Purposeful Jettison of Petroleum Cargo

Committee on Marine Salvage Issues, National Research Council

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PURPOSEFUL JETTISON OF PETROLEUM CARGO

COMMITTEE ON MARINE SALVAGE ISSUES
MARINE BOARD
COMMISSION ON ENGINEERING AND TECHNICAL SYSTEMS
NATIONAL RESEARCH COUNCIL

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PREFACE

The possible need to discharge oil to save a ship is recognized in the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78), a convention in force for 78 nations, including the United States. On the other hand, U.S. statutes impose penalties for oil discharges into the sea that the convention would permit. Thus, the Oil Pollution Act of 1990 (OPA 90) dictates a strict liability standard for damage from oil spills and establishes criminal sanctions for spillers. It also reaffirms states' rights to set their own rules concerning ship-source oil pollution.

During the last 15 years, technological advances in measuring and transmitting environmental conditions in real time, improvements in forecasting, and the development of oil spill trajectory models have dramatically improved the information available to decision makers. These advances may even afford new approaches, both technical and regulatory, to saving ships in distress. Yet in the face of potential penalties and liabilities in the United States, no responsible salvor, administrator, or ship operator is likely to consider seriously a limited discharge of petroleum or other cargo in order to save a ship and thereby avoid a major spill.

From a shipowner/operator's or salvor's viewpoint the issue is whether, within U.S. jurisdiction, permission to discharge contaminants purposefully and in a controlled manner in specific, urgent situations can be obtained quickly—within hours—in order to prevent a larger, uncontrolled spill. Such permission must provide for legal protection of the individual making or directing this discharge and assure that other options such as transfer of cargo to ballast tanks or lightering vessels are adequately considered. A closely related issue is the pollution, usually a small amount, that inevitably results from some salvage operations, for example displacing water with compressed air in damaged tanks to restore stability or buoyancy.

At the request of the U.S. Navy and the U.S. Coast Guard, a Committee on Marine Salvage Issues was established under the Marine Board of the National Research Council to address this problem of deliberate discharge during salvage operations and to conduct an evaluation of the national salvage capability and to make recommendations. To carry out the first part of its mission, the committee convened a symposium to assess the issues involved in the jettisoning of oil during salvage operations. This report is one output of a two-year study, which has involved questionnaires, regional meetings, commissioned papers, site visits, and committee analysis, in addition to the symposium devoted to the jettison issue. The committee's comprehensive assessment of marine salvage in the United States continues, and a final report with recommendations will be issued in mid-1994.

The Symposium on the Purposeful Jettison of Petroleum Cargo, held February 23, 1993, was attended by prominent members of the scientific, engineering, legal, vessel operations, and regulatory communities (the list of participants and the agenda are provided in Appendixes A and B). Their purpose was to:

- Assess the significance of the jettison issue and its implications for shipping and marine environmental protection.
- Document the need to clarify U.S. law concerning intentional discharges of petroleum cargoes to save ships and prevent the loss of larger amounts of cargo).
- Consider the implications of advances in oil spill contingency planning, environmental data acquisition, and spill trajectory forecasting, especially how such advances might be harnessed in making time-critical operational decisions about stranded tankers.
- Make recommendations concerning the feasibility of developing guidelines for deciding whether to discharge oil intentionally, including consideration of other options.

This volume includes the committee's jettison report with recommendations, and the Proceedings of the symposium. The proceedings include presented papers and transcripts of panel discussions and audience question-and-answer sessions with the experts who examined the technical and information management needed in considering whether to jettison and in the decision-making framework leading up to such action. Speakers addressed several broad topics including the historical context, environmental requirements, new spill modeling technology, and the current legal status of jettison under federal and state laws and international treaties. These presentations were followed by a panel discussion that, using an accident scenario as a starting point, focused on the jettison of oil as one alternative for preventing a catastrophic spill. The panel also conducted a Regional Response Team decision-making exercise.

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EXECUTIVE SUMMARY

The possible need to discharge oil to save a ship is recognized in the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78). MARPOL is in force in 78 nations including the United States, yet U.S. statutes impose penalties or liability for oil discharges into the sea that otherwise would be permitted by the convention. The Committee on Marine Salvage Issues, established under the Marine Board of the National Research Council, convened a symposium to assess the issues involved in the intentional discharge of oil during salvage operations as part of a study of U.S. salvage capability.

The Symposium on the Purposeful Jettison of Petroleum Cargo, held February 23, 1993, addressed the need to clarify U.S. law concerning intentional discharges of cargoes to save ships and prevent loss of larger amounts of cargo, and the implications of advances in oil spill contingency planning, environmental data acquisition, and spill trajectory forecasting. Speakers addressed the historical context for jettisoning, environmental monitoring requirements, spill trajectory modeling technology, and the legal status of jettisoning under federal and state laws and international treaties. These presentations were followed by two panel discussions that focused on the jettisoning of oil as one option for response to an accident scenario.

A number of themes and findings emerged from the symposium presentations, based on the committee's analysis. Speakers generally agreed that jettisoning of oil can be a valuable salvage tool and should be considered as an option, to be undertaken only when failure to take such action probably would result in loss of the vessel and release of the entire cargo. A deliberate discharge of a small volume of oil may be the only practical alternative in certain time-critical situations. Conventional alternatives such as lightering may prove impossible due to the absence of appropriate assisting vessels.

Jettisoning has been rare in recent years. One reason may be the Oil Pollution Act of 1990 (OPA 90), which introduced a new strict liability standard for damage from oil spills and established criminal sanctions for spillers. The speakers' varying interpretations of OPA 90 reflect the ambiguities in federal and state oil pollution laws and confusion within the maritime community concerning the legal status of jettisoning. The Congress did not consider implications for salvage in enacting OPA 90, and the resulting uncertainty over liability clearly is a factor in the reluctance to jettison. Furthermore, an intentional discharge would violate the Federal Water Pollution Control Act (FWPCA), and state laws may impose additional liabilities.

The most direct means of increasing liability protection for salvors and other responders may be to amend the National Contingency Plan (NCP) to clarify the procedure for arriving at a decision to jettison and to place the responsibility solely on the federal on-scene coordinator (FOSC). As a practical matter, such an approach could obviate the need to persuade the Congress to amend OPA 90, or to await a judicial interpretation following an incident of jettisoning. This change would not

solve the problem fully, however, because OPA 90 expressly does not preempt state law, and the salvor may be exposed to additional liability directly or indirectly under general maritime law or various state laws.[1] In any case, clarification of oil pollution laws undoubtedly will require further judicial or regulatory interpretations.

Participants in the panel discussions differed as to whether jettison would be an appropriate response to the given accident scenario. This disagreement demonstrates the difficulty and subjective nature of such decisions and suggests a need for standard, objective decision-making criteria. Such criteria could help expedite a process that inevitably involves multiple decision makers and special interests. The following criteria were suggested as fundamental conditions that must exist before any oil is jettisoned:

- Time pressures demand immediate action.
- Deliberate discharge of the proposed amount of oil is likely to save the ship and the remaining cargo.
- All other salvage options, such as internal cargo transfer and lightering, have been exhausted or considered and rejected.
- Failure to jettison is likely to lead to loss of the ship and release of the remaining cargo. The principal issue is likely to be whether the ship will break up in bad weather, so information is needed concerning tides, currents, and approaching storms.
- The condition of the stranded vessel—her hull and her intact or damage stability—is adequate so that the ship could be refloated following the jettison, and the remaining cargo saved.
- All necessary preparations have been made, including the marshaling of tugs, if available, to refloat the ship quickly after the discharge.
- The FOSC is monitoring the situation continuously to ensure that jettisoning remains the only viable option.
- Preparations are underway to clean up the discharged oil. Information is needed concerning spill trajectory, characteristics of the oil, physical environmental conditions, containment and recovery measures, geology of the impact zones, toxicological sensitivity of vulnerable species, and ecological characteristics of vulnerable areas.

Finally, two general factors that may impede sound salvage practices were mentioned. Several speakers indicated that, even when jettisoning appears to be the correct technical decision, the FOSC in the decision-making exercise only recommends this action to superiors—first the district commander and, ultimately, the commandant. This places the issue in the political arena, as occurred in the *Argo Merchant* case. Under these circumstances, and without specific criteria on which to base a decision to jettison, public environmental concerns effectively may block action.

The other factor is the uncertain legality of discharges that may occur during the normal course of salvage. A number of tools traditionally employed by salvors could be deemed a form of jettisoning, as they may result in a discernible discharge of oil. Examples include pumping out a flooded engine room, pressing down of dirty ballast tanks, expelling water from a flooded cargo or fuel tank, using compressed air

[1] States have no jurisdiction (for this purpose) beyond the three-mile territorial sea. States do assess penalties and attach liability, however, to those responsible for spills that originate outside the territorial sea and drift into it.

to press out damaged tanks, displacing oily water with buoyant material, and operating many on-water skimmers (which, in separating oil and water, may discharge small quantities of oil). Such actions result in minimal pollution and likely would be part of an approved plan of action; yet, regardless of their benefit, these incidental discharges may violate the FWPCA.

CONCLUSIONS AND RECOMMENDATIONS

Jettisoning of petroleum cargo can be a valuable salvage tool and should be considered as an option, to be undertaken only when failure to take such action might and probably would result in loss of the stranded vessel and release of the entire cargo. However, a number of unresolved issues tend to inhibit the reasoned use of jettisoning.

In the committee's judgment, these issues should be resolved before a marine casualty occurs where a deliberate discharge of oil may be warranted. Otherwise, in the absence of legal certainty, a salvor may reject the jettison option arbitrarily, even when it may be the only means available to avoid a catastrophic spill.

Marine pollution response increasingly is being undertaken under a decision-making framework called the "Unified Command System" (UCS). The UCS is an incident command partnership that ensures consultation and coordination among principal parties; in the case of marine casualties and potential jettison situations, the principal parties are the federal government acting through the on-scene coordinator; the state, acting through a predesignated representative; and the owner or other predesignated responsible individual. The UCS ensures, at a minimum, consultation among the parties before major decisions are made. It is the premise of the committee's recommendations that a decision to jettison would be made under the UCS.

The committee concludes that some unresolved issues regarding intentional discharges could be clarified expeditiously by amending the National Contingency Plan (NCP), and that so doing might avert serious liability problems without requiring any changes in OPA 90. OPA 90 provides conditional immunity to persons acting during the course of rendering care, assistance, or advice that is consistent with the NCP. The committee concludes that, at present, it is unclear whether a jettison may be considered consistent with the NCP. The committee therefore recommends:

> **The NCP should be amended to accomplish the following objectives: To give the FOSC explicit authority, in consultation with the appropriate state authority, to approve the jettison of a situation-specific amount of oil under certain limited circumstances to save a vessel and those on board, as well as her remaining cargo, and to provide procedures whereby such action may be authorized and undertaken**.

Such an amendment would resolve much of the uncertainty as to salvor liability and immunity by making the act of jettisoning an authorized and viable option in response to the threat of a catastrophic oil spill. This change also would limit owner and operator liability for the salvor's actions (however, this would not in any way change the owner's liability, under the Clean Water Act, for damages and removal costs resulting for oil spills). Such an amendment probably would not protect a salvor against liability under state laws. However, most state statutes require either consistency with the NCP or at least the absence of conflict. Therefore, if in addition to consulting with the states as required by federal law, the FOSC obtains concurrence from the state incident coordinator consistent with the NCP, then there is a possibility that immunity also could be obtained under state laws. Such concurrence may be

obtained through the UCS. Moreover, the reference to "explicit authority" in the recommendation is intended to convey that the FOSC should have the authority to make the time-critical decision to jettison without necessarily obtaining additional approvals from the chain of command (i.e., under circumstances where time might not be available for further discussion and consideration).

A related issue concerns certain common salvage practices that also could be considered forms of jettisoning, in that some oil may be discharged. These actions include pumping out a flooded engine room, pressing down of dirty ballast tanks, expelling water from a flooded cargo or fuel tank, using compressed air to press out damaged tanks, displacing oily water with buoyant material, and operating many on-water skimmers. The committee concludes that a salvor should be afforded protection for using these tools under certain limited conditions. The committee therefore recommends:

The NCP should be amended to give the FOSC explicit authority, in consultation with the appropriate state authority, to approve certain common salvage actions that may result in incidental discharges of small quantities of oil. Such actions include pumping out a flooded engine room, pressing down of dirty ballast tanks, expelling water from a flooded cargo or fuel tank, using compressed air to press out damaged tanks, displacing oily water with buoyant material, and operating on-water skimmers. The FOSC authority could be contained in approval of the daily work plan, which, if carried out under the UCS, also could be approved by the state.

The committee further concludes that the present lack of official, objective criteria for reaching a technical decision to jettison oil may undermine decision making during salvage situations. Such decision making needs to be logical, timely, reliable, and defensible, and the FOSC needs to be competent in analyzing the relevant issues. The committee therefore recommends:

The Coast Guard should develop a checklist containing specific conditions that must be met as prerequisites for a decision to jettison oil. The FOSC should follow the checklist in authorizing such action under the NCP. Responder conformance with the checklist and with an FOSC decision authorizing the jettisoning of cargo should ensure full protection against liability for a salvor who jettisons oil.

Such a checklist might include the following criteria:

- Time pressures demand immediate action.
- Discharge of the proposed amount of oil is likely to save the ship and the remaining cargo.
- All other salvage options, such as internal cargo transfer and lightering, have been exhausted.
- Failure to jettison is likely to lead to loss of the ship and the remaining cargo.
- The condition of the stranded vessel is adequate so that the ship probably can be refloated and the remaining cargo saved.
- All necessary preparations have been made, including the marshaling of tugs, if available and needed, to refloat the ship quickly.
- The FOSC is monitoring the situation continuously to ensure that jettisoning remains the only viable option.
- Preparations are underway to clean up the discharged oil.

An amendment to the NCP establishing the process, standards, and criteria for authorizing a jettison or similar discharge would be consistent with the President's authority to direct removal actions as provided under existing law. Specifying conditions when jettisoning may be carried out would indicate clear "direction" from the President and would advance the congressional intent to facilitate prompt and effective response.

Explicit authorization for the act of jettisoning also could enable the salvor to avoid criminal or civil penalties that otherwise might be imposed for an unauthorized discharge. Moreover, under certain circumstances, the salvor would be immune from liability for removal costs or damages resulting from the jettison, because these actions would be both consistent with the NCP and undertaken at the direction of the FOSC acting for the President. Utilization of the UCS and the receipt of state concurrence in a decision to jettison also could provide protection in some states.

Many issues would remain unresolved, however. In particular, it is not clear whether the states could impose their own criminal or civil penalties on a salvor who jettisons into state waters, and, if not, whether the states could impose liability on the responsible party for damages resulting from the salvor's act. Utilization of the UCS, and modifications to state contingency plans in line with the committee's recommended changes to the NCP, may help resolve some of these issues.

Other questions concern whether a responsible party may seek general contribution or indemnification for such acts, or whether certain maritime common law claims and defenses exist, and how the 1851 Limitation of Liability Act applies in light of OPA 90. Implementation of the committee's recommendations to clarify both the authorization and the criteria for jettisoning should go a long way toward resolving these issues, if and when they arise.

PURPOSEFUL JETTISON OF PETROLEUM CARGO

JETTISON REPORT AND RECOMMENDATIONS

The Symposium on the Purposeful Jettison of Petroleum Cargo was convened on February 23, 1993, by the Committee on Marine Salvage Issues of the National Research Council, as the first phase of the committee's assessment of marine salvage in the United States. Participants represented federal and state agencies and the fields of marine environmental protection, salvage, vessel operations, admiralty law, and marine insurance. Their purposes were to:

- Assess the significance of the jettison issue and its implications for shipping and marine environmental protection.
- Document the need to clarify U.S. law concerning intentional discharges of petroleum cargoes to save ships and prevent the loss of larger amounts of cargo.
- Consider the implications of advances in oil spill contingency planning, environmental data acquisition, and spill trajectory forecasting, especially how such advances might be harnessed in making time-critical operational decisions about stranded tankers.
- Make recommendations concerning the feasibility of developing guidelines for deciding whether to discharge oil intentionally, including consideration of other options.

This report has three parts. The first is a summary of the symposium proceedings, including presented papers, audience question-and-answer sessions with the speakers, and two panel discussions that focused on jettisoning as an option for response to an accident scenario. The second section of the report outlines the committee's analysis of the major issues emerging from the symposium. The third section presents the conclusions and recommendations the committee derived from its analysis. In developing its analysis, conclusions, and recommendations, the committee received some input from sources other than the papers and discussion in symposium.

SUMMARY OF SYMPOSIUM PROCEEDINGS

History and Technical Background

Michael Ellis, general manager of the Salvage Association, noted that the practice of jettisoning cargo to lighten a ship dates back to Biblical times. In 900 B.C., the laws of the island of Rhodes prescribed that cargo jettisoned for reasons of common safety would be made good in General Average (i.e., the interests benefited by the jettison would be obliged to share the loss), a rule that persists today. Jettison has continued to play a role in salvage in the twentieth century, but the cargo involved usually has been dry bulk. No classic cases of jettison of part of an oil cargo, with

successful salvage of the remainder, have been identified in the last thirty years or so, although tankers often are lightened for refloating.

The only purposeful jettison of oil cargo identified in recent years was from the *Zoe Colocotronis*. After grounding off Puerto Rico in 1973, some 5,000 tons of crude oil were jettisoned and the ship was refloated. The case is notorious, Ellis said, because such drastic action now appears to have been unnecessary. When the *Arrow* grounded off Nova Scotia in 1970, jettisoning was authorized, but part of the vessel sank before action could be taken. After the *Argo Merchant* ran aground on Nantucket Shoals in 1976, jettisoning was suggested but rejected. The vessel eventually was lost.

According to Ellis, salvors are reluctant to jettison even when it may be more expedient than waiting for proper equipment and weather to lighten the ship. He cited three reasons:

1. Salvors are concerned about the environment and want official approval to jettison.
2. Discharge of valuable oil cargo means a reduction in the salved values and perhaps in the salvage award.
3. Circumstances of groundings rarely support a clear-cut decision to jettison.

Nonetheless, in cases where tugs cannot refloat a tanker and lightering is not possible, it may be "better to jettison and accept that sometimes sacrifice is necessary for the common good," Ellis said.

F.R. Engelhardt, vice president for research and development for the Marine Spill Response Corporation, discussed environmental risk as a function of oil spill size. Variables that can influence risk include characteristics of the oil, physical environmental conditions, containment and recovery measures, geology of the impact zones, toxicological sensitivity of vulnerable species, and ecological characteristics of vulnerable areas. These variables interact to drive weathering rates and persistence, spread of the spill, direction of slick movement, effectiveness of response measures, size of the impact zone, extent and duration of biological effect, and degree and rate of recovery. Thus, large spills do not necessarily have greater potential for environmental impact than do smaller spills. Engelhardt said the spill size influence should be analyzed in depth based on the global record for marine spills, perhaps using a proposed marine oil spill scale similar to the Richter scale for earthquakes.

Jerry Galt, a physical oceanographer at the National Oceanic and Atmospheric Administration (NOAA), described oil spill trajectory modeling. He outlined how these models work, the types of models available, factors that limit model accuracy, how models are used, the technology available to support models, and needed improvements. Models can be used to estimate some aspects of currents and the projected distribution of jettisoned oil. Models are not a tool for arriving at a definitive recommendation to jettison, Galt said, but they can establish that a situation will deteriorate if such action is not taken. "It is an exploration of the situation—to find out the worst downside and then plan for that scenario," Galt said.

Legal Problems Concerning Jettison

Warren L. Dean and Laurie L. Crick, a senior partner and an associate, respectively, in the law firm of Dyer, Ellis, Joseph & Mills, summarized laws affecting the jettisoning of oil. Under current laws, a salvor does not qualify for any award unless some property is saved—thus the "no cure, no pay" principle traditionally

embodied in "open form" salvage agreements. Furthermore, the award may be reduced to compensate the vessel owner for losses caused by the salvor's failure to exercise due care. The degree of care required varies with the source of the risk. The salvor is liable for losses due to the salvor's gross negligence or willful misconduct; the salvor also is liable for "distinguishable and separate"[1] damage to property caused by failure to exercise ordinary care.

The United States is a party to the International Convention for the Prevention of Pollution from Ships, 1973, and its 1978 Protocol (MARPOL), which generally prohibit pollution of the oceans from seagoing vessels but make exceptions for salvage-related discharges. Discharges that are necessary to secure the safety of the ship or to save lives at sea, or that result from damage to a ship or its equipment are exempted from the treaty provisions.[2] Until recently, this exception immunized salvors from liability for discharges at sea, but not for discharges within the three-mile U.S. territorial sea, where the purposeful jettisoning of oil is prohibited under the Federal Water Pollution Control Act (FWPCA). The FWPCA prohibits discharges of oil in quantities sufficient to cause a sheen on the water and imposes civil and criminal penalties for unauthorized discharges, including those into waters under state jurisdiction. However, the FWPCA does not prohibit discharges into the Exclusive Economic Zone (EEZ)[3] if they are permitted by MARPOL.

The Oil Pollution Act of 1990 (OPA 90) conflicts with MARPOL protection for discharges within the EEZ because OPA 90 makes the vessel owner and operator responsible for removal costs and damages for all discharges into U.S. navigable waters and the EEZ. Consequently, the owner's and operator's liability must be taken into account when conducting salvage activities. Outside the territorial sea and within the EEZ, OPA 90 does not actually prohibit salvage-related discharges, so the salvor, owner, and operator of a vessel are not subject to civil or criminal penalties. Under OPA 90, however, liability for damages and removal costs would be incurred even if the discharge were permitted by MARPOL.

Anyone who negligently or knowingly discharges oil in violation of the FWPCA is subject to criminal penalties. Therefore, a salvor may be subject to prosecution if cargo is jettisoned, even if this action prevents loss of the entire cargo and additional environmental damage. As of February 1993, there had been no legal cases involving a salvor who jettisoned oil into the navigable waters of the United States.

OPA 90 provides limited immunity ("responder immunity") to persons "rendering care, assistance, or advice consistent with the National Contingency Plan [NCP] or as otherwise directed by the President." It is unclear whether a salvage-related discharge can be consistent with the NCP, which is supposed to "minimize damage from oil and hazardous substances discharge." A salvor Should be eligible for conditional immunity under this provision, Mr. Dean and Ms. Crick said. To ensure responder immunity, the salvor may need to obtain permission to discharge from the President (whose authority devolves to the federal on-scene coordinator [FOSC]). But obtaining such permission may be difficult and impractical in a salvage situation. As

[1] This term refers to damage distinct from that caused by the original peril.

[2] Citations for these exemptions and for the various laws mentioned in the summary report may be found in the authored papers.

[3] The EEZ, created by a 1983 presidential proclamation, is a belt of jurisdiction over seabed resources adjacent to the United States and its island territories, extending 200 nautical miles from shore. The proclamation extends U.S. sovereign rights in this region for exploration, utilization, conservation, and management of natural resources.

of February 1993, there had been no legal cases where a salvor or vessel owner had been held directly responsible for a jettison directed by a salvor. In the aforementioned case of the *Zoe Colocotronis*, the vessel owner was fined $5,000 under the FWPCA and was held responsible for the resulting environmental damage and removal costs. (The master had made a unilateral decision to jettison.)

OPA 90 preserves the right of states to impose liabilities and obligations above federal requirements, and most coastal states have enacted oil pollution liability statutes. In general, these laws impose liability—often unlimited—on anyone who discharges oil. Thus, discharges into U.S. navigable waters may violate state law.

The International Convention on Salvage 1989, which will take effect when ratified by fifteen nations (six had done so as of the time of the symposium), emphasizes the salvor's duty to protect the environment and authorizes special compensation to promote that duty. This special award may be added to conventional awards that are insufficient to cover expenses, or it may be used to reward actions that prevent or minimize damage to the environment.

In conclusion, Mr. Dean and Ms. Crick said that because salvage was not discussed in the legislative history of OPA 90, the Congress apparently did not consider fully the implications for salvage, and that full assessment of these implications awaits judicial and regulatory interpretations of the Act. "What is clear, however, is that salvors must now consider carefully their environmental responsibilities... [and] salvors and the rest of the maritime community [will have] to monitor the implementation of these new laws so that the new environmental obligations of salvors do not undermine the certainty of the legal regime upon which salvage operations necessarily rely."

Philip A. Berns, U.S. attorney in charge of the West Coast office of the Torts Branch, Civil Division, commented on various aspects of liability. He agreed with Dean and Crick that the courts must resolve many of the relevant issues. He said the decision of the FOSC is a significant factor in whether a salvor is liable for jettisoning.

Frederick F. Burgess, Jr., an attorney specializing in maritime and environmental law with Leboeuf, Lomb, Leiby and MacRae, reviewed the authority of the FOSC and the requirements of the NCP as well as a salvor's standard of care under various circumstances. For a jettison "directed" by the FOSC (as distinct from an unlawful discharge) under OPA 90, neither the salvor nor the federal government is liable, either for penalties or for removal costs and damages. Furthermore, jettisons consistent with the NCP invoke responder immunity and possibly the same immunity as "directed jettisons," at least under federal law.

Jettison of cargo to prevent an even greater spill is not authorized explicitly by either OPA 90 or the NCP, nor has the U.S. Coast Guard given any additional significant direction on this matter through commandant's directives or other instructions. However, under OPA 90 the President has the authority to destroy a vessel discharging or threatening to discharge oil; such destruction, of course, probably would result in discharge of oil into the sea, yet it is not an unlawful discharge. Therefore, jettisoning cargo to prevent the loss of a ship or to prevent the loss of a much larger amount of cargo also must be authorized. Consequently, if "directed jettisoning" is part of "removal" to prevent a substantial threat, it is authorized under OPA 90. Burgess also emphasized that, under OPA 90, actions to minimize damage from off need be consistent with the NCP only "to the greatest extent possible."

OPA 90 requires the President to revise the NCP to meet the new objectives of the law. The revised NCP must include criteria and procedures for identifying and responding to a substantial threat of discharge, as well as procedures and standards for mitigating, preventing, or cleaning up an actual discharge. Mr. Burgess suggested that if the jettison tool is to be made available, the NCP be revised to "ensure that criteria, standards, and procedures are in place and exercised by the National Response Team, regional response teams, [the commandant], and [FOSC] to consider the jettisoning possibility expeditiously and make a prompt decision to direct this action if, in the judgment of the President's delegate, it will mitigate or prevent substantial threats of discharge." According to Burgess, "Government paralysis can cause far more serious consequences than a wise jettison decision."

State laws probably cannot impose criminal or civil sanctions on a salvor who jettisons oil at the direction of the FOSC because of the federal supremacy doctrine established by the courts, Burgess said. According to this doctrine, a state statute is void when it impedes the accomplishment and execution of the full purposes and objectives of the Congress.

Under the current NCP, a salvor who independently jettisons oil runs the risk of authorities disagreeing with that action, and the salvor therefore should seek direction or explicit agreement from the FOSC, Burgess said. If the revised NCP set forth circumstances when a vessel could be destroyed or cargo jettisoned, such actions more clearly could be considered "directed" by the President and would invoke full protection from liability for the salvor. Actions merely "consistent" with the NCP may not be as well protected. Mr. Burgess also proposed that The Commandant Instruction regarding intervention be revised to address more explicitly the jettison option; that the "harmful quantity" definition in the FWPCA be amended to permit jettisoning or other pumping of small quantities of oil under carefully prescribed circumstances, to achieve OPA 90 mitigation and prevention goals; and that a review be conducted of past casualties where the Coast Guard has intervened, to determine circumstances when jettisoning has or might have been used, and the consequences.

The standard of care for salvors depends on the type of injury, the injured party, and the applicable law. Under current U.S. law, only gross negligence or willful misconduct will make a salvor directly liable to third parties for removal costs and damages, according to Burgess. The most recent notable demonstration of this principle was the case of the *Amoco Cadiz*, where claimants damaged by discharged oil were denied any recovery against the salvor because no gross negligence or willful misconduct was found.

Robert H. Nicholas, Jr., general counsel of Exxon Shipping Co., addressed the need for and reasoning behind the 1989 Salvage Convention. Under current U.S. law, a salvor does not receive an award for preserving the property of third parties (e.g., the environment). Instead, the courts base awards on the degree of danger, the value of property saved, the risk incurred by the salvor, the skill and energy displayed, the value of the salvor's property, and the time and labor expended. If the focus of a salvor's efforts is to be redirected toward pollution prevention and mitigation, then the law must be changed to provide for adequate compensation to salvors who assume such risks, Mr. Nicholas said. The U.S. ratification Of the 1989 Salvage Convention appears to be a step in this direction.

The 1989 convention also incorporates the concept of "liability Salvage," under which the salvor may recover expenses from the tanker owner if the salvor prevents or mitigates pollution, even if the vessel is lost or only partially saved. Even though the

1989 convention is not yet in force, liability salvage has gained limited acceptance in the maritime community, in that it has been incorporated into open form contracts and marine insurance policies, Mr. Nicholas said.

V. Lee Okarma Rees, an attorney with Graham & Dunn, commented on the relationship between federal and state oil pollution laws and legal issues regarding the jettison of cargo. State laws may be preempted if they conflict with federal law, but Ms. Rees found no actual conflict with regard to jettison. States apparently may impose liability on the salvor for jettisoning and are not preempted by federal law, although there appear to be limits on that authority. Most states provide limited immunity for response contractors, but usually certain conditions must be met.

If a salvor jettisoning oil thereby prevents an even greater oil spill, then that salvor arguably should be entitled to an award in proportion to the potential liability avoided by the shipowner, Ms. Rees said. Given the new emphasis on avoidance of environmental damage in the 1989 convention, the courts could acknowledge liability salvage as a legitimate part of a salvage award. In conclusion, Ms Rees noted that "Shipowners and public and private salvors face uncertainty regarding potential liability for jettisoning cargo, even if the salvor's actions may be in the public interest by avoiding greater discharge of oil and greater harm to the environment."

OTHER COMMENTS

William Peck, supervisor of salvage, Admiralty, U.S. Navy, said the FOSC is unlikely to authorize a jettison unless laws or regulations provide specific provisions for doing so. Peck said he personally would not authorize a jettison, because "the law is so vague on this point and the potential liability so overwhelming."

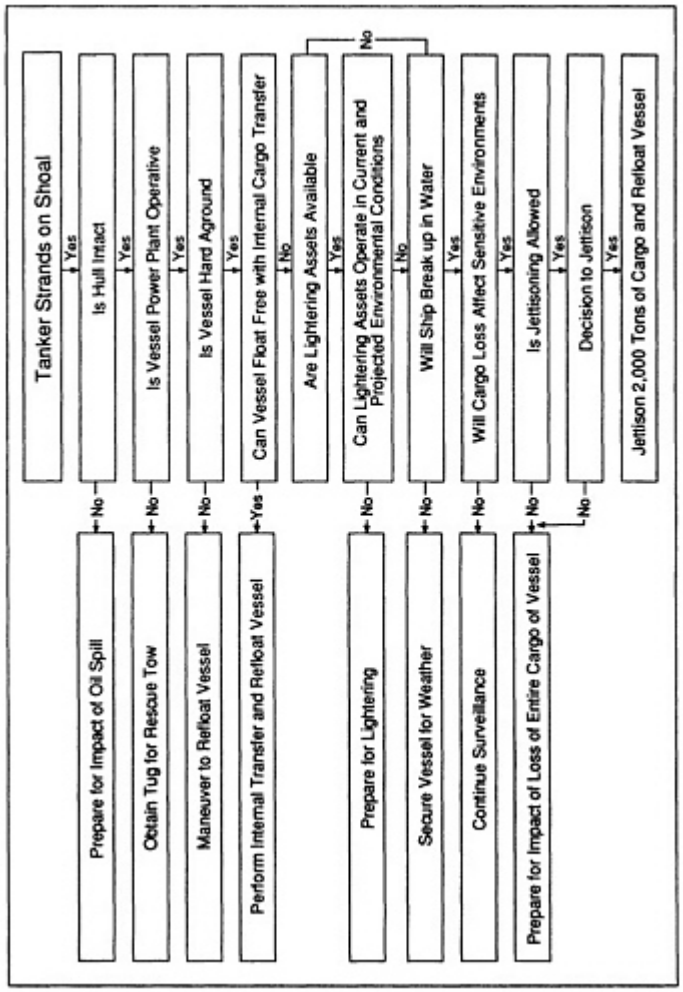
Rear Admiral A.E. Henn, U.S. Coast Guard, concurred. "The chances of [the FOSC] making a decision to jettison are extremely slim, for all the reasons that we have stated so far."

Considerations in Making Time-Critical Decisions

Captain Kenneth J. Fullwood, manager of Maritime Relations, Environmental Affairs, Safety, and Nautical Services for Mobil Shipping and Transportation Co., outlined an accident scenario for two panels to discuss. An 80,000-deadweight-ton tanker was enroute from Mexico to the Delaware River with a cargo of 78,500 tons of crude oil. The captain has been plotting the track of a hurricane centered 430 miles away, just forward of the starboard beam and heading west at 12 knots. The storm was expected to cross the coast near Wilmington, North Carolina.

Due to a series of course changes and human errors, the ship ran aground off Cape Hatteras at 15 knots and came to rest with 80 percent of her length resting on soft sand. The bottom was not leaking and the power plant was not damaged, but the ship could not be backed off the shoal. It would take 16 hours to obtain a tug and barge from Norfolk to offload cargo, and 13 hours to get a light tug. The owner's technical experts and the classification society's naval architects determined that the vessel could not be refloated by internal cargo transfer. They also determined that discharging 2,000 tons of cargo would enable the vessel to back off the shoal, and furthermore, that unless the cargo was jettisoned within the next few hours, the ship would be driven further onto the shoal and break up as the winds and waves increased with the approaching storm.

