction, condition, equipment and manning, as evidenced by valid treaty certificates and actual operation (UK P&I Club, 1999 Rules, Rule 5K).
- **Port States:** Recognizing that ships may have problems during operation which could render them not in compliance since their last Flag State inspection, and recognizing the principle that a Port State has a right to be assured that international trading ships in their waters are in compliance with conventions, SOLAS has provisions that allow the Port State to board vessels and complete a review/inspection to assure their compliance. Port States can use the SOLAS requirements to detain or otherwise protect against the entry into their ports of substandard ships, not meeting the treaty requirements.
- **Mariners:** Mariners have a basic responsibility to perform their assigned duties in a professional, seamanlike manner, upgrading their training and skills as needed and familiarizing themselves with the particulars of the ship (Guruswamy, 1994; Lemley, 1999, personal communication, 1999).

The importance of this interrelationship of SOLAS and links in the chain of responsibility is that the treaty becomes yet another tool in the arsenal of the shipping community to eliminate substandard shipping or reform standards of such shippers

and to create high quality in shipping. "Explicitly including 'class' as a SOLAS requirement enables flag States and port States to also enforce the detailed industry standards embodied in the class rules. This is a very strong hammer in eliminating substandard ships in that port States can identify problems with class compliance and class societies have greater ability to get substandard ship operators to comply with class rules" (Lemley, 1999).

4.2.3. STCW

The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) 1978, is the international treaty designed to provide officer and crew standards for seafarers. In force for much of the world fleet as of 1984, it was not ratified by the US until 1991, and became fully effective for US flag ships as of 1 October 1996. For many important reasons, in 1995, IMO amended the Annex to the 78 Convention, with some far reaching revisions, which amendment is called STCW 95, and which came into force 1 February 1997. The reasons behind adoption of STCW 95 emphasize the evolving nature of international conventions, which adapt to changes in circumstances dictated by technological improvements over time and the increasing concern over the impact of the human element on incidents. The chief criticisms concerning STCW 78 were lack of consistency of standards and enforcement provisions, need to address important improvements in technology, such as simulator training, automatic radar piloting aids, modern bridge procedures, use of a Quality Assurance system, and the shifting focus on human factors.

The main goals of STCW 95, in response to each of these areas of criticism, are:

- To detail technical requirements to an associated STCW Code, parts A and B of the amendments to the Annex;
- To clarify the standards of competency required at different levels of seamanship. For example, as a basic concept, STCW 78 did not define "competency";
- To provide effective mechanisms for enforcement of its provisions, by among other means, requiring Flag Administrations to control and endorse qualifications of personnel authorized to serve on their ships;
- To make parties accountable to each other, through IMO, for purposes of implementing the Convention; and
- To offer greater flexibility in assignment of functions on board ship, by introducing alternative certification for increased mobility in different shipboard disciplines, the "functional approach" (IMO, 1997d; Houston, 1996).

STCW applies to 133 Parties to the Convention, representing more than 95% of the world's fleet. The effective date was 1 February 1997 for many of the provisions, with a 5-year transition period for the balance, so that ultimate compliance is due by February 2002. Certificates issued to seafarers before 1 August 1998 are valid until the year 2002. Those new mariners entering training after 1 August 1998 must comply

fully with STCW 95 (IMO, 1997d, Schrinner, 1997). The Convention applies to all commercial vessels on waters outside the boundary line (which essentially separate the bays, harbors and other inland waters from the oceans), including tankers, escort tugs and escort response vessels. In the US, mariners on uninspected passenger vessel, certain fishing vessels, barges and vessels operating only on the Great Lakes are exempted and mariners on seagoing ships of less than 200 gross tons are assumed to be in compliance with STCW 95 (Sahatjian, 1997). The revised Convention has eight chapters, which contain the basic requirements. Chapters I through IV deal with the general provisions, master and deck department, engine department, radio communication and personnel. Chapter V covers special training on ships such as tankers and ro-ro ships. Chapter VI handles emergencies, occupational safety, medical care and survival training. Chapter VII deals with alternative certification. Chapter VIII details watchkeeping measures, such as those introduced to prevent fatigue, a significant cause of incidents, estimated as the factor in 16% of critical vessel casualties and 33% of personal injuries (ITF, 1999).

To clarify the standards of competence, STCW 95 added a detailed STCW Code to the regulations in the annex in two parts. This Code sets objective standards of competency, outlines practical examination methods, and defines measurement tools for assessors of seafarer competence. The mandatory technical standards are contained in Part A. Part B of the STCW Code is not mandatory, but it serves the important function of providing guidance to assist those involved in educating, training and assessing the competence of seafarers. Part B helps make more uniform the application of STCW requirements. Together STCW 78 and 95 establish the legal framework within which the required technical standards of Part A of the STCW Code are applied (IMO, 1997d, 1999b).

In the area of enforcement, STCW 95 impacts the "safety net" in a profound way. STCW affects four levels:

- The labor supply country—the seafarer's home country must train, examine, and if found competent, certificate the seafarer;
- The Flag State—the country registering the ship on which the seafarer sails is responsible for certifying that the seafarer's country issued a certificate in compliance with the convention;
- The company—the employer of the seafarer must employ competent people; and
- The Port State—the country in which the vessel visits must check the certifications and determine that the ship is properly manned by seafarers complying with the convention (Smith, 1997).

STCW 95 requires the labor supply country to submit evidence that its training facilities and examination systems comply with the Convention. The country must have a *quality standards system* in place "... all training, assessment of competence, certification, endorsement and revalidation activities carried out by non-governmental agencies or entities under its authority are continuously monitored through a quality

standards system to ensure the achievement of defined objectives, including those concerning the qualifications and experience of instructors and assessors; and ... where governmental agencies or entities perform such activities, there shall be a quality standards system".

For the first time, International Maritime Organization (IMO) is assuming an oversight role in the area of enforcement of standards. Parties to the convention must submit to IMO information concerning administrative measures adopted to ensure compliance, education and training courses, certification and other requirements of the convention. The Safety Committee of IMO, its senior technical body, will designate competent persons to serve on reviewing panels. These reviewers will report to the Safety Committee about whether the submitting Party has given full and complete effect to the Convention. If the committee agrees with the report, they will include that Party's name on the so called IMO *White List*, the official list of all Parties who meet the minimum requirements of STCW. IMO has the authority to check on implementation standards of parties to its conventions (IMO, 1997). The time line for this procedure is already in effect:

- 1 August 1998—Parties submitted the required compliance information to IMO (82 of the 133 countries submitted timely information as of 1 August 1998). Since that date, 12 others have submitted their information;
- Early Spring 2000—Review conducted by competent persons, who are to report to Marine Safety Committee. Five panels completed work and reported, 30 completed initial evaluation, and 47 are still engaged in initial evaluation as of January 1999;
- Late Spring 2000—Safety Committee to review reports and issue "White List"; and
- 1 February 2002—All seafarers to be trained in compliance with new standards, must carry certificates with STCW 95 endorsement (IMO, 1998a, 1999b; Young, personal interview, personal communication, 1999).

"Other Parties are entitled to accept certificates issued by or on behalf of parties on the White List as being in compliance with the Convention" (Houston, 1996). While the Convention was carefully drafted not to imply the existence of a "Black List", the Secretary-General of IMO has outlined what may befall those countries whose names do not appear on the "White List": "Following the publication of the list, certificates issued by countries not included in the list will not be accepted as prima facie evidence that the holders have been trained and meet the standards of competency required by the Convention. The consequence of this will be that ships on which such seafarers are sailing may suffer costly delays in ports while inspectors verify that they are competent to safely man the ships and this may in turn lead to unwillingness of foreign ships to employ such seafarers. Incidents of this kind will eventually reflect badly on countries concerned" (IMO, 1997d).

Flag States must ensure that seafarers onboard vessels are qualified for their emergency and regular duties and must "... confirm that the training and examination systems in the country which issued the original document are fully in accordance with the revised Convention before they can issue a flag state certificate" (Smith, 1997).

Port States have an expanded range of control mechanisms for enforcement of the new standards. Port State Control officers will check not only the seafarer's national certificate, but also now the Flag State endorsement and that the number of certificates on board match the Flag State's Safe Manning Certificate. Under STCW 78, a Port State officer needed "clear grounds" in order to assess a seafarer's ability on board a visiting ship. This authority has expanded substantially, so that a Port State officer can undertake such an assessment whenever a ship is deemed as "being operated in such a manner as to pose a threat to persons, property or the environment" (Smith, 1997).

Finally, in the area of enforcement, STCW, along with the ISM Code, (see Section 3.5 for discussion) has created a crucial nexus between owner and seafarerOwners now have legislated responsibility to ensure that their employees can conduct their business safely in terms of protecting human life and the environment. The company, along with its Masters and crew, is responsible for complying with the Convention. To ensure this, companies must provide written instructions to every newly employed crew member so that crewman can become familiar with all aspects of the job. Section A, Regulation I/14 has five separate sections delineating this duty:

- The operator shall ensure each seafarer holds the appropriate certificate, issued by the administration in compliance with the Convention;
- The ship must be manned in compliance with the safe manning certificate;
- Documentation and data evidencing experience, training, medical fitness and competency must be readily available for each seafarer on board;
- Seafarers must be familiar with the ship and emergency procedures, including safety procedures and equipment they will use; and
- The crew must be able to effectively coordinate activities in an emergency and perform vital safety and pollution prevention functions (Smith, 1997; Houston, 1996).

It is in the area of training of mariners and demonstration of their competency that STCW 95 has effected the greatest change. No longer will the old "hawsepipe method" work, in which the seafarer passed a physical test, acquired sufficient sea time by coming up through the ranks, and then crammed for and passed a written exam. The focus of STCW 95 is firmly upon demonstrating a degree of understanding and skill in performing competencies, not just in passing a final exam. The training process takes the mariner from "cradle to grave" and is not just training for a one time event, an exam (Szczurek, 1999).

Competency is the subject of tables in Part A, which detail for various sizes of vessels, depending upon their onshore or ocean operational areas, and the size of their

main propulsion machinery, the knowledge, understanding and proficiency for levels a seafarer must possess, methods for demonstrating that competency, and criteria for evaluating the skills demonstrated. The levels are:

- Management—masters, chief mates, chief engineers and second officers;
- Operations—officers in charge of navigation watch or engineering watch; and
- Support—seafarers forming a part of navigational or engineering watch.

For Parties attempting to comply with STCW 95, these descriptions of competence are general only, leaving the Contracting Parties to work out the details (Houston, 1996).

STCW 95 imposes requirements that seafarers have *basic-safety training* in:

- Firefighting;
- Elementary first aid;
- Personal survival techniques—lifejacket, liferaft use; and
- Personal safety and social responsibilities,

and specific shipboard *familiarization training*:

- Including personal survival techniques—person overboard, smoke detection, emergency routes, medical emergency equipment use, etc; and
- For seafarers on tankers and passengers ships, special familiarization with cargo and cargo equipment (Sheetz, 1999; Houston, 1996).

Quantity of sea service has been enhanced by quality of such service. Training must be by one of several approved methods and recorded in a *training record book* for licensed personnel at the "officer in charge" level:

- "Approved in-service experience;
- Approved training ship experience;
- Approved simulator training, where appropriate; and
- Approved laboratory equipment training" (Houston, 1996).

STCW 95 introduces qualification requirements for trainers and assessors, for any person conducting in-service training of a seafarer, onshore or at sea, where such training will be used to qualify for certification. The Trainer/Assessor must understand the training objectives, be competent to train, have the appropriate level of knowledge, have received the necessary guidance for assessment procedures, including the use of simulators where appropriate, and have the necessary practical experience. How one qualifies to become an assessor or trainer differs between countries (Houston, 1996).

Finally, but of great importance, STCW 95, Chapter VIII deals with the question of fatigue and safeguarding seafarers from human error caused by fatigue. For all seagoing vessels, for officers in charge of a watch and the ratings forming part of the watch, whether at sea, in port, or at anchor, each must have a minimum 10 hours of

rest in a 24-hour period, broken into no more than two periods, one of which is at least 6 hours. There are some exceptions for emergencies. The owner/master must ensure that minimum rest periods are enforced (Sheetz, 1999).

4.2.4. STCW 95—The Future

"The devil is in the details" (Szczurek, personal interview, 1999). This adage most aptly states the sentiments of those in the field internationally and in the US who raise questions about how STCW will be implemented and whether the revisions to the Convention will achieve their stated objectives of producing competent, qualified mariners and thus reduce risk of loss of life and environmental damage.

In the US, the US Coast Guard is charged with implementing STCW 95. The Coast Guard published an interim rule in the Federal Register, which is still in force, on 26 June 1997 (46 C.F.R. Parts 10, l2, 15). Other important operational guidelines are found in US Coast Guard Navigation and Vessel Inspection Circulars (NVICs) and in the National Maritime Center Policy letters. Amongst many, certain important NVICs include: 10-99—interpretations of SOLAS Ch. II-2, 5-99—guidance for voluntary compliance with ISM Code, 3-99—GMDSS equipment requirements, 1-99—refresher course, 7-98—standard marine communication phrases, 3-98—Port State control, 2-98—physical evaluation guidelines, 8-97—issuance of new documents, 7-97—quality standards system, 6-97—qualifications on instructors, 5-97—training records books, 4-97—company responsibilities.

The increased authority under STCW 95 provides the right of control officers to detain ships. In the US, the US Coast Guard takes this authority seriously, views compliance with STCW critically and will hold ship owners and operators responsible for non-compliance. Vessels will be detained. Foreign flag ships with STCW violations will be placed upon a "target" list and assigned points, subjecting them to increasing numbers of boardings when a company's vessels have been detained twice in 1 year (Sahatjian, 1999). (See Section 4.1.5 of this book for discussion of Port State Control.)

During boardings and inspections, certain of the new requirements of STCW 95 may give rise to Port State Control action. Many of the new standards may be phased in a 5-year period. Violations of others may be enforced immediately. As to the "fitness for duty" or fatigue issue, Port State Control officers will be reviewing posted watch schedules to determine if the watchkeeping personnel are maintaining the required 10 hours of rest. Failure to comply with this rule will lead to US officers and other Port State Control officers detaining the vessel until the deficiency is corrected. If during a Port State Control boarding, including conducting of operational drills under SOLAS Chapter XI (see Section 4.2.2 of this book for further discussion of SOLAS), it is clear that members of the crew cannot perform their assigned duties, the officer may determine that the vessel is being operated in a manner posing a danger to

persons or the environment. This determination may be another grounds for detention and other Port State Control actions (Schrinner, 1997).

Because of the problems associated with Flag State implementation of STCW 95, US enforcement of the convention for its own and foreign flag vessels is critical to the convention's full implementation.

> "Everyone's ships come through US waters at some point. If the US Coast Guard has sufficient resources to conduct proper inspections of mariner competence and enforces STCW strictly, in cooperation with European Port State Control, enforcement of the spirit of STCW will drive up world wide consciousness" (Kincaid, personal interview, 1999).

Enforcement is where the "rubber meets the road". "Port States will be the STCW 95 keepers of the Convention" (Compton, personal interview, 1999).

People in the field working with STCW 95 at all levels, from the highest regulatory authority to the training school, company, and seafarers unions, support STCW 95 as important for advancing the quality of seamanship. STCW 95 will accomplish significant, much needed objectives. The Convention amendments:

- Establish an international minimum standard of qualifications for mariners at all levels;
- Cause the parties to put into written terms, standards and procedures needed to implement a quality standards system, which practices existed previously in a less formal fashion;
- Create a mechanism for communicating the steps and measures to give the convention "full and complete" effect to the highest authority, the Secretary General of the IMO. This communication is a major plank of the convention;
- Begin to level the playing field between countries, because parties must invest money in education and training so that their seafarers meet at least "minimum levels" of qualification;
- Modernize requirements and place responsibility on companies to ensure that their ships are properly manned with qualified persons;
- Move the shipping industry toward competence (Winbow, personal interview, 1999);
- Standardize qualifications so that those going to sea have the knowledge they need when they walk up the gangway to perform their job at sea;
- Set bars which people must cross to move up to the next higher level, from basic safety training to the highest officer/management training (Kincaid, personal interview, 1999); and
- Provide a package of overlapping controls involving certificate issuing states, Flag States (which may be different from certificate issuing states) and the shipping companies themselves.

In addition to governments having to make submissions to IMO for placement on the "White List", Flag States are required to make some form of check on foreign certificate issuing countries to ensure that they meet STCW requirements. Also, Flag States must carry out individual checks on the qualifications of foreign seafarers. All governments must maintain records of the certificates and recognition endorsements they issue. Every 5 years, governments will send to IMO independent quality standards reports of their training and certification systems. This package of controls is intended to ensure that all seafarers will be competent regardless of the country, which issued their certificates (Bennett, personal interview, 1999).

Furthermore, the Convention amendments will:

- Provide a measuring stick to be used by outside evaluators of a nation's quality standards system, which leads to a determination by a third party that a country is doing what its paper system says it is;
- Generally raise the standard for quality performance in each country. For e.g., in the US instead of multiple choice exams being available to seafarers on the Internet, the new system requires a more formalized demonstration of skills judged by a qualified examiner (Compton, personal interview, 1999); and
- Spell out what mariners do to demonstrate competency, from entry level to those officers who have already acquired sufficient competency and experience over years (Whitlow, personal communication, 1999).

As with any new treaty, there are "growing pains" and "kinks" in the system which must be resolved in order for STCW 95 to function as intended and to reach the above anticipated good goals. Several challenges emerge for the effective implementation of STCW 95. These can be grouped into five general categories:

- Uniform interpretation and application of general terms defining minimum international standards;
- Proper application of assessment criteria for measuring individual competency;
- Enforcement by those in the chain of responsibility so that there is a functioning and not just a paper quality standards system for each Flag administration on the "White List";
- Cost of compliance for the individual seafarer to meet the initial or renewal qualifications and investment by Parties to the convention such that implementation of STCW requirements places mariner countries on an equal playing field; and
- Perceived exacerbation by the Convention of an already existing shortage of qualified seafarers at the officer and managerial levels.

A sampling of comments from around the world repeats these concerns in varying degrees, with some solutions emerging. Chris Young is one of the Marine Transportation Specialists for the US Coast Guard and Chair of IMO's Sub-Committee on

Standards of Training and Watchkeeping (STW). Young views the biggest challenge of STCW 95 as being translation by the Parties of the now, very generic, wording of the Convention into specific terms.

The concerns of those in the field center upon five general areas: uniform interpretation, proper application of assessment criteria, enforcement, cost of application, and qualified seafarer shortage. These areas are discussed in the following paragraphs:

Uniform interpretation

- What will performance measures ultimately be?—For example, in the case of the requirement of being able to reckon by "celestial bodies", what skills must be demonstrated, what will be considered acceptable error? Given that much of the competency wording is broad and open to interpretation, the Parties will need to set sufficient definition in order to establish a uniform standard.
- Who will be the assessors and what qualifications will they need to demonstrate competence to assess seafarer competency, and by what set of uniform standards? Will any qualified ship's officer meet the requirements or will there be a need for specialized training?

In countries where there are not so many training institutions, as there are in the US, this may be a stumbling block to implementation. In the US several applications have been made for certification as a "designated examiner". The Coast Guard provides oversight for training and has identified four other services, including classification societies, which may exercise oversight for the required quality standards systems and approved training providers. The US Coast Guard's Merchant Marine Personnel Advisory Committee is setting up panels to address this issue. Still to be developed are standards for approved instructors, approved assessors, and the performance measures they are to use in evaluating mariners.

- Will STCW 95 create a level playing field? This answer depends upon whether or not the interpreting countries apply a moderate view of general wording or a "too relaxed" view. For e.g., rest hour provisions dealing with the all-important issue of fatigue allow for an exception of the hours worked within a 24-hour period of "overriding operational conditions" (STCW 95, Section A-VIII/1(3)). This is not a well-defined term and abuse could occur if a Party applies a lax interpretation of this term (Young, personal interview, 1999, personal communication, 1999).

Proper application of assessment criteria

Dr. William Eisenhardt, Provost of the Maine Maritime Academy, one of such maritime academies in the US, regards the STCW 95 amendments as being a reorganization of what already exists in good training academies, i.e., putting into a quality system format the good training courses which are already in place. He emphasizes similar problem areas identified by Chris Young: to what level will students in his

academy and others need to demonstrate proficiency in front of a person trained to witness their skills, based upon uniform performance criteria to assess their proficiency, and who is qualified to sign their training record books? How detailed will the assessment criteria need to be? For the classes in academies today, Eisenhardt bemoans the fact that the minimum assessment standards for licensing are still not in place and questions whether those graduating will receive their STCW 95 Certificate in the year 2002, if the current pace of development continues.

A specific problem area focuses on the successful demonstration of practical skills learned or practiced on board a dedicated training ship or on a ship engaged in trade. In the US, those teaching at maritime academies have been designated as meeting training/assessment certification. If students demonstrate successful performance on a training ship, that vessel will be facially certified (Eisenhardt, personal interview, 1999).