Mr. Fullwood offered a decision tree diagram to assist in the decision-making process:



Decision Tree

Panel #1: Decision-Making Criteria

In the first panel, each participant explained his or her personal views regarding decisions whether or not to jettison oil.

Captain Donald S. Jensen, commanding officer of the National Strike Force Coordination Center based in Elizabeth City, North Carolina, described jettisoning as "a last resort to be employed only after all conventional alternatives have been carefully considered." If he were the FOSC in the scenario outlined, he would recommend a jettison of 2,000 tons of cargo to permit the vessel to refloat and get underway to escape the full impact of the hurricane. Jensen would recommend to his superior, the district commander, that the commandant authorize the master to jettison.

In making his decision, Jensen would consider the following criteria:

1. The time available for decision making.
2. Environmental forecasts, including tide and current patterns and projected weather.
3. Other response alternatives, such as lightering.
4. The trajectory of the 2,000-ton spill, based on a NOAA analysis.
5. Crude oil characteristics (the cargo is a light crude oil, much of which would evaporate quickly or be dispersed into the water column in the storm).
6. Shoreline impact and resources at risk, based on spill trajectory and vulnerability index maps.
7. Verification of vessel condition.
8. Verification of ship stability, in both damaged and intact condition, to confirm the amount of cargo to jettison.
9. Consultation of the area contingency plan.

Anne Rothe, the Alaska regional representative of the National Wildlife Federation, emphasized that the scenario reflects a failure of prevention and response mechanisms. She said the grounding occurred in "probably one of the most productive biological systems on the East Coast" and questioned why tankers were even allowed in that area. Furthermore, because Cape Hatteras is well known for its hazardous waters, she questioned why salvage and lightering equipment was not based nearby. More generally, Rothe expressed concern that any effort to facilitate jettisoning might discourage shipowners from securing lightering and salvage services. She also questioned the need to develop standard criteria for decision making, in that salvage situations vary so widely. She argued for retaining the current civil liability provisions in OPA 90, on the grounds they provide an effective prevention mechanism, but she added that responder immunity from criminal liability might be acceptable.

John Jay Driscoll, Jr., executive vice president of Smit Americas, said he doubted that 2,000 tons of jettisoned oil would be enough to free a vessel that grounded at 15 knots. He also observed that current liability risks almost prohibit jettisoning. Criteria used by Smit Americas salvage masters in assessing a casualty include:

- Circumstances of the stranding.
- Current situation of the vessel.
- External factors (e.g., tides, winds, current, traffic).

- Additional concerns regarding jettisoning, including trajectory of the spill and the character of the beach, water systems, and other impact areas.

The hurricane is the unpredictable factor in the scenario, thus meteorological information should be gathered quickly. In deciding whether to jettison, naval architects, the vessel's master, and the salvor should agree on whether the vessel is more likely to break up and spill the entire cargo than she is to survive, and whether the discharge of 2,000 tons of cargo would be enough to refloat the vessel. Smit Americas salvors probably would not jettison unless ordered to do so by the FOSC, Driscoll said, adding that the key issue then becomes who actually makes the final decision.

Roger Gale, manager of Shipping and Logistics for BP Oil Co., questioned whether sufficient tools and information are available in the scenario to make a jettison decision. Perhaps, for example, the ship's bottom is damaged more severely than it appears and would not hold up if the vessel were refloated. As it is not certain the ship would break up in the hurricane, which appears likely to veer north, Gale would not be prepared to jettison.

Jack Kalro, a naval architect with Diversified Technologies, outlined four conditions that should exist before jettison is recommended:

1. The vessel must be in imminent danger of breaking up. Given that the vessel in the scenario is on sandy bottom and grounded over 45 percent of her length, she appears to be fairly safe.
2. There is no other way of discharging cargo in the time available.
3. The jettison of a small amount of cargo would save the remaining cargo. In all likelihood, about 4,000 tons of oil would have to be discharged to save the 80,000-ton tanker.
4. All other possible solutions, however remote, must have been exhausted. More information would be needed before jettisoning in the scenario; a key factor is the liability involved.

Peter Bontadelli, administrator of California's Office of Oil Spill Prevention & Response and state on-scene coordinator for large spills, stressed that the common salvage practice of pumping water from flooded tanks raises the same issues as jettisoning. The biggest problem in a casualty situation is the availability of reliable information for decision making. Any vessel operating within U.S. waters must have a contingency plan that includes stability data and identifies nearby salvage capabilities and lightering vessels. Information also is needed concerning environmental risks to the area; unfortunately, most existing information is based on NOAA surveys that are at least 10 years old. A checklist should be available for use by on-scene coordinators in considering a possible jettison; a decision must be reached quickly, the needed information must be clearly available, and there must be a reasonable likelihood of refloating the vessel after the discharge. Bontadelli would not jettison under the scenario, because the likelihood of success is uncertain, and as a state official he has no clear-cut legal authority to do so. The NCP could be amended, with the consent of the Environmental Protection Agency and Coast Guard, to create the potential for such authorization, he said.

Barry Chambers of Clean America Inc. said all the decision-making criteria offered by participants were used in the *Argo Merchant* case, in which he was the salvage officer. According to Chambers, responders felt comfortable with the technical

decision to jettison in that case, but the final decision was determined by social, economic, and political considerations. A pre-planned mechanism is needed for making jettison decisions.

Panel #2: A Regional Response Team's Decision-Making Exercise

The second panel discussed the information needed to make a decision about jettisoning and, as members of a mock regional response team, role-played a decision-making exercise for Captain Fullwood's scenario.

Mick Leitz, acting as salvage master, said he would not attempt to jettison without a tug attached, so the ship should be ballasted down and left to ride out the storm. Due to liability concerns, he would decline to accept any responsibility for the decision to jettison.

Captain Richard Fiske of the Navy said that based on technical input, jettison is an appropriate option to refloat the ship, legal concerns notwithstanding.

Philip Berns, representing the Justice Department, emphasized the need to consider possible environmental damage due to the discharge, adding that he would defer to technical experts.

Jerry Galt, providing scientific support, said the hurricane would cause a surge of two to six feet, resulting in a higher tide than predicted. Several hours would be needed to come up with a more precise figure. The high winds forecast would disperse the oil rapidly. The oil would reach shore probably within 12 hours and the sandy beach would be relatively easy to clean. In addition, the rain would help flush sensitive areas, and the reversal of the storm winds would help relax pressure from the oil in back marshes. If salvage experts were convinced the larger spill could be averted by the smaller one, then he would recommend a jettison.

Michael Ellis, representing the hull and machinery underwriters, said he would support a decision to jettison if the FOSC approved and if chances were good the discharge would permit the ship to be refloated.

Captain Fullwood, acting as the tanker owner's operating representative, said he would recommend a jettison, despite the risk of losing control over the refloated ship in strong winds. He emphasized that insurance would adequately cover the costs of pollution in the jettison case. Criminal prosecution was his main concern.

Warren Dean, as an attorney, said a foreign-flag operator without a U.S. office would be concerned principally with criminal liability for a spill. A U.S.-flag operator, on the other hand, would have unlimited liability under North Carolina law, even if a jettison were approved by the FOSC. The liability would be much greater for the full cargo than for the 2,000 tons. In any event, Dean said the decision maker should be indemnified against personal liability. He would recommend serious consideration of jettisoning, in spite of the ambiguities in state law and federal water pollution policy.

Nina Sankovitch, representing an environmental organization, emphasized the uncertainties in the scenario, including the condition of the hull, prospects for the vessel breaking up, and the path of the hurricane. Based on the salvage master's advice and the chance for averting any pollution, she advocated ballasting the ship and attempting to weather the storm. She questioned whether any legislation is needed to improve decision making.

Peter Bontadelli, representing the state, said all factors must be weighed, as they are before the use of oil dispersants. He gave odds of 3 or 4 to I that the damage could be reduced significantly by jettisoning. He would advise a jettison, despite the potential for liability under state law.

Mark Miller, of the National Response Corporation, said he could not respond to a spill immediately because the storm would place his crew and vessels in jeopardy.

Fred Burgess, representing the P&I Clubs[4], emphasized that any action taken should be directed by the Coast Guard. He would work with the vessel owner to assure positive public relations; response to many oil spills is driven by public opinion. Some mechanism is needed for public education, he said. Improvements in the decision-making framework could be done through regulation and the NCP, he suggested.

Jack Kalro, as the salvage engineer, would recommend a jettison.

Captain Don Jensen, acting as captain of the port and FOSC, noted that the decision would not be his alone, as the federal government advocates use of a Unified Command System (UCS) involving the FOSC, the state on-scene coordinator, and the vessel owner's designee.[5] He would be prepared to recommend to his superiors that a jettison be directed. However, Jensen doubted that an answer would be received in time to jettison under the scenario.

ANALYSIS OF KEY ISSUES

A number of themes and findings emerged from the symposium presentations, based on the committee's analysis.

Speakers generally agreed that jettisoning of oil can be a valuable salvage tool and should be considered as an option, to be undertaken only when failure to take such action probably would result in loss of the vessel and release of the entire cargo.[6] A deliberate discharge of a small volume of oil may be the only practical alternative in certain time-critical situations. Conventional alternatives such as lightering, or pulling grounded tankers off the shoals with tugs, may prove impossible due to the absence of appropriate assisting vessels.

Jettisoning has been rare in recent years. The speakers' varying interpretations of OPA 90 reflect the ambiguities in federal and state oil pollution laws and confusion within the maritime community concerning the legal effects of jettisoning. The Congress did not consider implications for salvage in developing OPA 90, and the resulting uncertainty over liability clearly is a factor in the reluctance to jettison.

It is critical to recognize that, under OPA 90, conditional immunity is not available to an individual who is grossly negligent or engages in willful misconduct. An intentional discharge would violate the FWPCA and most likely would be considered an act of "willful misconduct" by the courts, in effect eliminating the salvor's conditional liability and exposing the owner and operator to further liability. Furthermore, state laws may impose additional liabilities.

[4] A P&I Club is a group of shipowners who mutually agree to indemnify each other against amounts they are legally required to pay with respect to various types of liability incurred in the operation of their vessels, including liability for marine pollution, cargo damage, personal injury and death, and damage to piers, wharves, bridges, and other fixed structures.

[5] The UCS provides a framework for incident command decision making that ensures consultation and coordination among principal parties, in this instance the U.S. government acting through the federal on-scene coordinator; the state, acting through a predesignated representative, and the owner or other predesignated responsible individual. The UCS is a developing concept and structure.

[6] This thesis is supported by a 1993 resolution of the Maritime Law Association of the United States, which "supports the proposition that jettison of oil or hazardous substances should remain a viable option for ship masters and salvors if jettison may decrease the risk of loss of life or serious injuries or prevent discharge of greater amounts of oil or hazardous substances or more serious environmental consequences than the jettison itself."

The most direct means of increasing liability protection for salvors and other responders may be to amend the NCP to clarify the procedure for arriving at a decision to jettison and to place the responsibility solely on the FOSC. Such an approach would obviate the need to persuade the Congress to amend OPA 90, or to await a judicial interpretation following an incident of jettisoning. This change would not solve the problem fully, however, because OPA 90 expressly does not preempt state law, and the salvor may be exposed to additional liability directly or indirectly under general maritime law or various state laws.[7] In any case, clarification of oil pollution laws undoubtedly will require further judicial or regulatory interpretations and, at least in some instances, further legislation.

Participants differed as to whether a jettison is an appropriate response to Captain Fullwood's scenario. This disagreement demonstrates the difficulty and subjective nature of such decisions and suggests a need for standard, objective decision-making criteria. Such criteria could help expedite a process that involves multiple decision makers and special interests. The following criteria were suggested as fundamental conditions that must exist before any oil is jettisoned:

- Time pressures demand immediate action.
- Deliberate discharge of the proposed amount of oil is likely to save the ship and the remaining cargo.
- All other salvage options, such as internal cargo transfer and lightering, have been exhausted or considered and rejected.
- Failure to jettison is likely to lead to loss of the ship and release of the remaining cargo. The principal issue is whether the ship will break up in bad weather, so information is needed concerning tides, currents, and approaching storms.
- The condition of the stranded vessel—her hull and her intact or damage stability—is adequate so that the ship could be refloated following the jettison, and the remaining cargo saved.
- All necessary preparations have been made, including the marshaling of tugs, if available, to refloat the ship quickly after the discharge.
- The FOSC is monitoring the situation continuously to ensure that jettisoning remains the only viable option.
- Preparations are underway to clean up the discharged oil. Information is needed concerning spill trajectory, characteristics of the oil, physical environmental conditions, containment and recovery measures, geology of the impact zones, toxicological sensitivity of vulnerable species, and ecological characteristics of vulnerable areas.

These conditions aside, the committee recognizes that there may be instances when the lives of the crew and passengers (if any) may be endangered by the breaking up or sinking of a vessel. In such a case, if loss of the vessel and the consequent danger of loss of life could be avoided by the discharge of all or part of the cargo, the mariner concerned about survival would order the discharge, no matter where it was

[7] States have no jurisdiction (for this purpose) beyond the three-mile territorial sea. States do assess penalties and attach liability, however, to those responsible for spills that originate outside the territorial sea and drift into it.

made, even though there might not be time to request and obtain permission from authorities.

Other comments at the symposium indicated that the time-critical information needed when considering a jettison may be provided by computer modeling programs. Current models are capable of estimating currents and the distribution of jettisoned oil over a 24-to-36-hour period. It seems clear that these models can play a useful role in clarifying alternative courses of action in the decision-making process—provided the input data are sound and calculations can be made available to responders in a timely manner.

Finally, two general factors that may impede sound salvage practices were mentioned. Several speakers indicated that, even if jettisoning appears to be the correct technical decision, the FOSC in the decision-making exercise only recommends this action to superiors—first the district commander and, ultimately, the commandant. This places the issue in the political arena, as occurred in the *Argo Merchant* case. Under these circumstances, and without specific criteria on which to base a decision to jettison, public environmental concerns effectively may block action.

The other factor is the uncertain legality of discharges that may occur during the normal course of salvage. A number of tools traditionally employed by salvors could be deemed a form of jettisoning, as they may result in a discernible discharge of oil. Examples include pumping out a flooded engine room, pressing down of dirty ballast tanks, expelling water from a flooded cargo or fuel tank, using compressed air to press out damaged tanks, displacing oily water with buoyant material, and operating many on-water skimmers (which, in separating oil and water, may discharge small quantities of oil). Such actions result in minimal pollution and likely would be part of an approved plan of action; yet, regardless of their benefit, these incidental discharges may violate the FWPCA.

CONCLUSIONS AND RECOMMENDATIONS OF THE COMMITTEE ON MARINE SALVAGE ISSUES

Jettisoning of petroleum cargo can be a valuable salvage tool and should be considered as an option, to be undertaken only when failure to take such action might, and probably would result in loss of the stranded vessel and release of the entire cargo. However, a number of unresolved issues tend to inhibit the reasoned use of jettison.

In the committee's judgment, these issues should be resolved before a marine casualty occurs where a deliberate discharge of oil may be warranted. Otherwise, in the absence of legal certainty, a salvor may reject the jettison option arbitrarily, even when it may be the only means available to avoid a catastrophic spill.

The committee concludes that some unresolved issues regarding intentional discharges could be clarified expeditiously by amending the NCP, and that so doing might avert serious liability problems without requiring any changes in OPA 90. OPA 90 provides conditional immunity to persons acting in the course of rendering care, assistance, or advice that is consistent with the NCP. The committee concludes that, at present, it is unclear whether a jettison may be considered consistent with the NCP. The committee therefore recommends:

The NCP should be amended to accomplish the following objectives: To give the FOSC explicit authority, in consultation with the appropriate state authority, to approve the jettison of a situation-specific amount of oil under certain limited circumstances, to save a vessel and those on board, as well as

her remaining cargo; and to provide procedures whereby such action may be authorized and undertaken.

Such an amendment would resolve much of the uncertainty as to salvor liability and immunity by making the act of jettisoning an authorized and viable option in response to the threat of a catastrophic oil spill. This change also would limit owner and operator liability for the salvor's actions. Such an amendment probably would not protect a salvor against liability under state laws. However, most state statutes require either consistency with the NCP or at least the absence of conflict. Therefore, if in addition to consulting with the states as required by federal law, the FOSC obtains concurrence from the state incident commander consistent with the NCP, there is a possibility that immunity also could be obtained under state laws.

A related issue concerns certain common salvage practices that also could be considered forms of jettisoning, in that some oil may be discharged. These actions include pumping out a flooded engine room, pressing down of dirty ballast tanks, expelling water from a flooded cargo or fuel tank, using compressed air to press out damaged tanks, displacing oily water with buoyant material, and operating on-water skimmers. The committee concludes that a salvor should be afforded protection to use these tools under certain limited conditions. The committee therefore recommends:

The NCP should be amended to give the FOSC explicit authority, in consultation with the appropriate state authority, to approve certain common salvage actions that may result in incidental discharges of small quantities of oil. Such actions include pumping out a flooded engine room, pressing down of dirty ballast tanks, expelling water from a flooded cargo or fuel tank, using compressed air to press out damaged tanks, displacing oily water with buoyant material, and operating on-water skimmers. The FOSC authority could be contained in approval of the daily work plan, which, if carried out under the UCS, also could be approved by the state.

The committee further concludes that the present lack of official, objective criteria for reaching a technical decision to jettison oil may undermine decision making during salvage situations. Such decision making needs to be logical, timely, reliable, and defensible, and the FOSC needs to be diligent in analyzing the relevant issues. The committee therefore recommends:

The Coast Guard should develop a checklist containing specific conditions that must be met as prerequisites for a decision to jettison oil. The FOSC should follow the checklist in authorizing such action under the NCP. Responder conformance with the checklist and with an FOSC decision authorizing the jettisoning of cargo should ensure full protection against liability for a salvor who jettisons oil.

Such a checklist might include the following criteria:

- Time pressures demand immediate action.
- Discharge of the proposed amount of oil is likely to save the ship and the remaining cargo.
- All other salvage options, such as internal cargo transfer and lightering, have been exhausted.
- Failure to jettison is likely to lead to loss of the ship and the remaining cargo.
- The condition of the stranded vessel is adequate so that the ship probably can be refloated and the remaining cargo saved.

- All necessary preparations have been made, including the marshaling of tugs, if available and needed, to refloat the ship quickly.
- The FOSC is monitoring the situation continuously to ensure that jettisoning remains the only viable option.
- Preparations are underway to clean up the discharged oil.

An amendment to the NCP establishing the process, standards, and criteria for authorizing a jettison or similar discharge would be consistent with the President's authority to direct removal actions as provided under existing law. Specifying conditions when jettisoning may be carried out would indicate clear "direction" from the President and would advance the congressional intent to facilitate prompt and effective response.

Explicit authorization for the act of jettisoning also could enable the salvor to avoid criminal or civil penalties that otherwise might be imposed for an unauthorized discharge. Moreover, under certain circumstances, the salvor would be immune from liability for removal costs or damages resulting from the jettison, because these actions would be both consistent with the NCP and undertaken at the direction of the FOSC acting for the President. Utilization of the UCS and the receipt of state concurrence in a decision to jettison also could provide protection in some states.

Many issues would remain unresolved, however. In particular, it is not clear whether the states could impose their own criminal or civil penalties on a salvor who jettisons into state waters, and, if not, whether the states could impose liability on the responsible party for damages resulting from the salvor's act. Utilization of the UCS, and modifications to state contingency plans in line with the committee's recommended changes to the NCP, may help resolve some of these issues.

Other questions concern whether a responsible party may seek general contribution or indemnification for such acts, or whether certain general maritime law claims and defenses exist; and how the 1851 Limitation of Liability Act applies in light of OPA 90. Implementation of the committee's recommendations to clarify both the authorization and the criteria for jettisoning should go a long way toward resolving these issues, if and when the occasion arises.

Proceedings of the
Symposium on the Purposeful Jettison of Cargo

OPENING OF THE SYMPOSIUM AND WELCOME FROM SPONSORS

SYMPOSIUM OBJECTIVES AND ORGANIZATION

Gordon W. Paulsen

The discussion today focuses on jettisoning, the discharging of some cargo into the sea in order to lighten a grounded ship and possibly save it from further peril. In other words, by creating a comparatively small spill a large, catastrophic spill may be averted. Such actions in time-critical situations are provided for in treaties to which h the United States is party, but U.S. statutes seem to prohibit them.

At the written request of the U.S. Navy Supervisor of Salvage, the Marine Board Committee on Marine Salvage Issues convened this symposium to address the issue of intentional jettison of cargo: its significance and implications, the need for clarification of statutory and treaty law, and implications of technology advances—especially oil spill trajectory forecasting—for time-critical decision making.

The Oil Pollution Act of 1990 (OPA 90) is probably the most discussed piece of legislation having to do with maritime matters in recent years. There are some aspects of our society that regard it as the most important, in the sense that it has done the most good, of any piece of maritime legislation. There are other parts of our society—the maritime community, for example—that don't quite see it that way. They see all kinds of problems.

Today we are focusing on the question of jettisoning. The question of salvage was discussed in depth about ten years ago in sessions organized by the National Academy of Sciences and the Marine Board. There have been a lot of changes since then. The salvage capability isn't quite what it was then. The need may be greater or it may be less. The incidents are fewer, but they are bigger. We have to focus on all these factors.

This symposium format will be based on two forms of participation; presentation of formal commissioned papers and panel discussions. There will be ample opportunity throughout for audience questions and comments.

We are going to begin this symposium with a video presentation of the grounding of the *Argo Merchant* in 1976. The *Argo Merchant*, as you will recall, was one of the first incidents to focus on the problem of an oil spill in the waters of the United States coastline. This incident will tell us a lot about what can happen when a ship strands versus what should happen. The video indicates that the extreme measure of cargo jettison was considered but government permission was not granted and it was not done. The result was an oil spill that is still talked about eighteen years later.

Gordon W. Paulsen *practices admiralty law in New York City with the firm of Healy & Bailie. He is a member of the Permanent Advisory Board of the Admiralty Law Institute (Tulane University), a past president of the Maritime Law Association of the United States, and is a titulary member of the Comité Maritime International.*

WELCOME ADDRESS FROM THE U.S. COAST GUARD

Rear Admiral A. E. Henn

This is a symposium built on partnership, not a "we" and "they" concept. We can no longer afford to be "we" and "they." We have to go forward as partners. We are here to discuss some extremely complex issues. Those issues regard the intentional discharge of a ship's cargo in an effort to save the rest of the ship and the rest of the cargo. This is not an easy decision for the person who is going to have to make that call. Numerous legal issues, questions of appropriateness, liability, and questions of authority all contribute to the complexity of the topic. For example:

- Under what situations, by whose authority, and under what constraints should oil be purposefully discharged to prevent a potentially greater harm?
- Are there any historical data or casualty analyses that demonstrate a cost-benefit relationship, with respect to environmental harm, that support oil cargo jettisoning as a viable ship rescue tool?

As the head of the Coast Guard's Office of Marine Safety, Security and Environmental Protection, and as a former Captain of the Port of New York and federal on-scene coordinator, I have a great deal of interest in the subject of ship salvage and of jettisoning. I also have an interest in our abilities to provide fire-fighting services. It seems obvious to me that you get "more bang for the buck" in oil spill prevention than in response. Obviously we need response, and I think we have done well on response and we are doing even better. But we need to make major strides in the area of prevention.

Ship salvage, in my eyes, is a prevention tool. Certainly, efforts taken to prevent the uncontrolled discharge of oil resulting from a ship casualty—including a fire at sea—would be far more cost effective than the cost of response after a discharge. This is particularly true in terms of environmental harm, loss of cargo revenue, real cost of cleanup and, of course, a corporation's loss of public trust, not to mention loss of the ship itself or legal penalties! If you do the salvage job right, then we won't have to spend weeks, months, trying to make a bad situation better.

The Marine Board's Committee on Marine Salvage has been requested to perform two tasks. They are formidable:

1. To consider the issues relating to the intentional jettisoning of a portion of a ship's cargo in order to save the rest of the ship.
2. To review our nation's salvage and marine fire fighting posture, which we haven't done in a decade.

Both tasks are tough ones. One is not more important than the other. Both must be done.

In 1982, a Marine Board report on our nation's salvage posture did not paint an encouraging picture. I don't know if we've gotten better or worse in the last ten years—many would say worse. I think I am stating the obvious when I say that

environmental awareness in this country is at the highest it has ever been, but I think the more important issue is that environmental awareness worldwide is higher than it has ever been. It is only going to increase.

It is evident from recent tanker casualties around the world that our abilities—your and my abilities—to rescue large ships in extremis is lacking. We shouldn't tolerate this. We can't tolerate this. We won't tolerate this.

As the Coast Guard implements OPA 90 through regulations such as the vessel response plans, it has encountered a lot of controversy regarding marine salvage capabilities. Through a negotiated rulemaking process and consideration of the various points of view expressed by industry, environmentalists, the public sector, and the private sector, the agency has required that salvage capabilities be identified in the response plans. We do not believe it is either practical or economically reasonable to require contracting for the services now. Salvage assets are neither uniformly distributed nor competitively available in the current marketplace. As I have said, we've required ship owners and operators to identify salvage services that they would contract for in an emergency. However, by 1998, the Coast Guard will require salvage services to be specifically identified, including marine firefighting services, and to be on-scene within 24 hours.

We in the Coast Guard are dead serious in our intent to force responsible emergency preparation by vessel owners and operators. Some folks thought we were going to blink during the implementation of OPA 90. I am not blinking today, and I don't plan to blink tomorrow. We believe this issue on salvage contracting should send a very strong message to the entire maritime community that we must develop our capabilities over the next five years.

We have a diverse group here today—the Marine Board Committee on Marine Salvage and participants representing the full spectrum of the community. I am very comfortable that all of you can candidly voice your concerns and come up with a consensus recommendation that we, in partnership, can move forward with.

Rear Admiral Gene Henn, *is the Chief of the U.S. Coast Guard Office of Marine Safety and Security and Environmental Protection. A 1962 graduate of the Coast Guard Academy in New London, Connecticut, RAdm. Henn also has combined advanced degrees in naval architecture, marine engineering, and metallurgical engineering from the University of Michigan.*

WELCOME ADDRESS FROM THE U.S. NAVY SUPERVISOR OF SALVAGE

Captain Richard Fiske

The office of the Supervisor of Salvage is responsible for U.S. Navy salvage through Title 10 of the U.S. Code. We also have an interest in our national salvage capability. We are the federal backstop for salvage, and are frequently called upon by the Coast Guard and the Army Corps of Engineers to support or conduct salvage operations and open water pollution control. We maintain a wide range of salvage and pollution control equipment in stand-by, including 24 open-water skimming craft, several miles of 42-inch oil boom, mooring systems, pumps, oil collection bladders, and ancillary pollution support equipment. This system supports U.S. Navy requirements and is on call for national emergencies. This is a demonstrated and proven capability. The Coast Guard credits our office with recovery of half the waterborne oil recovered during the *Exxon Valdez* spill.

Jettison has long been a valuable if seldom employed technique in the salvage of ships. Michael Ellis has developed the history and significance of the jettison option in some detail (see paper beginning on page 24). Jettison offers a tool and, in our time, a technique of last resort in pollution prevention, by seeking to preserve the ship and the remainder of the cargo from disaster. The *Argo Merchant* incident dramatically illustrates the implications of the jettison decision. Jettison is not, however, an action readily undertaken by any party to a marine casualty.

The Oil Pollution Act of 1990 (OPA 90) was developed in response to a specific event. In an earnest desire to put protective legislation in place, Congress focused on the *Exxon Valdez* stranding to provide a model for the law. As a result, certain aspects of the law and its implementation require further examination. The general topic of marine salvage as a prevention and response resource is largely overlooked in OPA 90 and in the proposed rules implementing the law. Specific areas remaining to be addressed include establishing required capabilities for designated salvage responders and protection of responders from liability while engaged in salvage and lightering operations.

This symposium is gathered to consider another very specific issue: jettison—whether, when, and how to permit discharge into the water of a relatively small amount of oil in order to prevent a relatively large, uncontrolled pollution event. Some have suggested that the federal on-scene coordinator can authorize a jettison under the current statutory scheme. Even the careful, thorough, and detailed legal analyses prepared for this symposium are equivocal on whether a person performing a jettison directed by the on-scene coordinator is immune from liability. With this as background, how can a salvor accept the on-scene coordinator's direction or permission to jettison with any degree of comfort? I don't want to be the test case. I don't want any of my contractors to be the test case—even on someone else's job. The

fact that jettison is a seldom-used salvage option does not lessen the potential catastrophe that can devolve on the one occasion that jettison is needed and cannot be employed.

Despite all our best intentions, desires, and efforts, we cannot legislate or regulate marine casualties out of existence. I am reminded of the cartoon which shows a father on his knees changing a fiat tire at night in the rain. Looking up at his son in the car and responding to a question, the father replies, "We can't change channels, son, this is life."

Part of being prepared is to make whatever decisions we can ahead of time. Thus made, those decisions will not then have to be made under the stress of the event. The determination that jettison is, in theory, legally permissible, is one of those decisions. Deciding whether to jettison in a particular case must be made on site, at the time, in light of the current situation. But that decision to actually perform the jettison must be made quickly or it will be too late, as demonstrated in the ST *Arrow* case referred to by Mr. Ellis and in the *Argo Merchant* case. Hence, the need for planning and for establishing criteria, parameters, and the decision path in advance.

I have no commercial stake in this issue. However, I can see myself either supporting the Coast Guard or attending a Navy casualty, in charge of a salvage effort and faced with the same kind of situation as those attending the *Argo Merchant*. The penalties and sanctions now in place for oil discharge put the salvor in an untenable position. If, in the time available, jettison is the only way to refloat a vessel that may otherwise be lost, why should a salvor expose himself to significant liability by jettisoning? Recall that commercial salvage is voluntary. Most salvors are not voluntarily going to subject themselves to the liability created by the present legal framework. It now appears that in certain specific situations, the OPA 90 blanket prohibition of discharge has resulted in greater hazard to the environment than under prior law.

The Navy has worked with the Marine Board to initiate this symposium and to gather as wide a range of marine interests as possible. What we seek in this forum is confirmation of historical precedent, intuitive logic, and common sense:

- That in certain specific emergencies, jettison of a relatively small portion of oil is necessary to prevent greater environmental damage.
- That responsible preparedness requires specific provision for this action in law and/or regulation, that the provision be carefully considered and circumscribed, and that the designated decision path be streamlined enough to support real-time action.
- That this recommendation be positive, clear, and unambiguous.

Captain Richard Fiske *is the Director of Ocean Engineering, Supervisor of Salvage and Diving, U.S. Navy. He has a bachelor's degree in physics from the University of California and a Master of Arts in Naval Architecture and Ocean Engineering from the Massachusetts Institute of Technology.*

Proceedings of the
Symposium on the Purposeful Jettison of Cargo

PART I:

HISTORY AND TECHNICAL BACKGROUND

THE SIGNIFICANCE OF JETTISONING: OIL ON TROUBLED WATERS

Michael Ellis

Jettison has a long and significant history. In the Old Testament stow of Jonah, it will be recalled, the sailors threw cargo overboard to lighten the ship. Jonah's exit overboard shortly afterwards did not constitute jettison—as it was to appease the Lord—although it certainly appears to have been efficacious in saving the ship!

Mercantile law followed the practice when in 900 B.C. the laws of the island of Rhodes prescribed the law of jettison whereby, if cargo was thrown overboard to lighten a ship for the general safety, that which was thrown away would be made good by general contribution or, as it later became known, by General Average.

Another Biblical hero, Paul, witnessed jettison firsthand near the island of Crete on his voyage from Caesarea to Rome. You may recall the vessel was making very heavy weather and they began to lighten the ship and, on the third day, they jettisoned the ship's gear with their own hands. Presumably General Average was not declared because, despite the jettison, the ship subsequently went aground and was pounded to pieces.

Rhodian law on jettison was incorporated into the Digest of Justinian (Emperor Justinian—A.D. 500) and later into the laws of Oleron in the twelfth century. Those were attributed to the English king, Richard I, or his mother, Eleanor of Aquitaine. Article 8 of the Sea Laws of Oleron provided for General Average when cargo was jettisoned to save ship and cargo. Three thousand years on from the laws of Rhodes, and even longer from the days of Jonah, the current rules of General Average—the York/Antwerp Rules 1974—provide that the sacrifice of cargo by jettison for the common safety shall be made good in General Average.

Lloyd's Open Form 1990 (LOF 90), the most frequently used salvage contract, (although it is little used in the United States) permits the salvor to jettison cargo within reason to salve the ship, although that is not something which any salvor does lightly in practice.

Jettison therefore has a long history and encapsulates the rule which applies in many walks of life—that at times it is necessary to make a small sacrifice in order to avert a greater loss.

ONE HUNDRED YEARS AGO

Groundings were much more common 100 years ago than they are today. Ships still depended to a degree on sail, propulsion machinery was not always reliable, and navigational aids were primitive. The Salvage Associations' records for 1892 and 1893 show its surveyors attending many groundings. Often, the ship had to be lightened, and it is fair to say that in most instances the cargo was lightened rather

than jettisoned. Except as a last resort, no one wanted to throw away the cargo in those days either, but sometimes they had to. In one case, coal was jettisoned; in another, iron products; and in a third, grain.

Oil was not transported in great quantities at that time but in 1893 the Salvage Association did attend a difficult casualty in the Dardanelles on a British ship carrying cased petroleum to Calcutta from Batoum in what was then, and is once again, Georgia. The vessel's position was described as "dangerous." The weather was blowing very hard and the barrels of petroleum were jettisoned in large quantities. Alas, on this occasion, it was largely in vain because the ship eventually became a total loss. However, some of the cargo was saved so jettison did avert some cargo loss and pollution, although it is interesting to note that there was not one mention of the word "pollution"—perhaps it was a term that had not yet been used in the context of oil and the oceans.

THE TWENTIETH CENTURY

The Salvage Association's records and discussions with our surveyors indicate that jettison has continued to play a part in salvage, but it seems the cargo jettisoned has usually been dry bulk, particularly ore, coal, rock, and stone. One surveyor jettisoned, as a last resort, a small quantity of bunkers from a large fishing vessel, which did enable it to refloat. Another related jettisoning 2,500 tons of frozen meat in the southern Pacific. This was apparently seen as a bonus by the local islanders and the aquatic population. Deck cargoes of logs and timber have quite frequently been jettisoned but usually for stability reasons, rather than to refloat.

Though probably not categorized as jettison as such, there have been many cases where damaged tanks have been "blown" or "pressed" out to enable refloating, or where engine rooms have been dewatered, sometimes resulting in an escape of oil. In the latter case, pumping out would hopefully be stopped before any oily water was discharged.

Until the late 1960s, almost every vessel was geared and there were fewer pontoon barges in service. Jettison of cargo was very often the quickest means of lightening a vessel, and time is generally of the essence in salvage. Ships were often smaller than they are today with the consequence that smaller quantities of cargo needed to be lightened.

The advent of gearless bulk carriers has deprived such vessels of the ability to self-discharge or jettison. Therefore, when they go aground—particularly if they are loaded with high-density cargoes such as ore—lightening can present a very major problem. The size of the vessel may also mean it will be difficult, within any realistic time frame, to bring in vessels with cranes of sufficient outreach before the situation has irretrievably deteriorated. Nevertheless, it is submitted that with dry bulk cargoes where it is not usually possible, as it is on a tanker, to shift the cargo around the ship to assist refloating, jettison must still be seen as an important option to facilitate refloating, to avoid a semipermanent wreck and in particular to avoid the risk of pollution from fuel oil onboard. It should be remembered that a bulk carrier, depending on size, could have anything up to 4,000 tons of fuel oil onboard, and that this is usually a more potent pollutant than crude oil.

Modern container vessels can present similar problems. Offloading containers from a stranded vessel in a remote locations can be difficult. Some containers might contain potentially hazardous cargoes and a modern container vessel might have a

bunker capacity of up to 5,000 tons. Jettison in one way or another might be the best solution.

In recent years, the Salvage Association has dealt with casualties where local authorities have either prohibited, or have been extremely slow to give approval to, jettison of cargo such as iron ore or even oranges, and this has put the prospect of successful salvage at risk and has sometimes led to more serious problems. In one case, for instance, fear of discoloring the water near a high-ranking official's private beach appears also to have colored the judgment of the local authorities. The subsequent breaking up of the gearless ship led to a much more difficult removal operation.

OIL ON TROUBLED WATERS

Despite quite wide enquiry, no classic cases of jettison of part of an oil cargo with successful salvage of the remainder have been identified in, say, the last thirty years. However, it is perhaps worth reflecting for one moment on how rapidly our reaction to oil on water has changed. As recently as 1961 a nautical textbook repeated the then British Ministry of Transport's advice to mariners on the beneficial use of oil for modifying the effect of breaking waves. Their advice included the fact that "the heaviest and thickest oil are most effectual."

JETTISON FROM STRANDED TANKERS

There appears to be only one case of purposeful jettison of an oil cargo in recent years and that case is somewhat infamous.

- MT *Zoe Colocotroni*. In March 1973, this tanker ran aground off Puerto Rico carrying a cargo of crude oil. She refloated within four hours without tug assistance, but after jettisoning some 5,000 tons of crude oil, apparently without consultation. While jettison certainly appears to have allowed the vessel to refloat, contemporary accounts suggest that the situation did not warrant such drastic action.

  There have been two cases on the northeast of the North American continent where jettison of oil cargo was proposed but not carried out.
- ST *Arrow*. In February 1970 this tanker grounded in Chedabucto Bay, Nova Scotia, with approximately 16,000 tons of Bunker C oil on board. The weather was bad and she very quickly began to break in two. The stern section in which, it was estimated, some 7,000-8,000 tons of oil remained, was broken away from the forward section using tugs. This section grounded. It was then proposed to salvage this section by blowing certain tanks, which it was calculated would have meant about 10 percent of the oil escaping into the sea, but with the prospect of salving the other 90 percent. This was agreed in principle by the authorities but, for a number of reasons, operations were delayed. The stern section and the cargo sank in bad weather, resulting in further pollution. The full details of this casualty are to be found in the 250-page Report of the Royal Commission. In this case, the difficult decision to jettison oil was made but not quickly enough to ensure a successful outcome.
- *Argo Merchant*. This tanker ran aground on the Nantucket Shoals in 1976 with 27,000 tons of No. 6 fuel oil onboard. The proposal to jettison up to 3,000 tons of oil was rejected by the authorities, apparently on various grounds,

including the risks of discharge with pumps which were not inherently safe. She subsequently broke up and discharged her full cargo into the sea.

The men on the spot in those salvage operations had the unpredictability of the future to contend with, and did not have the considerable benefit of hindsight. However, in the case of both the *Arrow* and the *Argo Merchant*, it has been suggested with hindsight that jettison might have been a less damaging option.

REFLOATING TANKERS

Usually a salvor would much prefer to salvage a grounded tanker than a grounded bulk carrier or container ship, particularly if the tanker has her cargo pumps operational. On a tanker cargo can be pumped from one tank to another to alter the trim and shift the weight. Provided a suitable tanker or barge can be brought alongside or close by, the cargo can be discharged, although this is neither an easy nor an absolutely safe operation. It is an option which has to be exercised with care. A tanker can be ballasted down very readily, if the seabed is suitable and it is not being ballasted down onto further pinnacles—and problems.

LIGHTENING OF TANKERS

While there have been no recent cases of jettison of oil cargoes, there have been very many cases of tankers being lightened in order to refloat. The fact is that, when tankers are loaded and underway, their momentum is such that if they ground even at slow speed they can rarely be refloated using tug power alone. They almost always require lightening. A possible exception is when a tanker grounds on a low tide and can be refloated as the tide rises. Tankers have been known to ground so lightly that the crew hardly notice and yet, even so, the ground reaction has been several thousand tons.

Basic principles suggest that a laden 100,000-ton tanker that goes aground at 5 knots is hardly likely to be refloated by tugs alone. The biggest salvage tugs afloat—and there are not many—have a maximum pull of 250 tons. The unlikely juxtaposition of three such tugs in one place would have a combined pull of 750 tons. It is worth reflecting that, for a ship grounded on a sandy bottom with a relatively low coefficient of friction (μ) of only .3, 750 tons of pull will only be as effective as lightening 2,500 tons of cargo. For a ship aground on a rocky bottom, 750 tons of pull might only be as effective as lightening 750 tons of cargo or less. Bear in mind, too, that rarely, if at all, would three such large tugs be available for one casualty, and many ships would not have securing points capable of handling the load. Furthermore, if a ship's bottom is damaged or she is impaled on an obstacle, then pulling might only exacerbate the problem.

In many cases, it will be more expedient to jettison cargo rather than to wait for equipment and weather windows which would permit a lightening operation. But in recent times salvors have not taken that option. Why?

- Salvors, like others, are in general concerned for the environment. They would be reluctant to jettison without seeking approval from the appropriate authorities and they are very conscious of the obloquy that might attach if they were to act without consultation.
- Oil cargoes are usually valuable and to jettison them is to reduce the salved fund, which might in turn reduce the salvage award.

- Circumstances surrounding grounds have rarely given rise to the hard decision to jettison or perhaps it has been prohibited, as it apparently was in the case of the *Argo Merchant*.

REQUIREMENTS FOR SUCCESSFUL LIGHTENING

For lightening to be a valid salvage option, the right equipment needs to be available within a reasonable time frame. The right equipment will depend on the circumstances and size of the lightening operation that is required. It could mean a small tanker or a tankbarge. If conditions are right, they might be moored alongside. It might need bigger lightening vessels, and conditions might be such that they have to anchor off. There is much associated equipment required: large fenders, fuel hose, even portable inert gas generators and inherently safe fuel transfer pumps, if the casualty has lost power. Whereas much of this equipment is portable, the lightening tanker or tankbarge may take time to arrive. For instance, in the recent case of the *Braer* off the Shetland Islands, a suitable tankbarge was not on site until six days after the stranding. As it happened, the weather was so bad in the interim (though not abnormal for the place and season) that it is unlikely anything could have been achieved, even had the tankbarge been available earlier.

However, consider the situation where there is a fine weather window with the prospect of rapid deterioration shortly thereafter. If immediate jettison of part of the cargo has a chance of succeeding, do you risk deteriorating weather and delay until a lightening vessel is on the scene? Bear in mind, too, that engaging a suitable lightening craft might mean putting that at risk as well as the casualty itself and, because of that, chartering in such a vessel might not be easy.

If a casualty is ballasted down safely on a sandy bottom in an area of generally favorable weather, time might permit textbook solutions. Contrast a tanker partially aground on a rocky bottom with tugs available but no immediate prospect of lightening. Should jettison be considered if it might result in less overall pollution at the end of the day? On an exposed coast, though a simple operation in concept, lightening can bring enormous practical problems. It needs time, reasonable weather, and luck. These are not always available.

THE LEAST OF THE EVILS

If an aircraft is in trouble, fuel is sometimes jettisoned before an emergency landing. Safety of life is paramount, time is of the essence, and in these circumstances a decision to jettison would rarely be criticized. Of course, kerosene would usually, though not always, disperse before reaching ground or sea level. The absolutes of time and immediate threat to human life are not usually as stark when a tanker is aground and the decision process is therefore more complicated. Even so, time can be of the essence.

The tanker *Braer*, wrecked off the Shetlands, remained intact, to many people's surprise, for some seven days but contrast that with a casualty on the Norwegian coast a few days later. A very strong 700-ft offshore barge, which had gone aground, broke up completely and disappeared from view within 36 hours. The Aegean Sea which stranded off La Coruna had an even more precipitate fate. She broke in two within 18 hours. The time frame in shipping casualties is often very short.

Whereas the case with an aircraft emergency may be clearcut, the case with a ship carrying an oil cargo is less straightforward. Few people would sanction the

jettison of an oil cargo with the consequences of pollution just for the sake of saving property, the ship, and the cargo. But what about jettisoning cargo to save even greater pollution, as was intended in the case of the *Arrow*? If tugs had managed to get a line to the *Braer*, and if she was just aground, and if jettison was possible (and on the actual facts it clearly was not), would jettison of say 10,000 tons of cargo have been justified to prevent the other 70,000 tons causing much greater pollution? Remember, too, that the *Braer* was carrying nearly 2,000 tons of fuel oil and diesel oil (and a ULCC might carry up to 7,000 tons of bunkers).

The most notable recent tanker casualties have involved crude oil. But there will be circumstances involving cargoes other than crude oil or tankers. Let us consider some of the possibilities.

- *Carriage of Heavy Oils*. The *Arrow* was carrying bunker C and the *Argo Merchant* No. 6 fuel oil. Both vessels ran aground in the cold of a northeast Atlantic coast winter. In both cases, the efforts to transfer the oil were hampered by falling temperatures, which made the oil thick. In these instance, perhaps a case could be made for oil to be jettisoned while it is still pumpable, rather than run the risk of the whole cargo being unpumpable and therefore lost.
- *Light Petroleum Products, Animal, and Vegetable Oils*. All these products are covered by the Oil Pollution Act. The environmental impact of such cargoes will vary but generally it would be correct to say they would disperse much more quickly and be less damaging than, say crude oil and heavier oils. Would the jettison part of such a cargo be preferable to the total loss of both cargo and vessel and, perhaps, a significant quantity of much heavier fuel oil? Even for a relatively small ship, this could be as much as a thousands tons.
- *Chemical and Parcel Carriers*. Whereas vegetable and animal oils might be considered relatively benign, other liquid cargoes carried afloat can be particularly toxic. A cargo such as toluene might form a part cargo. The balance of cargo might be far less worrying. Is there a case for jettisoning a relatively harmless cargo to prevent the serious ecological damage caused by the more dangerous substance?
- *Dewatering Enginerooms and Discharging Dirty Ballast. An* engineroom may have flooded. Is it preferable to dewater the engineroom or discharge dirty ballast—both of which are likely to be oily to a degree—if this would increase the chances of a successful refloating and of preventing more serious pollution?
- *Bulk Carriers, Container Ships, and Other Ships*. Such vessels can carry significant quantities of oil and might be carrying hazardous cargoes. Blowing out damaged tanks or jettison of some cargo or even fuel oil might, under extreme conditions, be the optimum solutions.

CONCLUSION

Because salvors have not resorted to jettisoning oil cargoes in recent years, it might be concluded that to prohibit such jettison is, like Rhodian law, merely to confirm what has become the practice.

Before that conclusion is drawn, however, it should be remembered that all the tugs in the world may, on their own, be unable to refloat many grounded vessels and that cargo will first have to be discharged. There will inevitably be situations where to wait to lighten into tankers or barges may be to wait too long. Better to jettison and accept that sometimes sacrifice is necessary for the common good and that this applies not only to preserving property but also, and perhaps more so, to preventing even greater pollution.

Michael Ellis *is the general manager of the Salvage Association in London, England. He served in the British Navy for nineteen years, and during that time he qualified as a barrister. Upon leaving the Navy, he became a marine solicitor in London. He joined the Salvage Association in 1984, becoming general manager of that worldwide organization in 1986.*

ENVIRONMENTAL RISK AS A FUNCTION OF OIL SPILL SIZE

F. R. Engelhardt

Marine oil spills occur in a wide range of sizes, from very small volumes to thousands of tons of discharge.[1] While it may be attractive to generalize that the larger a spill, the greater the potential for environmental damage, this is difficult to describe quantitatively. In fact, exceptions can be cited that suggest certain large spills, such as the *Argo Merchant* in 1976 or the *Braer* in January 1993, were less damaging than might have been expected.

Influential variables that will be discussed in this paper include:

- Physical and chemical characteristics of the oil.
- Physical environmental conditions.
- Containment and recovery measures.
- Geology of the impact zones.
- Toxicological sensitivity of vulnerable species.
- Ecological characteristics of vulnerable areas.

These variables are not independent of each other, but interact to characterize weathering rates and persistence, spread of the spill, direction of slick movement, effectiveness of response measures, size of the impact zone, extent and duration of biological effect, and degree and rate of recovery.

Efforts are underway to quantify the severity of oil spills in a way that integrates variables that might influence their outcome. Garriba[2] for instance, describes an approach similar to the establishment of the Richter scale for earthquakes. Using this "Marine Oil Spill Scale" concept, the *Argo Merchant*, which released 29,000 tons of oil, ranked as one on the scale (i.e., an "anomaly" without significant impact). The *Amoco Cadiz*, with about 240,000 tons released, ranked as nine (i.e., a "critical accident" with widespread serious impact). Follow-up investigations could confirm that the *Braer* might be ranked as only a level two or three on the scale, even though the vessel spilled most of its 84,000-ton cargo nearshore.

[1] Breslau, L.R. and G.F. Ireland. 1991. *MSRC Surveillance System Information Needs Analysis*. Consultants Report to the Marine Spill Response Corporation, Washington, D.C. October 4, 1991.

[2] Garriba, S. 1992. Providing a new field in today's environment. *Proceedings, Spillcon 1992: Environmental Care-Responsible Action*. July 5-8, Gold Coast, Australia.

PHYSICAL AND CHEMICAL VARIABLES

Physical characteristics and chemical composition of crude and other petroleum oils exert strong influences on the fate of an oil spill, as well as the environmental effects resulting from such a spill. There is extensive primary and review literature on this topic.[3] A good summary correlating differences in physical properties of oils with their rate of removal from the sea surface is presented in Figure 1.[4] A speculative mass balance for spilled oil, as shown in Figure 2, illustrates the range of environmental compartments that may be influenced by spilled oil and shows that the various weathering factors exert their influence differentially in the various media.

Oils are classified by a variety of standard nomenclature (API gravity, pour point, viscosity, specific gravity, etc.) depending on the user's perspective. One of the useful classifications in relation to oil spill response and spill effects is to characterize oils on the basis of their "weight," as light, medium, or heavy oils. This classification is analogous to a characterization of low to medium to high viscosity.

- *Light-weight oils* have a low boiling point and high volatility, and are composed of a high proportion of low-molecular-weight hydrocarbons. They tend to evaporate readily from the sea surface, can be mixed easily into the water as oil particles by wave energy, and are also the most water soluble. These weathering processes are rapid so that within a day much of the spilled oil may be removed from the sea surface. Similarly, their persistence on oiled shorelines tends to be reduced if there is some sea energy available for physical washing action. The high proportion of low-molecular-weight hydrocarbons, including the aromatic compounds, tends to make the oils acutely toxic to aquatic organisms.
- *Medium-weight oils* represent a mid-range composition, with a smaller proportion of low-molecular-weight hydrocarbons, which tends to evaporate and dissolve more slowly than the light oils. Their persistence on the sea surface is at least in the order of days, with the rate and amount of discharge influencing the degree of persistence of a slick. The toxicity of the oils is related to their lower physical and chemical ability, and they tend to be marked by bioaccumulation of hydrocarbons and longer term and chronic toxicity effects.
- *Heavy-weight oils* are characterized by low evaporation and negligible dissolution, attributable to a high proportion of medium-and large-

[3] Among others, the literature is well represented by:

Mackay, D. 1985. The physical and chemical fate of spilled oil. In *Petroleum Effects in the Arctic Environment,* F.R Engelhardt, ed. New York: Elsevier Applied Science Publishers. Pp. 37-61.

National Research Council (NRC). 1985. *Oil in the Sea: Inputs, Fates, and Effects.* Washington, D.C.: National Academy Press. 601 p.

International Tanker Owners Port Federation (ITOPF). 1987. *Response to Marine Oil Spills.* London: The International Tanker Owners Pollution Federation Ltd.

Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP). 1993. *Review of Potentially Harmful Substances: Oil and Other Hydrocarbons, Including Used Lubricating Oils, Oil Spill Dispersants and Chemicals Used in Offshore Exploration and Exploitation.* London: GESAMP, International Maritime Organization UK.

[4] International Tanker Owners Port Federation (ITOPF). 1987. Response to *Marine Oil Spills.*

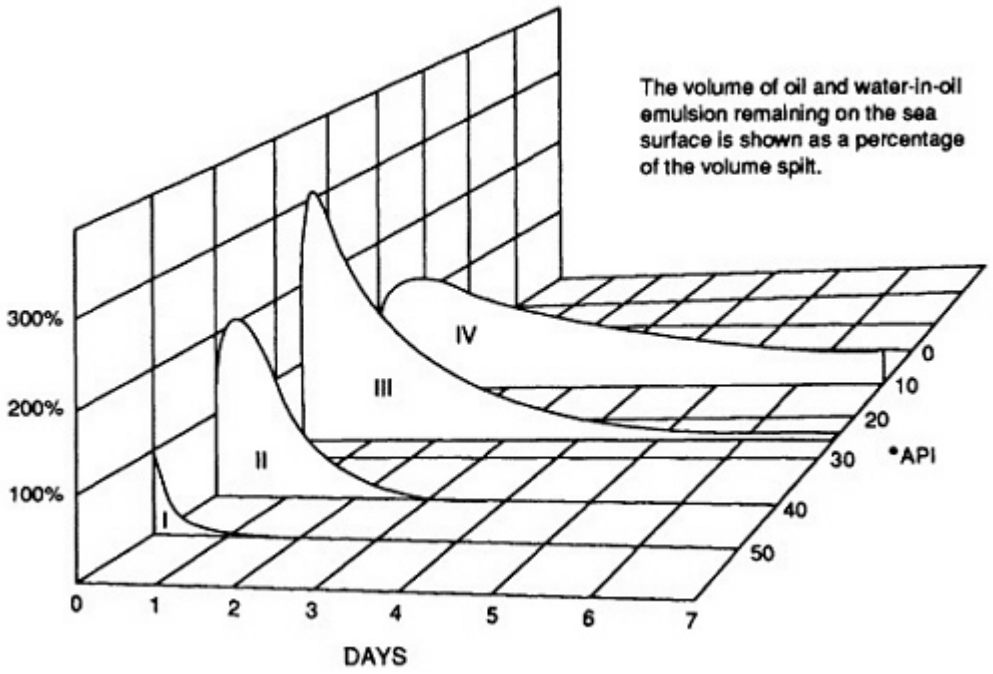


Figure 1.
The rate of removal of four oil types from the sea surface. SOURCE: International Tanker Owners Port Federation (ITOPF). 1987. Response to Marine Oil Spills.

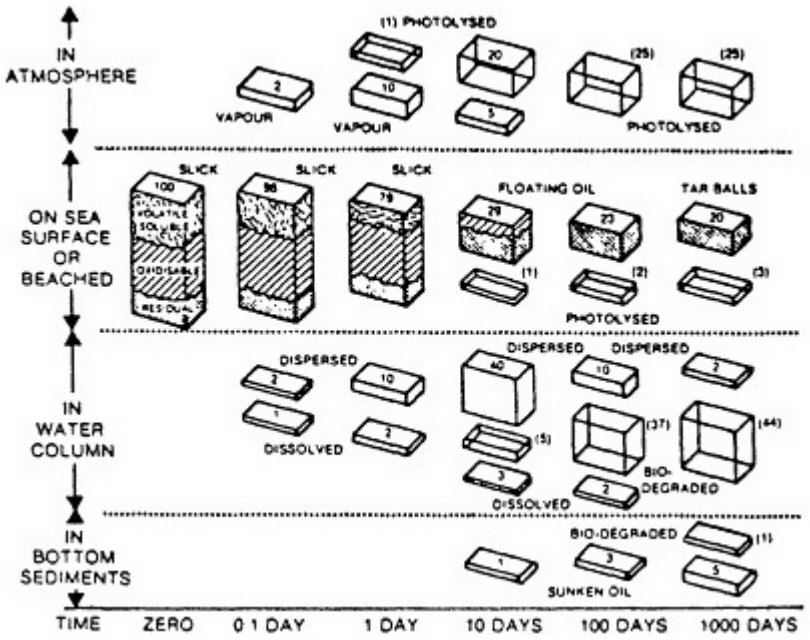


Figure 2.
A speculative mass balance for a "typical" oil spill. Source: Mackay, D. 1985.
The physical and chemical fate of spilled oil.

molecular-weight hydrocarbons. The heavy-weight oils tend to be more adhesive and thus enhance persistence on shorelines. They show a potential for bioaccumulation and chronic toxicity, although the duration of exposure required for such effects also tends to be longer.

These generalities of oil weight are driven by the relative proportion of low-to high-molecular-weight hydrocarbons making up the majority of the composition of petroleum oils. The specific chemical nature of the component hydrocarbons also determines the fate of oil on the sea surface, which influences the fate parameters as well as the effectiveness of spill countermeasures. Oils containing higher-molecular-weight waxes, and especially asphaltenes, emulsify more easily to form persistent water-in-oil emulsions, which have a much increased viscosity. Oils with high asphaltene content can form stable emulsions, which do not easily break up naturally. Emulsified oils tend to weather more slowly because both evaporative, dissolution, spreading, and dispersion processes are inhibited. They also tend to be more sticky, adhering to a greater degree to shoreline material and biological surfaces, as well as countermeasures equipment. One of the additional characteristics of oil taking up water is that its volume increases by several factors, and its density can approach that of sea water.

Specific chemical composition is a major determinant for acute and chronic toxicity effects. Light oils tend to be more acutely toxic, particularly if their composition encompasses larger proportions of benzene and benzene derivatives. In general, the toxicity of oils is linked to the proportion of aromatic compounds, including the benzenes, naphthalenes and polynuclear aromatic hydrocarbons. The larger-molecular-weight aromatics tend to be bioaccumulated and are more associated with chronic toxicity effects, including a potential for such compounds to be mutagenic and carcinogenic.

On the basis of physical and chemical properties alone, and ignoring the dependent environmental/biological/ecological variables discussed below, it can be speculated that in relation to spill persistence and toxicity, smaller volumes of medium-to heavy-weight oil spills may be as potentially damaging as larger volumes of low-to medium-weight oils. This relative inverse relationship is enhanced by waxes and asphaltenes in medium-to heavy-weight oils. The relationships between physical/chemical properties and possible adverse effects is summarized for light to heavy oils in Table 1.[5]

PHYSICAL ENVIRONMENTAL CONDITIONS

The physical environmental conditions of relevance to oil spill fate and effects and to spill response are sea state (a combination of wind, wave energy, and temperature), salinity, ocean current profiles and in some instances the presence of sea ice.

Although there are few data available from direct measurements at sea that quantify oil property changes in relation to sea state, model predictions and mesoscale tests have provided significant insight into the changes that might be expected with

[5] From a recent document prepared by the Exxon Production Research Company Company. 1992. *Oil Spill Response Manual.* 193 p.

TABLE 1. Physical/Chemical Properties and Possible Adverse Effects of Common Oil Types During Spills

Oil Type	Physical/Chemical Properties	Adverse Effects on Environment
Light to volatile oils	• Spread rapidly • Tend to form unstable emulsions • High evaporation and solubility • May penetrate substrate • Removed from surfaces by agitation and low-pressure flushing	• Toxicity is related to the type and concentration of aromatic fractions • Acute toxicity is due to aromatics: 1) naphthalene, 2) benzene • Toxic to biota when fresh • Toxicity of aromatic fractions depends on their biological half-lifes in different species • Mangroves and marsh plants may be chronically affected due to penetration and persistence of aromatic compounds in sediments • Marine plants (especially mangroves) may be adversely affected by smothering
Moderate to heavy oils	• Moderate to high viscosity • Tend to form stable emulsions under high energy marine environments • Penetration depends on substrate particle size • Weathered residue may sink and be absorbed by sediment • Immiscibility assists in separation from water • Weather to tar balls	• Adverse effects in marine organisms result from chemical toxicity and smothering • Toxicity depends on light fraction • Toxic effects reduced in tropical climates due to rapid evaporation and weathering • Low toxicity residue tends to smother plants or animals • Light fractions contaminate interstitial waters
Asphalt, #6 fuel-oil, Bunker C, waste	• Form tarry lumps at ambient temperatures • Resist spreading and may sink • May soften and flow when exposed to sunlight • Very difficult to recover from water • Easy to remove manually from beach surface with conventional equipment	• Immediate and delayed adverse effects due to small aromatic fractions and smothering • Most toxic effects due to incorporation in sediment • Absorption of radiated heat places thermal stress on the environment • Lower toxicity in marine plants than mobile animals

SOURCE: Exxon Production Research Company. 1992. *Oil Spill Response Manual*.

time after a spill.[6] Both model predictions and test measurements demonstrate enhanced evaporation with increased wind speed, as well as marked water uptake into the oil, i.e., emulsion formation and increased viscosity (Figure 3). This example

[6] Singsaas, I., P.S. Daling, and H. Jensen. 1992. Meso-scale flume test for laboratory weathering of oil. *Proceedings of the 15th Arctic and Marine Oil Spill Program Technical Seminar*. June 1012, 1992, Edmonton, Alberta. Pp. 55-65.

is specific to one North Sea crude oil, but similar relationships have been demonstrated for other oils. The significance of these changes relates especially to the effectiveness of spill containment and recovery measures, as discussed in a subsequent section.

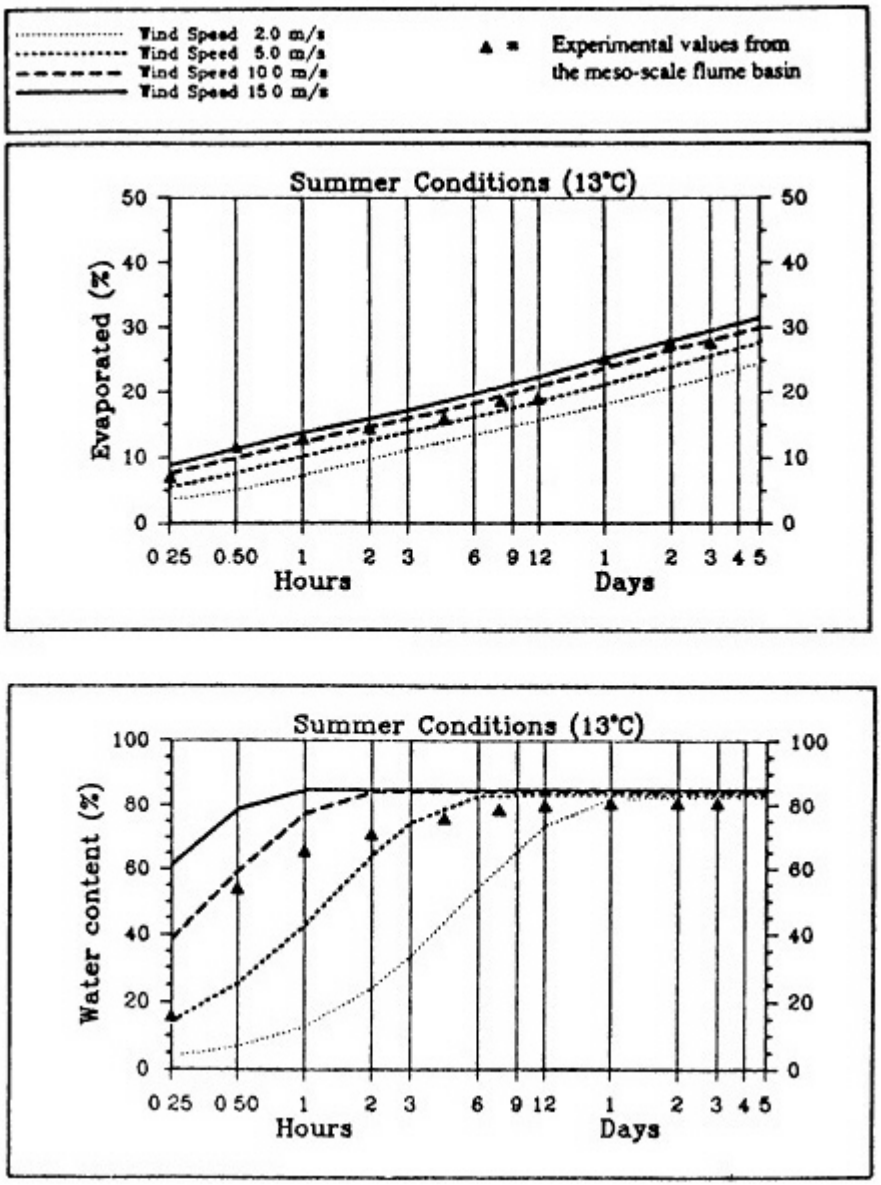


FIGURE 3.
Evaporative loss and water uptake for a North Sea crude oil, showing predicted and experimental values. Source: Singsaas, I., P.S. Daling, and H. Jensen. 1992.
Meso-scale flume test for laboratory weathering of oil. Pp. 55-65.

It may be postulated that small quantities of spilled oil would at least initially be more susceptible to the influence of these environmental variables, However, it is difficult to be definitive since there is little quantitative information on the relationship of wave energy spectra with dispersion potential, as well as to the probability of formation of emulsions. Although it may be suggested in a speculative fashion that the wave dampening effects of oil slicks would be greater for large oil spills than for small ones, this is probably only plausible in the early stages of a spill when there has

as yet been little spreading of the oil to thin the slick layer. The relationship of slick size to volume released is summarized in Figure 4.

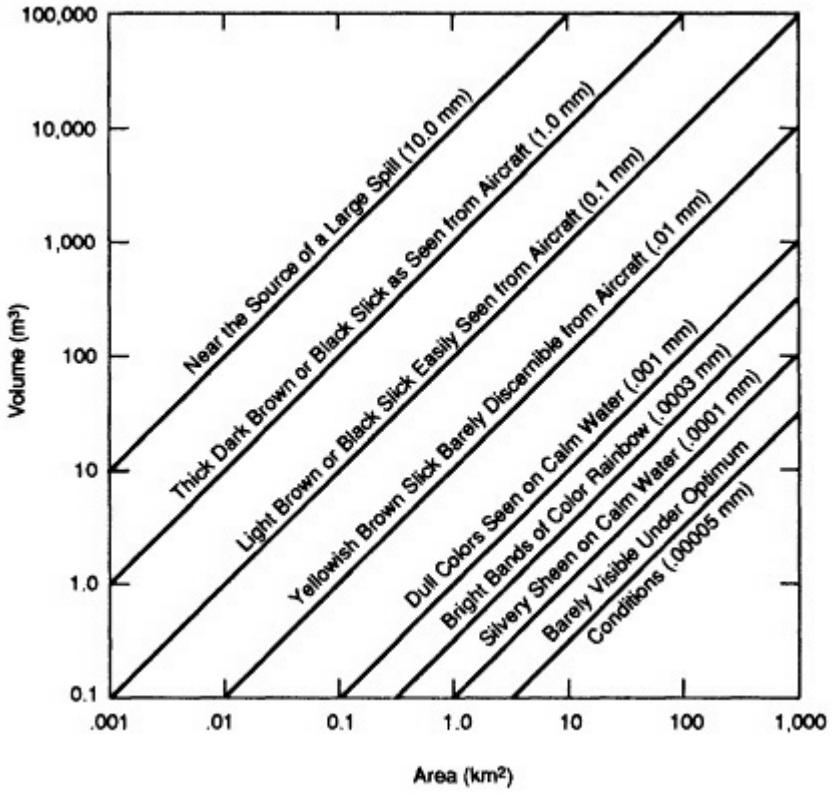


FIGURE 4.
Areal coverage of spilled oil for different slick thicknesses
Source: Exxon Production Research Company, 1992. Oil Spill Response Manual.