Dennis Compton, Assistant Dean of the US Merchant Marine Academy at King's Point suggests that the US training academies will need to change their culture and adopt a more European approach, where assessments of mariners on ships are part of the routine commercial package in order to timely meet the STCW 95 requirement of "in-service assessment of practical skills". Today, cadets are trained in schools in the US and not on a routine basis on ships. Officers in the commercial end of shipping do not undertake training as part of their daily duties. While onshore training will continue to be of paramount importance, officers on board will need to become qualified assessors and take over the duty of more formalized assessment of cadets, signing training record books and assuring that those certified are competent. Officers and instructors from State academies can help officers in the commercial side move through this expected transition period. To meet the new STCW standards, King's Point conducted a review of their entire course curriculum, rewriting it and adding a new course of 70 hours of training to meet specialized STCW standards (Compton, personal interview, 1999).

Capt. Andrew Winbow, Head of the STCW and Human Element Section of IMO, explains the international solution in this area: Time spent at sea is time spent on practical demonstration, training and practice. The successful demonstration of practical skill, learned or practiced on board, is recorded in the training record book. This record is "witnessed" or corroborated by an officer who has the necessary skills and certification to judge whether the tasks demonstrated or practiced on board were undertaken safely, effectively, and efficiently. Evidence of having done so, as shown by the record book and by other evidence such as worked examples of calculations or photographs, is subject to examination and assessment to the level necessary to demonstrate the standards of competence required by STCW. This assessment is most likely, but not necessarily, to be done ashore at training and assessment centers approved by the relevant administration (Winbow, personal interview, 1999).

Assessment of criteria

Another area of focus centers upon assessment of criteria to be used by accredited training institutions. Basic guidelines from the US Coast Guard and other governments are still lacking: who will do the assessment, what criteria must the school meet, what will the format of the assessment be, what will the visit be like, who will the reports go to? These guidelines are works in process. The job can be done, but Dr. Eisenhardt asks in what detail and at what cost (Eisenhardt, personal interview, 1999).

The US union representing seafarers, Seafarers International Union (SIU) in cooperation with union-led contractors, created the Seafarers Harry Lundeberg School of Seamanship in Piney Pt., Maryland. This is the largest training facility for non-licensed deep sea merchant seafarers and inland waterways boatmen in the US Lundberg School provides training for entry level mariners, for those already trained seeking professional advancement for career upgrade, and for academic education complementing acquisition of modern technical skills. At the Paul Hall Center for Maritime Training, the union dealt with the assessment criteria problem: courses were revised, new objectives were written, methods of practical assessment were developed, and instructors qualified to meet STCW 95 amendments (Seafarers Harry Lundeberg School Catalog, 1999). Recently, the US Coast Guard approved two courses in basic safety training, a Basic Safety Refresher Training course and a 40 Hour Basic Safety Training course as complying with STCW 95, the first such approved training courses (Seafarers Log, 1999).

Enforcement

Lt. Cdr. George Burns of the US Coast Guard views "enforcement" as the major challenge of STCW 95. For him, the primary question is whether the "flags of convenience", open registries that issue certificates without necessarily requiring a company to comply with all convention regulations, will hire "crews of convenience". Will compliance be paper only, with crewmen able to obtain STCW certification without meeting the competence required of them? The weak link in the system is first, with the company, and then the Flag State. Auditing of seamen is a national responsibility (Burns, personal interview, 1999).

An example of this problem is a proliferation of fraudulent certificates of competency or authentic certificates reportedly issued on the basis of forged foreign certificates, which were found during Port State Control inspections. According to the IMO Sub-Committee on STW, Flag Administrations may have issued certificates to officers on the basis of forged foreign certificates without examining the authenticity of the certificate itself or the basic competence of the applicant. For example, Australia reported 12 such instances of fraudulent certificates found during their Port State Control inspections as of January 1999 (IMO, 1999).

Jon Whitlow, speaking on behalf of the International Transport Worker's Federation (ITF), a democratic global organization of some 533-transport workers' unions in more than 136 countries, emphasizes this same concern. He places the major problem with implementation of STCW 95 and other international conventions upon the "Flags of Convenience". ITF characterizes Flags of Convenience as open registries, where substandard operators choose the "most suitable" registry as their flag without the existence of a true and meaningful connection between owner and flag nor even necessarily the enforcement of minimum international standards. Given the breakdown of the traditional system of loyalty between seafarer and ship owner, where a mariner may take one voyage on a companyship and never sail for that company again, Flag State oversight of companies is crucial. If the Flag State does not ensure that each seafarer whose certificate of competency it has endorsed or recognized meets the standards of competency set by STCW 95, then Port States are left to do the work necessary to determine that those on board a ship can perform as required. The Flag of Convenience system creates an uneven playing field. High caliber companies who invest in good training cannot compete with the marginal operator who shops for the right registry, employs mariners at the lowest rates, and is in turn used by a charterer who is more concerned with the least cost freight rate than with the safety of those on board or protection of the environment. ITF designates 27 Flag States as Flags of Convenience, nations which provide a register "solely as a method of earning revenue", without maritime or seafarer experience or in some cases even a functioning maritime administration. This represents an increase since the 1980s from 11 previously so identified. Until this serious weakness in the international regulatory regime is addressed, there is real concern by ITF that the objectives of STCW 95 cannot be fully met.

ITF has suggested a solution for the Flags of Convenience problem. That is to uphold international law that a genuine link exists between the Flag State and the registered ship exists. Placing IMO or qualified auditors in an oversight function where the auditor can determine that there is a Flag entity responsible for the actions of the ship and implementing international agreements will enforce the law. ITF cites supporting law in Articles 91, 94 and 217 of UNCLOS. (United Nations Convention on the Law of the Sea, see Section 1.1 of this book). In conjunction with increasing Port State intervention and detention, real linkage and IMO or other responsible entity supervision should make registries more meaningful and drive out the substandard shipper (Whitlow, 1999, personal communication, 1999).

The concerns about fraudulent certificates appear to be supported by the evidence uncovered by IMO researchers. IMO is funding a study to determine how extensive such unlawful practices associated with certificates of competency are. According to preliminary findings, "... the problem of fraudulent certification may be more extensive than initially thought". Researchers found widespread unlawful practices such as issuance by Administrations of certificates without any evidence of seafarer

competence or knowledge, forged "inhouse" or black market issued certificates, and other like problems which invalidate the intent of STCW 95 (IMO, 2000b).

Simon Bennett of the International Shipping Federation, which represents 35 national ship owners' associations, emphasizes the need for the right governmental support for the training programs in addition to the willingness of the individual mariner to invest in his/her STCW 95 qualification training. Again, in order to level the playing field, the nations need to do their part and enforce a higher level of quality in training of their mariners so that their certification means the individual meets STCW 95 standards. Worldwide, Bennett sees a leveling of pay scales between developing and developed countries, with a narrowing of the differentials. As an example, the wages of officers from India are approaching those for European officers. With equality of enforcement by the Flag Administration, the increased investment in training should continue reducing the differential in pay between signatories (Bennett, personal interview, 1999).

Cost

The issue of cost of compliance with STCW 95 amendments is a focal point for the maritime academies, the US Coast Guard, the training institutions, and particularly, for the seafarer. Greg Szczurek is a former US Coast Guard officer, member of the US delegation to IMO on STCW issues, long time teacher for Houston Marine, one of the largest training schools in the US and now their Product Development Officer. He has a close working relationship of almost 23 years with the time and money needed to train competent seafarers. In the US system there are many state and federal academies and training schools, like the federal academy at King's Point, the labor union schools operated by SIU and others, the Maine Maritime Academy, and training schools like Houston Marine. Under STCW 95, Houston Marine's mission has changed from being one of helping seamen to pass the written examination to being one of training that person to become an able seaman.

In other countries, the systems range across the spectrum:

- From the highest level of training at academies or in quasi-academy settings;
- to training institutions like Stolt Nielsen in the Philippines or company sponsored academies, with training vessels for cadets who have additional training staff on board;
- to the countries who do no more than convert licenses issued by other countries based on the assumption that the underlying license has been issued validly; and
- to the lowest standard, the "license mill" labor supply countries who simply convert licenses based upon money or the "pay money and get your license" criteria.

Using US numbers as a comparison, it is clear that the cost to the mariner to comply with STCW 95 will not be cheap, either in terms of time or money. Again, the vagaries of the current system will impact the costs. Costs will depend upon what standards the

US Coast Guard and industry eventually agree upon (with the Coast Guard imposing the standards, subject to input by industry) for differing levels of licenses. Licenses range from third mate unlimited, good around the world on any vessel of unlimited tonnage, to the lower level licenses. A unique license is being negotiated between industry and the US Coast Guard, for a restricted license for "offshore support vessels" for special purpose trade in the Gulf area.

Under the proposed curriculum for basic training, the US cost would be about $7000 to $8000. For a third mate level, the training time needed to result in an STCW 95 Certificate would be approximately 80 days at an approximate cost of $20,000 to $25,000 at a school like Houston Marine. This would require completion of 360 days at sea for a candidate in an approved program (e.g., academy cadets) or 3 years of sea time for "hawse type" marines who attend the Houston Marine type school. Training for a limited, restricted "OSV" license may require an additional 35 classroom days, over and above on-board training at a cost of $15,000 to $16,000, if this restricted license proves acceptable to the US Coast Guard. These costs do not account for the "hidden" administrative costs of record keeping by the company, nor the effort expended by the licensed candidates. Mariners who work 28 days on board, with 14 days off, will need to spend much of their time off over a period of several years to acquire sufficient training to meet STCW 95 certification requirements. This results in substantial delays in moving to higher level positions and equates to a real loss of wages for the average seafarer, moving from $75.00 per day as a seamen, to $95.00 per day as an able bodied seamen, to $145.00 per day as a mate. Multiplying the differential in rate by a delay of 6–8 or more months in reaching a higher level of certification makes the true cost to the seafarer of STCW 95 compliance substantially more than estimated.

For those who are members of a union or employees of companies willing to bear the cost of training, compliance with STCW 95 should not cause a substantial financial problem. For seafarers without these types of resources, in the US and developing countries globally, cost may become an impediment to compliance (Szczurek, personal interview, 1999).

However, there are solutions to the cost problem. Increasingly, the cost of STCW 95 training and compliance, borne by the seafarer, is handled through the trade unions in the US and worldwide, or through manning agencies. For example, in the US the Marine Engineer's Beneficial Association (MEBA) is one of the oldest maritime labor unions. The MEBA Engineering School provides quality training for licensed ship's officers. The school uses a union training fund to pay their cost so that such officers meet compliance without any additional cost. Companies support their own cadets in many parts of the world. In other nations, the manning agency provides the cost of training in return for the mariner contracting with the agency for placement (Kincaid, personal interview, 1999).

Qualified seafarer shortage

While there is considerable debate about the reasons, there appears to be agreement as to the existence of a problem: a shortage of good quality mariners in higher level positions. Of concern to the industry is whether and how much STCW 95 will exacerbate the manning problem worldwide. Will the Convention put such a strain on the labor pool of qualified seafarers, that fleets fall short of their crew complement, especially in officers at higher levels by the year 2002?

An Interim Manpower Survey conducted by the International Shipping Federation in the summer of 1998 supports these conclusions:

- The gap between supply and demand, most particularly for engineers is increasing—48% of ISF members reported an increase in demand for seafarers since 1995, with 45% reporting a decrease in national officer supply for that same time period;
- Sixty-four percent of the national associations reported a shortage of national seafarers;
- Shortages are most severe in officer grades in the engineering department and chief officers in the deck department;
- The average age of senior officers is a critical factor, with 58% reporting an increase in average age;
- The number of new officer trainees entering the industry is declining for ISF members and not increasing significantly for nation states; and
- While seafarers exist to fill the berths, 45% of members reported an insufficient number of competent and qualified ratings (ISF, 1998).

STCW 95 is not the cause of a manpower shortage. The primary causes are believed to be the increasing age of the senior officer pool, that the economy in the Western world is good and making money in a shoreside job, without the unattractive elements of long sea voyages is far easier, and that the industry is contracting with a greater number of qualified mariners coming from countries other than the traditional sources of Europe, Austral Asia, and the US (Winbow, personal interview, 1999; Kincaid, personal interview, 1999; Whitlow, 1999).

However, the impact of STCW 95 may be that it augments the perceived shortage problem. As an example, the Philippine nation is the world's largest supplier of seafarers. While this country may have in excess of 100 training institutions, only a handful of these currently comply with basic STCW training standards. With much help from Norway, the US and other countries, the Philippines is upgrading their maritime educational system. However, the seafarer output from the surviving colleges, after closure by the Philippine government of those which do not meet the standards, of qualified mariners is forecasted as being must less than in the past. The mariner pool is aging worldwide, most specifically seen in the senior officer cadre. With the expected "purging" of these and other officers under STCW 95 when their certificates are due for revalidation, the impact on the industry is uncertain. The question is where

will the captains and chief engineers come from to replace those currently in service under the old convention and system (Petersen, 1999; Compton, personal interview, 1999).

Solutions exist even to the projected manpower shortage. The Seafarers International Union in the US has continued its aggressive system of recruiting, in place since 1967. John C. Wiegman, Assistant Director of the Seafarers Harry Lundberg School, points to the success of this recruitment effort, citing a constant number of replacement younger members for retirees, increased class sizes, augmented pace of the programs, with the result that the union is a good manpower provider (Wiegman, personal interview, 1999). Internationally, the industry is directing its attention toward two "huge suppliers" of qualified seafarers, China and the former Soviet Union (Compton, personal interview, 1999; Young personal communication, 1999). In the long run, IMO believes that STCW 95 may improve the worsening shortage situation by improving the quality of "mediocre" seamen as they upgrade and by weeding out the lower end ratings surplus. Capt. Andy Winbow of IMO believes that officers successfully doing their job for years will continue to perform competently and that whatever retraining is needed for STCW compliance will enhance their performance (Winbow, personal interview, 1999). While STCW 95 may have "some impact" on seafarer availability, the exacerbation of an already existing problem should not in any way be a reason to invalidate the Convention's tough criteria for qualified seafarers (Kime, personal interview, 1999).

This catalogue of problems may be compared to a grieving process for the old way of doing things, in which industry's reaction is grouped into various stages of grieving: shock, anxiety, resentment, and anger. The end goal is acceptance. The positive approach to viewing STCW 95 is that it will make a difference, particularly if the playing field is leveled. If the Parties apply standards evenly, if each of those in the safety net enforces the requirements, and if seafarer competence improves, the result should be less accidents and cleaner oceans. By its very terms, the convention amendments have contributed positive impacts to all those involved:

- To the ship owner concerned with the true cost of shipping, a decrease in loss and safer operations;
- To Flag States for achieving more harmonized implementation among other flags;
- To Port States, for greater authority to detain non-complying vessels;
- To the public for increased prevention and true cost accounting; and
- To the seafarer for a safer work environment and increased advancement potential.

4.2.5. Intervention Convention

Coastal States affected or threatened by a marine pollution incident from an oil spill in coastal or offshore territorial or international waters may take protective action under the International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, 1969 (Intervention Convention). In force since 1975, the

Intervention Convention was extended by the Protocol of 1973 to other substances, such as noxious substances, liquefied gasses and radioactive substances. As of 1999, 72 governments, or 66% of world tonnage, are signatories to this Convention (IMO, 1999a).

The purpose of the Intervention Convention is to recognize that measures of an exceptional character on the "high seas" might be necessary to protect a country's coastline and related interests from major harmful consequences of a maritime casualty. The standard for taking action is "a threat of grave and imminent danger to the marine environment or related coastal interests". This standard is regarded by some as a strict standard, requiring a high degree of danger (Williams, 1998). Right of action extends beyond a territorial sea. For the purpose of the Intervention Convention, the term "high seas" includes the Exclusive Economic Zone (EEZ). The treaty gives coastal states the right to take action to "prevent, mitigate or eliminate grave and imminent danger to their coastline or related interest from pollution or threat of pollution ... following a maritime casualty" (Intervention Convention). A coastal State can either attempt to persuade the captain or ship owner to take such action as is necessary to prevent an accident, such as towing the vessel safely to harbor or elsewhere, or the State may take such direct action as may be appropriate under the circumstances. Activity by the State may include boarding a ship, imposing preventive measures, which the captain must comply with, and salvaging or even sinking the vessel.

Under the International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978, (MARPOL 73/78), a ship has an obligation to contact the nearest State and inform that administration of an incident or threat of an incident (Art. I, Protocol I). In the US, under the Federal Clean Water Act (33 USC Section 1321 (b)(5)), there is an obligation to "immediately notify" the appropriate agency of the United States government of any discharge prohibited by the statute (in a harmful quantity). Failure to notify is a criminal offense (See Section 4.3.7 of this book). Such advance notice, or information gained by the State's own radar or other preventive systems, allows the coastal State to prevent what might otherwise be a serious spill. States subject to the "passing ship syndrome" where ships from foreign Flags use the waters in or near the State as a means of passage, view the Intervention Convention as another measure of control by the Port State over potentially damaging oil spills.

An example of the right of a coastal nation to exercise its rights under the Intervention Convention occurred when the Prefet Maritime, (the French authority, that was established to exercise the right to protect the three coasts of metropolitan France from threats from ships) acted to protect its waters from a potential, serious oil spill. When an Iranian tanker laden with 200,000 tons of oil, lost its propulsion in mid-channel near Cherbourg, while bound for Rotterdam. The tanker wanted to proceed through the narrow Straits of Dover, no more than a mile wide, by tug power. The French authorities refused to allow such a passage, believing that a towing operation

in the limited passage with dense traffic would pose a serious danger of a potential incident. The ship was required to proceed to a deep draft harbor, where its product was lightered from the ship's hold to a waiting vessel, at the expense of the ship owner (Levy, 1995).

The US is a party to the Intervention Convention, and has enacted its own implementing national legislation (33 USC 1471, et seq.) from spills for oil or hazardous substances. There is a complex interface between OPA 90 and the Intervention Convention. OPA 90 is silent as to the procedures to use when "intervening" beyond the territorial sea and on following the consultation requirements of the Intervention Convention and Intervention Act (33 USC 1475). The US Coast Guard is the designated legal authority to intervene and to take the steps necessary to protect US interests in a ship related pollution incident on the high seas and in navigable waters. The US Coast Guard Marine Safety Manual (Vol. 9, Ch. 5.A.7.b [High Seas] and 5.A.7.c [US Waters and Territorial Seas]) sets the procedures for taking action (Williams, personal communication, 1999).

The operative conditions for intervention to occur are stated in the Intervention Convention, Article I: "Parties to the present Convention may take such measures on the high seas as may be necessary to prevent, mitigate or eliminate grave and imminent danger to their coastline or related interests from pollution or threat of pollution of the sea by oil, following upon a maritime casualty or acts related to such a casualty, which may reasonably be expected to result in major harmful circumstances. In circumstances of grave, imminent danger, if the ship master or owner takes no action or takes unsatisfactory action, the US Coast Guard will intervene to eliminate the threat, will avoid unnecessary interference, and will cease intervention as soon as the threat is eliminated or mitigated. Consultation with the Flag State of the ship involved and others will take place as much as possible before an actual intervention is conducted" (Williams, personal interview, 1998, personal communication, 1999).

Internationally, use of the Intervention Convention may be the ultimate way for a coastal State to protect and control its own waters, even from "passing ships" where there is an actual or threatened incident of pollution from oil and other substances (IMO, 1999a; Levy, 1995).

4.3. US and International Regulations; and the Courts

4.3.1. OPA 90 (Reproduced in Appendix II)

In the US, the *Exxon Valdez* oil spill led to the development of the Oil Pollution Act of 1990 which is commonly referred to as OPA 90. OPA 90 introduced concepts of innovative protection for US waters from oil pollution, enforcement mechanisms, including a national response system to prevent spills, and insistence upon the concept that "the polluter pays" not only for the actual costs of a clean-up, but also for damage

to the public's natural resources. For many years during IMO meetings, the US lobbied, without success, for increased coverage of damages and greater compensation to be paid under the 1969 International Convention on Civil Liability for Oil Pollution Damage (the 1969 Civil Liability Convention) and the 1971 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (1971 Fund Convention). (See Section 4.3.3 of this book for a discussion of these Conventions.)

After the *Exxon Valdez* spill, Congress determined that it was in the best interests of the US to protect its marine environment through passage of its own legislation. The US enacted OPA 90, which provided for strict liability for the polluter, increased defenses to limits of liability, increased scope of coverage for natural resources damaged, and safeguarded the national system from international preemption of federal and state law. Many in the global community regard this action on the part of the US as a direct rejection of the international system of oil spill coverage and control (Holt, 1995; Olney, 1999).

OPA 90, found in Pub. L. 101-380, 18 August 1990, (33 USC Section 2701 *et seq*.) consists of nine Titles. Title III pays lip service to the concept of international comity. Title III provides for adoption and implementation of international conventions relating to liability and compensation, so long as their provisions are "at least as effective as Federal and State laws in preventing incidents and in guaranteeing full and prompt compensation for damages resulting from incidents" (Section 3001). Titles II, VI, and IX deal with technical and conforming amendments to other laws. Title V contains specific provisions relating to prevention and removal of oil spilled into Prince William Sound, Alaska. Title VII establishes an Oil Pollution Research and Development Program, which has been problematical in terms of funding actual research. Title VIII repeals the Trans-Alaska Pipeline System Authorization Act, retaining the Trans-Alaska Pipeline Liability fund only until resolution of remaining claims from the *American Trader* spill.