An oil spill on the sea surface offshore tracks in accordance to wind direction and surface currents, which are predominantly wind driven. Other current influences also have to be considered, such as convergence at shelf edges and tidal currents in the nearshore. Differential influences on large versus small spills are speculative, but a large spill, covering a greater area of the sea surface is likely to come under the influence of a greater number of ocean current variables. The large spill would probably show a more complex pattern of distribution and be more difficult to predict and track.

The presence of sea ice has a significant effect on both the behavior of oil and the ability to apply countermeasures. Most of the oil spill containment and recovery systems used in temperate waters are compromised in their effectiveness by the presence of ice. New technologies are slow in being realized, although burning of oil in and on ice may become a useful countermeasure. In some circumstances, ice serves to corral oil so that oil recovery can be applied, but it also can prevent access. Further, mechanical countermeasures are limited in ability to handle solids (such as broken ice), remote sensing capacity is limited, modeling of the fate of oil is complicated by inadequate detailed knowledge of under-ice currents, and bioremediation is likely to be slow because of the low water and shoreline temperatures. Conversely, the ability of ice to restrict the movement of oil on the sea

surface can be an asset for in situ burning, whose promise as a countermeasure is supported by a growing experimental database.

CONTAINMENT AND RECOVERY

Weathering Processes

When oil is spilled at sea, it is subject to several physical and chemical processes, including spreading, drifting, evaporation, dissolution, photolysis, biodegradation, and formation of both oil-in-water and water-in-oil emulsions. These weathering processes may lead to drastic changes in the chemical and physical properties of the oil and therefore also in oil behavior. The main factors influencing the rate and extent of weathering are waves, wind, sunlight, air and sea temperature, and salinity.

Spreading, evaporation, and especially formation of water-in-oil emulsions, can cause a drastic increase in oil viscosity, and may therefore be of great importance for decision makers concerning the use of the different spill response techniques during an oil spill combat operation.

Spill Response Techniques

The choice of spill response techniques should vary with weather conditions, changes in the chemical and physical properties of the oil, and as a result of any delayed response time following an oil spill.

Major spill response techniques during an oil spill combat operation might include use of mechanical recovery equipment, in situ burning, and chemicals or "soaps" as dispersants and demulsifiers. Figure 5 shows the relative efficiency of various response techniques in relation to oil slick thickness, and Figure 6 demonstrates potential volume control rates for selected spill response techniques.[7]

In Situ Burning

The effectiveness of ignition and combustion of oil floating on the sea surface is dependent on a mixture of variables, including wind, waves, rain, initial oil thickness, oil thickness reduction, formation of emulsions, evaporation and dispersion.[8] However, the three main limiting factors for ignition and combustion of oil at sea are the oil thickness, oil thickness reduction, and the water content in the emulsion. A number of generalities of operational relevance can be made, drawn from both observational and experimental data.

Laboratory and mesoscale testing clearly indicate that ignition and combustion of oil having an oil thickness less than approximately 2 mm are extremely difficult. The spreading of oil from a source on the open seas will within a short period of time cause a reduction of the thickness to less than 1 mm, preventing ignition and further combustion.

For effective ignition and in situ burning at sea as a response measure, fire resistant or fireproof booms are needed in order to create and maintain a sufficient oil thickness. Due to the heavy weight of fireproof booms, however, they have poor wave

[7] Allen, A.A. 1993. *Marine Spill Response Corporation Oil Spill Response Strategy Seminar.* Washington, D.C.: Marine Spill Response Corporation. 98 p.

[8] Allen, A.A. 1991. Oil spill response to blowouts at sea. *Proceedings of the First Offshore Australia Conference.* Pp. 1-19.

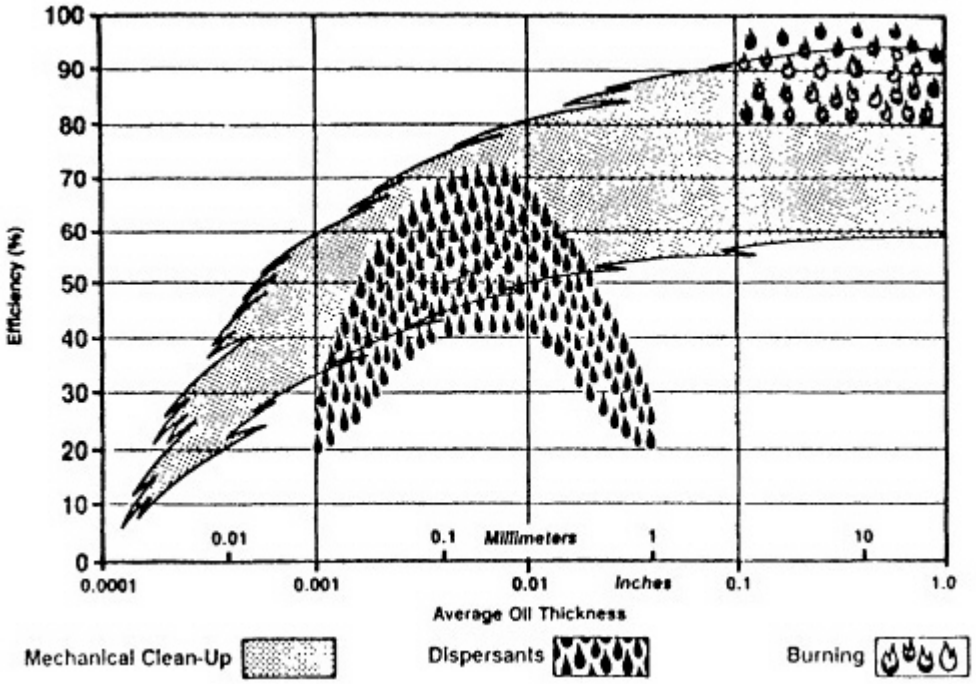


FIGURE 5.
Selected performance efficiencies for primary response techniques over a range of oil film thicknesses. Source: Allen, A.A. 1993. Marine Spill Response Corporation Oil Spill Response Strategy Seminar.

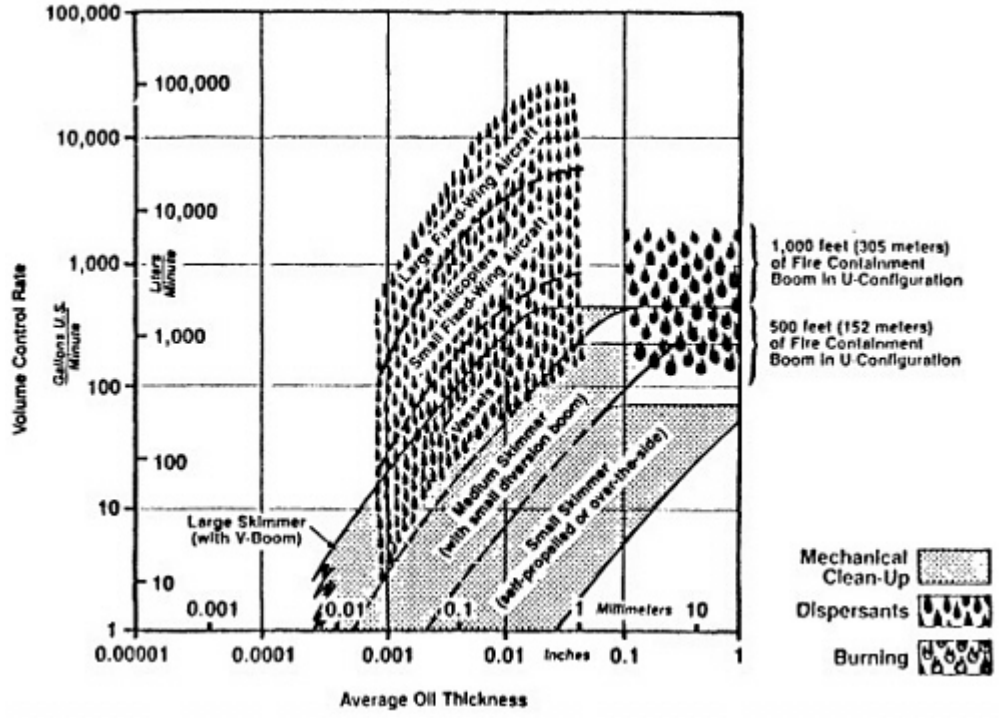


FIGURE 6.
Comparison of potential volume control rates for selected spill response techniques. Source: Allen, A.A. 1993. Marine Spill Response Corporation Oil Spill Response Strategy Seminar.

following characteristics and are reported to be ineffective in average waves higher than 3 to 4 feet (e.g., 3M Fire Containment Boom Specifications). In wind velocities above approximately 4 knots (2 m/s), emulsification of some oils can take place within minutes and may increase the water content up to 60 to 80 percent within a few hours. Other oils are less susceptible to such emulsification. An effective limitation for ignition and combustion, however, is in the range of 30 to 50 percent water content.[9]

The efficiency of in situ burning is claimed to be above 50 percent and even above 90 percent, depending on oil type and weathering properties. For emulsions, however, the efficiency has been as low as 10 to 35 percent (Etkin, 1990). For the most part, the high-efficiency figures are laboratory derived, and given current technologies would be difficult to duplicate in many spill situations. Better definition of this issue is needed since in situ burning may in the future be a common response technique. Responders will therefore need realistic data on the possibilities, limitations, and the effectiveness of in situ burning for various fireproof booms, oil products, and weather conditions. An in-depth study of the operational feasibility of in situ burning as one of the suite of possible response tools is being carried out by the Marine Spill Response Corporation.

Dispersants

The application of dispersants has been used for removal of oil spills from the sea surface since the *Torrey Canyon* incident 25 years ago, when they were used for the first time in a major oil spill. The use of dispersants in the United States has heretofore been limited because of regulatory impediments, but it appears that future use in spills may be considered more favorably. However, the actual effectiveness of dispersants used at sea under the many different oil spill situations requires further understanding.

Most studies on the effectiveness of dispersants used in the field indicate values of 20 to 70 percent, and under some special circumstances even higher, but most values are below 35 percent.[10] However, it has been difficult to measure the effectiveness of dispersants in the field, and no common standard methods are available for establishing a mass balance. Laboratory effectiveness testing of dispersants may also give variable values since several different standard test methods are used.[11] The test systems represent a range of mixing energies, claimed to represent different weather conditions or sea states, but today no real correlation exists between the mixing energy within the apparatus and the mixing energy in the ocean as related to wave energy spectra. Studies are underway at the Warren Springs Laboratory in the United Kingdom to address this important issue.

The effectiveness of dispersants will vary depending on many physical and chemical factors, such as oil properties, application method, droplet size, oil thickness, dosage rate or dispersant-to-oil ratio, wind and wave conditions, salinity, temperature, viscosity, pour point, and emulsification. Possible relationships between

[9] Allen, A.A. 1991. Oil spill response to blowouts at sea.

[10] National Institute of Standards & Technology (NIST). 1988. *Alaska Arctic Offshore Oil Spill Response Technology Workshop Proceedings.* NIST Special Publication 762. 201 p.

Allen, A.A. 1991. Oil spill response to blowouts at sea.

[11] Daling, P.S., P.J. Brandvik, D. Mackay, and ø. Johansen. 1990. Characterization of crude oils for environmental purposes. *Oil & Chemical Pollution* 7:199-224.

physical oil and environmental variables as predicted for a North Sea oil are presented in Figure 7.[12]

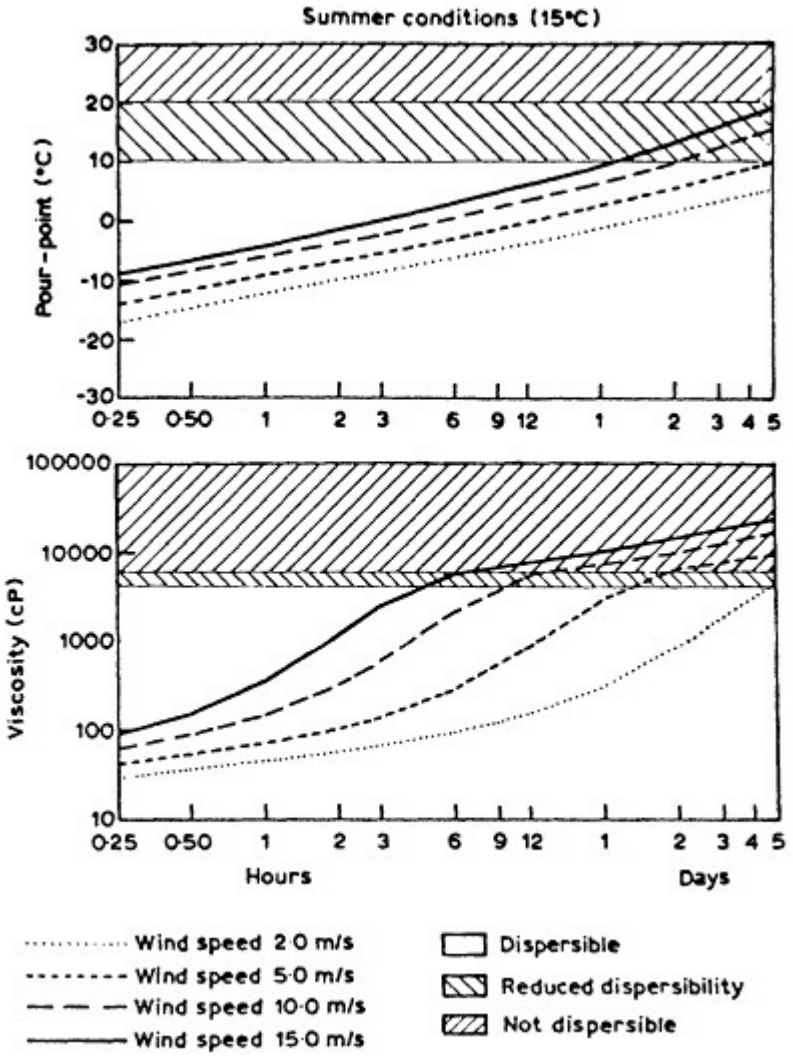


FIGURE 7.
Pourpoint and viscosity of Oseberg crude oil under selected sea states, showing potential for dispersibility. Source: Daling, P.S., P.J. Brandvik, D. Mackay, and ø. Johansen. 1990. Characterization of crude oils for environmental purposes.

The use of demulsifiers in order to prevent formation of or reduce the amount of emulsion on the sea surface, followed by use of dispersants, is a relatively new response method under development in the United Kingdom. Application of demulsifiers during mechanical cleanup operations may also reduce the water content in the recovered emulsions and extend the time in operation in the field by decreasing storage requirements.

[12] Daling, P.S., P.J. Brandvik, D. Mackay, and ø. Johansen. 1990. Characterization of crude oils for environmental purposes.

Mechanical Recovery Measures

Oil spill cleanup based on mechanical equipment continues to be the most common response method for oil spills. Among mechanical recovery equipment, there exist a large number of booms and skimming principles. Booms for containment tend to be designed for operation in either calm, protected, or open ocean areas, and skimmers are often designed to operate within certain viscosity ranges. Their performance capabilities and effectiveness will therefore depend on the area of operation and the weathering properties of the oil, in particular the sea state, oil type, oil thickness, and degree of emulsification. The key environmental constraints have been summarized, showing probable maxima for sustained performance ability for major open ocean containment and recovery systems currently in use:[13]

- Beaufort Scale, 3 to 4.
- Waves, 2 to 4 feet significant wave height (possibly up to 6 feet with certain equipment).
- Winds, 15 to 20 knots sustained.
- Currents, 1 knot.

Spill-size Relationships

Assuming that equipment for spill response is available as identified in vessel response plans to deal with both small and large spills, the relationship of spill size to effectiveness of the response would probably be driven mainly by the increased complexity of large spills. More oil on the sea surface also increases the probability that environmental conditions could become limiting to the response, increasing the time for weathering of the oil which is known to increase the difficulties of recovery operations, as described above. Quantification of the relationship, however, requires specific knowledge of spill response resources available, the time required for them to arrive on scene, characteristics of the spilled oil, and the environmental conditions of the spill.

SHORELINE CHARACTERISTICS

There is a strong possibility in the case of large offshore spills that oil will impact shorelines even with best effort responses for control and recovery. If the discharge occurs nearshore (most tanker accidents occur in the nearshore area), the oil spill is likely to reach the shoreline in only a short time. An evaluation of the significance of such contact has to take into consideration the geomorphology of the shoreline. It is well understood[14] that high-energy shorelines are more easily washed clean by wave action, Also, there tends to be less retention of oil on rock faces and in unsorted beach material, although the viscosity of the impacting oil is an influential factor. Low-energy shorelines show a longer retention of beached oil, including sandy beaches and biologically sensitive areas such as salt marshes and mudflats. These factors have to be considered in predicting the impact of spilled oil, but also in logistic planning for deployment of response resources. Response resources are finite and the overall effectiveness of a spill response may be enhanced by targeting efforts to those shoreline areas which might be most prone to impacts.

[13] Allen, A.A. 1993. *Marine Spill Response Corporation Oil Spill Response Strategy Seminar*.
[14] National Research Council (NRC). 1985. *Oil in the Sea: Inputs, Fates, and Effects*.

BIOLOGICAL FACTORS

The toxicity of oil has a wide span among the different marine species, ranging from less than a part per million of oil to high concentrations. A consideration of toxicity to individual organisms has to take into account at least the following:

- Characteristics of the spilled oil.
- Degree of weathering.
- Mode of exposure (contact, inhalation, ingestion).
- Exposure concentration.
- Duration of exposure (acute or chronic effects).
- Sensitivity of the individual organism of a species, which may vary with life stage.

The sensitivity of a species or a population depends on its ecology. The zones of potential impact of oil spills are spatially limited to areas that contain oil, modified by the effect of dilution of toxic fractions of oil to a threshold where acute and chronic effects no longer occur. Because oil weathers both physically and biologically, the spatial extent of an impact zone decreases with time, noted with all spills that have been investigated. The temporal change is of importance in determining the potential for exposure of a population—the population has to be present at a time when the oil is present in toxic quantities. For example, the effects of the *Braer* spill in January 1993 are likely to be less severe for seabirds because it occurred in midwinter when most of the birds were not present in traditional colony areas. The high sea state at the time of the spill and the low persistence of the spilled oil will probably minimize residual effects on marine life when the seabirds and other species return in large numbers for the summer season to the Shetland Islands. By comparison, the *Amoco Cadiz* spill, which occurred in a biologically more vulnerable time, had a more severe effect on marine populations.

It is beyond the scope of this paper to review these relationships in any degree of detail. Such information forms the bulk of the oil spill literature and is presented in many summaries.[15] A survey of the major biological groupings is presented here to round out the perspective of impact evaluation and to indicate which groups are unlikely to show lasting effects from small or large spills as compared to those that might have specific sensitivities driven by their ecology. Such sensitivities are

[15] These include:

Malins, D.C. 1977a. Effects of Petroleum on Arctic and Subarctic Marine Environments and Organisms. Volume I. Nature and Fate of Petroleum. New York: Academic Press. 321 p.

Malins, D.C. 1977b. Effects of Petroleum on Arctic and Subarctic Marine Environments and Organisms. Volume II. Biological Effects. New York: Academic Press. 500 p.

Neff, J.M. 1979. Polycyclic Aromatic Hydrocarbons in the Aquatic Environment: Sources, Fates and Biological Effects. New York: Applied Science Publishers Ltd. 262 p.

Engelhardt, F.R. 1985. Petroleum Effects in the Arctic Environment. New York: Elsevier Applied Science Publishers. 281 p.

National Research Council (NRC). 1985. Oil in the Sea: Inputs, Fates, and Effects.

Geraci, J.R., and D.J. St. Aubin. 1990. Sea Mammals and Oil: Confronting the Risks. New York: Academic Press. 282 p.

Group of Experts on the Scientific Aspects of Marine Pollution (GESAMP). 1993. Review of Potentially Harmful Substances.

predictable in principle, and form the basis of environmental and biological sensitivity mapping used in oil spill response planning.

Microbial Effects and Biodegradation

Interest in this trophic level centers on two main aspects: a recognition that microbial systems constitute the bioenergetic basis of the marine ecosystem, and that microbes, in particular bacteria, can degrade contaminants such as hydrocarbons. It has been determined that the composition of the microbial community changes with exposure to hydrocarbons, generally in favor of hydrocarbon degraders, the oleoclasts. Such changes may take days to months in marine waters and sediments, depending on water temperatures and the degree of any chronic pre-exposure to hydrocarbons. Biodegradation is most effective for lighter oils and in particular for the alkanes. High levels of oil appear to inhibit biodegradation due to a direct acute toxicity effect, which can be of relevance in considering differences of impact comparing small and large spills.

Phytoplankton

Oil pollution effects on these primary producers have been little studied, but it appears that growth and photosynthesis are inhibited by at least high oil concentrations. The significance of such an effect may, however, not be great since the effects of an oil discharge are local or regional in scale and would likely be buffered by adjacent phytoplankton populations once oil is no longer present at toxic levels.

If phytoplankton accumulate hydrocarbons, they may function as a vector for the biotransfer of these hydrocarbons to other trophic levels, especially to herbivorous zooplankton and filter-feeding benthos. Again, the environmental effect is likely to be local or regional, and of limited duration.

Zooplankton

Although extensive lethality data are lacking, information available for zooplankton suggests LC50 values in the order of a fraction to a few parts per million. Such concentrations may be expected in the water column after a spill, with consequent debilitation of the zooplankton population in the local area. Again, exchanges among water masses and the plankton components are likely to buffer this effect with time. Indeed, observations of zooplankton populations in spills have shown that while there is an effect of oil it is short-lived, and there are few changes in the biomass or standing stocks of zooplankton in adjacent open waters.

The ability of zooplankton to take up hydrocarbons has been demonstrated and suggests a potential for biotransfer. However, long-term bioaccumulation and transfer to fish, for instance, is of low probability following an oil spill since the zooplankton are able to void accumulated hydrocarbons. Tainting by biotransfer of higher trophic levels of the food chain is likely to be a temporary and localized phenomenon.

Benthic Invertebrates

The benthic invertebrate biota are an important component of the marine ecosystem, providing an energy base for fish, seabirds, and marine mammals. They respond to disturbances and represent an ideal effects monitoring system. Bivalves

and echinoderms show behavioral changes to hydrocarbon contamination that may limit their survival, such as emergence from sediment in mussels and clams, and narcosis in many species. This can occur after acute, post-spill exposure as well as after long-term chronic contamination in the parts-per-billion range. In addition, benthic invertebrates are able to accumulate hydrocarbons to high levels from the surrounding medium, suggesting biotransfer as a possible concern, at least until such time as the accumulated hydrocarbons are voided.

Acute effects in benthic invertebrates tend to be tempered by their localized nature. Such a geographically limited effect might be significant if a local benthic population become reduced or contaminated in obligatory feeding areas for animals such as walrus or seabirds, eider ducks for instance. Wide-ranging chronic effects in nearshore benthos may be of concern following a large spill with a wide degree of lasting shoreline contamination.

Macroalgae

One area of benthic life that has received only scant attention is that of macroalgae, or seaweeds. The seaweed community provides a habitat for many dependent species that form part of the nearshore food web. The presence of oil limits photosynthesis by biochemical inhibition and decreases primary production. While the loss of macroalgae can be expected to change a nearshore benthic ecosystem for the short term, it can also be anticipated that recruitment through pelagic spores or larvae would eventually normalize a local or regional ecosystem effect.

Fish

Adult fish appear to be fairly resistant to oil exposure, in contrast to their sensitive egg and larval stages which are often planktonic. Fish tend to leave areas of high contamination and relatively little mortality is recorded. Sublethal effects include impaired physiological salt and water balance, which might be crucial to anadromous fish such as salmon when they enter the freshwater phase of their spawning cycle. A unique vulnerability for arctic fish may be at the ice edge, which is considered to be an important and productive habitat for many species. There is little evidence that standing stocks of fish have been much changed by oil spills. A more likely consequence is impact on harvest activities, either because the adult fish have left a contaminated area or because such fish have become or are perceived to be tainted through contact with oil.

Seabirds

The fate of seabirds has drawn great attention for several reasons. There is little doubt that birds exposed to oil fare poorly. The primary problem is a loss of thermal insulation, along with a decrease in buoyancy, increase in metabolism, and decreased reproductive success. Certain species form special sensitive cases. The alcids, including murres, dovekies, and razorbills, are particularly susceptible, especially in northern areas where they tend to breed in a very few but large colonies, with a low reproductive turnover. An oil spill in the vicinity of such a breeding area has a potential for serious impact on the population, and a prediction of impact would require close evaluation of the fate of the oil spill.

Marine Mammals

Investigations of actual oil spill incidents have generally not been conclusive in identifying the toxicity of petroleum in seals or whales, even though mortality has been attributed to oil exposure at sea. Only some of the species have demonstrated a clear sensitivity to petroleum in experimental studies. Recent studies in seals, sea otters, polar bears, and whales have helped to round out the limited information base on the subject. Although the cetaceans at least are able to detect oil on the sea surface, it remains controversial if marine mammals would avoid oil spills at sea. In some circumstances both whale and seal species have been observed to surface through oil slicks.

Contact with viscous oils can lead to long-term coating of the body surface of the furred marine mammals to result in thermoregulatory stress, or may interfere with the filtering capabilities of baleen in whales. A limited experimental data base suggests that seals, whales, sea otters and polar bears differ in degree of clinical toxicity damage following exposure to petroleum. It is clear that both seals and whales are able to absorb hydrocarbons and will store the contaminants in blubber, as well as to a lesser degree in other body tissues. Tainting of harvested marine mammals is considered a potential problem.

Population-significant impact on marine mammals appears to be a potential only in definable circumstances, that is, restricted to localities that may seasonally host a large proportion of a population. The high densities of white whales in estuaries and bays may be a case in point, as are traditional colony areas for walrus. Evaluations of impact have to be case specific.

CONCLUSIONS

It is possible in only a general way to state that large spills have a greater potential for environmental impact than small-sized spills. Since there appear to be significant exceptions to this statement, the situation should be analyzed in depth on the basis of global record for marine spills. An approach using the proposed "Marine Oil Spill Scale" might be useful. The results of both experimental data and information gathered from oil spills point out that a prediction of spill impact related to spill volume must take into consideration a wide range of variables. These include the characteristics of the spilled oil, physical environmental conditions, the effectiveness of oil containment and recovery measures, and the biological parameters of affected areas.

Dr. F. Rainer Engelhardt *is vice president for research and development for the Marine Spill Response Corporation. He has an extensive background in oil spills and their effect on the environment. He was formerly in executive management positions with the Canadian government, including the Canada Oil and Gas Lands Administration.*

OIL SPILL TRAJECTORY MODELING

Jerry Galt

There is a perception in the general population that oil spill models represent reality: turn one on and it tells what is going to happen with a spill and what is going to happen in the ocean. That is not true. Each model has special strengths and weaknesses and it is not reasonable to consider any model outside the context in which it is intended to be used. My charge is to cover six aspects of trajectory modeling:

1. How present models work.
2. The types of models that are available.
3. Factors that limit model accuracy.
4. How models are used.
5. What technology is available to support models.
6. What improvements are needed.

A model is a tool. You have something in mind when you apply it to a particular situation. When considering a model to support a jettison decision, the particular type of incident must also be considered. For example, a grounding implies that a certain subset of ocean dynamics are involved. Most importantly, it is nearshore, and models that might work very well in the open ocean won't work very well nearshore. Groundings have a tendency to degenerate and malinger. If the ship goes aground, there are a lot of feathers flying right away but it is very likely still to be a problem two weeks later. Thus for most groundings we should be looking at a model that has some capability to understand what is going on in a time scale of a week or a month, occasionally longer.

Yet when a grounding occurs, something needs to be done to stabilize or fix the situation quickly. The initial output, the initial recommendations, the initial look forward from a model, should be available very quickly. If a ship parks on a rock, bad things are going to start happening fast. The typical time scale is a tidal cycle. If a tanker sits on a rock and the tide drops it 10 feet on its end, it has a serious problem. We need models that have high resolution, that can look forward in time, and that can get an answer out very quickly. That is the context in which we are going to try to evaluate and think about models.

HOW MODELS WORK

Virtually all oil spill models that are available have to say something about the current, because anything dropped in the ocean is carried away or drifts off with the flow. This involves looking at oceanographic flow problems and hydrodynamics. In a nearshore regime, there is considerable complexity in this kind of a problem. One of the first things we need is models that realistically cover geophysical geometry. There

are plenty of models that describe the open ocean. Currents are averaged, for example, over 50 miles square or 100 miles square. Those kinds of models won't help. We need to resolve complex shorelines and realistic bathymetry, and it is complicated.

In every model I know, shoreline and bathymetry factors have actually been taken out of the model and set in a separate submodel. Oceanographers run models that try to do that. For example, a typical model that would resolve geometry would be based on a finite element scheme that can get realistic shapes down to some resolution. An alternative proposal would be to use a finite difference grid, or just a bunch of little cells. In that case, the cells have to be quite small in order to resolve what you need to look at, and this would require much larger computer resources.

Another characteristic of oil spills that every model has to deal with is that they start off small and (if they are going to be a problem) they eventually become big. Models have to resolve multiple scales. You can't get fine resolution in one spot then carry it throughout because you will run out of computer space. Models are thus formulated in a mixed sense; that is, they use a combination LaGrandian/Eulerian formulation. This means that they consider the oil as a bunch of little pieces of oil and the flow as a larger scale field. You keep track of the oil by keeping track of all these particles and making some inference out of the information.

Models need to consider other physical processes besides moving along with the water. Most of them have a weathering component. Again, depending on the kind of oil involved, some fraction of the oil is going to disappear on its own. This means it will go somewhere else in the environment; it can evaporate, or it can disperse in such a way that you can't find it any more. These factors are typically represented algorithmically and most models have such a component. They may vary in terms of quality, however. Some are quite coarse, but generally a sensitivity analysis would show that most of the models are adequate compared to human observational skill.

Most models also have algorithms or representations for beaching effects. When oil gets near a shoreline, it becomes a problem on the shore and you need to represent that computationally. The naive view is that when oil approaches a beach, it just drives up and parks on the beach. That is not the case. Oil is probably more easily modeled like a tennis ball, you can get about three bounces out of it as it goes ashore. When oil approaches a shoreline, it has to stick to the shoreline. Typically, it will go ashore on a falling tide and an onshore wind. If it gets next to the beach, the currents alone won't take it ashore: it has got to be held against the beach by a wind and then the tide has to drop out from underneath it.

Many times we have observed oil ashore when the winds are not onshore and the tide is dropping, but the oil doesn't stick. When oil approaches a shoreline and the tide is rising, it won't stick. It just continues to fill up the beach face. For example, in the Huntington Beach spill, oil was on the shoreline and in the surf zone for a number of days, but the falling tide occurred in conjunction with a sea breeze reversal. There wasn't any oil on the beach for three days while those conditions prevailed, although the oil was right there. This provides an excellent opportunity to clean it up, by the way.

Another important—almost determining—factor in many model examples is wind drift. Oil is affected by wind in several different ways. When the wind blows, it scoots the ocean surface along with it, so you need the wind as well as the current to determine where the oil is going to go. The oil also interacts directly with the waves created by the winds. An oil slick is smooth because the waves are damped out. The first thing you notice about an oil slick is the difference in roughness. Oil absorbs

small waves. Small waves have a small amount of energy. They push the oil around. An oil slick will motor through the water it is floating on because it is being pushed by the waves it absorbs. This is another reason wind effects have to be considered. Currents by themselves almost never penetrate a shoreline. (In a marsh, there may be some inundation and percolation through the shoreline, but generally the currents can take oil toward the shore, but it won't beach without wind.) Thus the wind field is critical for determining this particular aspect of a spill. All the models I know that are routinely used contain these kinds of processes.

TYPES OF MODELS

The differences in models are not so much in the detail, but in the resolution and feeding requirements, the kind of data it takes to make the models run, and the input/output presentation. These factors are designed for a variety of different hardware platforms. These days models run routinely on anything from a microcomputer to a supercomputer, and there are models that have been developed all over the world:

- Warren Springs in England has Eurospill.
- There is a commercial version of the U.S. World Oil Spill Model.
- A model used in government called OSSM stands for On-Scene Spill Model.
- Florida is running a large model on a Cray-type supercomputer.
- Regional areas have their own models.
- There is something called Gulf Slick, which runs from the Arabian Gulf.

Each of these models include all these kinds of processes. The big differences are how you feed them and what they show you when they are over.

LIMITATIONS TO MODEL ACCURACY

There are a lot of problems with how models work. First, if we want a model to respond very quickly, we are typically talking about one based on climatology or average conditions. The reason is that there are no real time, up and running, forecast models of the ocean. In theory, one could make a model of the ocean which would be similar to the weather service models; turn it on and it will tell you what is going to happen with the weather tomorrow. Atmospheric models are supported by the World Meteorological System's network of measurements at hundreds of places around the world every six hours. That network is required to bring a model back to reality whenever necessary. In other words, there is a hindcast/forecast procedure. There is no such system for the ocean. This means if my phone rings and somebody says "I have a spill," I can't go see what happened at that site yesterday. I have to go on climatology. Another way to think about this problem is, if you wanted to plan a picnic for next August, you could look at climatology and say that is a good idea, it is probably going to be hot. If you want to plan a picnic today, you should look out the window. A spill situation is like that. Unfortunately, it is difficult to look out the window—not impossible, but difficult.

Another problem with available oceanographic data is the effect of seasonal flows that are nonaverage. Freshwater input is a critical factor because it tends to govern the nearshore flow and it tends to disproportionately affect movement of the oil. These are poorly understood factors. Climatology, for example, will not predict heavy rain freshets coming down the Delaware River and affecting a spill in the Delaware

Bay. Climatology won't include many situations that are environmentally difficult, which is a time when ships tend to get in trouble. The average conditions off the Shetland Islands didn't make much sense compared to what was going on in the *Braer.* The two or three spills on the Gulf Coast after Hurricane Andrew were not average in any sense, either.

Another problem that is almost impossible to understate is that we need to know where the oil is going. To do that, we need to know the velocity field, i.e., what is happening in the currents. That is difficult to determine. More importantly, we need to know the derivative of the rate of velocity change. When a substance starts to disperse, mixing and entropy and chaos are going to make it less and less concentrated and it is going to spread. For example, a smoke plume from a smokestack gets less and less dense until it thins out entirely and goes away. It is never possible for that smoke to recoalesce into a black cloud and splat onto the side of a building 100 miles away. This is not true about oil because oil is buoyant, so when ocean water converges and sinks, the material floating on it stays on top. That gives an oil spill the power to recoalesce. Time after time, we see spills spread out, get thin, disappear, then suddenly reappear in tide rips and convergence zones. When they do reappear they can do it in a form that can do tremendous damage. If this didn't happen, however, we wouldn't ever have an opportunity to recover the oil. Once again, compare oil spills to smoke from a smoke stack.

Thus there are aspects to currents and current flow that are very important, Yet we are not even close to being able to predict them with models. Invariably, when we deal with a spill, these are things that are determined observationally. We just don't have any models that will resolve these factors on the scale we need in the nearshore environment.

Other small-scale, nearshore factors that we can never model are such phenomena as rip currents. A rip current is a current that turns perpendicular to the shore and carries water out of the surf zone. If oil is in the surf zone, the rip current rejects the oil back out to the ocean and leaves a smearing effect on the beach. We don't understand these phenomena very well. We know they occur, we have seen spills where they are important, but there are no models that can resolve them.

Finally, present models lack technological ability to present information well, such as good graphic presentations and the ability to routinely transmit the data to other places. Running a model and full four-color or sixty-color pictures on a console doesn't do much good unless you can project that image to somebody who needs to make a decision. The next problem is to take the data and overlay it with resources. It isn't enough to see a threat profile of where the oil is going, we need to know who it will hit and how it will hurt. Those are the kind of real questions we want to answer: we are just beginning to do that.

One advantage I have from responding to spills and running these models for many years is I have some feeling for accuracy. Typically, when we get called on a spill, we make an immediate projection based on available climatological data and whatever we can infer at the time. We can predict where the oil is going. About two-thirds of the time I am pretty close in terms of directions. But there are other errors in this process. For example, the Weather Service can tell you the wind direction—north, northeast, east, something like that—but the bad news is, a third of the time it is somewhere else. This is what climatology will do to you—like planning a picnic months in advance. When on-scene observations begin to come in, you can improve on

those predictions. Whenever we go to a spill, we have an experiment in progress. The first overflight comes back with data and we begin to calculate hindcast/forecast information. The reliability of information improves the forecast quite a bit. Gathering nowtime background information is important. We don't have capability at the present time to be collecting this type of data anywhere, let alone everywhere.

HOW MODELS ARE USED

The naive approach is that the first thing you want to do with a model is forecast—take everything you know, take the best weather forecast, specify where the oil is, and predict where it is going. We do that all the time. But in many respects it is not the best use of the model because we are often considering a problem that has a time scale longer than the forecast period. The Weather Service will forecast to 24 hours; call them up on the back line and you can get 48; beat on the person doing the forecast and you might get 72. But they are not going to stand behind it and nobody believes it very much anyway. In general, when we talk about a spill, particularly if we expect it to degenerate and lose the whole cargo, it will be weeks.

What we need to do is consider using the model in another way: run the model in a statistical mode, look at the average conditions, go back to wind statistics, go back to current statistics, and go back to tide statistics. Invariably, in dealing with a spill, the first thing we do is determine which direction we think it is going.

The second thing we try to do is try to figure out what the bound—the envelope—is. This brings us to trajectory analysis. A model is one piece: it is the analysis that you want. No model is accurate enough to stand on its own. We need to understand what the model tells us and what it doesn't tell us.

Another way to run a model is something called a receptor mode. This is when you say, "I don't care if oil is all over the place. I only care if oil threatens a high-value resource." The response is to try to create a spill at a high-value resource—such as a wildlife refuge or a marina full of politicians' boats, or anything else you don't want to get oil on—then trace the spill backward and see where it could have come from.

Statistically, this is a fairly intensive prospect, but the result is two maps. The first map is a joint probability of distribution map: it says, if you start at point a, there is a probability X that you will end up at point b. It is also a threat zone map. It tells where oil could come from and threaten a resource. These things are statistical in nature and can be done ahead of time: receptor mode maps can be plotted for all areas, so if an event occurs the threat zone is determined. The second thing the receptor mode does is plot out a time-of-travel contour. With these two maps we have what the probability of the threat is and the time available to react to it.

Forecast, statistical, and receptor mode analysis are all ways to use models. On a major spill we run all of them. Another aspect of strategy doesn't have to do with how to run the model, it has to do with how to think about it. This gets back to the idea that most people naively think the first thing to do with a model is run a forecast—take a best guess at the weather and figure out what is going to happen. In game theory, that is equivalent to going for the big win, doing what offers the best chance of success. When dealing with high-value resources, the best game strategy is often not to go for maximum win but for minimum regret. It is an exploration of the situation—to find out the worst downside and then plan for that scenario. Unfortunately, what I am talking about doesn't lead to certain answers. I don't believe there is a silver bullet associated with computers being able to determine that it is a good idea to jettison

cargo. They can establish that it could be pretty bad if you don't, but that is not going to help much.

There are some technological options that can be helpful in trajectory analysis. For example, technology is available to help in such areas as gathering information from satellites. We use satellites all the time. If there is a spill off the east coast of the United States, we can get a thermal image of the Gulf Stream in a flash. That is a little further offshore than the scenario we are talking about at this symposium, but if you happen to be in a Gulf Stream eddy going the other way, you would like to know that, and a satellite picture provides the information quickly.

On a more relevant scale, the west coast of the United States has a banded current system which, from a forecasting point of view, is perverse in every regard in the sense that it reverses at a moment's notice. It is seasonally one way, then seasonally another; in between seasons, it is something else again. One thing we do is get a thermal picture of the coast, because when the current is the right way it often causes upwelling and when that happens there is a cold spot behind headlands. We look for those right away as indicators. We are talking minutes in terms of the time to set up model response.

There are also experimental surface current radars that can actually map currents out to about 50 kilometers. A few of these are in semi-permanent shoreside stations, one in Monterey, California, and one in Florida. We have tested them in the Strait of Juan de Fuca. The Canadians are developing them and the United States has some. These are interesting and encouraging, but unfortunately they were also encouraging about 15 years ago when we first started seeing them. The data analysis required for them is massive, and there is no place where we have used them in real time. We may see more of this technique in the future.

Some harbors actually put current meters (Doppler acoustic systems) on the bottom that look back and forth at the current. These may help and they do work in real time, but they have not yet seen spill action. Another technology that is available but not online is pattern analysis on shelf circulation. The oceanographic problem is "shelf waves," which are analogous to the high/low patterns in the atmosphere, except that they wander up and down the continental shelf and cause highs and lows and cells to migrate around. On the Texas coast, shelf waves probably represent 30 percent of the current. They can be spotted under optimal conditions by satellites, and hooking up a satellite with a real-time background model has been talked about. This would be a first attempt at trying to do what the Weather Service does, by keeping up a background model. Again, this is experimental and it is expensive.

Finally, we will need real time capability. If we had background forecasters (remember, when we go on spills, we have an experiment that is running) that were looking at the coast, talking to the fishermen, telling if the current had reversed, that would give us a leg up. There are no quick answers. We are nowhere near long-term forecasts, so we will have to rely on statistical analysis and trajectory analysis to predict the consequences of a spill.

Jerry Galt *is chief of the Modeling and Simulation Studies Branch, Hazardous Materials Response and Assessment Division, National Oceanic and Atmospheric Administration. He is a physical oceanographer from the University of Washington with considerable experience in trajectory models.*

DISCUSSION: QUESTIONS AND COMMENTS ADDRESSED TO THE SPEAKERS

QUESTIONS ADDRESSED TO MR. ELLIS

DAVID HUTCHINSON, U.S. DEPARTMENT OF JUSTICE: We have been focusing on oil. Have you had any situations involving hazardous or noxious substances in the concept of jettison?

MR. ELLIS: Yes, during a lightening operation we were monitoring some nasty products being transferred from one vessel to another, because there was a problem with one vessel. It wasn't a situation where time was of the essence, but I certainly foresee cases where time will be of the essence. We should keep our minds open and say those circumstances might one day arise. Many salvors would say that oil is only one problem, and it is a relatively known quantity. There are lots of other substances being carried today that might present much greater problems.

UNIDENTIFIED PARTICIPANT: Have floating bladders ever been flown to a tanker for offloading?

MR. ELLIS: We have salvors in the room right here, and I would rather they answered. I can tell you that in one case in the north of Scotland they have actually been flown onto a deserted island, but we are talking there about 30 tons of bunkers. When we are talking about several thousand tons, of course, the problem is very different.

KLAAS REINIGERT, INTERNATIONAL SALVAGE UNION and SMIT TAK B.V.: They have never been used.

MR. ELLIS: That is a salvor telling us they have never been used.

NINA SANKOVITCH, NATURAL RESOURCES DEFENSE COUNCIL: About the *Braer,* **you said you had difficulties in getting lighters to go there in time. Was that because the request for lighters wasn't made quickly enough? That the need for salvage wasn't recognized quickly enough? Or because the lighters or salvors were located far away?**

MR. ELLIS: My understanding is that in the case of the *Braer,* the salvage contract was signed promptly. I believe the decision to deploy a barge would have been made almost immediately, but it was several hundred miles away and towing a barge in the weather conditions that were prevailing would have taken a great deal of time. I assume that other suitable barges weren't available. The condition was that the barge would have to anchor off, therefore you had to have a barge with a great deal of ground tackle to keep her in position.

ROBERT BUSH, UNIVERSE TANKSHIPS, INC.: Are there countries other than the United States that have laws about jettisoning?

MR. ELLIS: I am unaware of any, but my researches have not been exhaustive. In practice, though, when salvors have tried to jettison anything at all in

recent years there has been a great reluctance for even the most benign cargoes to be jettisoned. So, in practice there is already a problem.

QUESTIONS ADDRESSED TO DR. ENGELHARDT

RICHARD LEE, SKIDAWAY INSTITUTE OF OCEANOGRAPHY: You said in deep water, other than the example of dispersants, when oil is lost in the open ocean—deep subtidal—it is not a problem, it is only when it comes ashore.

DR. ENGELHARDT: As a generality, I think that is true, although shortly after the *Braer* grounded, predominantly mechanical dispersion due to extreme wave action was able to distribute the oil from the sea surface so that it was very broadly spread throughout—diluted, basically—through nonaffected areas. Toward the end of January there was some significant resurfacing of oil. Although the water depths there were relatively deep, the local circulation patterns seem to have maintained some sort of localized plumes of oil that then resurfaced. Whether that is going to be significant from an impact perspective requires determination. But the generality still holds that in that instance there was a lot of weathering of the oil and the proportional volume losses due to weathering were relatively high. So, from an impact perspective, dilution was an answer.

QUESTIONS ADDRESSED TO DR. GALT

RICHARD BROWN, KIRLIN, CAMPBELL, MEADOWS & KEATING: How do you get your information to the owner/operator? Is that through the on-scene coordinator?

DR. GALT: Yes, I work for the government during spills. NOAA provides assistance to the Coast Guard on-scene coordinator. As soon as a spill occurs we are assigned as technical staff.

CHARLES BOOKMAN, MARINE BOARD, NATIONAL RESEARCH COUNCIL: Captain Fullwood's scenario is a situation where somebody needs an answer and he needs it soon. In your experience, how well do you work within those kinds of constraints? He has a 24-hour window.

DR. GALT: Well, we can usually start talking soon. Again, we could come up with estimates but we would also have to talk about uncertainties. In a situation like that, there are uncertainties that make climatology a problem. A hurricane is a good example. This is a bit of a divergence, but when Hurricane Andrew came ashore, one of the platforms offshore broke loose, started to hop around and stepped on a pipeline, so there was a pipeline spill off Louisiana.

There is a convergence zone there. It has been there forever. We have seen it in lots and lots of spills—freshwater overlaying salt water. Hurricane Andrew obliterated it—just stirred the dickens out of it. So, here is a case where, if we had made the forecast based on climatology, it wouldn't have worked. However, the some hurricane dumped eight inches of rain in the lower Mississippi Delta so the fresh water was re-establishing itself in a hurry. I guess the answer is, we could give advice but I don't think we could say, go ahead and dump it, it is a good idea. We could say, here is where we think the threat is. Actually, the picture that emerged was very good in the following sense: if the spill had occurred with a jettison, the trajectory is considerably more certain because the wind would have blown straight ashore and it would have been all over from the surf and the waves and everything else.

If you were to say, "I have a new scenario—I am going to dump it, I want to look at it for the next couple of days," you will know the weather or at least you have

an idea what it is. If it is going to malinger for a month, you go back to climatology, which means that for a couple of days it will be one way, a couple of days it will be another way. What will happen is that a larger area is impacted. If you have a choice of which area it is and how to confine it spatially, that could easily be a determining factor. If a particular wind is going straight into a marine marsh, you might want to take a chance of spreading it out.

Proceedings of the
Symposium on the Purposeful Jettison of Cargo

PART II:

LEGAL STATUS OF JETTISONING

MARINE SALVAGE: NEW LAWS AFFECTING THE JETTISONING OF OIL

Warren L. Dean and Laurie L. Crick

At the request of the United States Navy, the Marine Board of the National Research Council is examining the status and continuing viability of the intentional discharge of oil (jettisoning) as a means of saving vessels and cargoes during marine salvage operations. The legal standards that govern discharges of oil within waters over which the United States exercises jurisdiction have recently been revised. First, the Oil Pollution Act of 1990 (OPA 90) overhauled federal law concerning oil pollution and encouraged the states to adopt supplemental laws.[1] Second, the International Convention on Salvage 1989 placed new emphasis on the salvor's duty to prevent or minimize damage to the environment. Together, these developments have changed the legal regime governing salvage-related discharges of oil in waters over which the United States exercises jurisdiction. This paper will first analyze the new regime's effects, intended and unintended, on salvage operations and will then explore means by which adverse effects might be avoided or minimized.[2]

SALVAGE LAW

Current Law

The term "salvage" is generally used to describe all services rendered to save property at sea. The admiralty definition of salvage is "a voluntary response to a maritime peril by other than the ship's own crew, and from which the ship or property could not have been saved without the effort of the salvor."[3] The "salvage award" is "the compensation allowed to persons by whose assistance a ship or her cargo have been saved, in whole or in part, from impending peril on the sea, or in recovering such property from actual loss, as in case of shipwreck."[4]

The concept of maritime salvage encompasses three essential elements:

1. A marine peril placing property, vessel and cargo, at risk of loss.
2. Salvage services voluntarily rendered.

[1] Pub. L. No. 101-380, 104 Stat. 484 (Aug. 18, 1990), codified primarily at 33 U.S.C. §§2701-2719.

[2] Unless specifically stated otherwise, for purposes of this paper "salvage-related discharges" include only jettisoning, which is the intentional discharge of oil for the purpose of saving the vessel and cargo, and unavoidable, incidental discharges from the imperiled vessel during salvage operations.

[3] Intergovernmental Maritime Consultative Organization, Legal Committee, Coastal State Protection Against Major Maritime Disasters: A Secretariat Study of Certain Legal Aspects of Intervention, Notification, and Salvage in Respect to Incidents Like the *Amoco Cadiz* (Sept. 15, 1978).

[4] The Blackwall v. Sancelito Water & Steam Tug Co., 77 U.S. (10 Wall.) 1, 12 (1870).

3. Success, in whole or in part.

Traditionally, these elements are the *sine qua non* of salvage; the salvor is entitled to a salvage award only when all three are present. The salvor's compensation, the salvage award, may be as great as the value of the property salved, including the vessel and cargo. The salvor does not qualify for any award unless it saves at least some property—thus the principle "no cure-no pay." In addition, any award will be reduced by the amount necessary to compensate the owner for losses caused by the salvor's failure to exercise the necessary degree of care.[5]

The degree of care required of a salvor varies with the source of the risk. The salvor will be liable for losses caused by the perils to which the property was originally exposed—that is, for losses caused by ineffectual salvage operations only if such losses resulted from the salvor's gross negligence or willful misconduct.[6] The salvor will be liable for "distinguishable and separate injury" to the property, however, if such injury is caused by the salvor's failure to exercise ordinary care.[7]

By statute, foreign vessels are prohibited from engaging in salvage operations in the territorial waters of the United States unless permitted by treaty or approved by the Commissioner of Customs.[8] Under treaties with both Canada and Mexico, vessels from those countries may engage in salvage operations within specified territorial waters.[9] The 1910 Brussels Salvage Convention, to which the United States is party, is primarily a codification of the English and American law of salvage at the turn of the century.[10] The 1910 convention does not impose any duty to protect the environment or to prevent the owner from incurring liability for environmental harm. Nor does it permit consideration of such matters in determining the size of the salvage award. Because of its failure to address environmental concerns, the 1910 convention is now set to be replaced by the 1989 Salvage Convention, as discussed below.

The United States is also party to the Convention for the Prevention of Pollution from Ships, 1973 and its 1978 Protocol (MARPOL).[11] This treaty generally prohibits pollution of the oceans from seagoing vessels, but recognizes an exception for salvage-related discharges. Prior to OPA 90, this exception prevented salvors (or vessel owners and operators) from incurring liability for discharges of oil during salvage operations at sea, but not for such discharges in the territorial waters of the United

[5] The Noah's Ark v. Bently & Felton Corp., 292 F.2d 437, 440-41 (5th Cir. 1961).
[6] Id. at 441.
[7] Id. at 440-41.
[8] 46 U.S.C. app. § 316(d), (e). "Only a vessel of the United States, a numbered motorboat owned by a private citizen, or a vessel [permitted to operate by treaty] shall engage in any salvage operation in territorial waters of the United States unless an application addressed to the Commissioner of Customs to use another specified vessel in a completely described operation has been granted." 19 C.F.R. § 4.97(a).
[9] Treaty Providing For Reciprocal Rights For United States and Canada in Matters of Conveyance of Prisoners and Wrecking and Salvage, signed at Washington May 18, 1908 (entered into force June 30, 1908), 35 Stat. 2035, T.S. No. 502. See also 46 U.S.C. § 725 (also regarding Canadian salvage in United States waters). Treaty for the Sending of Vessels for Purposes of Assistance and Salvage, signed at Mexico June 13, 1935 (entered into force March 7, 1936), 49 Stat. 3359, T.S. No. 905.
[10] 1910 Brussels Salvage Convention, signed at Brussels Sept. 23, 1910, 37 Stat. 1658, T.S. No. 576; implemented by the Salvage Act of 1912, 46 U.S.C. app. §§ 727-30.
[11] International Convention for the Prevention of Pollution from Ships, Nov. 2, 1973, 12 I.L.M. 1319 (MARPOL 73). Protocol of 1978 Relating to the Prevention of Pollution from Ships, 1973 done at London, Feb. 17, 1978, 17 I.L.M. 546 (MARPOL 73/78). MARPOL is implemented by the 1980 Act to Prevent Pollution from Ships. Pub. L. No. 96-478, 94 Stat. 2297 (codified at 33 U.S.C. §§ 1901-1911).

States.[12] As will be discussed below, however, the MARPOL exception no longer provides protection for discharges of oil into the contiguous zone or exclusive economic zone, because OPA 90 now makes the vessel owner and operator responsible for removal costs and damages for all such discharges without exception.[13]

Salvage operations may also be affected by the Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (Intervention Convention) and the Protocol Relating to Intervention on the High Seas in Cases of Marine Pollution by Substances Other Than Oil,[14] both of which are implemented by the Intervention On The High Seas Act.[15] Under these authorities, the United States may prevent, mitigate, or eliminate a grave and imminent risk of pollution to the coastline or related interests when a foreign vessel suffers a collision, stranding, or other incident of navigation on the high seas.[16] The authority extends to all measures reasonably necessary to prevent environmental damage, including taking control of a salvage operation and causing the vessel and cargo to be destroyed.[17] The United States is not liable for damages to the owner, operator, crew, cargo owners, underwriters, or other interested parties for measures taken that are reasonably necessary and proportionate to the prevention of actual or threatened harm to the coastal environment.[18]

The law of salvage and responder immunity provisions, which will be discussed in further detail below, may not apply to the removal of a wreck.[19]

[12] MARPOL and its implementing legislation and regulations govern discharges of oil into the sea only. The implementing regulations for the 1980 Act to Prevent Pollution from Ships, 33 U.S.C. §§ 1901-1911, which itself implements MARPOL, specifically provide that all discharges, including emergency discharges, within the navigable waters continued to be prohibited by the FWPCA. 33 C.F.R. §151.10; 33 U.S.C. § 1321. Although the FWPCA was enacted prior to implementation of MARPOL, it was not superseded by MARPOL. Under general rules of statutory construction, a treaty is given the same force and effect as any other federal law. When a treaty and another federal law conflict, the most recent controls. This last-in-time doctrine does not apply, however, to treaties, such as MARPOL, which require implementing legislation before becoming effective in the United States. In implementing MARPOL, Congress authorized the Coast Guard to prescribe "any necessary or desired regulations to carry out" MARPOL or the Act. 33 U.S.C. § 1903(b). It is those regulations that provide, notwithstanding any permissible discharges under MARPOL, that the FWPCA governs discharges within the navigable waters.

[13] 33 U.S.C. § 2702(a).

[14] Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Casualties, done at Brussels Nov. 29, 1969, 26 U.S.T. 765, 970 U.N.T.S. 211. The Protocol Relating to Intervention on the High Sea in Cases of Marine Pollution by Substances Other Than Oil, done at London Nov. 2, 1973, T.I.A.S. 10561. The Protocol is discussed under Annex II of this paper regarding hazardous substances.

[15] Pub. L. No. 93-248, 88 Stat. 8 (Feb. 5, 1974) (codified at 33 U.S.C. §§ 1471-1487).

[16] 33 U.S.C. § 1472. The FWPCA provides similar authority with respect to U.S.-flag vessels in all waters subject to the jurisdiction of the United States and with respect to foreign flag vessels in such waters other than the high seas. 33 U.S.C. §1321(c)(2).

[17] 33 U.S.C. § 1477. Such measures, however, may not be taken against a warship or any vessel owned or operated by a government and used at the time for non-commercial service. Id. § 1483.

[18] Id. § 1477(a). In this situation, the principle of no cure-no pay would prevent the salvor from recovering a salvage award. Under the 1989 Salvage Convention, however, the salvor may recover expenses for performing salvage services to a vessel or its cargo that threaten damage to the environment. Even before the 1989 Convention enters into force, the salvor may recover expenses under contracts such as the Lloyd's Open Form of Salvage Agreement 1990. See pages 5 and 6 below.

[19] The owner, lessee or operator of a vessel sunk in a navigable waterway must immediately mark and begin removal of the sunken vessel. Such entities are strictly liable for the costs of removing the wreck regardless of fault. 33 U.S.C. §409.

Although the result of both salvage and wreck removal operations may be the same—recovery of imperiled property-there is a distinction in the intent and purpose of the performance of each. The intent and purpose of wreck removal is to eliminate the sunken vessel as a hazard to navigation. The intent and purpose of salvage operations is to save or recover the vessel and cargo for the owner and to earn a salvage award. Because wreck removal is not generally undertaken as a response to an oil spill, responder immunity under OPA 90 would not appear to be available.

Under the general maritime law, the imperiled vessel, unless it is derelict (abandoned without intent to return), remains subject to the possession and control of the vessel's master during salvage operations.[20] Upon completion of the salvage operation, however, the salvor may take and retain possession of the salved property (vessel and cargo) to the extent necessary to enforce its right to a salvage award.[21] If a vessel is derelict, the salvor has an exclusive right to possession until the salvage award is made, security is posted for the salvage award, or the salvor's rights are determined judicially.[22] When salvage is conducted pursuant to a contract, the terms of the contract should be examined to determine the extent to which the salvor may take possession and control of the vessel.

One such contract is Lloyd's Open Form Of Salvage Agreement 1990 (LOF 90), No Cure-No Pay, which provides that the master of the imperiled vessel must "cooperate fully with the salvor in and about the salvage" while the salvor must "use best endeavors to salve the [vessel] and/or her cargo."[23] As a general principle, the shipowner remains in possession of both the vessel and cargo while salvage services are being performed under the LOF.[24] Once salvage services are begun, however, the salvor must be given a reasonable opportunity to complete them, and the owner's control is subject to such control as the salvor may need to carry out its obligation to salve the vessel with best endeavors.[25] The failure of a party to perform its obligation will result in liability for breach of contract.[26]

Even when the salvor takes possession and control of a *derelict* vessel, it does not become liable as an owner under OPA 90 for a discharge from such vessel. The right of ownership and title remain in the owner; possession alone does not vest ownership in the salvor.[27] In addition, OPA 90 expressly states that the responsible

[20] The Bark Cleone, 6 F. 517 (C.D. Calif. 1881). See Cromwell v. The Island City, 66 U.S. (1 Black) 121 (1862).

[21] The *Alcazar,* 227 F. 633 (E.D.N.C. 1915), The *Hyderabad,* 11 F. 749 (E.D. Wis. 1882). The salvor must relinquish possession if the owner provides other security for the award. Id.

[22] Crossman v. West, 13 App. Cas. 160 (1887), Merrill v. Fisher, 204 Mass. 600, 91 N.E. 132 (1910).

[23] LOF 90, clauses 1(a)(i) & 3. The LOF has been revised periodically since the 1890's. The latest revision, made in 1990, incorporates parts of four Articles of the 1989 Salvage Convention related to definitions, duties of the parties, criteria for fixing the award and special compensation. See LOF 90, clause 2.

[24] China Pacific S.A. v. Food Corp. of India (The Winson), 1 L.L.R. 117 (1981) (salvage performed under LOF 72). LOF 90 security provisions provide that the salvor has a maritime lien on the property salved, and that the salved property will not be removed from its place of delivery until security is provided. LOF 90, clause 5(a). The salvor is not to arrest or detain the property salved unless security is not provided within 14 days of termination of salvage services, or there is reason to believe, or any attempt is made, to remove the salved property from its place of delivery. Id. 5(b).

[25] The *Unique Mariner* (No. 2), 1 Lloyd's Rep. 37 (1979) (salvage performed under LOF 72).

[26] Id., The *Tesaba,* 1 Lloyd's Rep. 397 (1982), The *Eschersheim,* 2 Lloyd's Rep. 188 (1974).

[27] Continental Ins. Co. v. Clayton Hardtop Skiff, 367 F.2d 230 (3d Cir. 1966). See The *Port Hunter,* 6 F. Supp. 1009 (D. Mass. 1934).

party immediately prior to abandonment of a vessel remains liable.[28] The salvor could, however, become strictly liable as the operator of the vessel under OPA 90 for any discharges that occur while it is in possession and control after salvage operations have been completed.[29]

RECENT DEVELOPMENTS IN SALVAGE LAW

The International Convention on Salvage 1989 (1989 Salvage Convention), which will enter into force upon acceptance by 15 nations,[30] modifies the traditional law of salvage by emphasizing the salvor's duty to protect the environment and authorizing a special compensation award to promote that duty.[31]

Special compensation under the 1989 convention is separate and distinct from the traditional salvage award. When the imperiled vessel or its cargo threatens damage to the environment, Article 14 of the convention authorizes a special compensation award in the amount of the expenses incurred by the salvor if the traditional salvage award is insufficient to cover those expenses.[32] If the salvor's actions prevent or minimize damage to the environment, the salvor may receive special compensation in addition to expenses. The convention envisions that this additional special compensation in excess of expenses ordinarily will not exceed 30 percent of the salvor's expenses, but the adjudicating tribunal is authorized to award up to 100 percent of such expenses "if it deems it fair and just to do so."[33]

The 1989 Salvage Convention provides that the salvor has a duty to carry out salvage operations with due care, and a salvage or special compensation award may therefore be reduced for negligent conduct.[34] Although negligent conduct may reduce a salvage or special compensation award, damages arising from the salvor's

[28] 33 U.S.C. §§ 2701(32)(A) & 2702(a).

[29] Id.

[30] International Convention On Salvage 1989, opened for signature July 1, 1989. The Convention is the product of an April 1989 conference conducted under the auspices of the International Maritime Organization (IMO) and attended by representatives from 66 states. It will enter into force one year after 15 states consent to be bound by it. Thus far, six contracting states, including the United States, have so consented through ratification or its equivalent. Seventeen other states have signed but have not yet ratified or otherwise agreed to be bound. The United States signed the 1989 Salvage Convention on March 29, 1990. This was subsequently ratified by the Senate on October 29, 1991. 137 Cong. Rec. S15398 (daily ed. Oct. 29, 1991). The United States' documents of ratification were deposited with the IMO March 27, 1992.

[31] Sections 729 of Title 46 Appendix of the United States Code was recently amended to reflect Article 16 of the 1989 Salvage Convention. That section now provides that salvors of human life are entitled to share in the special compensation award, as well as in the traditional salvage award. 46 U.S.C. app. § 729. This amendment has little significance until the 1989 Convention enters into force, because until then the property salvor is not entitled to a special compensation award.

[32] International Convention on Salvage 1989, Arts. 14(1), 14(3). "Salvor's expenses" include out of pocket expenses reasonably incurred by the salvor in the salvage operation and a fair market rate for equipment and personnel actually and reasonably used in the salvage operation. Id. Art. 14(3).

[33] Id. Art. 14(2). Thus the special compensation could be as much as twice the amount of the salvor's expenses. The special compensation is payable only by the owner of the vessel, not by cargo interests, and is not subject to general average. Id. Art. 14(1); York-Antwerp Rules, Rule VI(b), as amended June 29, 1990 (disallowing special compensation as general average).

[34] Id. Arts. 8, 14(5) & 18.

negligent conduct are not limited to the amount of such award. The vessel owner may claim its actual loss notwithstanding the amount of the salvage award.[35]

Neither the 1989 convention nor the 1910 convention applies to the salvage of warships or other non-commercial vessels owned or operated by a government.[36] They do, however, apply to salvage operations conducted by such public vessels, which qualify for awards for salvage services rendered to a private vessel.[37]

The recent changes in oil pollution laws will affect both private and public salvors. Because salvage operations in the United States are often undertaken by the Navy and the Coast Guard, the United States may be exposed to liability for damages and removal costs resulting from the negligent acts of either during salvage operations by virtue of its waiver of sovereign immunity in the Suits in Admiralty Act and the Public Vessels Act.[38] Taken together, these acts expose the United States to the same liability to which a private vessel owner would be exposed in an admiralty action.[39] The remedy against the United States under the Suits in Admiralty or Public Vessel Act is exclusive of any right of recovery against the individual government employees or agents involved.[40] The United States' potential liability for oil pollution relating to salvage operations is discussed further below.

UNITED STATES OIL PLLUTION LAWS

Discharges of oil into the waters over which the United States exercises jurisdiction are now governed by an interrelated and sometimes overlapping series of laws, including OPA 90, Section 311 of the Federal Water Pollution Control Act (FWPCA), the International Convention for the Prevention of Pollution from Ships (MARPOL), general maritime law, and relevant state laws.[41]

The Federal Scheme

Prior to enactment of OPA 90, discharges of oil into waters subject to United States jurisdiction were addressed at the federal level by the FWPCA, MARPOL, and general maritime law. Section 311 of the FWPCA proscribes most discharges of oil

[35] The *Tojo Maru,* 1 Lloyd's Rep. 341 (1971).

[36] 46 U.S.C. app. § 731.

[37] See 10 U.S.C. § 7365 and 32 C.F.R. § 752.5 (related to the settlement and payment of claims to the United States for salvage services rendered by the Navy). See also In Re American Oil Co., 417 F.2d 164 (5th Cir. 1969); United States v. The *James L. Richards,* 82 F. Supp. 12 (D. Mass. 1949), aff'd, 179 F.2d 530 (1st Cir. 1950); The *Impoco,* 287 F. 400 (S.D.N.Y. 1922).

[38] 46 U.S.C. app. §§ 741-752 (Suits in Admiralty); 46 U.S.C. app. §§ 781-790 (Public Vessels). The Public Vessels Act applies to suits involving damages caused by a public vessel; the Suits in Admiralty Act governs all admiralty claims against the United States. Pascua v. Astrocielo Neptunea Armandora, S.A., 614 F. Supp. 984 (S.D. Tex. 1985).