The uniqueness (or difference) in OPA 90 is found in Titles I and IV. Title I focuses upon the financial elements of the Act: establishes strict liability for oil spills, enumerates the type of damages covered, outlines defenses to liability and limits of the responsible party for damages, sets forth the actions which negate those limits, authorizes access to the $1 billion Oil Spill Liability Trust Fund (previously established in 1986) as the overall funding source, and requires ship owners to demonstrate financial responsibility in order to trade in US waters. Title IV covers all aspects associated with prevention and removal of oil: establishes the Federal government as the authority for directing and managing spill response, requires vessel and facility response plans for worst-case discharges for a vessel and largest foreseeable discharges for a facility, in adverse weather conditions, deals with drug and alcohol use of mariners, licensing and revocation of mariner licenses, details of navigation, such as vessel traffic systems, monitoring devices for tank levels, and tank vessel construction standards, and provides for a double-hull phased replacement of single-hull oil tankers and barges.

Additionally, Title IV contains the civil and criminal penalties for oil polluter of US waters (Olney, 1999).

The US is becoming increasingly the largest importer of oil in the world, importing at least 56% of the 18.7 million barrels of oil consumed by Americans per day for transportation, heating, power for industry, and production of the more than 3000 daily products used by consumers (Moore, 1999). As such, the US is a major player in the Port State control arena. The definition of jurisdiction of its waters is important in its effect upon foreign flag vessels trading in oil to the US. Territorial jurisdiction under OPA 90 covers a discharge of oil in the navigable waters of the US, "beginning with marshes and extending seaward 12 miles to the limits of the territorial seas", and in the exclusive economic zone, which area extends seaward 200 miles. The US waters protected are the continental US and American Samoa, the Marianas, Guam, the US Virgin Islands and Puerto Rico (Olney, 1999; Etkin, 1998). (See also Section 4.2.5 of this book for discussion of jurisdiction under the Intervention Convention.)

OPA 90 goals can be grouped into four intended outcomes:

- Reduce the number of vessel casualties;
- Reduce the number of oil spills;
- Reduce the quantity of oil spilled; and
- Increase response effectiveness.

These four "outcomes" can be used to classify the forty-one or more rule makings developed by the federal agencies charged with regulation and policy guidance in response to OPA 90. The agencies responsible for various parts of implementation of OPA 90 include the US Coast Guard, the Environmental Protection Agency, National Oceanic and Atmospheric Administration and the Department of Transportation's Research and Special Program Administration—Office of Pipeline Safety. The cost of compliance with these regulations has been expensive for industry, in the realm of nearly $17 billion since 1990 (API, 1999). API (the American Petroleum Institute) is the national trade association representing over 400 American companies involved in all aspects of the petroleum industry. Indications are that the benefits of compliance justify these costs. Fewer accidents and spills of a substantial nature save companies significant money (API, 1999). According to another source, enforcement by the US Coast Guard of just 11 principal OPA 90 regulations will cost approximately $11 billion, including the double-hull vessel response plan, and certification of financial responsibility requirements. (See LloydsList website: www.LloydsList.com, 5/21/2001.)

Other sections in this book discuss many of the provisions of OPA 90. The following is a listing of key sections of the book related to OPA 90 for ease of reference:

- Liability and Definitions of Oil covered, other definitions—4.3.3;
- Limits and defenses—2.2 and 4.3.3;
- Response—vessel response plans—2.2 and 2.3;
- National Response system and contingency planning—2.2 and 2.3;

- Natural Resource Damages—4.3.2;
- Oil Spill Liability Trust Fund—4.3.5; and
- Certificates of Financial Responsibility—4.3.5.

The liability and compensation scheme, discussed in much greater length in the sections referenced above, is summarized as follows: Under OPA 90, a party who spills oil or threatens harm from a potential spill of oil is *strictly liable* for damages enumerated under the provisions of the Act. "Strict liability is a legal doctrine which imposes on a person who engages in a particular activity the responsibility for compensating others for the harm he causes, regardless of fault" (Olney, 1999). A responsible party, or spiller, is liable for damages for the direct costs, such as clean-up and removal of the oil, and compensatory damages, which include among others, harm to natural resources. There are four defenses available to the Responsible Party to avoid strict liability for the covered damages. Three are complete defenses to liability because the circumstances are beyond the spiller's control: an act of God, an act of war, an act of a third party not an agent, employee or contractor hired by the responsible party. The fourth defense may be asserted against claimants. The Responsible Party can defend against a third party claim if the claimant caused the spill.

Even when the polluter has the right to assert these four defenses, specified activity on his part may negate their use. The responsible party must fulfil his OPA 90 obligations in order to assert these defenses. If the spiller fails to report the spill, to cooperate in the removal of the oil spilled, or to comply with official removal orders, then the defenses may be lost (33 USC Section 2703).

The limits of liability depend upon the size and type of the vessel or facility involved:

- Tankers greater than 3000 gross tons limit liability to the greater of $1200 per gross ton or $10 million;
- Under 3000 gross tons, tankers limit liability to the greater of $1200 per gross ton or $2 million;
- Other than tank vessels, the greater of $600 per gross ton or $500,000;
- Offshore facilities, (except deep water ports) $75 million plus all removal costs; and
- Onshore facilities and deepwater ports limit liability to $350 million (33 USC Section 2704).

OPA 90 does not preempt state law. States may impose different limits of liability, assess fines and punishment in varying amounts, and set requirements relating to the prevention, clean-up, and compensation for such spills (Section 1018, 33 USC Section 2718).

The Oil Spill Liability Trust Fund (The Fund), accessed through authorization of OPA 90, is funded by a 5% barrel tax on all oil movements. The Treasury Department suspended that tax at the end of July 1993, reinstated it again in July 1994, and then

discontinued it again in December 1994. In the event that the responsible party cannot satisfy OPA 90 claims, then the Fund can make payments, up to $1 billion per incident, of which only $500,000 can be paid to satisfy natural resource damages (Section 1012, 33 USC Section 2712).

Liability exists "(n)ot withstanding any other provision of law". This phrase means that a vessel owner cannot limit his liability to the value of the vessel and its freight, as provided under the Limitation of Liability Act, but rather, the ship owner/operator is subject to the limits of OPA 90 (Etkin 1998, and Olney, 1999).

OPA 90 is an important motivator to shift ship owners/operators into the safety culture era. According to Admiral William Kime, (former Commandant of the US Coast Guard and now a CEO and Vice President of a major shipping company and member of the executive committee of the largest shipper trade association, BIMCO), real changes are occurring at all levels. The leaders of the oil transportation industry are requiring incorporation of a safety culture into the business of shipping not only in messages delivered to the public, but also behind closed doors at association deliberations on policy and at all levels of mariner activity on board ships. Safety is being actively adopted because the public demands it, because it is good for business and out of fear of the repercussions if companies do not move into a true safety management mode. OPA 90 provides the framework and the legal underpinning behind the shift from evasion and compliance cultures to the safer way of doing business (Kime, personal interview, 1999).

Thomas Allegretti, President of the American Waterway Operators praises the impact of OPA 90 as a great protector of the marine environment. He thinks "it had the intended effect of putting people on notice that, if they wanted to operate their company into the next century and be profitable, they had better get with the program. Also, it has had the effect of pushing some operators to get out of the business who simply weren't willing to incorporate the protections that the law required. So as a result of that, some companies have folded up, sold their assets and gotten out; taken their money and done something with it that's not related to marine transportation anymore. I think that's been positive as well" (Allegretti, personal interview, 1999).

Thomas R. Moore, President of Chevron Shipping Company, on behalf of INTERTANKO and the American Petroleum Institute, in his testimony before Subcommittees of the US House of Representatives praises OPA 90 for its positive impact in several areas:

- **Double hulls:** OPA 90 requires that new tank vessels of 5000 gross tons or greater must be double hulled, unless they are used only to respond to oil spills. All new tank vessels are to be double hulled. For existing vessels, there is a phase out schedule which began in 1995 and runs until 2015. The schedule retires the older and larger vessels first (Section 4115; 46 USC Section 3703(a)). The US Coast Guard published regulations defining the term "double hull", specifically rejecting design alternatives to true double-hull construction (60 Fed. Reg. 13,318, [10

March 11995]). As of 2015, existing vessels of less than 5000 gross tons, and certain other classes of vessels must be fully double hulled (Olney, 1993).

Mr. Moore regards the double-hull provision alone as having a "significant impact on the industry". The greatest risk of accidents occurs when a vessel enters port, traveling at low speeds in constrained waters. For this potential low energy incident, the double-hull requirement "... is a prudent measure that has reduced the risk of an oil spill at this most critical portion of any voyage". The phased approach works, moving older vessels out of service and new ones into existence in "an orderly fashion". Because of the scheduled phase out, "... shipyards are fully capable of handling this transition and the energy supply chain has not been disrupted ..." (Moore, 1999).

- **Manning standards:** OPA 90 limits the hours a crew member can work. On self-propelled tank vessels, officers and crew members may not work more than 15 hours in any 24-hour period, nor more than 36 hours in any 72-hour period, except in an emergency or drill (Section 4114(b), amending 46 USC Section 8104). Since human error accounts for more than 80% of all incidents and fatigue is a major source of accidents at sea, (see Section 1.4 of this book for discussion), this provision of OPA 90 "has not only reduced the potential for an accident, but has provided a common standard for the industry" (Moore, 1999). STCW 95 addresses the question of fatigue and the human element considerations in its limitations on work hours and manning requirements as well. (For further discussion see Section 4.2.3 of this book.)
- **Spill response capability:** The provisions of Title IV have changed the face of oil spill response in the US, moving response ability from limited quantity and geographic positioning of resources into a modern system of significant volume of spill response clean-up equipment, geographically well situated, used according to good planning standards. "The planning standards *and* the requirement for all vessels to have a pre-approved spill response plan, *with* cited, approved contractors is *very good*. So is the requirement for a named available *Qualified Individual* that has the authority to execute these response plans" (Moore, 1999, emphasis added).

Even in the face of such positive endorsement, there are certain problem areas created by OPA 90 provisions, which are the subject of current discussion and concern in the shipping industry. These "hot topics" may well shape, and in some cases, may hinder the development of the safety culture.

- **Double Hulls:** After a comment period, the US Coast Guard affirmed its intention to hold vessel owners to the OPA 90 phase out schedule and found that changing the hull configuration of a single-hull vessel to a single hull with double sides or a double bottom will not change the original phase out scheduled (64 F.R. 19,575, [21 April 1999]).

  While the international community adopted a similar requirement in MAR-

POL 73/78, that convention does provide for an acceptable alternative to double hulls, such as the "mid-deck" design. However, the US is clear that regardless of the international convention provision, for those ships transporting the 75% of oil imported into the US, only double hulls will be allowed into US ports. One author believes that this unilateral position of the US has increased the risk of oil spills from older tankers, which will not be retrofitted between now and the year 2015 due to the high cost of double hulling (Holt, 1995).

In the wake of the 1999 *Erika* oil spill, on accelerated phase-out period for single-hull tankers under MARPOL 73/78 has been approved by the IMO Marine Environment Protection Committee (MEPC) with a proposed revised regulation 13G of MARPOL in April 2001. The proposed schedule will be more in line with the US scheme (IMO, 2000g).

- **Pre-emption:** Under the savings clauses of OPA 90, so long as the laws are consistent with the federal scheme of regulation, federal law does not preempt state law. State and local governments can impose liability and financial requirements, as well as regulating ship operation based on the peculiarities of local waters for "special precautionary measures" in addition to and different from those provided for by the federal Act (Section 1018, 33 USC Section 2718). This doctrine has been the subject of recent legislation in a case filed in the federal court system in the State of Washington, commonly referred to as the INTERTANKO case (*The International Ass'n of Indep. Tanker Owners (INTERTANKO) v. Lowry*, 947 F. Supp. 1484 (W.D. Wa. 1996), *aff'd in part, rev'd in part, and remanded sub nom. International Ass'n of Indep. Tanker Owners v. Locke*, 148 F. 3d 1053 (9th Cir. 1998). The Ninth Circuit Court of Appeals held that states may issue operational requirements, which exceed federal requirements. Design requirements (for example, over such matters as emergency towing packages and navigational equipment requirements), are subject to federal control over vessel design and construction standards.

  INTERTANKO and the US Department of Justice requested review of this decision by the US Supreme Court. On 6 March 2000, the US Supreme Court issued its opinion. The findings in the decision will impact significantly the rights of States to impose stricter or different requirements from those set forth in relevant federal statutes. While recognizing that states are not preempted from enacting their own pollution regulations under OPA 90, the US Supreme Court identified the strict conditions under which a state may do so where a federal interest has been manifest under OPA 90, and other federal acts. (See Section 4.3.7 of this book for further legislative discussion.) Where these federal acts or US Coast Guard regulations promulgated under these acts exist, the savings clauses of OPA 90 are preempted by the federal regulations. Only the federal government may regulate "the design, construction, alteration, repair, maintenance, operation, equipping, personnel qualifications and manning of tankers". The Court struck down four of Washington State's regulations and remanded the balance for review

by the court (*United States v. Locke* (98-1701, 98-1706), 148 F. 3d 1053, rev'd and remanded, US Mar. 6, 2000).

The impact of this decision may be to cause a full review of other states' regulatory statutes regarding the oil tanker trade. Eighteen States have adopted "mini-OPAs" to avoid what one observer terms a "patchwork" of regimes, a proliferation of regulations by coastal states which undermine the uniform set of standards, rules and plans instituted by OPA 90 and implemented by the US Coast Guard regulations. The secondary impact of this decision is to promote in those adopting the safety culture, such as the organization of independent ship owners, INTERTANKO, more cooperation with the relevant Federal governmental agencies. This cooperation is needed to ensure that there is proper funding and support in place so that programs and tools designed to promote safety and environmental protection can work (Ringbakken, personal interview, 2000). Sahatjian (2001) suggests that this and subsequent US Supreme Court decisions "... send a strong message in support of the federal government's exclusive authority in the area of foreign relations ...", limiting US States' rights and powers to areas where traditionally States have the power and are not in conflict with international obligations of the US.

While the Supreme Court did not address the impact of state regulations on international treaties and the international regimes in place, this decision may have a "chilling effect" upon attempts by, for example, the European Union, to impose stricter requirements on oil tankers than those called for under the international treaties in place. For example, in its recent Communication, the European Commission outlined measures it may seek to enforce directly within its Member State territories. Certain of the directives sought may impinge upon requirements already covered under MARPOL 73/78 and other international treaties. Rather than taking unilateral action, the European Communities (Member States) may be required to proceed through IMO channels to amend or revise current international treaties (Commission of the European Communities, 2000).

- **US Coast Guard Increased Role without Funding/Support:** The US Coast Guard functions in at least two capacities under OPA 90 and the international conventions to which the US is a contracting party: as a Flag State and as a Port State. OPA 90 provisions impose upon the US Coast Guard increasing demands for implementation and enforcement at a time during which the authority's funding and personnel power are decreasing. Unrealistic resource allocation may impact the ability of the US Coast Guard to discharge its significant obligations (du Moulin, 1998).
- **Concursus:** OPA 90 introduced a new concept, that claims resulting from an oil spill would not be subject to the Limitation of Liability Act of 1851, (46 USC Section 181) but rather that potential claimants could litigate claims in various jurisdictions, under state and federal law. This was a change in previous maritime law. Prior to OPA 90, the vessel owner could consolidate all claims arising from

a single incident into one court proceeding, in a consolidation action called *concursus*, the concurrence or gathering together of claims into one lawsuit.

Under OPA 90, in the event of a large spill, a vessel owner or responsible party may be called upon to defend claims in numerous federal and state courts. An insurer will only pay compensation up to the limits of its liability, leaving claimants in a position of the first to judgment possibly being the only one to receive compensation for injuries, unless the responsible party loses his right to limit the claims. For the public, multiple suits mean a "race to the courthouse", legal expense, time and effort of all lawyers on all sides of the issue, including trustees, which money might better be spent upon restoration of the damaged natural resource. This is a sorely contested issue for the shipping industry. Industry argues that the lack of concursus goes to the heart of OPA 90 with its limits of liability. Without concursus, they assert that the OPA 90 cap is "illusory" (AWO, 1998a; McCormack, 1999, personal interview; Hobbie, personal interview, 1999; Kime, personal interview, 1999).

Concerns regarding criminal aspects of OPA 90 are discussed in Sections 4.3.7 and 4.3.8 of this book.

In the final analysis, many believe that OPA 90 is working. OPA 90 impacts international shipping in its provisions worldwide: due to the developing body of law and to the activity of those involved in the chain of responsibility, from the regulators to industry, to the International Maritime Organization. The rate of large spills (over 5000 barrels) from the tanker industry is dropping: from 24.2 spills per year in the 1970s, to 8.9 spills per year in the 1980s, to 7.8 spills per year in the 1990s. In the United States, the post-OPA 90 spill rate is substantially lower. There have been no large spills from tankers in the US since 1991 and the incident rate is 0.5 spills per year. OPA 90 is considered "an overwhelming success" (Moore, 1999; API, 1999).

4.3.2. Natural Resource Damage Assessment

The use of OPA 90s civil remedies for damages to natural resources from oil spills has become well settled US law. OPA 90 provides recovery for:

- Restoration costs—the cost of restoring, rehabilitating, replacing, or acquiring the equivalent of, the damaged natural resources;
- The diminution in value of those natural resources pending restoration; and
- The reasonable cost of assessing those damages (Section 1006(d), 33 USC Section 2706(d)).

All recovered damages are used to restore, replace, and rehabilitate the injured natural resources or to acquire equivalency of the resources injured, and to pay the costs of environmental assessments.

OPA 90 designated the National Oceanic and Atmospheric Administration, US Department of Commerce (NOAA) as the natural resource trustee responsible for de-

veloping methods for assessing environmental damages and procedures for restoring natural resources affected by an oil spill. The resulting Natural Resource Damage Assessment (NRDA) Final Rule (61 Fed. Reg. 440, 5 January 1996, as codified at 15 C.F.R. Part 990 (1998)), has survived attack in the US courts (*General Electric Co. v. US Dept. of Commerce*, 128 F. 3d 767 (D.C. Cir. 1997)).*

The goal of NRDA is to return natural resources and their multifunctional uses to their baseline, pre-spill condition while compensating the public for the losses occurring in the interim period, from spill incident until restoration is complete. Baseline refers to "the condition of natural resources and services that would have existed had the incident not occurred" (NOAA, 1997a). Focus is not on the monetary value of injured resources, but rather it is upon the actual cost of restoring those impacted resources to baseline (Burlington, 1999).

NRDA has these three phases:

- *Preassessment*—during which the trustees (NOAA, other departments of the US government, states and tribal nations designated under OPA 90) determine if they have jurisdiction to proceed and if they should proceed, i.e., Resources have been injured under OPA 90 and feasible restoration alternatives exist to address these injuries;
- *Restoration planning*—during which the trustees evaluate the injuries to natural resources and services and using that information, determine the need for and scale of restoration actions. This phase involves injury assessment and restoration planning. It provides the link between injury and restoration; and
- *Restoration implementation*—during which the Draft Restoration Plan created during the second Phase becomes a Final Restoration Plan, is presented to the Responsible Party for funding, or becomes the basis for a claim for civil damages in federal court or for appropriation from the Oil Spill Liability Trust Fund (NOAA, 1997a).

Injury assessment determines the nature and extent of the injuries and provides a technical basis for evaluating the need for and scale of restoration actions. The inquiry at this stage decides if there was injury, defined as "an observable or measurable adverse change in a natural resource or impairment of a natural resource service. Injury may occur directly or indirectly to a natural resource and/or service. Injury incorporates the term's destruction, loss, and loss of use. Baseline studies are used, when available, to quantify the degree and extent of the injuries by comparing pre- and post spill conditions, and to estimate the time until the resource returns to pre-spill condition.

For example, in the 19 January 1996 *North Cape* spill off the coast of Rhode Island, trustees determined during the Restoration Planning phase that there was significant injury, that restoration actions were needed to repair the environment, and that they

* See 66 FR 39264 7/31/2001 for proposed amendments to NRDA as a result of clarifications sought by the US Circuit Court.

By Etta Hulme, *Fort Worth Star Telegram*, reprinted in The *Marin Independent Journal*, April 14, 1989.

could quantify and assess the effects of the 828,000 gallons of fuel oil on the natural resources or services, … "such as the mortalities of both flora and fauna, the oiling of the beaches, and the loss of use of public areas" (O'Connor and Mayer, 1998).

In quantifying injury under NRDA, trustees may use any reasonable assessment procedure appropriate for assessing restoration needs for the specific incident, so long as the method is "reliable and valid" and cost-effective for the incident. An injury assessment must meet Final Rule standards by:

- Providing assessment information of use in determining the type and scale of restoration appropriate for particular injury;
- Relating reasonable additional cost to expected increase in quantity and/or quality of information for a procedure which is more complex; and
- Being reliable and valid based on technical judgments of experts in a particular field consistent with best technical practices (Burlington, 1999).

Models may be considered under NOAA's rule. These include Department of Interior's Natural Resources Damage Assessment Model for Coastal and Marine Environments, compensation formulas and procedures based on field methods, laboratory methods, literature-based procedures or combinations of these (Burlington, 1999).