[39] See, e.g., Weyerhaeuser S.S. Co. v. United States, 372 U.S. 597 (1963), overruled on other grounds, United States v. Reliable Transfer Co., 421 U.S. 397, on remand, 522 F.2d 1381 (2d Cir. 1975); Tiffany v. United States, 931 F.2d 271 (4th Cir. 1991); Allan v. United States, 338 F.2d 160 (9th Cir. 1964), cert. denied, 380 U.S. 961 (1965); Eastern S.S. Lines, Inc. v. United States, 187 F.2d 956 (1st Cir. 1951).

[40] 46 U.S.C. app. § 745.

[41] This paper focuses on liability for oil pollution. The liability that may result from discharges of "hazardous substances" under either the Federal Water Pollution Control Act (FWPCA) or the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), or of "harmful substances" other than oil under MARPOL will be addressed briefly in Appendix III.

and imposes civil and criminal penalties for unauthorized discharges.[42] Within the navigable waters of the United States, which for these purposes includes all internal waters and the territorial sea,[43] the FWPCA prohibits all discharges of oil in quantities sufficient to cause a sheen on the water. Beyond the territorial sea within the exclusive economic zone (EEZ), the FWPCA prohibits such discharges only if they are prohibited by MARPOL.[44] MARPOL expressly exempts discharges that are necessary to secure the safety of the ship or to save life at sea (which would include salvage-related discharges) and discharges that result from damage to the vessel or its equipment.

The FWPCA did not address liability for damages other than removal costs resulting from oil discharges. Under the FWPCA prior to the enactment of OPA 90, the owner and operator of the discharging vessel were liable (to the United States government) for removal costs associated with a prohibited discharge.[45] Since salvage-related discharges into the EEZ were not prohibited by the FWPCA, the owner and operator incurred no liability under the FWPCA for such discharges, even for removal costs.

For purposes of the current subject, the major change resulting from OPA 90 is its imposition of liability for removal costs and damages resulting from jettisoning and other salvage-related discharges within the EEZ. Thus, while salvage-related discharges within the EEZ still are not *prohibited* by any United States law (and thus do not subject the salvor or the owner and operator of the vessel to civil or criminal *penalties*), such discharges now subject the owner and operator to liability for damages and removal costs.

[42] 33 U.S.C. § 1321.

[43] 33 C.F.R. §2.05-25(b). The territorial sea extends seaward three nautical miles from the baseline, which consists of the low water mark along the coast plus closing lines across the mouths of rivers, inlets and bays. See 33 C.F.R. §2.05-10 (Coast Guard regulation) and 33 C.F.R. § 329.12(b) (Corps of Engineers regulation). Internal waters includes all waters inside the baseline. Navigable waters are in general subject to regulation by both the federal government and a state, commonwealth or territory. In 1988, President Reagan issued a Proclamation extending the territorial sea to twelve miles from the baseline for purposes of national security. Proclamation No. 5928, 54 Fed. Reg. 777 (1988). The Proclamation's effect on domestic law is less clear. It states that "[n]othing ... extends or otherwise alters existing Federal or State law or any jurisdiction, rights, legal interests, or obligations derived therefrom." Although the Proclamation clearly does not extend state boundaries or jurisdiction, as the establishment of state boundaries is a function for Congress, its effect on federal law is less clear. The domestic effect of the extension of the territorial sea on federal statutes that refer to the territorial sea must be determined by examining Congress' intent in passing each relevant statute. The ultimate effect of the Proclamation will continue to be uncertain, however, until final judicial resolution. Beyond the territorial sea lies the exclusive economic zone (EEZ), which extends from the outer limit of the territorial sea to 200 nautical miles from the baseline. Proclamation No. 5030, 48 Fed. Reg. 10,605 (March 10, 1983). The EEZ includes the contiguous zone, which extends nine nautical miles from the outer limit of the territorial sea to 12 miles from the baseline. Convention on the Territorial Sea and the Contiguous Zone, 15 U.S.T. 1606.

[44] MARPOL Annex I, Reg. 11(a); 33 C.F.R. §151.11(a)(1). Since MARPOL covers discharges "into the sea," it is not applicable to discharges in internal waters. Conversely, since the FWPCA and OPA 90 do not address discharges on the high seas beyond the EEZ, MARPOL alone governs discharges in that area.

[45] Owners and operators were liable under the FWPCA to State governments for the costs of restoration or replacement of damaged natural resources. 33 U.S.C. § 1321(f)(4). OPA 90 repealed and superseded subs ections (k) and (p) of section 311, which established a federal fund for paying the costs of removing oil pollution and prescribed financial responsibility standards. Subsection (f) of the FWPCA, which prescribes liability for reimbursing the United States for removal costs, was not repealed but overlaps with OPA 90 to the extent that liability is imposed under that law.

Salvage Operations in Navigable Waters

Under United States law, a salvor may not discharge oil into the navigable waters during salvage operations. All discharges of oil into the navigable waters in quantities that cause a "sheen" upon the water are prohibited.[46] Since federal law provides no exceptions for state law in this area, all discharges into waters under state jurisdiction are prohibited, regardless of state law.

Federal Water Pollution Control Act. The FWPCA specifically prohibits the discharge of oil:

> (i) into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone, or (ii) in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States (including resources under the Magnuson Fishery Conservation and Management Act), in such quantities as may be harmful as determined by the President ....[47]

A discharge is generally prohibited by the FWPCA if the discharge "violates applicable water quality standards, or causes a film or sheen upon or discoloration of the surface of the water or the adjoining shorelines ..."[48] As a general principle, a discharge of oil that does not create a sheen does not violate the FWPCA.

Any person who negligently or knowingly discharges in violation of the FWPCA is subject to criminal sanction. A salvor may be subject to criminal penalty for discharges within the navigable waters. If a discharge occurs as a result of the salvor's negligent conduct, the salvor is subject to a fine of not less than $2,500 nor more than $25,000 for each day that the sheen remains and imprisonment for one year, or both.[49] If the discharge is intentional, as jettisoning would be, the potential fine is increased to not less than $5,000 nor more than $50,000 per day, and imprisonment can extend to six years.[50] A salvor is therefore subject to serious criminal sanctions if cargo is jettisoned into the navigable waters during salvage operations, apparently even if the jettison prevents the loss of the entire cargo or additional environmental damage. Such factors may be taken into consideration by a prosecutor, but may not prevent charges from being brought in the aftermath of an incident that causes serious environmental harm. A review of the case law reveals no cases where a salvor has intentionally discharged oil into the navigable waters. Because of the public's increasing concern about the harmful effects of oil pollution, a voluntary discharge that causes damages is unlikely to be ignored, even if it prevents additional pollution.

Refuse Act. In addition to the FWPCA, the Refuse Act of 1899 makes it unlawful to deposit refuse into navigable waters.[51] "Refuse" has been interpreted to

[46] 40 C.F.R. § 110.1. Sheen is defined as "an iridescent appearance on the surface of the water." Id.

[47] 33 U.S.C. § 1321(b)(3). "Oil" is defined to mean "oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil." Id. § 1321(a)(1).

[48] 40 C.F.R. Part 110.

[49] 33 U.S.C. § 1319(c)(1).

[50] Id. § 1319(c)(2).

[51] The act provides:

include all foreign substances and pollutants apart from those specifically excepted in the statute.[52] Oil, oily mixtures, or hazardous substances constitute "refuse" for purposes of the act. Violation of the Refuse Act is a misdemeanor, carrying a penalty of $500 to $2,500 or imprisonment for 30 days to one year, or both.[53]

OPA 90. The vessel owner and operator are subject to strict liability under OPA 90 for any removal costs or damages resulting from a discharge into the navigable waters. The extent of liability under OPA 90 is discussed in further detail below. It is important to note, however, that jettisoning of oil into the navigable waters by a salvor, because it is illegal *per se,* will automatically break the limitation of liability for the responsible party.

Salvage Operations in the Exclusive Economic Zone

As noted, the FWPCA does not prohibit discharges into the exclusive economic zone if they are permitted by MARPOL.[54] Although MARPOL generally prohibits discharges of oil into the exclusive economic zone, it provides two exceptions. First, the prohibition does not apply to jettisoning and other salvage-related discharges.[55] Second, it does not apply to discharges that result from damage to a ship or its equipment if (a) all reasonable precautions have been taken after the occurrence of the damage or discovery of the damage to prevent or minimize the discharge; and (b) the owner or master did not act either with intent to cause damage, or recklessly and with knowledge that damage would probably result.[56]

Jettisoning that is necessary to stabilize or prevent the loss of the vessel and cargo qualifies as an emergency discharge under MARPOL. Indeed, it could be argued that any incidental discharge during a salvage operation would qualify as an emergency discharge under MARPOL since the salvage operation is, by definition, undertaken to save a vessel or its cargo.

Accordingly, a salvor, without risk of criminal penalty, may take advantage of the authority under MARPOL to jettison oil for the purpose of saving life or property if the discharge occurs outside of the navigable waters, even if the discharged oil drifts

[52] United States v. Standard Oil Co., 384 U.S. 224 (1966).

[53] 33 U.S.C. § 411.

[54] The FWPCA speaks in terms of discharges into the contiguous zone or "which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States." For practical purposes, this means the exclusive economic zone.

[55] Annex I, Reg. 11, MARPOL; 33 C.F.R. §157.41(a).

[56] Annex I, Reg. 11, MARPOL; 33 C.F.R. §157.41. The standard is generally comparable to willful misconduct, which United States courts have consistently defined as the intentional performance of an act, or the failure to act, with knowledge that injury or damage would probably result, or in such a manner as to imply reckless disregard of the probable consequences. See, e.g., Tug *Ocean Prince,* Inc. v. United States, 584 F.2d 1151 (2d Cir.), cert. denied, 440 U.S. 959 (1978). MARPOL also permits operational discharges from vessels other than tank vessels and from the machinery space bilges of tank vessels if the oil content of the discharge is monitored and is less than a certain proportion of the effluent discharged, 33 C.F.R. § 151.10(a), (b); and cargo-related oily mixtures from tank vessels proceeding en route more than 50 nautical miles from land if the discharge is monitored and does not exceed 60 liters per nautical mile, 33 C.F.R. §157.37(a).

It shall not be lawful to throw, discharge, or deposit, or cause, suffer or procure to be thrown, discharged, or deposited either from or out of any ship, barge, or other floating craft of any kind ... any refuse matter of any kind or description whatever ... into any navigable water of the United States or into any tributary of any navigable water from which the same shall float or be washed into such navigable water.

33 U.S.C. § 407.

into the navigable waters. The owner and operator of the imperiled vessel, and hence the salvor indirectly, however, will incur liability for removal costs and damages under OPA 90 or under state law (if resources within state jurisdiction are affected). Jettisoning beyond the exclusive economic zone will not result in the imposition of liability under OPA 90 even if the discharge causes damage to resources within the exclusive economic zone. Such a discharge may, however, result in liability under the FWPCA to the United States for removal costs if the discharge damages resources within the exclusive economic zone.[57] For example, if a discharge into waters beyond the exclusive economic zone drifts into the exclusive economic zone and damages resources, the discharger would not be liable under OPA 90. Section 1002 imposes liability upon the responsible party for a vessel from which oil is discharged into or upon the exclusive economic zone.[58] Unlike the FWPCA, which prohibits discharges that may *affect* resources within the exclusive economic zone, OPA prohibits discharges only into or upon the exclusive economic zone.[59] Further, the definition of discharge in OPA 90 does not include the drifting of oil from beyond the exclusive economic zone.[60]

The liability imposed by OPA 90 applies to *all* discharges into the navigable waters and the exclusive economic zone.[61] Liability for damages and removal costs resulting from a discharge of oil will be incurred even when the discharge is permitted by MARPOL and the FWPCA.[62] Under OPA 90, a responsible party for a tank vessel (i.e., the vessel owner, operator, and demise charterer) is liable for removal costs and damages in an amount not to exceed the greater of $1,200 per gross ton or $10 million ($2 million for a vessel of less than 3,000 gross tons). For any other vessel, the responsible party's liability is limited to the greater of $600 per gross ton or $500,000.[63] The liability limit may not apply if the incident was the result of gross negligence or willful misconduct, or the violation of an applicable federal safety, construction, or operating regulation by the responsible party, its agent, or employee, or a person acting pursuant to a contractual relationship with the responsible party.[64] This includes a salvor and, therefore, any action by the salvor that violates any of these

[57] 33 U.S.C. § 1321(f). The FWPCA imposes liability upon the owner or operator of a vessel that discharges oil in violation of that Act, but for which there is no liability under OPA 90, for the actual costs of removal not to exceed $125 per gross ton. No limitation is available if the discharge was the result of gross negligence or willful misconduct within the privity and knowledge of the owner or operator.

[58] 33 U.S.C. § 2702(a).

[59] Id. § 1321(b)(3). To the extent that a discharge into the high seas is not allowed by MARPOL and affects the natural resources of the exclusive economic zone, the United States could impose liability upon the responsible person for removal costs under section 311 of the FWPCA. Id. § 1321(f); see supra note 55.

[60] Id. § 2701(7).

[61] Id. § 2702(a).

[62] Under OPA 90, damages include (1) injury to, destruction of, or loss of use of, natural resources, including the reasonable costs of assessing the damage; (2) injury to or economic losses resulting from destruction of real or personal property; (3) loss of subsistence use of natural resources; (4) loss of taxes, royalties, rents, fees, or net profit shares due to the injury, destruction, or loss of real property, personal property, or natural resources; (5) loss of profits or impairment of earning capacity due to the injury, destruction, or loss of use of real property, personal property, or natural resources; and (6) costs of providing increased or additional public services during or after removal activities, including protection from fire, safety, or health hazards, caused by a discharge of oil. 33 U.S.C. §2702(b)(2).

[63] Id. § 2704(a).

[64] Id. § 2704(c)(1).

standards can result in unlimited liability for the responsible party. The limit may also be broken if the responsible party fails to report the incident or to provide all reasonable cooperation and assistance requested by a responsible official in connection with removal activities.[65]

Although a salvor would not be a responsible party subject to direct liability under OPA 90, the responsible party may otherwise recover from the salvor, public or private, by way of contribution and subrogation. Further, OPA 90 does not preempt state or general maritime law contribution against private contractors. A state law contribution action could be maintained, however, only if the discharge occurred within, or affected resources within, state jurisdiction. The salvor may also be directly liable under general maritime law for negligent conduct. If the salvor is the United States, an admiralty action against the United States for negligent or tortious conduct would be cognizable under the Suits in Admiralty Act or the Public Vessels Act.[66]

In actions for contribution, the liability of the salvor would, to the extent that the damage was caused by a vessel owned by the salvor, be subject to the Limitation of Liability Act of 1851 (Limitation Act).[67] That act provides a means by which a shipowner may petition the court for exoneration from, or limitation of, liability for certain damages.[68] A vessel owner not exonerated from liability may be able to limit liability under the Limitation Act for damages or losses that occur without the vessel owner's privity or knowledge.[69] If limitation is applicable, the vessel owner's liability is limited to the post-accident value of the vessel and freight pending.[70] In the case of salvage-related damages, the salvor's limitation fund amount would be the value of the salvor's vessel following the incident.[71]

[65] Id. § 2704(c)(2).

[66] 46 U.S.C. app. §§ 742, 781.

[67] The Limitation of Liability Act, 46 U.S.C. app. §§ 181-191. The Public Vessels Act and the Suits in Admiralty Act both preserve for the United States the right to limit its liability under the Limitation Act. 46 U.S.C. app. §§ 746, 789. Because only a vessel owner may petition for limitation of liability, a salvor that is not a vessel owner, bareboat or demise charterer of the vessels engaged in the salvage operation could not limit liability.

[68] Id. § 183. Only a vessel owner may petition for limitation of liability. A "vessel owner" includes a charterer who mans, victuals and navigates the vessel at his own expense and therefore includes a bareboat or demise charterer. Id. § 186. In Re Barracuda Tanker Corp. (The *Torrey Canyon*), 281 F. Supp. 229, reversed on other grounds, 409 F.2d 1013 (2d Cir. 1969), Complaint of Amoco Transport Co. (The *Amoco Cadiz*), 1979 A.M.C. 1017 (N.D. Ill. 1979).

[69] 46 U.S.C. App. § 183(a). The same privity and knowledge standards that apply to private corporations are applicable to the United States when it seeks to limit liability. Empresa Lineas Maritimas Argentinas S.A. v. United States, 730 F.2d 153, 155 (4th Cir. 1984) (citing United States v. Standard Oil of California, 495 F.2d 911, 917 (9th Cir. 1974). Liability may not be limited under section 183(a) where the negligence is that of an executive officer, manager, or superintendent, whose scope of authority includes supervision over the phase of the business out of which the injury occurred. If a decision to jettison is made by the captain of a public salvage vessel, the United States could limit liability unless it was proven that the cause of the incident was within supervisory personnel's privity and knowledge.

[70] Id.; see, e.g., Place v. Norwich & New York Transp. Co., 118 U.S. 468 (1886).

[71] Under the flotilla doctrine, the limitation is computed by combining the value of all commonly-owned vessels contractually engaged in a common enterprise. In Re Drill Barge No. 2, 454 F.2d 408 (5th Cir.), cert. denied, 406 U.S. 906 (1972), CENAC Towing Co. v. Terra Resources, 734 F.2d 251 (5th Cir. 1984), Brown & Root Marine v. Zapata Offshore Co., 377 F.2d 724 (5th Cir. 1967). The doctrine evolved from a line of decisions related to property damage involving tug, towage and affreightment. Liverpool, Brazil & River Plate Navigation Co. v. Brooklyn Eastern Terminal, 251 U.S. 48 (1919), Sacramento Navigation Co. v. Salz, 273 U.S. 326 (1927). The doctrine was subsequently applied to cases involving personal injury. Standard Dredging Co. v. Kristensen, 67 F.2d 548 (2nd

The determination that the Limitation Act is available to limit liability for oil pollution damages under general maritime law is not conclusive. Although this question is addressed more fully below, it should be noted that OPA 90 provides that nothing in it or in the Limitation Act "shall in any way affect, or be construed to affect, the authority of the United States ... to impose additional liability" relating to the discharge of oil.[72] This language could be construed to prevent the applicability of the Limitation Act to any action, including one under common law, for oil pollution damages and costs.

If an action is brought under state law, including an action for contribution or subrogation, the salvor may be subject to unlimited liability, but those actions would be limited to discharges occurring within, or that affect resources within, state jurisdiction. Unlimited liability would apply to a private salvor only, since the United States has not waived its sovereign immunity for state oil pollution liability.[73]

OPA 90 does provide limited immunity to persons rendering care, assistance, or advice in response to a discharge.[74] As discussed further below, this so-called responder immunity is available only to persons acting in a manner consistent with the National Contingency Plan or at the direction of the federal on-scene coordinator. In addition, the immunity is unavailable for damages caused by gross negligence or willful misconduct.[75]

OPA 90 does not define the terms "willful misconduct" and "gross negligence." The term "willful misconduct" was originally derived from Article 25 of the Warsaw Convention, which governs liability for carriers in international air transportation. "Willful misconduct" has been defined to mean the intentional performance of an act, or the failure to act, with knowledge that injury or damage probably would result, or in such a manner as to imply reckless disregard of the probable consequences.[76] This definition was also recently applied to find willful misconduct by the crew in the 1983 Korean Air Lines tragedy.[77]

The same precedents have been applied to the definition of "willful misconduct" under the FWPCA. In *Tug Ocean Prince, Inc. v. United States* the owner of a tug was found to have engaged in willful misconduct where a barge it was towing struck a charted rock outside the navigation channel in the Hudson River.[78] The collision occurred because of the pilot's unfamiliarity with the river. The court found

[72] 33 U.S.C. § 2718(c).

[73] Although the United States government has generally waived sovereign immunity under the Federal Tort Claims Act, 26 U.S.C. §§ 2671-2680, for torts of its employees, there is a specific exception to that general waiver of immunity for claims for which a remedy is available under the Suits in Admiralty Act and the Public Vessel Act. 26 U.S.C. § 2680(d). Since recovery from the United States is available through admiralty actions brought pursuant to the Suits in Admiralty Act and Public Vessel Act, the general waiver of immunity is not applicable to state oil pollution liability laws.

[74] 33 U.S.C. § 1321(c)(4)(A).

[75] Id. § 1321(c)(4)(B)(iv).

[76] See Pikelis v. Transcontinental & Western Air, 187 F.2d 122 (2d Cir.), cert. denied, 341 U.S. 951 (1951); Tuller v. KLM Royal Dutch Airlines, 292 F.2d 775 (D.C. Cir.), cert. denied, 368 U.S. 921 (1961); Berner v. British Commonwealth Pacific Airlines Ltd., 346 F.2d 532 (2d Cir. 1965); Wing Haug Bank v. Japan Air Lines Co., Ltd., 357 F. Supp. 94 (S.D.N.Y. 1973).

[77] In re Korean Air Lines Disaster of Sept. 1, 1983, 932 F.2d 1475, 1479 (D.C. Cir. 1991).

[78] 584 F.2d 1151 (2d Cir.), cert. denied, 440 U.S. 959 (1978).

Cir. 1933). The flotilla doctrine could therefore increase the salvor's liability by increasing the amount of the salvor's limitation fund where more than one vessel owned by the salvor is engaged in the salvage operation.

that the owner's omissions, specifically its failure to inform an experienced pilot onboard of the other pilot's unfamiliarity with the river, its failure to appoint a captain, and its failure to require a lookout under the circumstances, were done intentionally and constituted a reckless disregard of the probable consequences.[79]

There is no generally accepted meaning of the term "gross negligence." "Gross negligence" has been defined as the "intentional failure to perform a manifest duty in reckless disregard of the consequences as affecting the life or property of another."[80] The Supreme Court in *Conway v. O'Brien* held that gross negligence means something substantially more than simple negligence, but falls short of being such reckless disregard of the probable consequences as is equivalent to a willful and intentional wrong.[81]

In recognition of this similarity, other courts have held that the terms "gross negligence" and "willful misconduct" have been used interchangeably to describe conduct that, "while still embraced by the general term negligence, may be sufficiently opprobrious or culpable to warrant ... invoking the legal consequences of an intentional tort."[82] One court has concluded that the terms "gross negligence" and "willful and wanton misconduct" as used in automobile guest statutes are synonymous.[83] One factor that may explain the varying interpretations of the difference, if any, between gross negligence and willful misconduct is the degree of risk inherent in the activity to which the terms apply. Courts in cases involving airlines and automobiles, which may be considered inherently dangerous activities, have tended to find that the two terms are synonymous.[84]

In the context of hazardous regulated conduct, such as navigation of a tanker or the handling of oil, including salvage operations involving a tanker, willful misconduct and gross negligence become nearly indistinguishable. The very specific requirements imposed by regulation relating to oil spill prevention and removal make every omission serious and potentially intentional or reckless. If jettisoning would otherwise be considered to be willful misconduct, but is undertaken at the direction of the federal on-scene coordinator, immunity would apply. OPA 90 specifically provides immunity to persons other than the responsible party for actions taken at the direction of the federal on-scene coordinator.

Salvage Operations Involving Hazardous Substances

The laws governing discharges of hazardous substances other than oil impose liabilities comparable to those for oil pollution upon the owners and operators of vessels, as well as salvors. Because the specific requirements for the discharge of hazardous substances may vary according to the particular properties of the specific substance discharged, Addundum C will briefly address the general provisions of those laws governing the discharge of such substances.

[79] Id. at 1151.
[80] Black's Law Dictionary 932 (5th ed. 1979).
[81] Conway v. O'Brien, 312 U.S. 492, 495 (1941).
[82] Mahoney v. Corralejo, 112 Cal. Rptr. 61 (1974); Carraway v. Revell, 112 So. 2d 71 (1959).
[83] Carraway, 112 So. 2d at 72
[84] Mahoney, 112 Cal. Rptr. 61 (1974); Carraway, 112 So.2d 71 (1959)

State Laws

The federal scheme is not exclusive; OPA 90 rejects federal preemption and expressly preserves the right of individual states to impose liabilities and obligations in addition to federal requirements with respect to oil pollution within their boundaries.[85] The issue of state authority to impose liability and obligations in this area is not foreclosed although the act clearly envisions the states' ability to so regulate. As a matter of Constitutional law, however, the ability of states to regulate in this traditionally federal area of maritime law is unclear. Most coastal states have enacted oil pollution liability regimes.

In general, these state laws impose liability—many without limitation—upon any person responsible for discharges of oil that cause removal costs to be incurred or cause damage to natural resources and property within the state. Discharges within the navigable waters of the United States may also violate state law. If the discharged oil drifts into state waters and harms state resources or property within the state, the state may not exercise jurisdiction. The FWPCA preserves the states' rights to impose liability and requirements with respect to a discharge *into* state waters.[86] Although OPA 90 specifically allows states to impose additional requirements, it does not expand a state's authority to impose additional liability and obligations for discharges that affect state resources and property but that occur outside of state jurisdiction. The discharger may be liable, therefore, for damages and removal costs incurred in a state when the discharge itself occurs within state jurisdiction.[87]

States may generally assert jurisdiction over coastal waters out to a limit of three miles, the limit of the territorial sea. The power of an individual state to enact and enforce laws relating to vessels extends only to waters within its territorial limits, that is, its internal waters and that portion of the territorial sea over which it may claim authority under federal law. The Submerged Lands Act of 1953 granted all states a right to claim a boundary out to three miles.[88] The act granted to the states the right to manage, administer, lease, and develop the submerged lands and natural resources beneath the navigable waters out to three miles.[89] The act further granted states bordering the Gulf of Mexico a right to claim a boundary beyond three miles (to a maximum of three marine leagues, approximately nine miles) based on the extent of their marine boundary at the time they were admitted into the Union. Based on this latter provision, the marine boundaries of Texas and Florida (in the Gulf of Mexico) have been set at three marine leagues.[90] Within these boundaries, states are granted "the right and power to manage, administer, lease, develop and use" the land and natural resources (both living and nonliving) "in accordance with state law," subject to the United States' "powers of regulation and control ... for the constitutional purposes of commerce, navigation, national defense, and international affairs."[91]

[85] 33 U.S.C. § 2718.
[86] 33 U.S.C. § 1321(o)(2).
[87] See Appendices I and II.
[88] 67 Stat. 29, 43 U.S.C. §§ 1301-1315.
[89] 43 U.S.C. § 1311(a).
[90] United States v. Florida, 363 U.S. 121 (1960); United States v. Louisiana, 363 U.S. 1 (1960) and 389 U.S. 155 (1967).
[91] 43 U.S.C. §§ 1301-1315. The extent of the states' authority within these boundaries has not been completely resolved by the judiciary.

Some states (e.g., Maine) have attempted to claim jurisdiction over waters extending as far as 12 miles from the coastline.[92] Under federal law, however, states other than Florida and Texas, as discussed above, may assert jurisdiction only over waters that extend three miles from the coastline.[93]

Many states impose unlimited liability upon any person who is responsible for a discharge of oil or hazardous substances. This may include a salvor that jettisons cargo or is responsible for other discharges of pollutants during salvage operations. A salvor may have limited immunity, however, through a state responder-immunity law if the salvor is responding to a discharge or threatened discharge at the time the incident occurs.[94]

An emergency discharge is not allowed under federal law in any water over which the states may exercise jurisdiction (except those waters beyond three miles over which the states of Florida and Texas exercise jurisdiction). Since there is no federal law to preempt a state prohibition on discharges, a salvor may therefore be directly liable under state law for discharges into the territorial sea, inland waters or for discharges that affect state waters, absent state responder immunity.

EFFECT OF UNITED STATES OIL POLLUTION LAWS ON SALVAGE

OPA 90 and new state oil pollution laws, along with the impending entry into force of the 1989 Salvage Convention, have changed the salvor's position relative to potential liability. Under the provisions of the convention, the salvor owes "a duty to the owner of the vessel or other property in danger to carry out salvage operations with due care."[95] The salvor's award will, in general, be reduced if the salvor is negligent, and may be denied where salvage operations become more difficult because of the salvor's fault, neglect or misconduct.[96] The salvor must now focus not only on saving the vessel but also on the prevention or mitigation of pollution damage. Knowing that the owner and operator will be liable for pollution damage and removal costs, the salvor must take that liability into consideration before discharging any oil, even if the discharge is helpful in saving the vessel.

The salvor's own potential liability is a further consideration. If a salvor's actions increase the liability of the vessel owner and operator, the salvage award may be reduced, or the vessel owner and operator may have a right of contribution against the salvor. Because the United States has waived sovereign immunity for damages caused by public vessels and for actions in admiralty that could be maintained against the owner of a private vessel, the liability of the United States for actions of the Navy or Coast Guard in salvage actions is also affected. As stated above, the liability of the salvor under general maritime law, however, may be subject to the limits provided by the Limitation Act.[97]

Contribution is an equitable doctrine under which a party against whom a claim has been asserted may require other wrong-doers, including those not named

[92] See Me. Rev. Stat. Ann. tit. 38, § 544 (West 1990).
[93] United States v. Maine, et al., 420 U.S. 515 (1975); United States v. Louisiana, 363 U.S. 1 (1960).
[94] See Appendices I and III regarding individual state law provisions.
[95] International Convention On Salvage 1989, Art. 8(1)(a).
[96] Id. Art. 18.
[97] 46 U.S.C. App. §§ 181-196.

in a claim, to contribute proportionally toward satisfaction of the claim. Section 1009 of OPA 90 sets forth a party's right to contribution as follows: "A person may bring a civil action for contribution against any other person who is liable or potentially liable under [OPA 90] or another law."[98]

According to the House Conference Report, this section was designed to "allow actions for contribution against any person who is liable or may be liable under any law."[99] The report notes that this section might apply in an instance where more than one party is involved with a discharge of oil. As an example, the report refers to a discharge that might occur when oil is being transferred between a vessel and an onshore facility: "If the discharge comes from the vessel, it is the vessel that will be the responsible party .... Nevertheless, if action or omission of the onshore facility contributed to the discharge, the operation of this section or section 1015 on subrogation could result in the facility being held accountable financially in part or in whole."[100] If the salvor is partially responsible for the discharge, the responsible party could have a right of contribution from the salvor for that portion of the removal costs and dam ages that may be attributed to the salvor.

Although OPA 90 authorizes contribution actions against persons who may be liable under *OPA 90 or another law,* there is in fact no possibility that contribution may be obtained under OPA 90 from a salvor who is partially responsible for liability, because partially-responsible third parties have no liability under OPA 90.[101] The contribution actions against a salvor must therefore be based on general maritime law or state law (if the discharge occurs within or affects resources within state jurisdiction).

General maritime law has long recognized a right of contribution among parties that share responsibility for maritime torts.[102] Oil pollution on navigable waters is recognized as a maritime tort that is subject to the doctrine of contribution.[103] Generally, liability is apportioned according to fault.[104] The party seeking contribution may proceed *in personam* against the owner of the third party vessel and i*n rem* against the vessel itself.[105] A party may not proceed *in rem* against a vessel that is owned by the United States or that is a public vessel.[106] If the vessel is a public vessel or is owned by the United States, the party seeking contribution may proceed *in personam* against the United States under the Suits in Admiralty Act or the Public Vessel Act. These two acts are to be construed together to give private owners and operators the same right of recovery from the government for damages

[98] 33 U.S.C. § 2709.
[99] H.R. Conf. Rep. No. 653, 101st Cong., 2d Sess. 110-111, reprinted in 1990 U.S. Code, Cong. & Admin. News 788-789.
[100] Id.
[101] See 33 U.S.C. § 2702(a). When a third party is involved in a discharge, the responsible party has a defense only when it can prove that the third party was solely responsible for the discharge. Id. § 2703(a).
[102] Cooper Stevedoring Co. v. Kopke, 417 U.S. 106, 110-11 (1974).
[103] Matter of Oswego Barge Corp., 664 F.2d 327 (2d Cir. 1981); United States v. City of Redwood City, 640 F.2d 963 (9th Cir. 1981).
[104] United States v. Reliable Transfer Co., Inc., 421 U.S. 397 (1975).
[105] United States v. M/V Big Sam, 681 F.2d 432 (5th Cir.), reh'g denied (en banc), 693 F.2d 451 (5th Cir. 1982), cert. denied, 462 U.S. 1132 (1983).
[106] See 46 U.S.C. App. §§ 741, 782.

caused by its vessels that they would have against each other.[107] As discussed above, if there is a cause of action against the government under the Suits in Admiralty Act or the Public Vessel Act, there is no right of recovery against the individual whose actions or omissions gave rise to the liability. The Suits in Admiralty Act provides an exclusive remedy and specifically provides that where a cause of action is available under that act, no other action may be brought against the agent or employee of the United States whose act or omission gave rise to the claim.[108] The individual Navy or Coast Guard personnel involved in a salvage action would not therefore be subject to an action for contribution.

OPA 90 further provides that any person, including the owner, operator, or the federal Oil Spill Liability Trust Fund (the Fund), who pays compensation pursuant to OPA 90 to any claimant for removal costs or damages is subrogated to all rights, claims, and causes of action that the claimant has under any other law.[109] Subrogation is the substitution of one party in the place of another, so that the substituted party succeeds to the rights and remedies of the original party in relation to the claim. If the claimant would have had a claim under state or common law, therefore, the responsible person, the Fund or any other person who paid the claim will have a cause of action under state or common law against the salvor.