Once injury assessment is complete, the trustees develop a restoration plan. Selection of the restoration alternative is the next area of focus. The trustees must "identify a reasonable range of restoration alternatives, evaluate and select the preferred al-

ternative(s), and develop a Draft and Final Restoration Plan". Under the Final Rule, restoration actions are either *primary* or *compensatory. Primary restoration* actions are taken to return the injured resources to their pre-spill state, on an accelerated time frame. Natural recovery without human intervention is an option to be considered along with other alternatives. *Compensatory restoration* actions are taken to make the environment and public whole for the resources and/or services lost from the date of the incident until *primary restoration* is complete (NOAA, 1997a).

To ensure that a restoration plan addresses all injuries, trustees must scale the restoration actions appropriately. The rule is incident based. Trustees may use one or more of several approaches, depending on the actual needs of the incident. Where actions can provide natural resources and/or services of the same type, quality and value as those lost, trustees may use a *resource-to-resource* or *service-to-service* approach. The concept behind this approach to scale is to produce an equivalent quantity of natural resources or services lost due to the injury. The implicit assumption is that the public will accept a one-to-one trade-off between a unit of lost habit services and a unit of restoration project services. "The trade-off is not for resources, but for units of services a restoration project provides". Exact replication is not required, nor expected. Equivalency is the goal (NOAA, 1997a, b).

NOAA's multidisciplinary team of experts value natural resources in the broadest sense, as ... "natural assets, which provide services through time to other natural resources and humans". Specifically, the term *natural resources* "means land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources, belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States" (NOAA, 1997a). In the *North Cape* spill restoration alternatives of the resource-to-resource or service-to-service approach included for lost lobsters, for example, hatchery stocking, habitat enhancement creations, transplanting of juveniles, and creation of a lobster sanctuary (O'Connor and Mayer, 1998).

Trustees may use the *valuation* approach when impaired and replacement services are of a different type, quality and/or value, where the one-to-one trade-off is inappropriate. Under this approach, trustees calculate the value of the services lost, the value of the services to be gained by the proposed action, and then scale the restoration so that these values equal each other. The trustees determine what *compensatory restoration* is necessary to compensate the public for the interim losses and the Responsible Party becomes liable for the cost of implementing that restoration action. This approach relies upon the concept that "lost value can be determined using one of a variety of possible units of exchange, including units of natural resource services or dollars" (NOAA, 1997a; Burlington, 1999).

Current NOAA Trustee practice is to use a method for scaling the size of compensatory restoration projects called *Habitat Equivalency Analysis* (HEA) in between 50% to 80% of cases under OPA 90 (Tomasi, 1999). HEA answers the question of what scale of compensatory restoration action will compensate for the interim loss of natural resources injured and their services from the time of the incident until

full recovery of these resources. The restoration process moves through an orderly analysis: Trustees determine and quantify the injury, develop restoration alternatives, both primary and compensatory, scale these, and select the preferred alternative. HEA comes into play during the scaling of the alternatives. The goal of HEA is to ensure that present discounted value of project gains equals present discounted value of interim losses". In other words, restoration alternatives must be of the same type and quality of services and comparable value as those lost. Scaling helps determine the size of the project to reach this one-to-one trade-off.

Necessary conditions for use of HEA are that:

- "... a common metric can be defined for services that captures any significant differences in the quantities and qualities of services provided by injury and replacement habitats; and
- the changes in resources and services (due to the injury and the replacement project) are sufficiently small that the value per unit of service is independent of the changes in services levels".

What these preconditions involve is an assessment of *on-site characteristics* (such as stem density, canopy coverage, fish density), i.e., the capacity of the ecosystem to provide services on site to humans and other resources and the *landscape context*, the opportunity of the project to supply these services off-site (NOAA 1997b).

A case in which NOAA litigated the use of HEA in the Florida Keys Sanctuary is instructive about how this scaling approach may be used in resolving future compensatory restoration alternatives. In the case of *US v. Melvin A. Fisher, et. al.,* 977 F. Supp. 1193 (US Dist. Ct. SD, FLA, 1997), NOAA proposed the use of the HEA methodology and obtained a restoration award of $351,648.00 to implement an alternative restoration project for 1.55 acres of seagrass habitat, of $211.130.00 for assessment and response costs, and of $26,533.00 in interest. The case involved damage caused by treasure hunters creating holes, "blow-holes" in the seagrass in the National Marine Sanctuary of the Florida Keys, protected under the Florida Keys National Marine Sanctuary Act. Because of the high-energy area of the damaged site, experts determined that the seagrass original habitat would not recover for 50–100 years. In order to compensate for the loss of resources during that time, NOAA determined that a viable off-site restoration project would be transplanting seagrass into a no-motor zone boat impacted area. The Judge upheld the use of HEA as an appropriate assessment methodology, found that the proposed project of 1.55 acres of seagrass habitat was similar in scale to the interim loss and entered the damage award for conducting the project, the assessment, the post-project monitoring, and interest. In a more recent case, a Federal Magistrate approved HEA methodology, finding it to be a mathematical equation that works, subjected to peer review and accepted for publication. In this case, HEA was used to measure damage to seagrass and convert that measure into equivalent resources (*US vs. Great Lakes, Dredge & Dock Co.* 97-2510-CIV-DAVIS, 97-10075-CIV-DAVIS [SD FLA]).

While HEA is the preferred methodology, this assessment process, like everything involving NRDA, draws criticism from industry. A team of consultants from ENTRIX, Inc. in Delaware argues against blind adoption of HEA and instead urges a more time-oriented approach, which places compensation projects along a continuum, instead of looking only at the beginning and endpoints as does HEA. Under an Augmented HEA approach, the critics allege that the trustees should consider other restoration alternatives, including low-cost restoration measures and out-of-kind restoration options. The augmented approach could lead to better success in terms of services provided (Tomasi et al., 1999).

Regardless of which methodology is used, since the goal of OPA 90 is to make the public whole, NOAA evaluates natural resources in broad terms, considering how the oil spill interrupts the flow of ecological and human services to people. Wetlands, for example, serve specific ecological functions, such as sediment trapping, shoreline stabilization, fisheries production, waterfowl habitat, biodiversity, carbon cycling, natural open space, all of which create an indirect benefit to humans. In addition, they are a source of human recreation, commercial use such as fishing, historical or cultural use, scientific use such as pharmaceutical, health such as cleaning water and air, providing both direct on site and off site benefits to mankind. On yet another and more controversial level, wetlands have a passive use value, independent of their direct use, for their own sake or as bequests to future generations (NOAA, 1997a).

Only if the resource-to-resource or service-to-service approach to scaling restoration actions is not appropriate may trustees use Contingent Valuation or another valuation methodology. The Contingent Valuation Method is a survey-based approach to determine what the public is willing to pay to preserve the existence of a natural resource, or is willing to accept as compensation if the resource is damaged. Value derived includes the value an individual receives from knowing that the resource will be available for future generations. An assessor establishes a pool of people affected by injury to the resource, tries to select a representative sample of people from that pool, determines through an interview process the average value they are willing to pay to prevent the damage, then multiplies that average by the total population in the affected pool. The end-product, as a specified amount of damage, can be used to scale a restoration project (Barbier, 1996; NOAA 1997a; Olney, 1999). In brief, the international view of the compensatory restoration process is that it is "unreasonable". (For further discussion see Section 4.3.3 of this book.)

Under OPA 90, the responsible party is required to pay all costs, including NRDA costs. There is another source of funding, for emergency response and for damage claims not compensated by the responsible party. This source is the Oil Spill Liability Trust Fund (OSLTF). (See Section 4.3.5 of this book for further discussion of the OSLTF.) Until recently, the OSLTF could not be used to pay damage claims for natural resources, without US Congressional appropriation. In November 1997, the Office of Legal Counsel of the Department of Justice issued an opinion allowing for direct payment of NRDA claims from the OSLTF. The scheme and process for adjudicating

and then administering such claims is in the works. This change will have significant impact on processing future NDRDA claims (USCG, 1998).

An appreciation of the NRDA system and the damages generated from the new rule's application should lead ship owners and industry to some basic conclusions:

- Prevention is the key. Keeping oil out of the water, by adopting a safety culture, avoids the process, which is a process best avoided. OPA 90 is working. NRDA costs and the evaluation of natural resources make people in the shipping industry more careful (Burlington, personal interview, 1999);
- Be ready for spills, use best response, and appropriate, scientifically-based technology to contain the source and effectively clean-up the oil. Maximum protection of affected natural resources in the first place limits the interim loss to the public and accelerates returning the resources to their pre-spill condition. Compensatory restoration costs decrease;
- Implement prudent risk management. This means less interim time between incident and restoration and less involvement in uncontrollable unknowns involved in compensatory restoration models and valuation; and
- Involve Trustees at the beginning of the process. Incorporation into response of the long-term environmental impact approach as opposed to a more short-term, militaristic view of containment and immediate protection will benefit the environment in the longer run and most likely, cost the responsible party less (Burlington, personal interview, 1999).

NOAA states clearly its belief that NRDA not only restores injured resources under the "polluter pays" principle, but that NRDA also provides an incentive for the private sector to prevent injury. A small investment of public funds yields big results, over $200 million in settlements with responsible parties since 1990 (exclusive of *Exxon Valdez* funds) (NOAA, 1998). While critics question the numbers, according to a NOAA study, NRDA has composed no more than 25% of the total costs of a major oil spill incident. Nor is NRDA a part of every oil spill incident. Trustees conduct damage assessments in less than 1% of all cases (Helton et al., 1997).

There are many opponents to the use of NRDA, with the international community voicing the most vocal objections. As will be seen in the following section, these objections stem from a significant difference in outlook about natural resources:

- The US has a public trust doctrine of governments protecting and restoring resources not generally accepted in the global community. While disputed, there may be a movement internationally to assert increasing protection for natural resources (for further discussion see Section 4.3.4 of this book);
- The US has more of a broad cultural and historical background for natural resource valuation and protection. The international community looks at ecological impacts more narrowly. Traditionally, economic impacts are considered part of "doing business"; and

- While natural recovery without human intervention is an alternative considered by US Trustees and the worldwide community, there is strong disagreement about compensation for losses during the interim recovery period (Burlington, personal interview, 1999).

With the concept of "endpoints" being incorporated into the response process, which is oriented more toward a restoration based and possibly more cost-effective approach, there is some movement toward harmonization of US and international oil spill response and greater acceptance internationally of NRDA. However, the basic and underlying fundamental systems of compensation for damages to natural resources continue to branch in almost opposite directions. Because of this difference in policy, unification of the two systems is still far off in the future. There is no apparent weakening of the US's assertion of NRDA claims for oil spills in American waters.

4.3.3. Compensation for Economic/Environmental Damages—1992 Conventions

The international regime for compensation for damages from oil spills is governed by two international conventions and their subsequent 1992 Protocols. The "old regime" is framed by the 1969 International Convention on Civil Liability for Oil Pollution Damage (1969 CLC) and the 1971 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (1971 Fund Convention). In 1992, a "new regime" was created by two Protocols amending the two conventions effective 30 May 1996. The amended conventions are known as the 1992 Conventions. Two intergovernmental organizations exist under the Fund Conventions. The International Oil Pollution Compensation Fund 1971 (established October 1978) and the International Oil Pollution Compensation Fund 1992 (IOPC Funds 1971 and 1992) administer compensation for oil pollution damage resulting from spills of persistent oil from tankers (IOPC, 1998).

The Civil Liability Conventions govern liability of ship owners for oil pollution damage on the basis of strict liability (liability without regard to fault) and create a system of compulsory liability insurance. Liability is limited to an amount linked to the tonnage of the ship. The purpose of the IOPC Funds 1971 and 1992 is to compensate victims of oil pollution damage in Member States who cannot obtain full compensation under the Civil Liability Conventions. The Fund Conventions supplement the Civil Liability Conventions, if damages exceed the owner's liability or if the owner is financially incapable of meeting his obligations. Each Fund Convention has an Assembly composed of Member State representatives and an Executive Committee. As a country ratifies the 1992 regime, that State denounces the old. As of the end of November 2000, 62 nations have ratified the 1992 Fund Convention (IOPC, 1998, 1999; Jacobsson, 2001).

The funds are financed by contributions levied on any person or company receiving more than 150,000 tonnes of crude oil or heavy fuel oil in ports or terminal installations in a Member State, after it has been transported by sea. Claims under the CLC

can be made only against the registered owner of the ship concerned or his third party insurer. In the case of a dispute between the IOPC Funds and a claimant, the final arbiter is the national court in the nation state in which the damage occurred. Criminal sanctions are an issue only for the national court (Jacobsson, 1999). The 1971 Fund limits total liability for any one incident to 60 million Special Drawing Rights (about US$80 million). The 92 Fund has a higher limitation of liability for any one incident, with a maximum payable of 135 SDR (about US$173 million), including any sum paid by the ship owner or his insurer under the 1992 CLC (IOPC, 1998). At its 82nd Session in October 2000, IMO's Legal Committee adopted amendments to raise by 50% the limits of compensation by amendments to the 1992 Convention. These increased limits should enter into force by 1 November 2003. For a single incident, the IOPC Fund maximum amount payable is raised to 203 million SDR (about US$260 million). One of the primary challenges for the international compensation scheme is that, as Member Nations ratify the 1992 Fund, the 1971 Fund declines, with a respective decline in the contribution base to the 1971 Fund. The potential negative outcome of this situation is that, before the 1971 Fund can be wound up, there may be an oil spill incident for which there are insufficient funds to pay compensation to the victims. Pursuant to a 2000 Protocol signed 27 September 2000 to the 1971 Fund Convention, that Convention will cease to be in force when the Member States number less than 25 or the total contribution to the Fund by those members is less than 199 million SDR. The expected date for its cessation is 21 June 2002 (IMO, 2000e, f; Jacobsson, 2001).

Significant differences exist between OPA 90 coverage and even between the "old" and "new" regimes. These distinctions impact what type of economic and environmental damages will and will not be compensated and other important elements of liability coverage:

- **Oil covered:** OPA 90—all types. Old regime—persistent oil carried in bulk on laden tankers and bunker fuel from tankers carrying persistent oil cargo. New regime—Adds unladen tankers with persistent residue on board, including bunker oil.
- **For what:** OPA 90—discharge or substantial threat of discharge. Old regime—escape or discharge. New regime—escape or discharge or grave and imminent threat of such discharge.
- **Area covered:** OPA 90—Exclusive economic zone, territorial waters of US Old regime—territory of a party, including territorial sea. New regime—Adds EEZ or equivalent area of a State Party.
- **Parties liable:** OPA 90—Responsible Party, including vessel owner and operator. Old and new regimes. Registered owner.
- **Defenses:** OPA 90—Act of God, war or act or omission of third party. Old and new regimes—Adds negligence or other wrongful act of a government or authority responsible for maintenance of lights or other navigational aids.

- **Breaking limits:** OPA 90—willful misconduct, gross negligence, violation of federal safety, construction and operational regulations, which were the proximate cause of the incident, failure to report, failure to cooperate, failure to comply with orders under Clean Water or Intervention Acts. Old regime—Incident occurred as result of personal fault or privity of owner. New regime—personal act or omission of owner committed with intent or recklessly and with knowledge that damage would result.
- **Limits of liability:** OPA 90—Tanker >3000 gross tonnage, > of $1200/gross tonnage or $10 million; <3000 gross tonnage, > of $1200/gross tonnage or $2 million; non-tanker, >$600/gross tonnage or $500K. Old regime—total compensation payable by the 1971 fund of aggregate per incident limited to 135 million Special Drawing Rights (SDR) (about US$173 million), including the sum actually paid by the ship owner or insurer under the 1992 CLC. New regime—3 million SDR (US$3.8 million) for ship <5000 units of gross tonnage; 3 million SDR + 420 SDR (US$537)/unit of additional tonnage for tonnage between 5K and 140K units; >140K units of tonnage, 59.7 million SDR ($76.5 million US) All sums amended by IMO, effective 1 November 2000: for ship <5000 gross tonnage—4.51 million SDR (US$5.78 million); for ship between 5K and 140K—4.51 million SDR (US$5.78 million plus 631 SDR (US$807) for each gross tonne over 5000: Ship >140K, 89.77 million SDR (US$115 million), IMO (2000e) (K = 1000).
- **Claimants:** OPA 90—Any party, including governments, trustees, private claimant. Old regime—Any party suffering pollution damage (loss or damage caused outside the ship). New regime—Any party suffering pollution damage.
- **Economic damages:** OPA 90—removal costs, real and personal property damages, profits, earning capacity, lost revenues of government, costs of increased public services. Old and new regimes—loss or damage caused outside the ship, including cost of preventive measures, clean-up costs, and economic loss. New regime—adds reinstatement/restoration of the environment at reasonable cost (IOPC, 1998; 1999, Sheehan, 1995). See discussion below.

Recovery for economic damages under the international regimes is more limited than that under the US national scheme. “Pollution Damage” means actual loss or damage caused outside the ship and includes the costs of *preventive measures*. The term *preventive measures* is defined as “... any reasonable measure taken by any person after an incident has occurred to prevent or minimize pollution damage”. Primarily, the term covers clean-up measures, including the disposal of recovered oil and oily debris.

Each claim is subject to a test of “reasonableness”, interpreted to mean that, on the basis of a technical appraisal, the measures would likely minimize pollution damage, would be cost-effective, would not be instigated for the sake of public relations, and would be sized to scale and expected level of success.

The types of claims admissible for compensation, subject to limiting principles are these:

- Damage to property;
- Costs of clean-up;
- Loss of earnings by the owner or user for property contaminated by the spill; and
- Pure economic loss under certain limited conditions (Jacobsson, 1999).

The overriding principle for recovery of property damage is that the claimant's economic position should be no better nor worse than if the spill had not occurred. Only *quantifiable economic loss* is compensated for claimants with a legal right under national law.

These general criteria apply to claims of pollution damage and preventive measures:

- Expense/loss was incurred;
- Measures were reasonable and justifiable;
- Expense/loss was caused by contamination;
- A direct link exists between expenses/loss and damage and contamination; and
- The loss is a quantifiable economic loss supported by proof.

In most cases, clean-up operations and property damage are treated as preventive measures, for example, combating oil at sea, defining sensitive resources, and cleaning structures. These are assessed based on "objective criteria". Costs incurred and the relationship between these costs and benefits should be reasonable (IOPC, 1998a).

Remotely linked losses are not covered. In considering "pure economic loss", loss of earnings sustained by those users whose property was not directly affected by the oil, these criteria apply:

- Geographic proximity between activities and contamination;
- Degree with which the claimant is economically dependent upon the resource;
- Alternative sources of supply or opportunity; and
- The extent to which the business is an integral part of the economic activity affected.

The Funds generally pay for actual losses and not "budgeted figures". The Funds will not advance money for measures to prevent loss until actually undertaken. The Funds do not regard themselves as being in the role of a "claimant's banker" (IOPC, 1994; 1998a).

Compensation for environmental damages is set against a policy framework substantially different from the US system. Unlike the OPA 90 regime, the IOPC Funds do not accept natural resource damages and the cost of assessing such damages, except as to measures of reinstatement discussed below (Jacobsson, 1999). The international regime depends upon consensus among Member States, with the contributors in one state subsidizing an incident affecting another. Unlike the OPA 90 Oil Spill

Liability Trust Fund which works within one country and one federal legal system, the Conventions function in 85 separate sovereign state legal systems, with significant cultural and linguistic differences. "A comparison between the international regime and OPA 90 must take into account the fact that while the Oil Spill Liability Trust Fund works within one nation and one legal system, the IOPC Funds operate in a large number of jurisdictions with different legal systems and varying cultural traditions and languages" (Jacobsson, 1999).

The international approach creates an issue in the area of compensation for economic and environmental damages of how far a Member State is willing to place economic burdens on their oil industry. The global view leads to a reluctance to embrace what is seen as a more open commitment policy, for example, compensation for abstract damages, under the US national system.

The consensus political framework sets the admissibility of claims for environmental damage. These principles govern:

- The goal is to place the person suffering damage in the same economic situation as if the damaging act had not occurred;
- Only a person suffering *quantifiable economic loss* is entitled to compensation;
- The IOPC Fund does not pay damages of a *punitive* character, those calculated on the basis of the seriousness of fault of the wrongdoer;
- Compensation of punitives leads to unacceptable results, such as impacting those suffering measurable quantifiable loss. If the aggregate amount of established claims is greater than the total amount available, then each claim is reduced by the same percentage. The purpose of punitive damages is as a deterrent. The Fund cannot experience a "deterrent" impact;
- Compensation may not be awarded on the basis of theoretical models; and
- The system of criminal penalties of Member States for oil pollution from ships is outside the Conventions, since such penalties do not constitute "compensation" (IOPC, 1994).

The 1992 Conventions codified previous Fund policy that compensation for *impairment of the environment* is limited to "... costs of reasonable measures of *reinstatement* actually undertaken or to be undertaken". While seemingly embracing an approach similar to NOAA's restoration process, again, the international regimes and OPA 90 differ.

Compensation is for *quantifiable* elements only, defined as damage with a value that can be assessed in monetary terms, such as the loss of profit or income to persons depending directly upon income from sea-related activities. *Unquantifiable* elements are excluded, such as damage to the marine environment calculated based upon theoretical models like those used by NOAA. Passive use or intrinsic environmental benefit are not recognized as compensable elements of environmental damage (IOPC, 1994; O'Connor and Mayer, 1998).

The 1992 Conventions qualify admissibility of claims for *reinstatement* of the marine environment using criteria similar to the approach used for economic loss claims. Under the Conventions, damage to the environment is recoverable only if measures, *actually undertaken or to be undertaken*, can restore the environment and can meet fundamental criteria. For any restoration project to be considered reasonable and costs to be recoverable, they must be based on sound science, practically feasible, not disproportionate to results achieved or to be achieved, offering a reasonable prospect of success and not out of proportion to the extent and duration of damage (IOPC, 1994).

The scientific concepts underlying reinstatement or restoration internationally vary from those supporting the US system of Natural Resource Damage Assessment. The starting position of the IOPC Fund is that "... the potential for natural recovery is great and that man is severely limited in the extent to which he can take restoration measures which will improve upon the natural processes" (IOPC, 1994). Reasonable "reinstatement" is subjected to two severe limitations. The first is the natural variability of the marine environment, i.e., nature is in flux, not static and it is hard to define what state the ecosystem would have been in the absence of a spill due to such impacts as El Nino and other natural variances, The second is the inability to determine when a recovered state has been achieved. Man is unable to return the environment to its exact pre-spill condition. Defining what is "as healthy" and functioning as before the incident in terms of species diversity and abundance requires either significant baseline information or extrapolation from a parallel ecosystem similar to that damaged. Differing parameters, such as time of year, weather, effectiveness of response will affect the same environment in different ways, making it hard to define what is recovery and to determine whether an ecosystem is recovered or not (White, personal interview, 1999; Dicks, 1999).

The goal of reinstatement is to speed up the process of natural recovery. In the case of a species with large natural recovery capacity, such as barnacles and limpets, the best response may be natural recovery. In cases where species are threatened or endangered, and reinstatement is feasible, reinstatement activities may be appropriate. For example, minimizing early predator impacts on juveniles of a seabird species may allow protection for a population to flourish and recolonize a damaged area (Dicks, 1999). Under this international view, some US restoration programs are seen as little more than "large experiments". While NOAA trustees may assert that a particular restoration action will have a specified result, in fact there will be considerable uncertainty over the speed and extent of natural recovery and no guarantee that the proposed restoration program will be successful. This is especially so bearing in mind man's inability to control many of the physical, biological and other factors that will affect the recovery process (White, personal interview, 1999).

Unlike the OPA 90 regime, under the 1992 Conventions acquisition of equivalent resources or habitat is not compensable, nor is loss of use or enjoyment of the natural resources, nor loss of services recognized (Brans, 1999; O'Connor and Mayer, 1998). Only *primary restoration*, not *compensatory restoration* for lost services is

compensable under the international conventions. Post-spill environmental studies to determine the extent of the damage and reinstatement needed may be subject to Fund contribution if the reinstatement measures fall within the scope of what is compensable and reasonable. Loss of profit from impairment of the environment is not subject to compensation. (IOPC Fund, 1998).

An analysis of the restoration approach in the case of the 15 February 1996 *Sea Empress* oil spill of 72,000 tonnes of crude oil and 360 tonnes of heavy fuel oil off Milford Haven in southwest Wales (UK) contrasts the differing approaches in US and international restoration actions. While impacts on the marine ecosystem were substantial over a period of many months, including bans on fishing due to oiling from date of incident through September 1997, the ultimate conclusion of the evaluation committee established after the incident was that the ecology as a whole was not harmed.

Counsel for NOAA suggest that this conclusion may have been premature. Although a larger member of the "robust species survived, at least one report suggests that the impacts on the immune systems of many affected species or recolonization of less conspicuous species and overall effect on restoration of the full biodiversity of the shore is likely to take much longer" (O'Connor and Mayer, 1998). The 1971 Fund and the ship owners insurer, the Skuld Club processed claims totaling 16 million pounds for reimbursement for clean-up operations, contamination of property, loss of income from fishing bans, and loss of tourism for services provided directly in the impacted area. Reinstatement activity for the environment was limited to claims from charities and trusts for rescue and cleaning of birds, surveys and monitoring of the coast and shoreline for about 97,600+ pounds. As of December 1998, the IOPC Fund paid out 18,600 pounds of these claims, with inquiries pending as to the balance (IOPC, 1998). No other restoration of the area is contemplated.

A comparison of US policy toward natural resources and International policy leads to the conclusion that *reinstatement of the environment* is a more limited concept under the international scheme. One critic of the Conventions claims that the only actual reinstatement activity undertaken and compensated to date has been replacement of sand on a beach (Brans, personal interview, 1999). Under the current state of IOPC Funds policy it may be more appropriate to characterize "reinstatement" as akin to *clean-up* action. Reinstatement is a relatively new concept for the IOPC Funds. While there is argument in the international community for broadening the concept of natural resource damages, departure from the fixed concept of reasonable measures of reinstatement actually undertaken or to be undertaken for impairment of the environment appears unlikely in the near future.

4.3.4. Change in the International Regime—Compensation for Natural Resource Damages

While the IOPC Funds point to the increasing number of nations ratifying the 1992

Conventions as support for the contention that the objectives of the Funds are being met, even the Director of the Funds recognizes some inherent weaknesses:

- The IOPC Funds set limits lower than those of OPA 90. If a major incident exceeds these limits, then the Funds can make provisional payments only, until all claims are accounted for. They may pay only a pro-rata amount of the total claimed to each victim. Settlement may take a long time, with negative financial impacts upon smaller businesses and individuals;
- The national Court in which the incident occurred is the final arbiter of claims, so that the court is free to adopt or reject the Funds' interpretation of liability. When court action follows after settlement of claims fails, payment may be delayed for a significant time; and
- Solutions to emerging problems under the Conventions are hard to resolve, because the Funds operate in 85 nations with different legal systems, viewpoints, and cultures. The compensation conventions, like other international treaties, are the result of compromise between competing interests and national policies. Change is slow (Jacobsson, 1999).

In his view, however, Mans Jacobsson believes that the fact that a great number of states have ratified the 1992 Conventions shows that the international community in general considers the convention regime viable and satisfactory (Jacobsson, personal communication, 1999).

If the objective is payment of compensation for victims of oil spills, the Funds claim success. Since inception in October 1978 of the 1971 Fund, through December 1998, the 1971 Fund has dealt with 92 incidents, with total compensation paid of more than 191 million pounds (IOPC, 1998).

It is more particularly in the area of environmental damage, that certain individuals in the US and a few nation state members to the compensation conventions urge change, the adoption by the Funds of a more comprehensive outlook for natural resource damages and restoration.

Dan Sheehan, former Director of the National Pollution Funds Center in Washington, DC (and now, Director of Information & Technology, US Coast Guard) has long been a proponent of closing the gap between the US and the Funds regimes. From his experience of more than 20 years in the marine safety field, he believes that the international Funds are moving and will continue to move closer to the American systems in three important respects:

- The scope of damages, including natural resource compensation, will become more inclusive, in large part due to pressure from Member States;
- The limits of liability will increase, because of the current problem of not being able to cover the losses to oil spill victims of larger spills and the need to pro-rate all claims paid; and

- Coverage will be extended to include bunker spills from non-tankers, (vessels not constructed to carry oil) due in part to a strong movement within the International Maritime Organization. The International Tanker Owners Pollution Federation (ITOPF) reiterates this concern, based on two factors: the high percentage of recent oil spill responses from non-tankers and a recognition that bunker spills from such vessels pose a serious threat to humans and the marine environment, which is as great as more publicized tanker spills (Sheehan, personal interview, 1999; ITOPF, 1998). The Legal Committee of the International Maritime Organization forwarded a draft international convention on civil liability for bunker oil pollution damage to diplomatic conference. At the March 2001 Convention, IMO adopted a bunker convention (IMO, 2000e, 2001). While the Bunker Convention awaits ratification by sufficient Member States, Canada has already recognized the importance and significant threat of bunker spills. The Ship-Source Oil Pollution Fund in Canada pays claims for all classes of ships, not just for seagoing tankers or persistent oil: the keystone of the Canada Shipping Act is similar to the US philosophy, the polluter pays (SOPF, 2000).

Again, Mans Jacobsson disagrees, as to natural resource compensation. His position is that few nation states would support the US approach (Jacobsson, personal communication, 1999).

In spite of the IOPC Funds' viewpoint, some concerned individuals and states in the international community are voicing an opinion that the 1992 Conventions are using a definition for environmental damage dating from 1984, which is not in step with the modern environmental movement in several important aspects:

- Damages for pure economic loss or consequential loss from damage to the marine environment are limited to those which are neither geographically nor causally removed from the spilled oil. Fishermen whose nets are contaminated suffer direct consequential loss, subject to reimbursement. Fishermen whose boats and nets are not contaminated, but who are prevented from fishing because of closure of a contaminated area, suffer pure economic loss which may be compensated, subject to geographic proximity and proof of direct dependence upon the environment damaged. But, those who provide goods and services to an industry which in turn provides tourism services may be too remote from the contamination to receive compensation. The difficulty comes in quantifying damages where the claim is based upon claims from hoteliers and others too remote from the direct impacts of the spill (Brans, 1996). In the *Braer* spill, for example, the Funds rejected claims from employees of fisheries who suffered reduced work hours (Brans, 1995).
- Costs of reinstatement of the environment are limited to those which are directly quantifiable. Damage to the marine environment often lacks direct monetary/ market value or requires quantification by abstract methodology such as Habitat Equivalency Analysis used in NRDA (see Section 4.3.2 of this book). This lack

of economic quantification should not prevent compensation for damaged natural resources or loss of their services to the public.

- Internationally, most natural resources are not subject to trustee stewardship, like US resources. Lacking "property rights" status, the question of who has standing to bring an action is unclear.
- Where irreparable damage occurs or if restoration activities are disproportionately expensive or impossible, the conventions do not provide for restoration projects such as acquisition of off-site equivalent value resources, as is available in the US, under the Natural Resource Damage Assessment (NRDA) law. Rather, such activities are outside the scope of coverage. This leads to an inequitable outcome "... polluters who cause mild environmental damage pay compensation, (but) polluters who cause massive and irreparable damage pay nothing" 1995).
- The definition of "pollution damage" under the CLC is vague and left to interpretation by a court of a Member State, leading to possible inconsistent results (Brans, 1996).

The 1992 Conventions prohibit use of theoretical models, commonly used in the US regime, to quantify damage. This prohibition eliminates per se damage to the environment, except insofar as reasonable restoration measures are actually undertaken or to be undertaken (IOPC, 1998). The Conventions' definition of natural resource damages rules out recoveries which the national courts of Member States have awarded: in the *Patmos case* (1985) by the Italian Court of Appeal for 830,000 pounds as compensation for loss of value of the natural resources to the public for health, recreation, and other services; the *Haven* incident (1991) for 16.8 million pounds for environmental damage not part of the clean-up costs, including damage to the sea and atmosphere (In part, abstract methodologies to reach compensation were used); and the *Seki* incident, submitted to the Fund by the United Arab Emirates for damage to the marine environment which is considered to be part of that nation's wealth. Damage was constructed in part by use of an abstract method. The argument for change is that the international regime exclusion of damage to the environment per se, where not linked to restoration costs, or where proven by use of abstract methods, seems to avoid the generally accepted principle of the "polluter pays" (Brans, 1995; 1996).

Critics argue that the disparity between the question of admissibility of environmental damage between the IOPC Fund and Member States such as those involved in the cases above could lead to the very outcome which the Conventions are seeking to avoid, i.e., non-uniform application of international compensation regimes. The national court is the final arbiter in the case of a dispute between a claimant and the IOPC Funds (Jacobsson, 1999).

An open question is whether courts in various nations will apply the same interpretation to the wording of the Conventions. Diverging views by nations parties to the Conventions on environmental damage, may result in differing applications of the otherwise uniform guidelines on limits of liability (Wu, 1996). For example, under

French law, the ship owner is required to take all measures necessary to restore the environment, without limitation, including replacing resources when restoration of a site cannot be achieved (Holt, 1995). While the 1992 Conventions eliminate the use of theoretical assessment of intrinsic value for the environment, the national court may still be called upon to define the less imprecise convention terms involved in answering these baseline questions:

- What are reasonable costs of reinstatement;
- What is technically feasible; and
- What expenditures are necessary to rehabilitate the environment?

Set against dissimilar national frameworks, without substantial, developed case law on these issues, yet, the courts may apply non-uniform interpretations of liability and compensation (Brans, 1995).

Claims may be brought outside the Conventions for civil or criminal liability against parties other than the ship owner and its third party insurer under general principles of national law. An example of this type of national action is the *Tanio* case, where the French government brought action under French law against charterers, the classification society and the shipyard that repaired the vessel based upon general principles of negligence, sending the ship to sea in an unseaworthy condition, making improper repairs, and failing to determine the state of repairs (Brans, 1995). Of recent note is the *Sea Empress* decision in which the Judge levied a criminal fine under the Water Resources Act against the Milford Haven Port Authority of $8 million US (later reduced to $US 1.8 million) for the 1996 grounding of the Liberian tanker in the entrance to Milford Haven in the United Kingdom, caused by pilot error and insufficient control procedures by harbor/port authorities (OSIR, 1999).

There is a movement away from the more strictly limited definition of damages in other international conventions, for example the 1993 Lugano Convention (The Council of Europe Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment), which includes in the definition of damage to the environment a reinstatement right to include "equivalent components" if restoration or re-establishment of the impaired environment is not reasonable nor feasible (Brans, 1996). One of the drafts of the liability Protocol to the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal contained consideration of compensation based upon the intrinsic value of the damaged ecological systems, including their aesthetic, cultural values, and loss entailed in the destruction of species where the environment could not be restored to its comparable state. This concept has been deleted in more recent drafts (Brans, 1995).

The possible trend of modernizing the definition of environmental damage and compensation for loss to the environment is most clearly seen in the development of a White Paper on Environmental Liability by the Commission of the European Communities (EC). The paper focuses on damage caused by dangerous activities and on recovery of damage to natural resources. For those natural resources already pro-

By Jeff MacNelly, *Chicago Tribune*, 1989.

tected under Community law, (the Wild Birds and Habitats directives), the proposal is for a fuller recovery of damage, including the loss of public services attributable to those resources damaged by an oil spill. This White Paper is expected to have a significant impact on the future of environmental damage recovery in the international community.

The key elements are as follows:

- Strict liability based upon the "polluter pays principle" for dangerous and potentially dangerous activities; "fault-based" liability for non-dangerous activities;
- No retroactivity for prior environmental damage from effective date;
- Setting of objectives, results, and a minimum standard only, allowing Member States to extend the regime and enact implementing liability rules;
- Encouragement of preventive measures by liability exposure and enhancement of the concept of the "precautionary principle";
- Natural resources must already be protected by Community law, such as flora and fauna and their habitats under EC Council Wild Birds and Habitat Directives;
- Natural resources must have a special value for the public and be clearly identified;

- Liability for damage must be quantified as "significant", e.g., There are changes in growth or reproduction of species, there are changes in the level and quality of human services provided by the natural resources;
- Restoration to baseline (comparable) condition is the preferred damage assessment method;
- Action is directed at compensating the public for the lost value of the injured asset;
- Costs are not to be disproportionate—restoration must be cost-effective and reasonable (survive a cost-benefit test);
- Abstract methods may be used to determine damages where restoration is not technically feasible;
- Valuation is based on cost of alternative solutions to establish natural resources of equivalent value or comparable projects;
- Member States have primary standing to bring action ("first tier"); and
- Public interest groups have a subsidiary right of action ("second tier") (Brans, 1999; Commission of the European Communities, 2000).

The possible inclusion of a right of action for public interest groups in the new EC proposal is a major step. Unlike the US system where the trustees act on behalf of the public, no such representation exists under the international scheme. Right of action belongs to individuals or entities suffering actual, quantifiable harm. Prior to this EC initiative, the public does not have standing to assert claims for loss of use of enjoyment or the other non-monetary benefits provided by an unowned natural resource due to an oil spill. Under the proposed act, public interest groups must meet certain minimum requirements. While their rights are limited, the concept of public empowerment has received an essential boost (Brans, 1999).

There is a basic catch with the EC proposed system. If there is overlap between the future EC regime and the current compensation conventions, (i.e., an accident occurs in a Member State to the conventions and the current compensation conventions pertain), the most probable outcome will be that the convention regimes will apply exclusively and the EC regime will not. In that event, the new types of damages for the natural resources will not be subject to compensation (Brans, 1999). Mans Jacobsson, Director of the IOPC Funds, believes that the EC directive is a "non-starter" as to tanker spills of oil (Jacobsson, personal communication, 1999).

A senior engineer and marine biologist at Det Norske Veritas in Oslo, Norway suggests that even the US NRDA approach and proposed EC liability directive fall short of true reimbursement for the actual damage caused by an oil spill. The current liability methods are anthropocentric, measuring damage only in terms of the loss to humans, "the human use value". The compensation schemes do not address the value of the damage to the interdependent natural systems and habitats in the ecosystems in other than human terms. One proposed approach is to define the ecological components affected, monitor the effects of the oil on these components, determine

recovery time to their pre-spill state, and then to use recovery time as one basis for assessing damages. This approach would reduce the intrinsic value to a number. For example, if a wetlands or coastal zone will take 10 years to recover, the polluter pays $1 million per year for introducing oil into the system. Presently, in most countries worldwide, damage to the intrinsic value of natural resources is not compensable. This analysis is futuristic, given the current liability regimes. The policy question is one which may not be addressed until the distant future (Jodestol, personal interview, 1999).

The future EC liability regime, if ever enacted, may be an important step toward harmonizing the US NRDA process and the Convention regimes and effecting a shift toward a restoration approach. The US approach is far from "perfect" and subject to "formidable challenges" for a truly functioning system. Establishment of an acceptable framework for environmental damage compensation is plagued by problems of over/understatement of damages, lack of refinement of the art of assessing market and non-market losses, modeling, and other difficult issues. Appreciation of public values has its own set of difficulties.

> "First, an understanding of public values is an essential element in determining cost-effective restoration programs that make the public whole, particularly for cases where restoration of injured resources is very costly or not technically feasible. In such cases, substitute resources can be provided to compensate the public. However, determining the appropriate compensation in such cases requires an assessment of the relative values of injured and restored resources. Second, monetary valuation will be used in some cases and is required to assess whether restoration costs are grossly disproportionate to benefits" (Grigalunas, 1998).

There is a call by some members of the international oil spill response community to value damaged, lost, and impaired natural resources, reinforced by the inclusion in the 1992 Conventions of the terms "impairment" of the environment and "reinstatement" of natural resources. In the aftermath of the 1999 *Erika* oil spill, the EC's position of increasing the scope of damages compensable for natural resources has strengthened. Given the motivation of proceedings under national law civilly against third parties and criminally against the ship owner and insurer, vessel owners and operators must face the downside risk of greater scope and size for natural resource damage. The considerations which cause the good operators to act cautiously and prevent spills apply equally to US and international waters. Prevention, preparation for oil spills, containment of the source, and effective and efficient response once a spill occurs may avoid or avert an expanding prospect of damage compensation for natural resources.

4.3.5. Oil Spill Liability Trust Fund/COFRs

OPA 90 authorized access to a $1 billion Oil Spill Liability Trust Fund (OSLTF)

to pay for the costs of removal of oil and damages not compensated by the polluter, including natural resource damages. Most critically, the OSLTF is available to pay claims in the event that an incident exceeds the limits of liability of a responsible party. Initially created under the IRS Code of 1986, access to these funds was not authorized until *Exxon Valdez* led to the passage of OPA 90 (33 USC 2701, et seq.). By Executive Order, administration of the OSLTF is delegated to the US Coast Guard. Since February 1991, the National Pollution Funds Center (NPFC) serves as the independent Headquarters unit conducting such administration. NPFC reports directly to the US Coast Guard Chief of Staff (NPFC, 1998).

The OSLTF was created to accomplish these primary tasks:

- To provide funding to permit timely removal action or mitigate a substantial threat to the US Navigable waters, adjoining shorelines or the exclusive economic zone from oil or a hazardous substance spill from vessels or facilities;
- To provide funding to initiate natural resource damage assessments;
- To compensate claimants, including trustees, for uncompensated removal costs not satisfied by the Responsible Party and for damages in certain categories, including natural resource damage, resulting from an oil pollution incident. These funds may be used to carry out natural resource damage assessments and restoration activity;
- To recover costs from Responsible Parties, up to the limit of each party's liability;
- To provide for administration of the issuance of vessel Certificates of Financial Responsibility (COFRs) for operators of US and foreign flag vessels operating in US waters, who must demonstrate their financial ability to pay for pollution damages; and
- To conduct research and development (NPFC, 1993, 1998).

The OSLTF consolidates liability and compensation requirements from other domestic regimes, including funding support for the Federal Water Pollution Control Act, the Deepwater Port Act, the Trans-Alaska Pipeline Authorization Act and the Outer Continental Shelf Lands Act. Several sources of revenue create the fund. These include a 5 cents per barrel tax collected from the oil industry on petroleum produced in or imported to the United States. This tax has been in abeyance since 31 December 1994. Other funding sources are interest earned on the principal from US Treasury investments, recoveries from responsible parties for clean-up costs, fines and penalties, and funds transferred from the Trans-Alaska Pipeline Liability Fund over time (NPFC, 1998).