Although the Limitation Act may provide a means by which a shipowner may petition the court for exoneration from, or limitation of, liability, it is inapplicable to the responsible party's liability for removal costs or damages under OPA 90 or state oil pollution laws.[110] Since the liability of a partially responsible salvor does not derive from OPA 90 or state oil pollution laws, however, the vessel owner's contribution and subrogation claims against the salvor may be subject to the Limitation Act if they are based on general maritime law.[111] The availability of the Limitation Act to general maritime law claims for oil pollution damages and removal costs will depend upon the court's interpretation of the preemption language in OPA 90. Section 1018 of OPA 90 sets forth preemption of the Limitation Act for purposes of oil pollution as follows:

> Nothing in this Act, the [Limitation Act], or section 9509 of the Internal Revenue Code of 1986 (26 U.S.C. 9509), shall in any way affect, or be construed to affect, the authority of the United States of any State or political subdivision thereof (1) to impose additional liability or additional requirements; or (2) to impose, or to determine the amount of, any fine or penalty (whether criminal or civil in nature) for any violation of law; relating to the discharge, or substantial threat of a discharge, of oil.[112]

[107] See e.g., United States v. Caffey, 141 F.2d 69 (2d Cir. 1944), cert. denied, 323 U.S. 750, reh. denied, 323 U.S. 815; Olaravia & Co. v. United States, 56 F. Supp. 758 (D. Ala. 1944).

[108] 46 U.S.C. app. § 745.

[109] 33 U.S.C. § 2715(a). The federal Oil Spill Liability Trust Fund was established to pay removal costs and damages resulting from a discharge of oil. See 26 U.S.C. § 9509, 33 U.S.C. § 2712.

[110] 33 U.S.C. §§ 2702(a), 2718(a).

[111] The United States preserved its right to limitation of liability that would otherwise be available to a private vessel owner in both the Suits in Admiralty Act and the Public Vessel Act. See 46 U.S.C. App. §§ 746, 789. See also McMahon v. Pan American World Airways, Inc., 297 F.2d 268 (5th Cir. 1962); Dick v. United States, 671 F.2d 724 (2d Cir. 1982).

[112] 33 U.S.C. § 2718(c).

This provision preserves the authority of the United States to enact legislation or adopt regulations that impose additional liability for oil pollution without regard to the Limitation Act. Its effect on the common law is less clear. One interpretation of this provision, however, is that nothing in the provision indicates that the common law is to be affected. As a result, the Limitation Act would apply to actions brought under the common law, including the general maritime law. A final determination as to the applicability of the Limitation Act to causes of action for oil pollution damages and removal costs under general maritime law will, however, be left to the courts.[113]

OPA 90 was founded upon the body of law already established under Section 311 of the FWPCA, which was the United States' principal oil pollution legislation before the passage of OPA 90.[114] Therefore, to the extent that OPA 90 remains consistent with Section 311, judicial decisions concerning that section provide guidance concerning OPA 90.

The seminal decision regarding the liability of a third party partially responsible for a discharge under section 311 is *United States v. Bear Marine Services*.[115] There, the United States sued a partially responsible third party to recover removal costs in excess of the discharging vessel owner's limit of liability under the FWPCA. Reviewing section 311 and its legislative history, the court found that a partially responsible party had no liability under the FWPCA, but that the United States could assert a claim against such a party under general maritime law.[116] The court further concluded that such a claim must be based on fault, since strict liability did not apply, and that the claim would be subject to general maritime law defenses, including the Limitation Act.[117] Nothing in OPA 90 should change the result reached in *Bear Marine.*

In addition, OPA 90 does not preempt states from enacting more stringent oil pollution laws applicable to discharges into or affecting state waters. A private salvor may therefore be liable under state law to an injured party or any other person who has paid a claim for contribution or reimbursement, but damages are limited to damage to property or resources within the state. As mentioned above, the United States would not be liable under a state oil pollution law since it has not specifically consented to liability. A salvor's liability for contribution, if based on state law (where the discharge is into or affects resources within state jurisdiction), may be limited by the salvor's limitation of liability under state law, if any. Recovery is likely to exceed the amount the salvor could have limited its liability to under the Limitation Act, which, as noted above, applies to contribution actions under general maritime law.

[113] Insofar as state law is concerned, however, OPA 90 expressly addresses the effect of the Limitation Act on the common law. "Nothing in ... [the Limitation Act] shall ... affect, or be construed or interpreted to affect or modify in any way the obligations or liabilities of any person ... State law, including common law." 33 U.S.C. § 2718(a)(2). And the Conference Report proclaims, "The subsection [33 U.S.C § 2718(a)] also makes it clear that nothing in this substitute or in the Limitation of Liability Act shall affect in any way the obligations of any person under ... State or common law." H.R. Conf. Rep. No. 653, 101st Cong., 2d Sess. 121, *reprinted in* 1990 U.S. Code, Cong. & Admin. News 800. This slight difference in the wording of the legislative history, however, is unlikely to change the result of the statutory language itself. The Congress did not expressly repeal the application of the Limitation Act to claims brought under the federal common law.

[114] S. Rep. No. 94, 101st Cong., 2d Sess. 4-5, reprinted in 1990 U.S. Code, Cong. & Admin. News 726.

[115] 509 F. Supp. 710 (E.D. La. 1980), rev'd on other grounds, 696 F.2d 1117 (5th Cir. 1983).

[116] 509 F. Supp. at 718.

[117] Id. at 719.

Limited immunity may be available to a salvor responding to the threat of or discharge of oil. Under OPA 90 a person responding to a discharge is not liable for the removal costs or damages resulting from an act or omission during the course of rendering assistance consistent with the National Contingency Plan (NCP) or under the direction of the federal on-scene coordinator,[118] unless the act or omission is one of gross negligence or willful misconduct.[119] An intentional discharge into the navigable waters such as jettisoning, for example, would not be protected under this immunity. Since such intentional discharge is a crime under the FWPCA, it would likely be considered willful misconduct.[120] As discussed above, willful misconduct has been interpreted to mean the intentional performance of an act with the knowledge that injury or damage would probably result. If, however, the act is undertaken at the direction of the federal on-scene coordinator, limited immunity would apply. The responsible party for the vessel remains liable, however, for any removal costs or damages caused by a responder protected by immunity. The salvor may also be subject to direct liability under state law, because a discharge within the navigable waters is also within state jurisdiction.

Although the statute does not define what is meant by "consistent with" the NCP, the legislative history shows that the provision was intended to "take into account the fact that the NCP ... may not cover every detail or eventuality of spill response and that actions that are in keeping with the overall objectives of the NCP ... are deemed to be within the scope" of the responder-immunity provision.[121] The NCP is supposed to provide for "efficient, coordinated, and effective action to minimize damage from oil and hazardous substance discharge [s]."[122] It is arguable that any discharge associated with salvage activities is consistent with the NCP's goal of minimizing damage from oil and hazardous substance discharges. Salvage activities are, by their nature, undertaken to save a ship in distress. Potential oil pollution damages can be minimized when oil is jettisoned to prevent the loss of a greater amount of oil. Absent an interpretation by the Coast Guard or Environmental Protection Agency of what actions will be considered to be consistent with the NCP, the issue will be left to the courts.

The question becomes, therefore, whether a salvor qualifies as a responder for purposes of OPA 90. OPA 90 provides immunity for actions or omissions taken in the course of "rendering care, assistance, or advice consistent with the National Contingency Plan or as otherwise directed by the President."[123] Whether salvors, public or private, are subject to immunity depends on whether the salvor's actions are

[118] 33 U.S.C. § 1321(c)(4). The National Contingency Plan is designed to provide a comprehensive scheme for efficient and effective means of minimizing damage from oil and hazardous substance discharges, including the containment, dispersal and removal of oil and hazardous substances. Although the National Contingency Plan is being revised, the statutory deadline for revision has not been met and the Environmental Protection Agency has stated in a recent hearing held by the House Subcommittee on Coast Guard and Navigation that the earliest the National Contingency Plan could expect to be released would be the Spring of 1993.

[119] 33 U.S.C. § 1321(c)(4)(B)(iv).

[120] See supra pp. 27-29.

[121] H.R. Conf. Rep. No. 653, 101st Cong., 2d Sess. 146 (1990).

[122] 33 U.S.C. § 1321(d)(2).

[123] Id. § 1321(c)(4).

consistent with the NCP or pursuant to the direction of the President.[124] Due to the nature of salvage operations, a salvor should be eligible for conditional immunity under this provision. In addition, salvage resources are considered to be response resources for the purposes of OPA 90. In fact, the Coast Guard's interim guidelines as well as the interim final regulations for vessel response plans require the identification of salvage resources available to respond to a worst case discharge.[125] The guidelines and interim final rule for vessel response plans do not require that the responsible party contract for salvage resources; those available to provide such services merely need to be identified. The guidelines and interim final rule, therefore, do not change the traditional voluntary nature of salvage. Responder immunity does not apply, however, to discharges caused by the responder's gross negligence or willful misconduct.[126] It is therefore unlikely that responder immunity would be available for jettisons of oil into the navigable waters, since, as discussed above, a jettison of oil into the navigable waters in violation of the FWPCA would likely be considered "willful misconduct."

A review of the case law has not revealed any cases in which a salvor has been held directly responsible for a jettison or in which the vessel owner has been held responsible for a jettison by a salvor. In the case of *Com. of Puerto Rico v. SS* Zoe Colocotronis, the master of the vessel unilaterally decided to jettison 1.5 million gallons of oil in an attempt to free the vessel following a grounding.[127] The owner of the vessel was assessed the maximum civil penalty possible under the FWPCA ($5,000) and was held responsible for resulting environmental damage and removal costs. Although the vessel owner was not allowed to limit its liability under the Limitation Act, this was not based solely upon the fact of the intentional discharge. The court found substantial evidence of privity and knowledge based upon the unseaworthiness of the vessel, in that the vessel's charts, navigation equipment and crew "were unfit to meet the perils reasonably to be anticipated in the voyage and where the unseaworthy conditions had existed for some time before the [voyage]."[128]

Responder immunity will not prevent a salvor from receiving a reduced salvage award for negligent conduct. As a responder, however, a salvor may recover all of its response costs under OPA 90 from the vessel owner or from the federal Fund.[129] The Fund will not be available to pay for removal costs or damages incurred by the salvor to the extent that the incident, removal costs, or damages were caused by the salvor's gross negligence or willful misconduct, but will be available regardless of the salvor's simple negligence.[130]

[124] The responder immunity provision, 33 U.S.C. § 1321(c)(4), uses the term "person," which is defined to mean an individual, firm, corporation, association, or a partnership. 33 U.S.C. § 1321(a)(7). Although the definition does not include the United States or other governmental entity, the response provision of OPA 90 indicates that for response purposes, Federal agencies and States are persons. 33 U.S.C. § 1321(c)(3)(A).

[125] Navigation and Vessel Inspection Circular 8-92, Encl. 1, Sec. 7(i)(6); 33 C.F.R. §§155.1035(i)(9), 155.1050(1)(1)(i).

[126] 33 U.S.C. § 1321(c)(4)(B)(iv).

[127] 456 F. Supp. 1327, 1350 (D.P.R. 1978). The captain of the S.S. *Zoe Colocotroni* was tried, found guilty and sentenced in the United States District Court for the District of Puerto Rico for violation of 33 U.S.C. §§ 1321(b)(5) and 1321(n). Id. n. 9.

[128] 456 F. Supp. at 1333.

[129] See 33 U.S.C. § 2712(a)(4).

[130] Id. § 2712(b).

Finally, the salvor may be directly liable under state law for removal costs, damages, and civil or criminal penalties for discharges that occur within or affect resources within state jurisdiction.[131] If the salvor qualifies as a responder under OPA 90 and state law, it may be protected to some extent from liability to third parties by the "responder-immunity" provisions of those laws. Whether protection under a state responder-immunity provision is available to a salvor will depend on whether a salvor is directly liable under state law. If the salvor is directly liable under state law, responder immunity would not apply. For some state responder-immunity provisions, which provide immunity only to persons acting voluntarily, the nature of the salvor's actions, whether voluntary or under contract, may affect whether immunity is available to the salvor. Regardless of the availability of responder immunity, however, the prospect of civil liability for the vessel owner and operator will affect the salvor's decisions regarding a salvage operation.

As mentioned, knowledge that the vessel owner and operator may incur civil liability for a discharge may affect the salvor's due care responsibilities under general maritime law.

MAJOR ISSUES FOR SALVORS

As the foregoing discussion indicates, OPA 90 and other recent developments in United States law have made salvors vulnerable to liability for oil pollution damages and removal costs resulting from jettisoning and other salvage-related discharges. Although the decision in *Bear Marine* implied that salvors could be held liable under general maritime law as partially-responsible third parties, salvor liability has become more of a possibility with these recent developments. Major issues for salvors include:

1. Compensation available for services.
2. Responsibility to the owner or operator of the vessel in distress.
3. Direct liability for oil pollution damages and removal costs.

Compensation

Although recent developments have increased the salvor's potential liability, they have also added to the salvor's potential sources of compensation. The salvor retains its ability to receive a salvage award for its efforts in saving the vessel. The 1989 Salvage Convention may increase compensation for a genera] maritime or contract salvage award or in the form of special compensation for efforts to prevent injury to the environment, if applicable. In addition, the salvor may receive compensation under OPA 90 for all expenses incurred during the course of the salvage operation from the federal Oil Spill Liability Trust Fund.[132] The Oil Spill Liability Trust Fund is available to pay all uncompensated removal costs and damages, if the claim is submitted in accordance with procedures set out by the act.[133] The salvor must first present its claim to the responsible party. If the claim is not settled within 90 days after the claim is presented, the claimant may elect to

[131] OPA 90 does not preempt states from enacting more stringent oil pollution laws, and many states have imposed liability upon "any person" who causes or is responsible for a discharge. See Addendum A regarding individual state laws.
[132] 33 U.S.C. § 2712.
[133] 33 U.S.C. §§ 2712(a)(4), 2713(d).

commence an action in court against the responsible party or present the claim to the Fund. If the salvor chooses to bring an action in court against the responsible party, however, the salvor is prohibited from presenting its claim to the Fund during the pendency of that action.

Salvor's Responsibility to Vessel Owner

The responsible party may be held accountable under OPA 90 for actions taken by the salvor. For example, if a salvor contracts with the responsible party for salvage services and acts with gross negligence or willful misconduct, or violates a federal safety or operating regulation, the responsible party will not be able to limit its liability under the act.[134]

The responsible party will have a right of contribution against the salvor for damages in proportion to the salvor's fault. In addition, a responsible party that pays a claim will become subrogated to the rights that the claimant had against the salvor. The responsible party may, through contribution or subrogation, bring a claim against a private salvor under general maritime law or, if the discharge occurs within state jurisdiction, applicable state law.

Because the United States has not waived sovereign immunity for state oil pollution claims, a public salvor will not be subject to state law claims, but will be subject to contribution or subrogation claims in admiralty brought pursuant to the Suits in Admiralty Act or Public Vessel Act for oil pollution damages and removal costs. If there is a cause of action against the government under the Suits in Admiralty Act or Public Vessel Act, individual Navy or Coast Guard personnel are not subject to personal liability.

The salvor may be able to qualify for responder immunity under OPA 90 or state law. If the salvor qualifies as a responder, the salvor would be immune from contribution and subrogation claims unless the salvor acted with gross negligence or willful misconduct. If the salvor does not qualify for responder immunity, it may be able to limit its liability under the Limitation Act. If the Limitation Act is available and limitation is granted, the salvor would be able to limit liability for the removal costs and damages caused by the salvor to the salvor's limitation fund amount.

Because the salvor may increase the responsible party's liability, the salvor must take precautions to avoid oil pollution. Saving the vessel can no longer be the sole focus of the salvor; the salvor must also focus on the prevention and mitigation of pollution damage. To protect itself from potential contribution claims, the salvor may include in its contract with the vessel owner a clause whereby the vessel owner would waive any claims against the salvor. There is a possibility, however, that such a clause would be held to be against public policy if made while the vessel owner is under duress and particularly if the clause waived claims for the gross negligence or willful misconduct of the salvor.

Third Party Liability of Salvors

The third major issue for salvors is direct liability for oil pollution. Although OPA 90 imposes liability only upon the responsible party for the discharging vessel, it does not preempt state or common law. As a result, private salvors may be subject to liability under the general maritime law and, if the discharge causes damage within

[134] 33 U.S.C. § 2704(c)(1).

state jurisdiction, state law. Public salvors, as discussed above, may be subject to direct liability only under general maritime law. A salvor may be able to avoid liability through the responder-immunity provisions of OPA 90 or state law. Responder immunity under OPA 90 would protect salvors from actions for contribution and subrogation. Responder immunity will not apply to the salvor's willful misconduct. To qualify for responder immunity, the salvor's actions must be determined to be within the course of rendering care, assistance or advice in accordance with the National Contingency Plan or at the direction of the federal on-scene coordinator. To ensure that responder immunity is available, the salvor may need to obtain the permission of the federal on-scene coordinator prior to a discharge. Obtaining permission of the coordinator may be difficult and not practical in a salvage situation.

The private salvor may also face direct and unlimited liability under state law for removal costs and damages incurred within the state. Some states do provide limitations of liability and others provide responder immunity provisions similar to OPA 90. The private salvor has three options to avoid liability under state laws that impose direct liability upon the salvor. One is to seek a change in the law to provide an exception from liability for salvors responding to a discharge or threat of discharge of oil. The second is to approach the state regulatory agencies that administer the state oil spill laws to try to work out a regulatory solution. The third is to challenge any imposition of liability in court on the theory that the responder-immunity provision was designed to encourage persons to respond to an oil spill.

Although public and private salvors may be liable under general maritime law, that liability may be limited. As discussed above, the Limitation Act is available to both public and private salvors in actions commenced under general maritime law, whether directly or by contribution or subrogation. The United States may only be allowed to limit its liability if it is determined that any negligence on the part of the Navy or Coast Guard during salvage operations is not that of a supervisory or managing officer or employee.

Salvors may be able to protect themselves from direct liability for actions taken during the course of salvage operations by requiring an indemnification provision to be included in their contracts with vessel owners.[135] An indemnification agreement should ensure that the salvor is reimbursed for expenses it occurs in defending itself and for any costs or damages that it is ordered to pay under common law or applicable state law. An indemnification agreement may not fully protect the salvor, however, where the vessel owner is forced into insolvency because of its liability for removal costs and damages.

As a result of the liability that may arise during contract salvage of a loaded or partially loaded tanker, a salvor may require the vessel owner to enter into an indemnification agreement underwritten by the vessel owner's P&I Club, known as a P&I Oil Pollution Indemnity Clause (PIOPIC). Under the terms of a PIOPIC, the vessel owner agrees to "indemnify the salvor, unless guilty of personal willful misconduct, in respect of all claims for oil pollution damages, including preventative measures, howsoever arising (including contractual liabilities to sub-contractors) out of the services performed." The amount of PIOPIC indemnification is limited to $15 million dollars, and the terms of the agreement are subject to interpretation in accordance with English law.

[135] OPA 90 does not prohibit any agreement to insure, hold harmless, or indemnify a party for OPA 90 liability. 33 U.S.C. § 2710(a). An indemnification or similar agreement cannot, however, transfer liability from a responsible party, or any other person who may be liable under OPA 90, to any other person. Id. § 2710(b).

Potential criminal liability for discharges into the navigable waters is also a major concern for private salvors. The only way to avoid liability for criminal penalties under the FWPCA for discharges into the navigable waters will involve a regulatory fix. The Coast Guard may be encouraged to promulgate a regulation specifying the conditions under which a salvage discharge into the navigable waters is permitted using its authority under 33 U.S.C. §1321(b)(3) to allow discharges into the navigable waters under such circumstances or conditions that the Coast Guard determines are not harmful.

Finally, salvors must focus on pollution prevention and mitigation. OPA 90 requires vessel owners and operators to identify in their response plans companies available in each geographic area to provide lightering services.[136] By mandating the identification of lightering capabilities, the Coast Guard's guidance for response planning may have the effect of stimulating investment in such resources and provide salvors with an alternative to jettisoning.

CONCLUSION

Recently enacted environmental laws, particularly the Oil Pollution Act of 1990, will have complex and far-reaching implications on salvage operations in waters adjacent to the United States. Since there was no discussion of salvage in the legislative history of OPA 90, it is apparent that these implications were not considered fully during the Congressional consideration of the Oil Pollution Act, and therefore many of those implications cannot be assessed fully until judicial and regulatory interpretations of the act are forthcoming. What is clear, however, is that salvors must now consider carefully their environmental responsibilities under both U.S. and international law in performing salvage operations, particularly for tank vessels. It will be necessary for salvors and the rest of the marine community to monitor the implementation of these new laws so that the new environmental obligations of salvors do not undermine the certainty of the legal regime upon which salvage operations necessarily rely.

ADDENDUM A: EXAMPLES OF STATE OIL POLLUTION LAW

Following the enactment of OPA 90 many states enacted stringent oil pollution liability laws. Many of these laws impose liability upon any person responsible for a discharge that causes oil pollution within the state's jurisdiction. Under such laws, a salvor may be subject to liability for removal costs, damages and civil and criminal penalties for a jettisoning during a salvage operation. With regard to immunity under OPA 90 and many state laws, whether an action such as jettisoning is considered to be "consistent with" the National Contingency Plan or "in accordance" with an applicable state contingency plan is an issue that will most likely be resolved through litigation. The following are representative examples only of the oil spill liability and responder-immunity laws of states on each coast, the Gulf of Mexico and the Great Lakes.

[136] NVIC 8-93, Encl. 1, Sec. 7(h)(6).

West Coast

Alaska

Under the laws of Alaska, a person causing or permitting a discharge of oil must immediately contain and cleanup the discharge in a manner approved by the state.[137] The owner and operator of a vessel or facility from which oil is released or from which there is a threatened release that causes response costs to be incurred, and the owner and person having control over the oil at the time of a release or threatened release, are strictly liable, jointly and severally, for any removal costs and damages to persons, public or private property, the natural resources of the state, and any damage caused by an act or omission of a response action contractor for which the response action contractor is not liable.[138]

Alaska law provides that a person acting as a volunteer, and a vessel of opportunity, engaged in a response action under the direction of a federal or state on-scene coordinator is not liable for costs or damages that result from a release or threatened release of oil from a facility or vessel owned by another person.[139] There is no immunity for acts of gross negligence or intentional misconduct.[140]

Alaska law also provides that a response action contractor who responds to a release or threatened release of oil is not civilly liable for removal costs or damages that result from an act or omission in the course of providing care, assistance, or advice consistent with an approved state or federal contingency plan, or as otherwise directed by the federal or state on-scene coordinator.[141] A "response action" is defined as an action taken to a release or threatened release of oil, including mitigation, clean up, marine salvage, or removal of a release or threatened release.[142]

A salvor performing marine salvage would have limited responder immunity for actions, including jettisoning, that are consistent with an approved federal or state contingency plan or taken at the direction of the federal or state on-scene coordinator, absent gross negligence or intentional misconduct. An unauthorized jettison of oil may, however, subject the salvor to civil and criminal penalties, attorney fees and costs, removal costs and damages.[143]

[137] Alaska Star. § 46.04.020(a),(b) (Michie 1992).
[138] Id. § 46.03.822(a),(k). "Having control over the oil" is defined as producing, handling, storing, transporting, or refining a hazardous substance for commercial purposes immediately before entry of the hazardous substance into the atmosphere or in or upon the water, surface or subsurface land of the state, and specifically includes bailees and carriers of a hazardous substance. Id. § 46.03.826(4). It is unlikely that a salvor would be considered as "having control over the oil."
[139] Id. § 46.03.822(h).
[140] Id.
[141] Id. § 46.03.825(a).
[142] Id. § 46.03.825(g)(4).
[143] Id. §§ 46.03.758, 46.03.759, 46.03.760 & 46.03.790.

California

California law defines a responsible party as the owner or transporter of oil, a person or entity accepting responsibility for the oil, the owner, operator, lessee or demise charterer of any vessel or marine facility, or a person or entity accepting responsibility for the vessel or marine facility.[144] Any person who causes or permits any oil to be discharged in or on the marine waters of the state must immediately contain, cleanup, and remove the oil in the most effective manner to minimize environmental damage.[145] Accordingly, a salvor may be strictly liable for removal costs associated with a jettison as "any person" who causes a discharge of oil. The liability for damages appears to be limited to a responsible party defined by California law.[146]

California law imposes criminal, civil and administrative penalties and civil liability for various prohibited acts and violations of state laws or regulations relating to a discharge of oil. Any person who knowingly fails to follow the directions or orders of an oil spill administrator, or causes an unauthorized discharge of oil into marine waters is subject to a fine up to $500,000 for each day of violation and imprisonment of not more than one year.[147] In addition, any person who knowingly violates any provision of the California Public Resource Code, or any permit, rule, regulation, standard, or requirement imposed by state oil pollution laws is subject to a fine of not more than $50,000 or imprisonment up to one year, or both.[148] A salvor may be subject to a fine, imprisonment, or both, for a jettison of oil not authorized by the appropriate federal or state official.

Any person who intentionally or negligently fails to follow orders of an oil spill administrator, or discharges or spills oil into marine waters that is not authorized by the appropriate coordinator or agency, may be subject to a fine up to $500,000 for each day of violation.[149] Also, any person who causes or permits a discharge of oil is strictly liable for civil penalties up to $10 per gallon of oil discharged, although this may be reduced for each gallon recovered.[150]

California law provides limited liability to responders for costs, damages, or other claims or expenses associated with actions taken or omitted in "good faith" in the course of rendering care, assistance, or advice in accordance with the national or state contingency plan, or at the direction of the state oil spill administrator, the federal on-site coordinator or Coast Guard.[151] This immunity does not apply to acts of

[144] Cal. Gov. Code, ch. 7.4, § 8670.3(n) (Deering 1992).
[145] Id. § 8670.25.
[146] The damages provision under California law states that "any responsible party, as defined in subdivision (n) of Section 8670.3, shall be absolutely liable without regard to fault for any damages incurred by any injured party which arise out of, or are caused by, the discharge or leaking of oil into or onto marine waters." Id. § 8670.56.5(a). Damages to natural resources also appear to be limited to recovery from the responsible party. Id. § 8670.61.5.
[147] Id. § 8670.64(a)(1),(3),(b).
[148] Id. § 8670.65.
[149] Id. § 8670.66(a)(1), (3).
[150] Id. § 8670.67.5.
[151] Id. § 8670.56.6.

gross negligence or willful misconduct in connection with the cleanup of a spill or to any action for personal injury or death.[152]

Under California law, a salvor may not be liable for removal costs or damages resulting from a jettison made in "good faith" and "in accordance" with the national or state contingency plan, or at the direction of a federal on-scene coordinator, state oil spill administrator or Coast Guard. The salvor may otherwise be liable for removal costs; criminal, civil, and administrative penalties; civil liability; and imprisonment for an unauthorized jettison of oil.

Oregon

Under Oregon law, any person owning oil or having control over oil that enters the waters of the state is strictly liable for damages to persons or property, public or private, including damages to natural resources caused by a discharge.[153] The person owning or having control over the oil has an obligation to immediately remove the oil or is otherwise liable to the state for any removal expenses.[154]

Civil and criminal penalties may be imposed upon any person who willfully or negligently causes or permits a discharge of oil into the waters of the state.[155] Civil penalties are determined by the Department of Environmental Quality commensurate with the amount of damage incurred by the discharge. Criminal penalties for violations are punishable by a fine or imprisonment, or both.[156]

Oregon law provides limited immunity to persons responding to a discharge. A responder is not liable for removal costs or damages that result from actions taken or omitted in the course of rendering care, assistance, or advice consistent with the National Contingency Plan, or as otherwise directed by the federal on-scene coordinator or state official responsible for oil spill response.[157] Limited responder liability does not apply to a responsible party, for personal injury or death, or to acts of gross negligence or willful misconduct.[158]

Oregon law provides a salvor with limited immunity for a jettison during salvage operations if the jettison is consistent with the federal contingency plan, or by the direction of a federal on-scene coordinator or authorized state oil spill official. Although the salvor may not be strictly liable for jettisoning as a "person owning or having control over oil" for removal costs or damages, the salvor could be subject to civil and criminal penalties.

Washington

Washington law provides that any person owning or having control over oil is strictly liable for damages to persons or property, public or private, caused by a

[152] Id.
[153] Or. Rev. Stat. §§ 468B.310 & 468B.060 (1) (Butterworth 1992). The person "having control over oil" includes, but is not limited to, any person using, storing or transporting oil immediately prior to entry of such oil into the navigable waters of the state, and specifically includes carriers and bailees. Id. § 468B.300(21). It is unlikely that a salvor would be considered as "having control over oil."
[154] Id. § 468B.320.
[155] Id. § 468B.450.
[156] Id. § 468B.990.
[157] Id. § 468B.425(1).
[158] Id. § 468B.425(2).

discharge of oil.[159] Any person who unlawfully discharges or poses a substantial threat of discharging oil or hazardous substances into the waters of the state is responsible for all necessary removal expenses, including response costs incurred by the state to protect natural resources.[160] In addition, any person who negligently, intentionally or recklessly discharges, or causes or permits a discharge of oil, is subject to civil penalties.[161] Accordingly, a salvor jettisoning without authorization may be liable for removal costs and civil penalties. By definition, it is unlikely that the salvor would be liable for damages, however, as the person owning or having control over oil.

Washington law provides limited immunity to third party responders for removal costs and damages resulting from actions taken or omitted to be taken in the course of rendering care, assistance, or advice in accordance with the National Contingency Plan, or as otherwise directed by the federal on-scene coordinator or state official in charge of oil spill response.[162] Limited immunity is not available for removal costs and damages resulting from the gross negligence or willful misconduct of the responder.[163]

A salvor would not be liable for removal costs and damages resulting from a jettison of oil in accordance with the National Contingency Plan or as otherwise directed by the federal on-scene coordinator or state official in charge of the response. The salvor may be strictly liable for removal costs and civil penalties as a result of an unauthorized jettison.

Gulf Coast

Florida

The Florida Pollutant Spill Prevention and Control Act imposes liability on any vessel transporting pollutants as cargo, or its agents or servants, that permit a prohibited discharge or other polluting condition to take place within state boundaries.[164] A prohibited discharge includes liability for removal costs, damages and civil penalties.[165]

The act provides limited immunity to persons who take actions in response to pollutant discharges. Certified cleanup contractors, or any other person who voluntarily or at the request of the Department of Natural Resources, that render assistance in containing or removing pollutants are not liable for damages resulting from acts or omissions in rendering assistance, except for acts of gross negligence or willful misconduct.[166] Likewise, any person authorized by the department, the

[159] Wash. Rev. Code Ann. § 90.56.370(1) (West 1992). A person "having control over oil" includes any person using, storing, or transporting oil immediately prior to the discharge, and specifically includes carriers and bailees. Id. 90.56.010(14).
[160] Id. §§ 90.56.340, 90.56.350 & 90.56.360.
[161] Id. § 90.56.330.
[162] Id. § 90.56.390.
[163] Id.
[164] Fl. Stat. Ann. § 376.12(1) (West 1992).
[165] Id. §§ 376.12, 376.121, 376.16 & 376.205.
[166] Id. § 376.09(4).

federal government, or the person responsible for the discharge to render assistance in containing or removing pollutants is not liable for costs, expenses or damages.[167]

Under Florida law, a salvor has limited immunity, absent gross negligence or willful misconduct, for a jettison made at the direction of the federal or state oil spill official, or person responsible for the discharge. A salvor who otherwise jettisons may become liable as an "agent" or "servant" of the vessel owner for removal costs, damages and civil penalties.

Louisiana

Louisiana law prohibits the unauthorized discharge of oil into the coastal waters of the state.[168] Any person responsible for a discharge of oil or the person in charge of any vessel from which an unauthorized discharge of oil occurs must take all reasonable actions to abate, contain and remove the discharge.[169] A responsible person or party, defined as any person other than a person who is rendering care, assistance or advice in response to a discharge or threatened discharge, is strictly liable for removal costs and damages.[170] Accordingly, a salvor is not strictly liable for jettisoning as the responsible person.

Limited immunity is provided to a person or any discharge cleanup organization, other than the responsible person, that renders care, assistance or advice regarding a spill consistent with the federal or state oil spill contingency plan, or at the direction of an authorized federal or state official or responsible party.[171] Persons entitled to limited immunity are not liable for damages, removal costs or civil penalties. However, responder immunity is not available for personal injury, wrongful death, or acts or omissions that are the result of gross negligence or willful misconduct.[172]

Under Louisiana law, a salvor is not strictly liable by definition as a responsible person for a jettison of oil. In addition, the salvor would not be liable for a jettison that is consistent with the federal or state contingency plan, or at the direction of an authorized federal or state oil spill official, or the responsible party. Limited immunity does not apply to personal injury, wrongful death, or acts or omissions resulting from gross or willful misconduct.

[167] Id. § 376.09(5).
[168] La. Rev. Stat. § 30:2454(7) & (28) (West 1992). An unauthorized discharge includes any discharge without a federal or state permit or any intentional or unintentional act or omission by which harmful quantities of oil are spilled, leaked, pumped, poured, emitted or dumped into or on the coastal waters of the state. Id.
[169] Id. § 30:2463.
[170] Id. §§ 30:2454(22) & 30:2479.
[171] Id. § 30:2466.
[172] Id.

Texas

Under Texas law, the responsible person is defined as the owner or operator of a vessel or terminal facility from which an unauthorized discharge of oil emanates or threatens to emanate, and any person who causes, allows or permits an unauthorized or threatened unauthorized discharge of oil.[173] A responsible person is liable for response costs, and damages to third parties and natural resources resulting from an actual or threatened discharge of oil.[174] By definition, a salvor may be considered a responsible person and subject to liability for a jettison of oil.