The OSLTF has two funds, an Emergency Fund, referred to by the former Director Daniel F. Sheehan as "his check book" (Sheehan, personal interview, 1999). The Emergency Fund is used to initiate natural resource damage assessments and to pay for removal activities, up to an amount of $50 million each year. Reference to this fund is available through Presidential Executive Order without the need for Congressional appropriation. The Principal Fund is used for all other authorized purposes. Use of

fund resources is limited to $1 billion per oil pollution incident, with natural resource damage assessments and claims limited to $500 million of that total for each incident (NPFC, 1998).

Recognized claimants are damaged individuals, the US government, states, territories and commonwealths of the US, foreign trustees, foreign claimants, Indian Tribes, and trustees designated under OPA 90. Trustees are the only persons or entities entitled to seek damages for natural resources. Federal trustees recognized by OPA 90 include the National Ocean and Atmospheric Administration (NOAA) for the Department of Commerce, the Departments of the Interior, Agriculture, Energy and Defense. State access is limited to $250,000 per incident for removal costs from the Emergency Fund (NPFC, 1998). OPA 90 and implementing claims regulations (33 C.F.R. Part 136) form the legal framework for OSLTF claims. (Relevant OPA 90 sections include: Annual Appropriations, Section 1007, Recovery by Foreign Claimants, Section 1008, Recovery by the Responsible Party, Section 1012, Uses of Fund, Section 1013, Claims Procedure, Section 1014, Designation of Source, and Section 1015, Subrogation).

A claimant must first submit a claim for removal costs and damages with appropriate support to the Responsible Party or its guarantor, typically an insurer. If the claim is denied, not fully compensated, or not settled within 90 days from submission, then the claimant may proceed with the OSLTF. Claims which may be submitted first to the OSLTF are those advertised by the National Pollution Funds Center, those made by a responsible party, by the state or by the United States. The NPFC will not handle claims which are the subject of active litigation. Two dates govern the time by which claims must be filed:

- For damages, within 3 years from injury or from completion of a natural resource damage assessment; and
- For removal costs, within 6 years from completion of all removal actions (NPFC, 1993).

Claims are processed in the order received, but they are paid on an "as determined" basis, the order in which they are approved. Claims may be paid within 30 days from receipt of a signed release, constituting acceptance of an offer of settlement from the National Pollution Funds Center to the claimant (NPFC, 1993).

The NPFC uses a team concept for each case. The typical team consists of technical experts, such as a lawyer, claims specialist, financial manager, insurance examiner and others. The Case Team functions as part of the overall response system and works with the Federal On-Scene Coordinator throughout all aspects of the spill. From inception through September 1997, the National Pollution Funds Center has handled over 4000 cases, totaling approximately $284 million (NPFC, 1998).

Certain vessel owners or operators must evidence the ability to meet potential liability from an oil or hazardous materials spill in order to transport chemical and petroleum-based products in US waters. Tens of thousands of vessels have the potential for discharging pollutants into navigable waters or adjoining shorelines of the

US. The Department of Transportation issued a Final Rule on 7 March 1996 requiring such vessels to have in place a Certificate of Financial Responsibility, issued by the National Pollution Funds Center, certifying the financial responsibility of the vessel owner and operator (61 Fed. Reg. 9264, codified at 33 C.F.R. Parts 4, 130, 131, 132, 137 and 138 (1998)). Section 1016 of OPA 90 applies to these types of vessels:

- Vessels over 300 gross tons, using any place subject to US jurisdiction;
- Any size vessel using the waters of the exclusive economic zone to transit or lighter oil destined for a place subject to US jurisdiction; and
- Unless a vessel can demonstrate the ability to meet removal costs and damages from an incident by an acceptable form of guaranty, that vessel may not trade in US waters. Further, the vessel may be detained, seized, or forfeited at a US port and the owner/operator may be subjected to a penalty of up to $27,500 a day. NPFC, 1998).

Immediately after the announcement of the Final Rule, industry threatened that oil shipments to the US would stop due to projected prohibitive costs of approximately $415 million to obtain financial guarantees from commercial insurers. This threat was not actualized. The actual cost per year for industry to meet COFR requirements is significantly less, $136 million (Maillet, 1999). Consequently, as of fiscal year end 1997, over 19,100 vessels carry valid COFRs (NPFC, 1998).

By one set of standards, OPA 90, with its "polluter pays" policy is a success. Liability and compensation act as deterrents. Insurance exists to ensure that there is adequate funding in the event of a spill. The mechanism is in place to make private sector funds available for clean-up and restoration. Damages are paid. Recovery from Responsible Parties by the OSLTF exceeds $41 million to date (MSC, 1999, and Sheehan personal interview, 1999). According to an ongoing study of the OPA 90 rule-making projects, the responsibility requirement (COFRs) appears to be one of the most effective rules (Scheer, personal interview, 1999).

The following figures support the position of the US Coast Guard, National Pollution Funds Center, and other proponents that the liability and compensation regime of OPA 90 is a marked win:

- Decrease by 50% in the average number of oil spills over 10,000 gallons from pre-1991 levels;
- Reduction by 50% in the gallons spilled per million gallons of oil shipped (10 gallons spilled per million shipped pre-1991 decreased to 5 gallons spilled per million shipped post-1991);
- No spills over 1 million gallons since 1990; and
- Peak in the total volume of tank ship oil spills pre-1991, remaining below 200,000 gallons since 1991 (MSC, 1999).

In spite of these positive results, there are significant near-future challenges for the OSLTF:

"1 billion dollars just isn't what it used to be", comments Daniel Sheehan, former Director of the National Pollution Funds Center (Sheehan, personal interview, 1999). What this comment refers to is the strong belief by those involved with the fund that another large spill like *Exxon Valdez* might well exhaust the resources available in the current fund for clean-up and compensation. *Exxon Valdez* cost nearly $3 billion. A recent Preparedness for Response Exercise Program (PREP) exercise in Philadelphia generated potential large spill clean-up costs in the range of $10 million a day. Clearly, the Emergency Fund amount of $50 million is insufficient, as evidenced by the expenditure in one year alone on one spill, the *Morris J. Berman*, in 1994 of $49.6 million from the Emergency Fund. "In 1998, over 276 billion gallons of oil were shipped in and around the United States" (MSC, 1999). With no decrease in consumer demand for oil, and the current cost structure of response, a catastrophic spill would have severe negative impact on access to funds to support clean-up, pay claimants, and restore natural resources. The solutions suggested to redress the funding problem are several fold:

- Raise the Emergency Fund cap from $50 million to $100 million, or make the Principle Fund accessible for this use as well;
- Reinstate the taxing authority, as proposed by the President in his 1999 Federal budget;
- Reinstate the authority to borrow from the Treasury's General Fund;
- Raise the cap for each incident from $1 billion;
- Create a 2 cents per barrel tax without a limit, replacing the 5 cent per barrel with its current cap; and
- Raise the level of funding for the OSLTF from $1 billion to $5 billion (also included in the 1999 Presidential budget) (MSC, 1999; Sheehan, personal interview, 1999).

Another challenge for the OSLTF is the processing of the high volume of claims during and after a spill, and the need for an integrated cost accounting system. While finance is one of the components of the structure included within the Incident Command System, there are many stakeholders involved in every oil spill response, governments, private sector, and a combination of public/private interests. The Federal On-Scene Coordinator needs billing and accounting records to know that the Responsible Party is charged for all costs up to its limit and to know when the limit will be exceeded. The Responsible Party must track all costs of subcontractors and coordinate with the Federal On-Scene coordinator to control costs in accordance with an approved clean-up plan. States and municipalities impacted by the spill need to work within the constraints of their contingency plan and coordinate with the Federal On-Scene Coordinator regarding daily costs and claims for losses.

The suggested solution to this accounting nightmare is a standardized system, with standardized documentary forms, nomenclature, and reporting. The US Coast Guard would use a central command system to monitor and receive all such data. The

National Pollution Funds Center (NPFC) is exploring the development of an overall data-capture system to capture such financial information and other elements one time and then provide common access to the data for all user organizations (Sheehan, personal interview, 1999; Sheehan, 1999; MSC, 1998).

At least one study conducted by a team of industry consultants and US Coast Guard personnel supports strongly the need for better control of response costs, which might be paid ultimately by the OSLTF and for a better cost accounting system to monitor and control costs. The study makes several recommendations, to be effectuated by the US Coast Guard and/or the National Pollution Funds Center:

- NPFC should identify economic disincentives to cost control and then, develop procedural and legislative solutions to identify spill costs systematically and minimize expense;
- The Federal On-Scene Coordinator should track costs by an established methodology and manage resources cost effectively; and
- NPFC should establish a procedure and then staff administration of the system with sufficient personnel to handle third party claims through disinterested managers, like those from NPFC (Bettencourt, 1999).

A Department of Justice opinion issued in November 1997 reversed a US Comptroller General opinion of 1995 and interpreted OPA 90 as allowing payment of claims for natural resource damages directly from the OSLTF without Congressional appropriation. This Department of Justice opinion places the burden on the National Pollution Funds Center to develop the adjudication process for those claims. Development of this review process is not an easy task, given the complexity of Natural Resource Damage Assessment claims, the scope of restoration activities encompassed by the US scheme, and the fiduciary, fiscal responsibility of the National Pollution Funds Center. The former director predicts a slow down in payment of NRDA claims. "We will have to review the whole administrative record. We will not take a claim submitted and just issue a check to the trustee. Reviewing the record could slow down the payment process" (Sheehan, personal interview; MSC, 1998).

Other claimants involved in the process today speak of an already slow system of compensation and of the financial difficulties experienced in being paid for clean-up costs. Mark Miller, former President of the second largest response organization in the US, National Response Corporation, criticizes the National Pollution Funds Center for what he characterizes as taking the Atone and demeanor of a Plaintiff's attorney. Mr. Miller uses an example of a fully documented claim with action taken in accordance with directives of the Federal On-Scene Coordinator. Turnaround time from submission to payment took as much as 18 months and the intervention of a state Senator. In many cases the center is seen as "brow beating" the smaller businessman into accepting a settlement of less than full compensation. Mr. Miller questions how small response contractors can stay in business given the Center's aggressive approach (Miller, personal interview, 1999).

Dan Sheehan (formerly) of NPFC counters with this explanation: the situation described is referred to as a "stiffed contractor claim". In this circumstance, a removal contractor has a contract with a responsible party, who refuses to pay all or part of the clean-up contractor's costs. Under this contract dispute, the contractor can submit a claim to NPFC. NPFC often pays and then collects from the responsible party. But, such payment will not be made by NPFC without adequate proof of the contractor's claim. As an alternative, the contractor can sue the responsible party directly. Many contractors prefer the option of pursuing compensation from the NPFD (Sheehan, personal interview, 1999).

The financial capacity of the private responders to continue their business, absent the large *Exxon Valdez* type spill, is of concern to the NPFC. Many of the smaller responders are not receiving retainers from their industry clients to maintain a constant state of readiness and are having trouble staying in business. One proposal is for the OSLTF to pay for the costs of these responders to be involved in required PREP exercises. Such funding could only occur through Congressional action (Sheehan, personal interview, 1999).

Perhaps one of the greatest failures of the OSLTF was the earmarked $20 million set aside for Research and Development. The purpose of this portion of the fund was to create an interagency, Federal project to develop a coordinated approach and undertakings for research and development of oil pollution issues. While innovative, little or nothing has come to fruition from this idea. At about the same time as OPA 90 was enacted, Congress passed the Budget Reconciliation Act of 1990. Essentially, the effect of the Budget Reconciliation Act was to cancel use of this earmarked fund. Due to the spending caps imposed, any of the $20 million budget would compete with and be offset against other budget items of an agency. The net outcome has been a lack of real research using OSLTF at a time when the demand for coordinated research has never been greater (Sheehan, personal interview, 1999).

While there are significant challenges ahead for the OSLTF and policy decisions to be resolved, the liability and compensation scheme of OPA 90, as funded and enforced through the fund, appears to be contributing to the ultimate outcome, prevention of oil spills, funded clean-up and payment of compensation to claimants, including trustees of the public's natural resources. With better cost accounting and standardized mechanisms to manage response actions, through the help of the qualified teams of the OSLTF, "best response" may be one step closer.

4.3.6 Civil Liability

Civil or criminal sanctions resulting from administrative or court action are principal motivators for those in the chain of responsibility to prevent spills and then, use best response to mitigate their damage. Aggressive action by US regulators and judicial

enforcers is focusing the attention of domestic and international shippers of oil upon solving the human error, technological and other problems causing spills.

US Federal and state environmental statutes contain a broad range of enforcement tools to ensure compliance with the laws protecting US waters, or affecting US flag vessels in foreign waters. While the shipping industry has shifted its attention to those rules and laws applicable to criminal environmental enforcement (which are discussed in the next two sections), civil actions are an effective deterrent to avoid oil spills and to compensate those who are damaged from them. In the US, the principle schemes for compensation for economic, property, and natural resource damages, including public resources for which trustees can bring a civil action, are those created by OPA 90 and other environmental statutes.

Internationally, the 1969 International Convention on Civil Liability for Oil Pollution Damage and the 1971 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, the 1992 Conventions, and national legislation by countries who are Member States to these conventions create civil coverage of damages. Except in a general way, these conventions and natural resource damages will not be discussed in this section. (Refer to Sections 4.3.2 and 4.3.3 of this book for more discussion of damages recoverable by civil action for wronged parties.)

As a general statement, US federal and state environmental statutes and regulations (many of which are highlighted in Section 4.3.7 of this book) include these enforcement rights:

- Civil penalties ranging from $10,000 to $50,000 per violation or day of violation;
- Administrative orders to respond or abate, enforceable by civil and criminal sanctions;
- Civil action for relief, including prohibition or mandatory injunction (to prevent or stop actions) enforced by judicial decree;
- Citizens' civil actions to compel compliance with or collect damages for violation of the statute" (Sullivan, 1999); and
- Natural resource damage assessments, including restoration, replacement or acquisition of equivalent resources, costs of response, clean-up, and third party claims under OPA 90.

Specifically, there are new Class I and Class II penalties for violations of the Clean Water Act, as amended under OPA 90, (US Coast Guard Oil Pollution Act of 1990 Update, 15 October 1993), for oil discharges under Section 311(b)(3) or as a result of a failure to comply with contingency/vessel plans under Section 311(j), failure to comply with a removal order, or failure to comply with the financial responsibility requirements of the COFR section of OPA 90. The US Coast Guard has the authority to adjudicate OPA 90/Clean Water Act violations through non-adversarial administrative hearings for Class I actions, or for the more severe violations, using a "Judicial Civil Penalties" forum for Class II actions. These violations (listed below) are more

time consuming in their pursuit, but the impact of the increased penalties is believed to be an effective deterrent:

- Maximum Class I—for discharge/plan violation— $10,000 per violation up to $25,000. These penalties are issued, usually, after an administrative hearing in which the responsible party can conduct a defense; and
- Maximum Class II—for discharge/plan violation— $10,000 per day of violation up to $125,000. An administrative law judge holds this type of hearing. There are limited rights for filing motions before the hearing, and for limited discovery. Appeals may be taken within 60 days after the final order is served on the responsible party and are made to the US Coast Guard Commandant.

Alternatively, the civil penalty scheme of OPA 90, that applies to owners and operators of vessels or to those in charge of facilities, provides for the federal government to pursue larger civil penalties in the appropriate US District court in which the governmental authority can acquire jurisdiction, i.e., where the responsible party is located, resides, or is doing business. Penalties for such violations are these:

- Oil discharges can be subject to $25,000 per day or up to $1000 per barrel discharged;
- Gross negligence/willful misconduct in the discharge increases the penalty to a minimum of $100,000 per day or $3000 per barrel discharged;
- Violation of a removal order (Presidential orders regarding discharges)—$25,000 per day or three times the costs incurred by the Oil Spill Liability Trust Fund for failure to comply;
- Contingency plan/vessel plan failure—$25,000 per day. This applies to any person, not just the vessel owner, operator or facility owner/operator.
- There is a "fast track resolution" by the US Coast Guard for smaller violations: for spills of 100 gallons or less, for regulations with penalties imposed of no more than $2500; and
- Failure to comply with COFR requirements—up to $25,000 per day.

The trier of fact, either a Judge or administrative official, will consider certain factors in imposing penalties: "... the seriousness of the violation, the possible economic benefit to the violator, the degree of culpability, prior violations, efforts of the violator to mitigate or minimize the effects of the discharge, and the economic impact of the penalty on the violator" (Olney, 1999).

When the Environmental Protection Agency (EPA) assumes control over a spill, particularly for inland waters spills or facility or other spills on land, OPA 90 amendments to the Clean Water Act provide that EPA is authorized to administer civil penalties:

- Class I discharge—$10,000 per violation— $25,000, maximum;
- Class II discharge—$10,000 per day up to $125,000;

- Judicial action may be taken in the alternative for fines of up to $25,000 per day or $1000 per barrel;
- Judicial action for willful misconduct—Not less than $100,000, nor more than $3000 per barrel; and
- States have the right to initiate actions for similar violations, which in some cases contain higher standards, as for example, the obligation to notify "immediately" after a spill (Olney, 1999; Etkin, 1998).

Criminal enforcement authorities may consider using non-criminal alternatives to prosecution, if the case justifies such a proceeding. Under the United States Attorneys' Manual, Principles of Federal Prosecution for the US Department of Justice, Section 9-27.250 allows for a non-criminal alternative to criminal prosecution if that alternative is adequate to address the perpetrator's conduct. Whether or not the Department of Justice pursues alternative civil action depends upon considerations like (1) how effective the non-criminal sanction will be; and (2) will such sanctions be adequate to address the conduct in question (Linsin, 1996).

US citizens may challenge settlements reached between the responsible governmental agency and the polluter, on the grounds that the penalty is insufficient to deter future violations. In a recent US Supreme Court decision, the US Supreme Court confirmed this right for citizen groups, Friends of the Earth and Citizens Local Environmental Action Network. These groups brought an action as interested parties against the polluter and later challenged the sufficiency of a court imposed civil penalty entered against the defendant, who repeatedly discharged mercury into a South Carolina river. The US Supreme Court set the standard against which the adequacy of a civil penalty is measured, based on its deterrent effect. Is the penalty adequate " . . . to deter future violations and thereby redress the injuries that prompted a citizen suitor to commence litigation". The Supreme Court affirmed the right of citizens adversely affected to bring suit against a polluter and to challenge the civil penalty ultimately imposed by the court. *Friends of the Earth, Inc. v. Laidlaw Environmental Services (TOC), Inc* (98-822) 149 F. 3d 303, reversed and remanded, _ US _ (2000)

Civil penalties under OPA 90 and the other maritime related environmental statutes are but the tip of a very large cost iceberg. The real cost to the polluter comes from the OPA 90 and (under the international conventions) provisions that assess direct and indirect costs of the spill, from clean-up and removal to damage to the natural resources (or reinstatement of the environment in international oil spills). The clear message of potential civil action for the ship owner/operator is to act prudently: to take the necessary preventive action possible, to adopt the safety culture, to focus on the human element, to comply with the letter and intent of international treaties, and to avoid the spill. Money spent in implementing the safety culture is well spent when viewed from the civil, and then criminal penalty enforcement perspective.

4.3.7. Environmental Crimes

The emerging legal theme for the millenium is "environmental crimes". Oil spills have become serious business in the US and internationally. Management at the top is becoming the target of criminal investigation. Responsibility for spills affects not only the lowliest mate. Liability touches the Chief Executive Officers of the Responsible Party (RP) company, subjecting individuals at all levels to potential imprisonment and large fines. The *Morris J. Berman* oil spill in San Juan, Puerto Rico of almost 798,000 gallons of No. 6 diesel fuel resulted in the largest criminal environmental fine in US history, $75 million dollars, the seizure of some $19.5 million dollars in assets of the three individual companies involved and also of the parent company, and house arrest of the managing agent (*US v. Bunker Group,* No. 95-84 (HL) (D. P.R., 25 September 1996). The agent's sentence was later overturned on evidentiary grounds, but the legal doctrines affecting the liability and assets of the corporations remain settled law (*US v. Rivera*, 131 F. 3d. 222, (1st Cir. 1997) (see discussion below). In December 2000, in the US, a $USD 83.5 million civil settlement was reached between the Caribbean Petroleum Corporation, Metlife Capital Corporation, and Water Quality Insurance Syndicate, $USD 60 million of which will reimburse the Oil Spill Liability Trust Fund (DOJ, 2001).

Aggressive litigation on the part of the US Department of Justice (DOJ) and individual state environmental crimes departments has led to numerous actions, fines and sentences: for example, the *North Cape* spill in Rhode Island on 18 January 1996, with its resulting $7 million dollar criminal fine against three companies, additional $1.5 million payment to purchase ecologically sensitive land, $1 million to upgrade safety on ships, $20 million in clean-up costs, and probation for the company president of Eklof Marine and Master of the *Skandia*; (*US v. Eklof Marine Corp*, No. 97-075 (D.R.I., 25 September 1997), No. P2-97-3244-A (RI Super. Ct., 1997); the Royal Caribbean Cruise Line case with its $8 million criminal fine for the Puerto Rico Case and $1 million criminal fine for the Miami, Florida case (*US v. Royal Caribbean Cruises, Ltd., et. al.,* Crim. No. 96-333 (PG) (D.P.R.), Crim. No. 98-103-CR-Middlebrooks, S.D. Fla.1996), the fine of $18 million for more statutory violations against RCCL (OSIR, 1999b), and the latest against RCCL for pollution activities in Alaska leading to a $3.5 million settlement (OSIR, 2000a).

Internationally, various courts have entered a series of fines and imprisonment orders for environmental offenders, even including criminal proceedings against senior harbor managers and the port authority of Milford Haven for the 1996 *Sea Empress* grounding in Wales around the Milford Haven port and subsequent 21 million gallon crude oil spill. The Port Authority was fined $8 million (OSIR, 1999e). This fine was reduced at a later date to US $1.8 million (OSIR, 2000). For other cases and environmental criminal actions affecting oil polluters, see Appendix IV, a table summarizing recent cases.

By Gary Brookins, *Richmond Times Dispatch*, reprinted in *The Tribune*, April 22, 1989.

Felony imposition for an environmental crime is relatively new. Until the passage of the Federal Clean Water Act (33 USC Section 1251–1387), (CWA) in 1972, environmental statutes on the books were not enforced actively. With the increasing public concern over the environment, manpower and monetary resources were allocated to federal criminal enforcement efforts. In the 1980s, actions focused on corporate and not individual activity. Most criminal charges were land based, not marine based. In the 90s, after *Exxon Valdez* and with the enactment of OPA 90, the field of environmental crimes changed substantially:

- OPA 90 extended criminal sanctions to unintentional discharges, applying criminal penalties to negligent or knowing discharges;
- OPA 90 amended the Clean Water Act to increase penalties for discharges of oil and hazardous substances, including imposing felony penalties;
- The Department of Justice, one of the central US authorities charged with prosecuting environmental crimes under its Environmental Crimes Section, came to view this legislative message as a mandate to bring the marine industry into the world of enforcement previously applied to the land-based industry. DOJ instituted an effort to develop closer coordination between the US Coast Guard and DOJ in the enforcement of environmental criminal laws;

- States and territories, like Puerto Rico, began their own environmental regulatory programs, through their own enforcement units. The focus of attention moved to include marine as well as land-based crimes (Russo, 2000; Solow, personal interview, 1998; Barrett, 1998).

The result of this shift in attitude is that there are now eighteen Federal environmental statutes with criminal sanctions, which courts can use to impose penalties against both organizations and individuals. The fines and/or imprisonment range from misdemeanor to felony violations and vary in daily amounts between minimums to maximums of $250,000 for individuals and $500,000 for organizations for each incident. Second offenses can cause the fine to double. Alternatively, for many crimes, Judges can assess fines of up to twice the profits gained by the perpetrator or twice the loss to the victims caused by non-compliance (Alternative Fines Act, 18 USC Section 3571(d) (Supp. 1996) (Adams, 1999). Criminal actions can mean financial ruin for a company, because, generally, insurance company or Protection & Indemnity contracts except coverage for gross or willful negligence or intentional acts. (For more information see Section 4.1.4 of this book.)

Conviction may mean imprisonment of individuals, including company officials for any amount of time, from 0 days up to 5 years and 3 months, depending on the type of crime. The United States Sentencing Commission Guidelines Manual, Chap. 2Q contains a specific section regarding environmental violations and provides for prison terms for individuals convicted. Courts may refer, as well, to the Organizational Sentencing Guidelines, 1991, for imposition of restitution or probation for organizations, although there is no specific environmental crimes section in these guidelines (Adams, 1999). With the exception of two strict liability misdemeanor statutes, environmental criminal laws require knowledge or other evidence of criminal intent, known as *mens rea. More specifically, a perpetrator has "wrongful purpose, guilty knowledge or willfulness which amounts to a criminal intent"* (Russo, 2000; Sullivan, 1999; Solow, personal communication, 1999).

For purposes of oil pollution enforcement, the following are the most used Federal environmental statutes with criminal provisions:

- **Clean Water Act and OPA 90:** OPA 90 amendments to the Clean Water Act (Section 4301(c), amending 33 USC Section 1319(c)) increase the penalties, fines and possible jail sentence based on the severity of the discharge.
  1. Negligent discharge: $2500—$25,000 per day, imprisonment—up to 1 year. Second conviction doubles penalties;
  2. Knowing discharge—$5000—$50,000 per day, imprisonment up to 3 years. Second conviction doubles penalties;
  3. Knowing discharge and placing another person in imminent danger of death or serious bodily harm—$250,000 maximum, imprisonment—up to 15 years for an individual. For a corporation—maximum fine of $1 million. Second offenses double penalties.

4. Failure to Notify is also a crime under Section 311(b) (5) of CWA—$250,000 maximum fine, imprisonment—up to 5 years for individuals. Maximum fine of $500,000 for organizations (Olney, 1999; Barrett, 1998).

- **MARPOL 73/78 and APPS (Act to Prevent Pollution from Ships)** (33 US C. Section 1901—1911): The US implemented the criminal and other provisions of the International Convention for the Prevention of Pollution from Ships, 1973 and its 1978 Protocol (see Section 4.2.1 of this book for MARPOL discussion) by enactment of APPS, which provides for civil and criminal penalties for MARPOL 73/78, APPS and US Coast Guard regulations implementing these laws. The provisions apply to US flag ships wherever found in the world and to foreign flag vessels operating in US waters. APPS adopts the MARPOL 73/78 requirement that the vessel maintain an Oil Record Book, to log all discharges, disposals and transfers of oil. Knowing violation of any provisions of MARPOL 73/78 and implementing regulations including discharges and reporting/record keeping requirements carries a general felony criminal provision of a $250,000 fine for individuals, $500,000 for corporations, and imprisonment of up to 6 years for individuals. There is a "whistle blower" reward for any person providing information leading to conviction of up to half the fine (Linsin, 1996; Barrett, 1998).
- **The Marine Protection, Research, and Sanctuaries Act of 1972:** (33 USC Sections 1401–1445) (Ocean Dumping Act): Amended in 1992, the primary purpose of the Act is to protect the oceans from materials which adversely impact human health or the marine environment. Material is defined as "matter of any kind or description". Knowing dumping without a permit is a felony with penalties of $250,000 fine for individuals, $500,000 fine for corporations, and/or imprisonment—up to 5 years, and possible forfeiture of the vessel. Alternative fines can be twice the gain derived or twice the loss sustained by another party (Linsin, 1996; Barrett, 1998).
- **Rivers and Harbors Act of 1899:** (33 USC Section 407) (Refuse Act): This is a federal misdemeanor pollution statute that can be used for prosecuting vessel pollution. Historically, it has been used more often for land-based facility offenses. It prohibits throwing, discharging or depositing any refuse of any kind from a vessel in navigable US waters. Sanctions include fines of up to $100,000 for individuals, $200,000 for corporations, imprisonment from 30 days to 1 year or alternatively, twice the gain or twice the loss to another party. There is a reward provision for those who report violations of the law to the proper authorities (Linsin, 1996; Barrett, 1998).
- **Migratory Bird Treaty Act:** (16 USC Section 703): This is a treaty interpreted in and since the *Exxon Valdez* oil spill to apply to migratory birds killed by oil spills. Use of this treaty is one of the most bitterly contested issues for industry in the environmental crimes area, because criminal intent is not required for conviction. The Act makes it illegal to kill migratory birds "by any means, and

in any manner". Unintentional discharges are actionable, subjecting violators to misdemeanor penalties: $5000 fines for individuals, $10,000 for organizations, and/or imprisonment up to 6 months, or alternatively, twice the gain or twice the loss sustained by a third party (Barrett, 1998).

- **Comprehensive Environmental Response, Compensation and Liability Act** (CERCLA) (42 USC Section 9601, et seq.: CERCLA imposed liability upon ship owners/operators of vessels for a release of a hazardous substance, including oil, amongst the more than 700 substances listed. The polluter must pay removal costs and damages to the natural resources. Reporting of the release is required. Criminal fines of up to $250,000 for individuals and $500,000 for organizations, and imprisonment of up to 3 years are sanctions for failure to report a release (Barrett, 1998).
- **False Statements Act:** (18 USC Section 1001): As discussed more fully in the next section, this is another area bitterly contested by industry. It is a felony for any person to willfully and knowingly make a false statement or representation, which is material, or to use a document known to contain a false entry, such as a log book, in a matter over which a federal agency, like the US Coast Guard has jurisdiction. Sanctions for this felony include $250,000 for individuals, $500,000 for corporations, imprisonment up to 5 years, with an alternative fine of up to twice the gain or twice the loss (Barrett, 1998).
- **Seaworthiness Statute:** Warranty of seaworthiness under maritime statutes, (46 USC Section 10908): A person knowingly sending a vessel to sea in an unseaworthy condition that "is likely to endanger the life of an individual" violates this statute. Sanctions for the responsible person are $1000 fine, imprisonment for not more than 5 years, or both. This is an area as well undergoing strict scrutiny by the oil shipping industry because of its broad policy applications (Linsin, 1996).

There are other federal environmental statutes or maritime statutes applicable to and used for environmental criminal enforcement, such as the Ports and Waterways Safety Act of 1972 (Pub. L. 92-340, 33 USC Section 1232 for enforcement programs) and the regulations promulgated thereafter, (33 C.F.R Parts 160-168 of, Subchapter P), but the statutes cited above are the most frequently used by the regulatory authorities charged with their enforcement.

Agencies with such regulatory/enforcement authority include:

- The *US Coast Guard* has broad authority to "make inquiries, examinations, inspections, searches, seizures, and arrests upon the high seas and waters over which the United States has jurisdiction, for the prevention, detection, and suppression of violations of laws of the United States" (14 USC Section 89(a)). A boarding may, in some circumstances, take place without a "reasonable suspicion", but if a routine inspection leads to such a suspicion, an expanded inspection can take place and the US Coast Guard can use "all necessary force to compel compliance", including vessel seizure. A search warrant may not be necessary because

of the ability of the ship to move out of US waters quickly while the warrant is being sought (*United States v. Maybusher*, 735 F. 2d 366, 372 (9th Cir. 1984)). In the case of *US v. Varlack,* 149 F.3d (3rd Cir. 1998), this right of warrantless search was extended even to a vessel in drydock, where there was reasonable suspicion to believe that a violation of a US environmental criminal law occurred.

OPA 90 expands this US Coast Guard jurisdiction to investigate a marine casualty. A US vessel or foreign vessel in navigable waters in the US involved in a marine casualty causing significant harm to the environment or materially affecting the seaworthiness of the vessel in the US Exclusive Economic Zone, must report the incident to the US Coast Guard (46 USC Section 6101(a)(5)). Vessels have a duty to report to the US Coast Guard any marine casualty involving death, serious injury, loss of property, or material damage affecting the seaworthiness of the vessel (46 USC Section 6101 (a)). The US Coast Guard is granted further authority to investigate accidents affecting the safety or environmental quality of ports, harbors or navigable US waters under the Ports and Waterways Safety Act (33 USC 1227(a)) (Dickman, 1997; Williams, 1997).

- *The Customs Service* has broad authority to inspect and search a vessel, and may board at any time when a vessel is in US waters. Searches may be conducted without a warrant and even without reasonable suspicion due to the right of the Service to conduct a "border search". Searches on the high seas require a "reasonable suspicion" of violation of a US law (Barrett, 1999).
- The *Federal Bureau of Investigation* has jurisdiction to conduct an investigation of alleged crimes involving a US citizen on US vessels anywhere and foreign flag ships in US waters, if the vessel departed from or is headed toward a US port. International comity usually requires that US officials seek permission of the Flag State before boarding a foreign flag vessel on the high seas (Barrett, 1999).
- Investigations may be performed by any number of officials from different government agencies under the federal and state environmental crimes statutes, including, "... the Environmental Protection Agency, the US Coast Guard, the Minerals Management Service (usually for off-shore drilling rigs), the Federal Bureau of Investigation, the US Fish and Wildlife Service, the United States Attorney with jurisdiction over the incident, the Department of Justice Environmental Crimes Unit, a state environmental agency, or a state attorney general. Any spill, but particularly large spills, can generate multiple and simultaneous criminal and civil investigations" (White, 1999).

The Department of Justice works closely with the US Coast Guard. While the US Coast Guard can refer a case to the Department of Justice (DOJ) for prosecution where there is significant environmental harm or culpable conduct of the responsible party, DOJ can act on its own to bring a case against an alleged violator without a referral from the US Coast Guard and/or with minimal US Coast Guard involvement (Barrett, 1999). What is important for the conduct of investigations and eventual prosecutions

of environmental crimes is the current coordination between the US Coast Guard and DOJ from the inception of an incident that looks like a crime. The US Coast Guard will confer for guidance and advice and work together with DOJ prosecutors, utilizing their specialized knowledge and experience, from the earliest stages of an investigation (Williams, personal interview, 1998; Solow, personal communication, 1999).

In July 1997, the US Coast Guard issued Commandant Instruction M16201.1, "Criminal Enforcement of Environmental Laws" (CMDT Instruction) to deal with the increasing involvement of the US Coast Guard in criminal investigations and penalties. Industry responded strongly to the CMDT Instruction. Some industry representatives were concerned that the US Coast Guard and DOJ were conducting an onslaught against ship owners and operators, and that the CMDT Instruction was put out as part of this "blitz". Capt. Williams, former Chief of the Office of Maritime and International Law of the US Coast Guard, explains the reasoning for the guidelines in response to these charges. The instruction was designed for three basic purposes:

- To educate the US Coast Guard investigators in the various Marine Safety Offices likely to encounter criminal law situations so that they gained heightened familiarity with what the criminal laws were, their elements, and how to conduct a criminal investigation. Previously, the prime focus of marine safety officers was upon regulatory regimes and civil penalties;
- To create a uniform approach throughout the US Coast Guard so that incidents wherever they occurred would be handled in the same manner; and
- Finally, and most importantly, the purpose was to identify the types of incidents the US Coast Guard would target, given limited resources available and the policy of the US Coast Guard to refer those criminal cases to DOJ in situations which "best serve the Coast Guard's law enforcement responsibility by promoting compliance with the law, protecting the public health and welfare, and protecting marine resources" (Williams, 1997; personal interview, 1998).

What has emerged from application of these many environmental laws are two basic legal theories which justify imposition of criminal and civil liability flowing up the chain of responsibility to those at the very top of companies: (1) *the responsible corporate officer doctrine*, a potential criminal violation and (2) a *stockholder derivative right of action*, a potential civil action, against corporate directors (Adams, 1999). A leading case on *the responsible corporate officer doctrine* is that of *US v. Iverson,* 162 F.3d. 1015 (9th Cir. 1998). In that case the jury convicted the defendant of four criminal counts of violation of the Federal Clean Water Act. The defendant was the founder of a company which blended numerous chemicals into its clients' drums and then requested that the clients return the drums for reuse. Defendant's company cleaned the drums. The drum cleaning generated wastewater, which the defendant personally discharged or ordered his employees to discharge into the city sewer system from a drain located in a company warehouse. Defendant was sentenced

to 1 year in custody, 3 years of supervised release and fined $75,000.The US Court of Appeals affirmed on all counts and defined clearly *the responsible corporate officer doctrine*. Corporate officers can become criminally liable for failure to prevent or correct a criminal violation of a subordinate over whom the officer has responsibility or authority. Existence of the authority is sufficient, whether or not the officer actually exercises that authority in fact. Defendant's knowledge of the criminal activity is necessary for conviction. His personal action, such as personally causing the discharge, is not.

The US Supreme Court denied *certiorari* review of a US Court of Appeals holding that the project manager for the White Pass & Yukon Railroad in Alaska was guilty of violation of the Clean Water Act, where he had direct supervisory authority for all details of track construction. A subcontractor backhoe operator ruptured an unprotected heating oil pipeline, which then discharged oil into the adjacent Skagway River. The manager was found criminally liable for his negligent conduct in failing to properly protect that pipeline. He was sentenced to 6 months in jail, 6 months in a halfway house and 6 months of supervised release, as well as a $5000 fine. The US Supreme Court did not find application of the public welfare statute holding him strictly liable to be a violation of his due process rights. (*Hanousek v. US,* 120 S.C.t. 860, 145 L.Ed. 2d 710 (2000), aff'g *US v. Hanousek*, 176 F.3d 1116 (1999)).

The same type of responsible corporate officer liability theory justifies criminal responsibility of a larger/parent corporation for its subsidiaries. In many cases in the shipping industry, for example with Chevron Shipping Company, a separate corporation exists for the purpose of transporting the oil produced by the larger, umbrella corporation. If the parent company actively participates in and exercises direct control over the activities of the subsidiary's business, then the court may find the parent liable, going up the chain to the largest company, for the actions of the smaller business. The theory of liability supporting such action is termed "piercing the corporate veil". In the *Morris J. Berman* spill of 1994, (*United States v. Bunker Group*), the US District Court for the District of Puerto Rico attached $19.7 million in assets of the parent company to secure a $75 million judgment against three of its subsidiaries involved in a 798,000 gallon spill off the coast of San Juan, Puerto Rico in January, 1994. This legal concept of piercing the corporate veil was used in *Exxon Valdez* to reach the ultimately high civil and criminal damages and fines leveled against the parent: $125 million in fines and restitution, $900 million in civil penalties, $5 billion in punitive damages. Charles De Monaco, the Department of Justice lead prosecutor in *Exxon Valdez* and in the *Berman* case explains how a parent may become liable criminally and civilly for actions of its subsidiary company. "The theory that we relied on in *Exxon* was that if a subsidiary engages in a crime while acting as an agent of a parent company, then the parent should have vicarious liability. We weren't trying to stretch corporate law because the case involved the environment; we were trying to define corporate law as being an extension of traditional agency law" (The Environmental Law Institute, 1999).

This is new law in the area of shipping and how far the Courts may go to impose corporate liability on the parent company for acts of the subsidiary is as yet undetermined. In a recent case involving a Superfund action under CERCLA (*US v. Bestfoods*, 118 S.Ct. 1876, 141 L.Ed. 2d 43 (No. 97-474, 8 June 1998), while upholding the common law doctrine of liability of a parent for acts of its subsidiaries, the highest court in the US, the Supreme Court, limited the parent corporation's liability where there was no showing that the parent company directed the workings of, managed or conducted the affairs of the facility involved. Whether the same type of showing will be required for an oil pollution case, i.e., that the parent shipping company actually managed the operation and control of the subsidiary's tanker causing the spill or release, remains an open question (Environmental Law Institute, 1999; Wagner, 1998).

Even if the US courts choose to limit responsibility to actual acts of control in shipping cases, the adoption and implementation of the International Safety Management Code (ISM Code). (For more information on ISM Code, see Section 3.5 of this book.) The ISM Code provisions may further complicate the issue of how the action of an employee, whether a crew member or master, may subject the ship owner/operator to criminal liability. Increasingly, the ship owner/operator, up to the highest individual in the company, has an obligation to know if and how safety management systems are operating on each vessel of a fleet, to review internal audits and to insist upon correction and compliance with all safety statutes and regulations. The ability of a ship owner/operator to claim lack of actual control over a ship involved in a "human error" or a systems management related incident is lessening. Prosecutors may well use these affirmative requirements of corporate officials involved in shoreside management to prove the necessary element of authority and responsibility and thereby create a case for criminal liability, where actual knowledge of an environmental violation exists (Dickman, 1997, citing language used to convict corporate officers with responsibility and authority to prevent and correct a violation in *US v. Park*, 421 US 658, 673-674 (1975)).

Should the corporate officer or parent company escape criminal responsibility under a more limited application of the responsible corporate officer doctrine, i.e., no finding of authority or direction by the parent of the subsidiary, yet another legal theory may lead to imposition of civil sanctions. The public, in the form of stockholders of companies, demands risk management and protection of corporate assets against losses imposed for avoidable incidents. In a 1996 Delaware Chancery Court ruling, the court held directors personally liable to the stockholders who brought an action against them. The case resulted in a $200 million fine being levied against the parent company, a health care provider, for kickbacks received by physicians and testing laboratories of two of its subsidiaries. The importance of this decision is to put directors, high company officials on notice, that their failure to implement corporate compliance programs which could catch such malfeasance, may subject them to serious liability at the hands of their stockholders. The court *In Re Caremark*

International, Inc. Derivative Litigation, Del. Ch. 698 A. 2d 959 (1996) held that directors can be personally liable if they fail "... to attempt in good faith to assure that a corporate information and reporting system, which the board concludes is adequate, exists, and that failure to do so under some circumstances may, in theory at least, render a director liable for losses caused by non-compliance with applicable legal standards". Again, given the ISM Code requirements, the company officials, including boards of directors, are in an increasingly sensitive position of responsibility to their shareholders (Russo, 2000; Solow, 1998; The Environmental Law Institute, 1999).

One US litigator, Charles De Monaco, summarizes the position that these legal theories place corporate officers and directors in, leaving them on the "horns of a dilemma": "It really becomes a policy decision by each and every organization. Either you run the risk of parental liability by tight control, versus you run the risk of subsidiaries possibly running afoul of the law, hurting the profits of the parent and exposing its directors to liability through a derivative action". (The Environmental Law Institute, 1999). There are no easy answers for the shipping industry in the area of environmental crimes. One corporate defense counsel suggests that "nonetheless, whatever the cause, potential criminal prosecution stemming from an oil spill or a near miss remains a very grave and real prospect to those engaged in the maritime industry" (Wagner, 1998). This assertion is not consistent with the review of actual cases in marine circumstances. The percentage of spills resulting in criminal prosecution is small, only three, including *Exxon Valdez* (Solow, personal communication, 1999). Regardless of the accuracy of industry perception, what is important is that the existence of criminal sanctions against corporate officers at the highest levels of both the parent and subsidiary companies should cause the shipping industry to focus on environmental behavior for each vessel in the fleet and should heighten the importance of compliance with environmental laws in the US and internationally.

4.3.8. Environmental Crimes—The Future

Environmental crimes may frame the new battleground between the shipping industry and its host of regulators, both domestic and international, in the early decades of the new millennium. The shipping community is in an "uproar" over the US application of criminality for violation of marine protective laws. It is too soon to determine whether the ultimate impact of aggressive enforcement of environmental protection on US flag and foreign flag vessels trading in US waters will end in "disaster" or in its intended result, deterrence of poor operators who will be punished for violations, eventually driven out of the business, or potentially reformed so that their behavior conforms with environmental laws and with the conduct of good operators. Those in the business of enforcement liken industry reaction over environmental criminal enforcement to previous overreaction by shippers:

- The forecasted "train wreck" concerning the US Certificate of Financial Responsibility requirement of OPA 90;

- The unsuccessful attack on the validity of the US natural resource damage assessment rule; and
- The prognosticated fallout from implementation of the ISM Code.

Those transporting oil to the US assert that this further development in application of OPA 90 may be the death knell for trading by the responsible shipper in US waters. They contend that good operators will not be willing "to bet their ship, nor their company" by continuing to conduct business under threat of fines and imprisonment.

There are substantial differences in how entities on opposite sides view the purpose, intent and impact of environmental crimes. Lois Schiffer, (former Assistant Attorney General of the US Department of Justice, Environment and Natural Resource Division) addressed an audience of her peers, attorneys and ship owners/operators in September 1997 and explained the "why" behind her department's "vigorous" enforcement of sanctions for conduct breaking the law. According to the Assistant Attorney General, the American people insist upon strong enforcement. The public does not believe that the laws go far enough, or that they are benefiting from the right balance between enforcement and compliance. Environmental crimes are real crimes with measurable impact, in which pollution has caused long-term and permanent damage in which, natural resources are damaged, species are impacted and habitat and wetlands are destroyed.

Many of the international and domestic statutes rely upon voluntary enforcement by people in authoritative positions, such as the captains of industry. The body of environmental statutes containing criminal provisions depends upon the exercise of the enforcement power by the regulatory authorities charged with protecting the public's interests. The possibility of criminal enforcement enhances compliance. No longer can the Chief Executive Officer (CEO) of a company pass the cost of his company's violations onto the consumer, when the CEO might be personally liable for jail time. A shift in attitude is needed amongst many of the players in industry. Such a change in view means a respect for the law. The way to command respect is to mete out just punishment, enforce regulation to achieve adequate deterrence, remedy harm created by violation of law, and level the playing field amongst all competitors. Those who chose to cut corners and violate safety provisions should not gain a competitive advantage over law abiding businesses (Schiffer, 1997).

The attorneys at the Department of Justice (DOJ), Environmental Crimes Section, take their mandate seriously. They are "career prosecutors". Steven P. Solow, former Chief of this section since 1997, not only echoes Lois Schiffer's comments, but he carries them a step farther. Environmental enforcement in the US has been a "remarkably successful endeavor". The proof exists in the considerably improved water quality in the nation's waters since the passage of the Clean Water Act in 1972. Before the Clean Water Act, only one-third of the waters of the US were "fishable" and "swimable". Now, two-thirds occupy that position. Losses in wetlands, averaging almost a half million acres per year, have been reduced by four-fifths of that number. Solow believes

that policies applied to land will work equally well when applied to sea. He welcomes the maritime industry into the enforcement regime that has been in effect for the land-based sector for over 20 years. The future of environmental enforcement is strong. There is a political consensus in the US that the statutes are critical for environmental protection, that criminal prosecution is a necessary component of that protection, and that the burden is on industry to show why the criminal model should be abandoned in the future. Steven Solow feels that he has an obligation to his children to leave them an environment that is just as good as it is today, if not better. The principles of DOJ are shared internationally. Mr. Solow notes that other countries look to the US for training and assistance in the development of their own prosecutorial departments for violations of maritime national and treaty provisions (Solow, personal interview, 1998).

The success of DOJ's program and that of all environmental compliance depends upon a balancing of deterrence and self-policing by those subject to liability. "Those who make serious and responsible efforts to comply with the law and who discover, disclose and correct misconduct promptly should not be discouraged from those practices". DOJ encourages companies to conduct internal audits, catch and correct problems before incidents occur, and make the necessary disclosures to the appropriate regulatory authority. To guide prosecutors in their exercise of discretion in environmental criminal cases, keeping the balance of deterrence and self-initiative in mind, and to assist the regulated community with a sense of the process, DOJ developed a memorandum in 1991 titled "Factors in Decisions on Criminal Prosecutions for Environmental Violations in the Context of Significant Voluntary Compliance or Disclosure Efforts by the Violator". The memo contains guidelines by which prosecutors can decide if a particular case commands leniency for prosecution of a violation, or not. Factors considered by DOJ are:

- Voluntary disclosure by the perpetrator;
- Cooperation to make all relevant information available during an investigation;
- Preventive measures and compliance programs;
- Pervasiveness of non-compliance;
- The existence or not of an internal disciplinary program; and
- Subsequent Compliance efforts (Solow, 1998; personal interview, 1998).

Individuals who are corporate officials or CEOs are warned that in vessel cases, DOJ intends to identify the highest corporate officer responsible and then assert criminal action against those who have actual knowledge of the actions or behavior leading to violation of an environmental law, have the authority over those acting on their behalf, such as company employees, and have the most to gain from conducting business. Those vessel fleets taking short cuts and subverting legitimate safety measures will no longer be free to benefit from unfair competitive advantage. The risk of such an attitude is high. DOJ will seek imprisonment of top level officials (Linsin, personal interview, 1998).

Capt. Malcolm Williams, former Chief of the Office of Maritime and International Law, takes a slightly more moderate position than that of DOJ. He believes strongly that OPA 90, including its criminal enforcement provisions, is working. There is less oil going into the oceans. The gallons spilled per million gallons shipped in US waters since the passage of OPA 90 have reduced drastically, from 14 to 5 per million. The risk factor is increasing for the irresponsible carriers. The "bad guys" are being weeded out of the business of shipping, as enforcement of regulation improves and the responsible operators on their own initiative police their organizations. Yet, Capt. Williams does see the bind that some of the enforcement issues create for industry. He lobbies for a balanced approach, one which accomplishes cooperation in the self-audit process to prevent the spill in the first instance, and then, if oil spills, to provide the authorities, like the US Coast Guard with the necessary information to respond to the spill quickly and efficiently. While anyone from crew on the vessel on up the chain can be arrested, they are required to disclose the spill by law. Individuals may be less inclined to share information during a spill response if that person (or persons) is concerned about potential criminal liability. In the international arena, Capt. Williams reports hearing higher company officials state their concern about even coming to the US during a spill event in which their company is involved, for fear of "being arrested in their hotel lobby". While acknowledging that these fears exist, Capt. Williams believes them to be exaggerated, given the types of criminal cases actually brought in the US (Williams, personal interview, 1998, personal communication, 1999).

Those in industry or acting as counsel for ship owners/operators hold very strong opinions about the reasons for and the impact of criminal enforcement in the maritime arena. Their views vary widely, but they contain common themes. At one extreme are those who see the motive behind DOJ prosecutions as being based more on politics and economics, than legal reasons (Wagner, 1998). Others emphasize the gain not only to federal governmental coffers, but also to states from multimillion dollar fines imposed under the auspices of public welfare statutes: "In the current era of budget tightening, prospective million-dollar cash infusions to government treasuries or environmental/conservation funds are sure to arouse grass-roots sentiments. In the future, 'Salem polluter hunts' may not be beyond the realm of possibilities, although some might say that in comparison, the witches actually had it easy" (Starr, 1997).

For those who have been on both sides of the fence, as prosecuting attorneys and now as defense attorneys for ship owners and operators, there is a real concern that the maritime industry is at the top of the target list for prosecutors who have a strong "criminal arsenal". They urge sparing use of these tools. "It is therefore incumbent on the Department of Justice to prosecute criminally only those cases that truly merit criminal prosecution, and not those that are truly accidents, and not be impelled to prosecute simply because of political, public, or media pressure". There is great distrust by industry of the government and its motives, and fear that, even if a company does its best, it will still be prosecuted in the event of an incident. If the company does

not cooperate as fully as DOJ may wish during an incident, because of real concerns about criminal prosecution, the careful exercise of caution may well be treated as obstruction of justice. In other words, paranoia is very high amongst the shipping community (Barrett, 1999).

DOJ asserts that it makes sparing use of the tool of criminal prosecution. Of the forty or so criminal vessel pollution cases brought in about 8 years, Solow knows of no case prosecuted for any reason, except that it merited criminal prosecution under the law (Solow, personal communication, 1999).

There is some basis in fact to industry's perception, due to certain judicial realities. The criminal route is faster and easier than the civil action remedy. Increasingly, regulators charge corporations and not just the individuals. There are good, policy reasons behind this expanded scope: to bring the company into compliance with an adequate safety management system, to then have a court monitor that compliance and to place the company on probation to ensure effective implementation (Environmental Institute, 1999). Under environmental compliance programs, companies like Royal Caribbean Cruise Lines, may in fact reform their practices and become models for their industry (Solow, personal communication, 1999).

These differing outlooks have shaped the areas of contention, which will be the center of industry attention for the next years. The primary concerns voiced by industry about the application of criminal laws center around these issues:

- **Migratory Bird Act/Refuse Act:** According to the shipping community, these acts are being used for purposes never intended by Congress. Strict liability provisions of the acts carry severe criminal penalties. Under these "no fault" statutes, in the absence of criminal intent, the fact alone that oil is spilled into the water may penalize even the good operator who has done all that he can and still is held liable. Admiral Kime, retired Commandant of the US Coast Guard, states, you can run a ship into a bridge, knock a school bus full of children into the water, and not be strictly liable for injury to them. In contrast, under these older acts, you can take the same situation, substitute a flock of geese damaged for children, and the operator will be held strictly liable (McCormack, personal interview, 1999; Kime, personal interview, 1999). A Washington, DC-based coalition of industry organizations is seeking to amend the scheme of criminal sanctions for environmental incidents so that only OPA 90 criminal provisions apply to such incidents, eliminating application of other statutes such as the Migratory Bird Act/Refuse Act strict liability statutes (Hobbie and Garger, 2001).
- **Limited Immunity from Prosecution:** During a spill incident, there is a chilling effect from the possibility of criminal prosecution upon all persons who would otherwise be involved in a coordinated response, from the crew member to the highest ranking shore-based official. Industry is seeking a form of limited immunity so that the response can take place efficiently and effectively, rather than on a less than cooperative basis. Industry voices a concern about an unpalatable

balancing that must be conducted in an incident. That they are "like sitting ducks, forced to comply and to cooperate", but that in doing so, what they say or do will be used against them in a later investigation. Instead of reaching for the boom, those involved call their lawyers. Crew members may be set off against ship's masters and their company, in a classic conflict of interest situation. Each individual may need separate counsel. This is not a good environment in which to focus on the task at hand, cleaning up the oil (Barrett, personal interview, 1998; personal interview, 1998; Kime, personal interview, 1999).

- **Immunity from Audit Disclosures:** A major issue is the question of how the results of internal audits, such as those conducted for ISM Code compliance or in the usual course of business as a routine part of a company's environmental safety management system, may be used or misused during voluntary disclosure or subsequent criminal investigation if an incident occurs. The concern is that access to internal disclosures will be misused in arenas different from the spill context, such as personal injury actions in "slip and fall cases" under the Jones Act (Section 27 of the Merchant Marine Act of 1920). Further, industry contends that it is unfair to use a document produced as the result of an internal audit for the purpose of improving a criminal action against the company. This fear of disclosure could have a chilling effect upon the purpose of the ISM Code, which is self-regulation and corrective activity due to effective disclosure within a company. Reports may be "whitewashed". The suggested solution is a limited immunity, which would not allow for use of the particular document or fact disclosed based on an internal audit in a criminal prosecution (Cox, personal interview, 1999; Kime, personal interview, 1999).

  Steven Solow of DOJ responds on the subject of limited immunity, calling the whole issue a "solution in search of a problem". The current public policy, including criminal enforcement, forces industry to self-regulate, to conduct audits and correct problems before they develop into oil spills or serious accidents. Self-reporting works only if there is credible enforcement to encourage compliance. Knowledge gives rise to a duty and obligation to remedy the problem. Self-reporting is good business. Shrouding activity in a cloak of secrecy is not the intention of environmental acts. Solow knows of no cases in which his department has taken action against a company who performed an audit and used that as a road map to prosecute someone criminally, absent other information that would lead DOJ to conduct a criminal investigation or an actual incident. In other words, DOJ has not sought an audit, and then used the findings as a basis for conducting a criminal investigation (Solow, personal interview, 1998, personal communication, 1999).
- **Misuse of the Unseaworthiness Statute:** In the *Berman* spill, a case with a long litigated history (*US v. Rivera*, 942 F. Supp. 732 (D.P.R. 1996), *aff'd* No. 96-2188, Slip Op (1st Cir. 1 May 1997), *vacated, reh'g en banc granted*, (1st Cir. 29 May 1997), rev'd 131 F. 3d 222 (1st Cir. 1997) (*en banc*), one of the grounds upon

which the Puerto Rican federal District Court found Pedro Rivera, the general manager, guilty for a major spill off the coast of San Juan, Puerto Rico, was his sending a ship out to sea in an unseaworthy condition *with knowledge that it would likely endanger the life of an individual* (Emphasis added). While the Court of Appeals reversed Rivera's conviction, it did so not based upon a disagreement with the legal theory, but rather upon the finding that the facts did not support the contention that Rivera knew the ship's condition would endanger life. The Maritime Law Association filed an *amicus curiae* brief on this issue because of the strong concern that this case might create a new cause of action, titled "criminal unseaworthiness" in the absence of requiring as a precondition the traditional findings of unseaworthiness under the long-established statutory scheme. In essence, the Maritime Law Association supported the position taken by the dissenting Judge in the First Circuit panel that the majority's holding "posses a substantial threat of converting untold numbers of unsuspecting persons into prospective felons" (Wagner, 1998; McCormack, personal interview, 1999).

Further, the MLA understood that the 1983 recodification of Title 46 was not meant to create or expand criminal law, but rather was a recodification of existing law. By creating a new maritime crime of unseaworthiness, a result has occurred not intended by either the US Coast Guard nor by Congress (MLA, 1997).

- **Misuse of the False Statements Act and Chilling Impact on International Law:** In a recent decision involving the Royal Caribbean Cruise Line, the US Coast Guard in Miami, Florida used false statements (an omission of a discharge) made in the company ship's Oil Record Book, as required by MARPOL 73/78 (see discussion, Section 4.2.1 of this book). When the ship entered the US port, based upon a violation observed by US Coast Guard aircraft, the US Coast Guard boarded the ship to investigate, reviewed the record book, and then referred the violation to the Department of Justice (DOJ) for indictment of the foreign flag ship. The ship had discharged oily bilge water that had not passed through the oil water separator, into Bahamian waters, outside the US 200 nautical mile exclusive economic zone. The DOJ position was that a Port State has full control over vessels entering its ports, and can, under concurrent jurisdiction provided by MARPOL 73/78, prosecute a ship and company for lies contained in its record book. The US District Court for the Southern District of Florida denied the motion by Royal Caribbean Cruises, Ltd. to dismiss the action, holding that the exercise of Port State control did not have a chilling impact on the international system. The court relied on the testimony of Capt. Thomas Gilmour, of the US Coast Guard that, "(a)ny holding that would undermine the ability of port states to ensure accuracy and truthfulness in these certificates and records would adversely affect the goal of the IMO, the Congress, and the Coast Guard to eliminate substandard ships and operations". The company settled the case after this denial (*US v. Royal Caribbean Cruises, Ltd.,* Case No. 98-0103-CR-Middlebrooks, Order on Motion to Dismiss, p. 14 (US Dist. Ct., S. D. Fla., 1998)).

Industry's belief is that the action of the US Coast Guard is akin to "hostage taking", and that under international law, the Port State should defer to the Flag State administration for proper enforcement of treaty violation in waters far outside US jurisdiction (Carr, 1998).

- **Negation of Financial Guarantee:** Richard Hobbie, President of the Water Quality Insurance Syndicate, points out that the aggressive stance of DOJ in prosecuting responsible parties for environmental crimes may have an unintended consequence. A finding of "willful misconduct", which would occur in the course of a criminal prosecution, may negate the financial guarantee of the American or P&I insurer. In the *Morris J. Berman* spill, Mr. Hobbie's syndicate is availing itself of the willful misconduct defense under OPA 90 to seek reimbursement of $10 million of clean-up costs paid by WQIS from the Oil Spill Liability Trust Fund (Hobbie, personal interview, 1999).
- **Impact on Oil Spill Response:** The misuse of criminal prosecution may have a chilling effect upon oil spill response. The threat of criminal prosecution alone, has caused and may continue to cause individuals subject to criminal sanctions to assert their Fifth Amendment rights, as allegedly did the Master in the *New Carissa* spill in February 1999 off the coast of Oregon. The net effect on readiness and prevention may be that the NTSB and the US Coast Guard will lose valuable information about, for example, causation, from the actual incident, which prevents understanding and establishment of future prevention programs based on "lessons learned". Unlike civil agency actions, where information learned cannot be used for discovery or revocation proceedings, there is no such statutory prohibition for criminal actions. OPA 90, with its imposition of an obligation to cooperate and lack of immunity for information disclosed in subsequent criminal prosecution, places a Responsible Party in an untenable situation. Industry advocates describe this as leaving the Responsible Party to choose between two impossible outcomes, "... risking a literal 'confession', and refusing to cooperate, which brings with it the prospect of waiving the limitation on its liability found in OPA 90" (MLA, 1999). Finally, industry contends that the uninformed use of criminal laws will have a cooling impact on the otherwise successful partnering programs with the US Coast Guard (McCormack, personal interview, 1999).

In spite of these areas of dispute, environmental criminal prosecution is having its intended effect upon the oil shipping business, i.e., motivating ship owners and operators to police themselves, to determine non-compliance, to take corrective action, and to avoid oil spills. Over and again, attorneys for ship owners urge responsible action on the part of the industry, to prevent the uncomfortable position of becoming a criminal violator. The principles they recommend that businesses adopt mirror those stated in the ISM Code:

The 639-foot double-hulled Panamanian-registered wood chip carrier *New Carissa* ran aground 4 February 1999 while waiting for high tide to enter the port near the mouth of Coos Bay Oregon on its way into the bay to pick up a cargo of wood chips and breached its number four and five fuel oil tanks, as well as the number one diesel tank spilling an estimated 70,000 gallons. The grounding occurred in high winds with ocean swells of 15–17 feet and heavy surf making response extremely difficult. The grounded vessel containing 359,000 gallons of fuel oil and 37,400 gallons of diesel fuel in its tanks posed a coastal environmental threat. The ship was subsequently set afire three times, blown up, broken in half, towed to sea, lost at sea and on 3 March 1999 subsequently washed ashore again at a town north of Coos Bay, called Waldport and was finally towed to sea and sank on 11 March 1999.

- Responsibility for environmental law compliance is an individual and corporate obligation. Ignorance of the law is not a defense;
- Companies should adopt a safety culture, conduct regular audits, catch non-compliance, correct detected deficiencies, and keep good records of these audit actions;
- Training of employees from the mate to the master is the best way to ensure environmental compliance;
- Outside consultants can help the organization's officers and employees to gain the knowledge and understanding needed to institute a safety management system; and
- In the event of a spill, companies should promptly report to the appropriate authority and then cooperate fully, if necessary through legal counsel, with responders and investigators, without lies or omissions (Sullivan, 1999, Barrett, 1999; White, 1999).

While most organizations point to the US as the primary enforcer of environmental crimes, increasingly other countries are passing or enforcing national criminal legislation to force polluters to pay and to impress upon companies the urgency of effective preventive action in the first instance. Ireland is ratifying the International Convention on Oil Pollution Preparedness, Response and Cooperation Convention, 1990 (OPRC) and using their national implementing legislation to impose penalties of up to US $13.1 million for non-compliance for oil spills within 200 nautical miles of the coastline. This is an example of yet one more country taking action to enforce protection of its waters (OSIR, 1999b). The most "startling" action may be that of the United Arab Emirates, considering imposition of a "death penalty" for "willful" pollution. While it appears that the proposed law will apply the death penalty only to deliberate pollution from nuclear materials, such an extension of a nation's criminal enforcement powers should give industry much cause for concern. As countries face increasing pollution of their "national wealth", enforcement may become stricter and more severe (OSIR, 1999c).

While potential death penalties raise the stakes considerably, their imposition is not in the realm of immediate concern like the listed "hot topics" raised by industry about implementation of various US statutes and the impacts of enforcement upon response. When the "dust settles" and the inconsistent and often contrary viewpoints of those involved are resolved, harmonized, or at least tempered, the regulators, ship owners/operators, responders, and lawyers for each would do well to consider the truth of the matter. As Richard Hobbie so aptly phrases it, "I am not your enemy and you are not mine. The oil is our enemy" (Hobbie, personal interview, 1999).

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