Texas law provides limited immunity to any person or discharge cleanup organization that voluntarily, or pursuant to the national or state contingency plan, or request of an authorized federal or state official or responsible person, renders assistance or advice in abating, containing, or removing pollution from an unauthorized discharge of oil.[175] A person entitled to immunity is not liable for response costs, damages, or civil penalties resulting from acts or omissions committed in rendering such assistance or advice, absent gross negligence or willful misconduct.[176]

A salvor has limited immunity for a jettison of oil that is consistent with the national or state contingency plan, or by direction of the federal or state on-scene coordinator, or responsible person. A salvor may be liable for removal costs, damages and civil and administrative penalties for an unauthorized jettison as a responsible party.[177]

Great Lakes

Illinois

The state of Illinois or local government may act to remove or arrange for removal oil that is discharged into state waters in quantities that exceed the standards adopted by the Illinois Pollution Control Board.[178] The owner or operator of the facility, including a vessel, from which the oil is discharged is liable to the governmental body for the costs incurred for the removal of the oil or other pollutants.[179] The Illinois act does not otherwise affect or modify the liabilities of an owner or operator for damages to public or private property resulting from a discharge of oil.[180] The Illinois Water Pollution Discharge Act does not contain a responder immunity provision; however, liability for removal costs are limited to the owner or operator of the vessel.

[173] Tex. Nat. Res. Code Ann. § 40.003(19)(A),(C) (West 1992).
[174] Id. § 40.202.
[175] Id. § 40.104(b).
[176] Id.
[177] Id. §§ 40.251 & 40.252.
[178] Ill. Ann. Stat. ch. 85 para. 1704 (Smith-Hurd 1992).
[179] Ill. Ann. Star. ch. 85 para. 1705 (Smith-Hurd 1992).
[180] Ill. Ann. Star. ch. 85 para. 1706 (Smith-Herd 1992).

Michigan

The Michigan Watercraft Pollution Control Act prohibits the discharge of oil from watercraft into or onto the waters of the state.[181] The owner or operator of a watercraft, whether directly or through any person concerned in the operation, navigation, or management of the watercraft, that discharges or permits, causes or contributes to the discharge of oil into or upon state waters, adjoining shorelines or beaches, must immediately remove the oil or is otherwise liable to the state for its removal.[182] In addition to removal costs, a fine or imprisonment, or both, may be imposed for a violation of Michigan oil pollution laws.[183]

Although the Michigan Watercraft Pollution Control Act does not provide responder immunity, the salvor does not appear to be subject to liability since the law only specifies liability for the owner or operator of the vessel.

Wisconsin

Wisconsin law provides that a discharge of any pollutant, including oil, into any waters of Wisconsin is unlawful unless a permit is issued by the Wisconsin Department of Natural Resources.[184] The department may recover from any person violating various pollution statutes in the state, the cost of removing, terminating, or remedying the adverse effects upon natural resources resulting from the unlawful discharge of pollutants into state waters, including the cost of replacing fish or other wildlife destroyed by the discharge.[185] Civil and criminal penalties may also be imposed upon any person violating Wisconsin oil pollution laws.[186]

Limited immunity is provided to any person who mitigates or attempts to mitigate, prevents or cleans up an actual or threatened discharge of a hazardous substance.[187] This immunity does not extend to any person who receives or expects to receive compensation other than reimbursement for out-of-pocket expenses for rendering advice or assistance in response to a spill, or whose act or omission caused in whole or in part the discharge and who would otherwise be liable for the act or omission.[188]

Because limited immunity is unavailable to a person who expects to receive compensation for their services, a commercial salvor would have no responder

[181] Mich. Comp. Laws Ann. § 323.337 (West 1992).
[182] Id.
[183] Id. § 323.341.
[184] Wisc. Stat. Ann. §§ 147.02(1) & 147.015(13) (West 1991).
[185] Id. § 147.23(1).
[186] Id. d. § 147.21.
[187] Wisc. Stat. Ann. § 895.48 (West 1991). § 895.48 does not specifically define "oil" as a "hazardous substance" but the definition appears to broad enough to include "oil" as a "hazardous substance." A "hazardous substance" has the meaning given under section 144.01(4)(m): "any substance or combination of substances including any waste of a solid, semisolid, liquid or gaseous form which may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or which may pose a substantial present or potential hazard to human health or the environment because of its quantity, concentration or physical, chemical or infectious characteristics. This term includes, but is not limited to, substances which are toxic, corrosive, flammable, irritants, strong sensitizers or explosives as determined by the [Department of Natural Resources]."
[188] Id.

immunity. Further, because any person is liable for a discharge, the salvor may be liable for removal costs, damages, civil and criminal penalties for a jettison of oil without a permit.

East Coast

Maine

Maine law prohibits the discharge of oil into or upon waters of the state.189 The person responsible for the discharge is wholly responsible for reimbursing the Maine Coastal and Inland Surface Oil Cleanup Fund for all disbursements for cleanup costs and damages, including all third party damage claims paid by the Fund.190 These disbursements include payment of third party damage claims to real or personal property and for the direct or indirect loss of income as a result of the discharge of oil.[191]

Limited responder immunity is available to any person who provides assistance or advice in mitigating or attempting to mitigate the effects of an actual or threatened discharge of oil, or in preventing, containing, cleaning up, removing, or disposing of any prohibited discharge of oil.[192] A responder is not liable for removal costs, damages, civil liabilities, or penalties that result from actions taken or omitted in the course of rendering care, assistance or advice consistent with the national or state contingency plan, or as otherwise directed by the federal or state oil spill coordinator.[193] Responder immunity does not apply to any person who caused or is otherwise responsible for the actual or threatened discharge, or to acts of gross negligence or willful misconduct.[194]

A salvor would have immunity for a jettison of oil that is consistent with the national or state contingency plan, or made at the direction of the federal or state oil spill coordinator. The salvor may otherwise become liable for removal costs, damages, civil liabilities, or penalties for jettisoning in violation of state law.

Massachusetts

Massachusetts law provides that the owner or operator of a vessel, or any person that releases oil or a hazardous material into the state's waters are strictly liable to the state for all removal costs and damages for injury, destruction, or loss of natural resources, and to any person for damages to real or personal property, incurred, or suffered as a result of the release.[195] Accordingly, a salvor may be strictly liable for removal costs and damages for a jettison of oil under this law.

Massachusetts law provides limited immunity to persons who respond to a discharge of oil. Volunteer responders have immunity when responding to a discharge of oil or a hazardous substance when, rendering assistance at the request of

[191] Id. § 551(2).
[192] Id. § 542(4).
[193] Id.
[194] Id. § 552(4)(B).
[195] Mass. Gen. Laws Ann., ch. 21E, § 5(a) (West 1992).
[189] Me. Rev. Stat. Ann. tit. 38, § 543 (West 1992).
[190] Id. § 552.

an authorized representative of the department. Volunteer responders are not liable for civil damages as a result of an act or omission, except for acts or omission of gross negligence or willful misconduct.[196]

Massachusetts law also provides responder immunity to persons who render care, assistance, or advice in response to a release or threatened release of oil that is consistent with the national or state contingency plan, or directed by the federal coordinator or state oil spill response administrator.[197] A responder has immunity for actions taken or omitted during a response, except for acts of gross negligence, willful misconduct, personal injury or death.[198]

Response action contractors who respond to a discharge pursuant to a contract with the state also have limited immunity.[199] Response action contractors responding to a discharge of oil are not strictly liable to any person for injuries, costs, damages, expenses, or other liability including claims by third parties.[200] Although a response action contractor is not strictly liable, a response action contractor may be liable for negligence. The responder may enter into an indemnification agreement with the state, but the amount of indemnification is limited to $2,000,000, and does not apply to acts of gross negligence or willful misconduct.[201]

A salvor may be strictly liable for removal costs and damages for an unauthorized jettison of oil. However, a salvor would have immunity for a jettison authorized by the federal or state oil spill official, or in accordance with the national or state oil spill contingency plan.

New Jersey

New Jersey law provides that any person who unlawfully discharges any hazardous substance, including petroleum or petroleum products, into state waters is strictly liable, jointly and severally, for all cleanup and removal costs incurred.[202] The owner or operator of a major facility or vessel are liable, jointly and severally, for damages resulting from a discharge of oil.[203]

New Jersey law provides limited immunity to persons who render assistance, care, or advice in response to a discharge that is consistent with the National Contingency Plan, or otherwise directed by the federal on-scene coordinator or appropriate state official.[204] This immunity does not apply to persons responsible for the initial discharge, personal injury or death, gross negligence or willful misconduct.[205]

[196] Id.
[197] Id. § 4.
[198] Id. § 4.
[199] Id. § 16. A "response action contractor" is defined as an individual, partnership, corporation or other commercial organization that enters into a contract with the state regarding services to contain, remove and clean up a discharge of oil or hazardous material. Id. § 2.
[200] Id. § 16 (a).
[201] Id. § 17.
[203] Id. § 58:10-11g(b).
[204] Id. § 58:10-32.11g3.
[205] Id.
[202] N.J. Star. Ann. § 58:10-23.11g(c)(1) (West 1992).

A salvor has limited immunity for a jettison in accordance with the National Contingency Plan, or at the direction of the federal on-scene coordinator or appropriate state official. A salvor may otherwise be directly liable for removal costs resulting from an unauthorized jettison. Damages are limited to the owner or operator of the vessel.

Rhode Island

Rhode Island law prohibits any person from discharging or permitting the discharge of oil into state waters, except by permit issued by the director of the department of environmental management.[206] A person who discharges is strictly liable to the state for costs, damages to natural resources, and to the state and private parties under a civil action in common law for any additional damages or penalties.[207] Civil and criminal penalties, including imprisonment, may also be imposed for violations of Rhode Island oil pollution laws and regulations.[208]

Limited immunity is provided to persons, other than those responsible for the discharge, who render care, assistance, or advice regarding a discharge of a pollutant in the waters of the state.[209] A person responding to a discharge under the limited immunity provision is not held strictly liable for their acts or omissions.[210] Although a responder may not be strictly liable for their acts or omissions, a responder may be liable for negligence. A salvor could therefore be liable for a jettison that is determined to be a negligent act.

Under Rhode Island law, a salvor may be directly liable for removal costs and damages for jettisoning as "any person" causing a discharge. Rhode Island law also imposes civil and criminal penalties, including imprisonment for violations of Rhode Island oil pollution laws and regulations.

[206] R.I. Gen. Laws § 46-12.5-3 (West 1991). Contaminated ballast water may be discharged by the master of the vessel only if it is necessary for the safety of the vessel and no other action is feasible. Id. § 46.12.5.4
[207] Id. § 46.12.5-7.
[208] Id. §§ 46.12.5-6 & 46.12.5-10.
[209] Id. § 46-12.3.8.
[210] Id.

ADDENDUM B: COMPILATION OF IL SPILL LIABILITY STATUTES OF THE COASTAL STATES

The following is a brief outline of state statutes pertaining to oil pollution. It should be used as a research guide only. The reader should refer to statutory and case law in each jurisdiction to determine its liabilities and obligations under state laws.

STATE LAW	LIABILITY					RESPONDER IMMUNITY
	PERSONS LIABLE	REMOVAL COSTS		DAMAGES		
		STANDARD	LIMIT	STANDARD	LIMIT	
ALABAMA § 22.22.9	Any person who discharges	Negl.	No	Negl.	NO	Yes
ALASKA § 46.03.822; §46.03.758(2)(b); § 46.03.780; § 46.08.020; § 43.55.011	Cargo owners and vessel owners/operators	Strict	No	Strict	3rd p: $100 M Natural Resource: No	Yes
CALIFORNIA Gov't Code § 8670.56.5	Vessel operator, owner or lessee. Person accepting responsibility for vessel.	Strict	NO	Strict	No	Yes
CONNECTICUT § 22a.451	Any person, firm or corporation which directly or indirectly causes	Strict	No	No provision	------	Yes
DELAWARE 23 §§6201 et seq.	Owner and operator of vessel	Strict	Vessel: $30 M Facility: $50 M	Strict	Vessel: $30 M Facility: $50 M	Yes
FLORIDA 28 § 376, §377, §206	Vessel owner and operator	Strict	Vessel: $10 M Facility: $25 M	Strict	No	Yes
GEORGIA § 12.5.51, § 12.14.1, § 12.5.500, § 12.5.501	Any person who causes discharge	Negl.	No	Strict	No	

HAWAII §§342 et seq.	Any person who violates	Strict	No	Strict	No	Yes
LOUISIANA § 30:2025(E); § 30:2077; § 30:3025; § 30:2034	Any person who causes or threatens or allows discharges found to be in violation	Strict	Vessel: $10 M Offshore Facility: $75 M + all removal costs Onshore Facility: $350 M	Strict	Vessel: $10 M Offshore Facility: $75 M + all removal costs Onshore Facility: $350 M	Yes
MAINE 38 §§ 541 et seq.	Any person, vessel, licensee, agent or servant responsible for discharge	Strict	No	Strict	No	Yes
MARYLAND Env't § 4-401 et seq.	Any person discharging or permitting the discharge	Strict	No	For 3rd party only: Strict	For 3rd party only: No	Yes
MASSACHUSETTS Ch. 21E, § 5; Ch. 91, § 59A; Ch. 130, § 24; Ch. 131, § 42	Any person who caused or is responsible for discharge; plus Oil-Carrier Hazardous Material-Carrier and vessel owner	Strict	No	3rd P: Negl. Natural Resource: Strict	Double damages (both)	Yes
MISSISSIPPI §49.17.29; § 49.17.43; § 49.17.68	Any person ... violating	Strict (Public Nuisance)	No	Natural Resource: Strict	Natural Resource: No	Yes
NEW HAMPSHIRE §146.A:3; §146.A:10; § 146.A:11 § 146.A:14	Operator or other person who causes	Strict	No	3rd P: Negl. Natural Resource: Strict	No (Both)	Yes

NEW JERSEY §§58:10.23.11 et seq.; §58:10A.10 §58:10A.6	Persons who discharge	Strict	Vessel: $150/gross ton Facility: $50 M	Strict	3rd P: Vessel: $150/g.t. Facility: $50 M Natural Resource: No	Yes
NEW YORK Nav §§170 et seq.	Person who discharged	Strict	$300/gross ton	Strict		Yes
NORTH CAROLINA §§143.215.75 et seq..	Any person who discharges or causes to be discharged	Strict	No	Strict	No	Yes
OREGON § 465.200; § 465.255; § 468B.300	Cargo and vessel owner; any person owning or having control	Strict	No	3rd P: Strict Natural Resource: Negl. or willful	No	Yes
PENNSYLVANIA 33 Pa. Cons. Stat.; §§691.1-691.1001	Any person	Nuisance	No	Nuisance	No	Yes
PHODE ISLAND § 46.12.1	Any person	Strict	No	Strict	No	Yes
SOUTH CAROLINA §48.1.90(a); § 48.43.560 § 48.43.600	Any person who discharges	Strict	No	3rd P: Arb Natural Resource: Strict	No (both)	Yes
TEXAS Natural Resources §§40.1 13 et seq.; §§40.201 et seq.; § 40.251 et seq.	Responsible person	Strict	$50 M	Strict	No	Yes
VIRGINIA V62.1.44.34:3	Vessel owner, discharger or operator	Strict	$10 M in absence of negligence	Strict	$5 M	Yes
WASHINGTON $90.48.335; § 90.48.336; § 90.48.142	Cargo and vessel owner any person who discharges	Strict	No	Strict	No	Yes

ADDENDUM C: SALVAGE OF HAZARDOUS SUBSTANCES OTHER THAN OIL

Emergency discharges of substances categorized as "noxious liquid substances" are allowed by MARPOL.[211] Annex H of MARPOL governs discharges of noxious liquid substances carried in bulk as cargo. The discharge into the sea of noxious liquid substances is generally prohibited, but an exception is made for discharges of noxious liquid substances or mixtures containing such substances necessary to secure the safety of a ship or to save a life at sea.[212]

The United States is a party to the Protocol Relating to Intervention On the High Seas in Cases of Pollution by Substances Other Than Oil.[213] Under that protocol, a party government may take measures on the high seas necessary to prevent, mitigate or eliminate grave and imminent danger to its coastline or related interest from actual or threatened pollution by substances other than oil resulting from a maritime casualty.[214] The protocol otherwise adopts and follows the same guidelines as the International Convention regarding intervention in cases of oil pollution on the high seas.

Both FWPCA and CERCLA prohibit discharges of "hazardous substances" into the navigable waters, contiguous zone, and ocean waters whose natural resources are under the exclusive management authority of the United States.[215] As with discharges of oil, however, the FWPCA allows discharges of hazardous substances into the contiguous zone or exclusive economic zone if the discharge is allowed by MARPOL.[216] The FWPCA directs the Administrator of the Environmental Protection Agency (EPA) to designate as hazardous substances such elements and compounds that present an imminent and substantial danger to the public health or welfare.[217] CERCLA defines "hazardous substance" as a substance falling within any of six categories of substances regulated under other environmental statutes, including the FWPCA.[218] EPA has compiled a list of FWPCA and CERCLA hazardous substances in 40 C.F.R. Part 302. The term "pollutant or contaminant" generally includes substances that are harmful to human life or health, but does not include petroleum,

[211] The substances designated as noxious liquid substances under Appendix II to MARPOL Annex II are substantially the same as those substances identified as "hazardous substances" under CERCLA and the FWPCA, as discussed below.

[212] Annex II, Reg. 6(1), MARPOL.

[213] Convention Relating to Intervention on the High Seas in Cases of Pollution by Substances Other Than Oil, done in London Nov. 2, 1973 (entered into force March 30, 1983), T.I.A.S. No. 10561.

[214] Id. Art. 1. In addition to a list of substances other than oil annexed by the Convention, those substances which are liable to create hazards to human health, living resources, and otherwise cause damage to the sea are included. Id. Art. 1(2).

[215] 33 U.S.C. § 1321(b)(3); 42 U.S.C. § 9607(a); see also supra note 44.

[216] 33 U.S.C. § 1321(b)(3).

[217] Id. § 1321(b)(2).

[218] 42 U.S.C. § 9601(14). A hazardous substance includes: (1) any substance designated pursuant to the FWPCA; (2) any element, compound, mixture, solution, or substance designated pursuant CERCLA; (3) any hazardous waste having the characteristics identified under or listed pursuant to the Solid Waste Disposal Act; (4) any toxic pollutant listed under 33 U.S.C. § 1317(a); (5) any hazardous air pollutant listed under the Clean Air Act; and (6) any imminently hazardous chemical substance or mixture with regard to which the Administrator of EPA has taken action pursuant to 15 U.S.C. § 2606.

meaning crude oil or any fraction thereof, unless specifically listed or designated as a hazardous substance under CERCLA.[219]

FWPCA

As with oil, the FWPCA prohibits the discharge of hazardous substances into the navigable waters, adjoining shorelines, contiguous zone, or that may affect natural resources under the exclusive management authority of the United States (including resources under the Magnuson Fishery Conservation and Management Act), in such quantities as may be harmful as determined by the President.[220] An emergency discharge under Annex II of MARPOL is not allowed within the internal waters. Any such discharge made within the territorial sea could subject the salvor and the vessel owner and operator to penalties under the FWPCA. It is unlikely that a salvor would be held directly liable under the FWPCA for damages or removal costs resulting from a discharge of hazardous substances during salvage operations.

CERCLA

A salvor is potentially liable under CERCLA for any discharges of hazardous substances if, as part of the salvage operation, the salvor arranges for disposal, or accepts for transport or disposal, any hazardous substances carried on board the salved vessel. CERCLA imposes liability upon (1) the owner and operator of a vessel, (2) any person who, by contract, agreement, or otherwise, arranged to dispose of, treat, or transport for disposal or treatment hazardous substances owned or possessed by such person, by any other party or entity, at any facility or incineration vessel owned or operated by another party or entity and containing such hazardous substances, and (3) any person who accepts or accepted any hazardous substances for transport to disposal or treatment facilities, from which there is a release, or a threatened release which results in response costs, of a hazardous substance.[221] Liability is imposed where there is a release of hazardous substances into the environment[222] in such quantities as may be harmful as determined by the President.[223] CERCLA makes no exception for MARPOL discharges into the navigable waters or contiguous zone.

[219] See 42 U.S.C. § 9601(33).

[220] 33 U.S.C. § 1321(b)(3). A discharge "in such quantities as may be harmful as determined by the President" has been determined to be a discharge that either (1) violates applicable water quality standards or (2) causes a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or causes a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. 40 C.F.R. Part 110. It should be noted that the provisions of the FWPCA that govern discharges of oil are also applicable to discharges of hazardous substances, but that there is no liability under OPA 90 for discharges of hazardous substances. See 33 U.S.C. § 2702.

[221] 42 U.S.C. § 9607(a).

[222] The term "environment" includes the navigable waters, contiguous zone, and the ocean waters for which the natural resources are under the exclusive management authority of the United States under the Magnuson Fishery Conservation and Management Act, 16 U.S.C. §§ 1801 et seq., and any other surface water, ground water, drinking water supply ... within the United States or subject to the jurisdiction of the United States. 42 U.S.C. § 9601(6).

[223] 42 U.S.C. § 9607(a). Although EPA has determined specific harmful quantities for many hazardous substances, the reportable quantity is generally equal to one gallon.

Warren L. Dean *is a senior partner in the Washington, DC. law firm of Dyer, Ellis, Joseph & Mills. His practice includes environmental, transportation, and general corporate law. He also is an Adjunct Professor of Law at Georgetown University Law Center, where he teaches International Transportation Law in the graduate program.*

Laurie L. Crick *is an associate in the maritime and environmental law practice of the Washington D.C. law firm of Dyer, Ellis, Joseph & Mills. Ms. Crick served through April 1993 as a contributing editor to the Oil Spill Law Information Service, which provides a summary of OPA 90 and the relevant oil pollution laws of several key coastal states.*

COMMENTARY ON THE DELIBERATE DISCHARGE OF OIL DURING MARINE SALVAGE OPERATIONS

Philip A. Berns

The disclaimer I usually assert at lectures and in accompanying papers,[1] along with the warning that in addition to the Department of Justice, my views are not necessarily that of agencies I represent and courts before which I have appeared. This may take on more meaning in this instance due to the relative newness of specific oil pollution laws being applied to maritime spills. I am even more wary of placing an official tone on some aspects of the meaning and application of the new Oil Pollution Act of 1990 (OPA 90). It is clear that certain parts of the statute and the amended Federal Water Pollution Control Act (FWPCA) will have to undergo a sort of "trial and error" evolution. The issue presented here may be one of those parts.

JETTISONING UNDER DIRECTION OF THE UNITED STATES

If a cargo is jettisoned by a salvor in accordance with directions of the United States, subject to certain exceptions that will be discussed below, it appears there may be situations where there would be no liability on the part of the salvor under OPA, FWPCA, or other applicable statutes. Thus, if human life is at stake; the only alternative is to jettison. If the United States directs that such action be taken, it would not appear there is anything in any statute that mandates liability on the part of the salvor or attaches penalties thereto.

At the same time, the "responsible party" could still be liable for having created the situation which required this extraordinary activity. Depending on the circumstances, if the salvor's action also created the necessity of this jettisoning, then the latter would be liable for damages and an appropriate penalty. Thus, the mere order being issued by the United States will not necessarily provide immunity to the salvor.

LIABILITY OF THE UNITED STATES

In addition to apparent protection from liability of the United States when acting in its official capacity in an oil spill cleanup situation—including when it may be performing in this capacity as a salvor—it is not clear that the standard triggering of the waiver of immunity under the Public Vessels Act and/or Suits in Admiralty Act will take place. It will be necessary in those instances to determine whether the government is acting merely as a private person or in a governmental aspect. Further, there will be issues of discretionary function and the fact that, at the least,

[1] The comments herein do not necessarily represent the official position of the United States Department of Justice.

the United States is the trustee/"owner" of certain environmental elements and cannot sue itself. Therefore, it is not enough to simply state that the Public Vessels Act and Suits in Admiralty Act will automatically place the United States in the same status as a private party would be in admiralty matters.

"INTO OR UPON," "A THREAT OF DISCHARGE," AND LIABILITY

Although OPA did not incorporate the word "affect" with the words "into or upon" in terms of discharges that are prohibited, it is respectfully submitted that an interpretation requiring the oil be spilled directly from a vessel that is located within the territorial confines of the exclusive economic zone, the territorial sea, or the contiguous waters is too limited an interpretation. Based upon the broad intent of Congress in prohibiting discharges, it is more than reasonable to conclude that oil spilled outside the exclusive economic zone (EEZ) but which flows into it would be a violation of OPA. The more restrictive interpretation explored by the discussion paper by Dean and Crick (pages 58-97) would preclude any finding of liability and prevent any recovery for oil that flowed into the EEZ from a land-based facility. Further, it would be inconsistent with the federal government's authority to take action and recover for the costs of taking preventive action against a vessel outside the EEZ that presents "a threat of discharge" into the EEZ or the other covered waters.

Although Dean and Crick conclude that the definition of "discharge" in OPA 90 does not include the drifting of oil from beyond the EEZ, a broad interpretation and the clear purpose of the act show it does not exclude it.

OPA AND THE LIMITATION OF LIABILITY ACT

The issue is raised whether the Limitation of Liability Act was done away with, *in toto*, by OPA including defining which parties that contributed to the spill would not be considered "responsible parties" under OPA. Again, the intent of Congress was to preclude such a defense to claims that would otherwise be covered by OPA. Under the Trans-Alaska Pipeline Authorization Act (TAPAA), a statute containing a less clear preclusion of the Limitation of Liability Act, the Ninth Circuit Court in *In Re Glacier Bay* held that, at the least, limitation was done away with in relation to subrogated claims asserted against the shipowner/operator.

The broad intent of OPA could preclude the application of limitation of liability to all claims arising out of an OPA spill. (At present, the Ninth Circuit Court is considering part of this issue in *Sammi Superstars*.) Additionally, under OPA, the Federal Oil Spill Liability Fund (the Fund) is subrogated to the rights of claimants under OPA. In a mathematical progression:

1. Limitation of liability may not be asserted against such a claimant under OPA.
2. The fund would then be subrogated to the same rights and protections against the "guilty" party.
3. The "guilty" party, whether a "solely at fault" party or a partially at fault allegedly "non-responsible party" may not assert limitation. Otherwise, at least as to the Fund's claims, "it doesn't add up!"

STATE LAWS AND LIMITATION OF LIABILITY

Even if it is assumed that the Limitation of Liability Act may be applied in some instances, it will still be necessary to arrive at a court determination of its application as against certain state statutes, particularly those initiated under their respective police powers. The confusing language contained toward the end of the *Askew* decision—is it admiralty or is it not, and whatever happened to the Admiralty Extension Act—will probably have to be conformed to the concept of admiralty jurisdiction and the Limitation of Liability Act proclaimed under *Sisson*.[2]

PREEMPTION, LIMITATION OF LIABILITY, AND THE IMPOSITION OF ADDITIONAL LIABILITY

As to the discussion of the life or death of the Limitation of Liability Act, Dean and Crick take the stance that the phrase "impose additional liability" is an equivalent to "enact legislation." Again, that result comes from a restrictive reading of the word "imposed." "Imposed" also means to assert additional liability that could include presently existent statutes and maritime law. Basically, it is the assertion of more than one cause of action against a party, namely OPA, the FWPCA (if otherwise applicable), and general maritime law (e.g., torts). The subsection does not necessarily mandate that new laws will have to be enacted to preclude the application of the Limitation of Liability Act.

CONCLUSION

It is clear that many of the questions raised at this symposium will not be firmly decided until court decisions ensue. Although there is a paucity of convincing legislative history as to certain of the aspects, the outcome would seem to lie with whether the approach to interpretation of OPA and its application is a restrictive or a liberal interpretation.

[2] See Askew v. American Waterways Operators, 411N.S.325 (1973); Sisson V. Ruby, 497N.S.358 (1990).

PhilipA. Berns *is Attorney in Charge, West Coast Office, Torts Branch, Civil Division, United States Department of Justice*

NEW LAWS AFFECTING THE JETTISONING OF OIL: PRESIDENTIAL DIRECTION AND A SALVOR'S STANDARD OF CARE

Frederick F. Burgess, Jr.

The Dean and Crick paper concludes that it is not currently lawful to jettison oil within territorial waters,[1] although jettisoning for MARPOL-approved purposes in the contiguous zone and beyond is lawful, with the responsible party liable for removal costs and damages (see pages 65, 66, and 77).

The main text of Dean and Crick makes several statements about the illegality of an intentional discharge and application of federal and state immunity to such discharges.[2] No rationale is provided to support the principle that a federal on-scene coordinator's direction to jettison is not illegal per se and why such a direction can provide a basis for federal and state immunity.

Addendum A of Dean and Crick shows that a number of state laws provide some form of immunity for actions taken in accordance with the National Contingency Plan or a state contingency plan or as directed by the federal on-scene coordinator, state administrator, or Coast Guard.[3] Since the direction of the federal on-scene coordinator and compliance with the National Contingency Plan play such a prominent role in determining the availability of immunity, federal on-scene coordinator direction authority and National Contingency Plan requirements must be carefully reviewed.

In addition, Dean and Crick discuss the standard of care to which salvors would be subjected in determining their liability for a jettison of oil. The salvor's standard of care is initially acknowledged to be gross negligence for nondistinguishable losses and ordinary care for distinguishable injury (see page 59), but only the negligence standard is considered later. In particular, the United States, as salvor, is said to be liable for negligence, perhaps without limitation (see pages 63,

[1] Dean and Crick also states the only way to avoid liability for FWPCA criminal penalties is through a regulatory fix under 33 U.S.C. § 1321(b)(3). As discussed *infra (pages 63-67)* a jettison directed by the President is subject to neither criminal nor civil penalties.

[2] Dean and Crick conclude that a jettison is "illegal *per se*" (page 66), that it is a crime and thus willful misconduct (page 76), that if done at the direction of the federal on-scene coordinator, limited immunity would apply (page 76); that it is unlikely that responder immunity would be available for such jettisons violating the Federal Water Pollution Control Act (page 77) and that both OPA 90 and state immunity may protect a salvor "to some extent" from liability to third parties (page 78). In addition, the paper postulates that direct and unlimited state liability can only be avoided by one of three options: a change in state law, seek a state regulatory solution, or challenge liability by asserting responder immunity (page 80).

[3] As noted in Dean and Crick, the table and summary of state laws should be reviewed by the user to ensure that the legislative provisions cited are up to date, e.g., Rhode Island Immunity Statute and Compilation of Oil Spill Statutes of the Coastal States, Addendum B.

68, and 81). In contrast, I conclude that under certain circumstances, current law permits a jettison within territorial waters with no penal or civil violation and no liability to the salvor under federal or state law. I also conclude that, in order to encourage rescue efforts, the general standard of care for a salvor may be less than negligence.

My comments will concentrate on two issues. The first issue is under what circumstances oil can be jettisoned, especially in territorial waters, and with what consequences. I will concentrate on the importance of Presidential direction and the revision of the National Contingency Plan and provide recommendations within current law. Second, I will address a salvor's standard of care under various circumstances.

SUMMARY CONCLUSION

OPA 90 and the Intervention on the High Seas Act[4] provide authority for the government to "direct" the jettison of oil. Indeed, OPA 90 mandates that procedures and standards be set up by the President in the National Contingency Plan, area contingency plans and within the national response units to promptly mitigate/prevent the substantial threat of an oil spill and to coordinate resource use to accomplish this goal. Included should be expeditious procedures to consider and decide upon destruction or jettison as an option. A "directed jettison" is not a "discharge," at least not an unlawful one. For "directed jettisons" under OPA 90, neither the federal government nor the salvor is liable for penalties or for removal costs and damages under OPA 90, other federal maritime law or state law.

Jettisons consistent with the National Contingency Plan but not specifically "directed" are at least entitled to OPA responder immunity and possibly the same immunity as "directed jettisons" but may not always be subject to similar immunity under state law. Recommendations have been made to ensure that this possible option can be expeditiously considered as a vehicle to mitigate or prevent the threat of a substantial spill.

The standard of care of a salvor depends on the type of injury, by whom it is sustained and which body of law applies. Under current U.S. law, only when a salvor is grossly negligent or engaged in willful misconduct is that salvor liable directly to third parties for removal costs and damages due to jettisoned oil and, through contribution and subrogation, to a vessel owner/operator. If the salvor worsens the victim's position or the injury is distinguishable from the salvage attempt, a negligence standard would apply although OPA 90 responder immunity may change the standard to gross negligence/willful misconduct. If Lloyd's Open Form 1990 (LOF 90) is used, under English law, a negligence standard would apply to claims of the vessel owner and possibly to third parties. When the Salvage Convention comes into force, salvage awards may be affected by a salvor's negligent conduct, but rights of third parties may still be governed by the gross negligence/willful misconduct standard.

[4] 33 U.S.C. §§ 1471-87.

JETTISON DIRECTED BY THE FEDERAL ON-SCENE COORDINATOR IS PERMITTED

I generally agree with Dean's and Crick's conclusion that a salvor runs the risk of becoming liable for penal or civil sanctions for jettisoning cargo in territorial waters if done without proper government direction/approval and for removal costs and damages which may vary according to the location of the jettison and salvor's level of performance. In addition, a salvor jettisoning independently currently may provide a basis for breaking the responsible party's limits of liability.

However, as more fully explained below, if a salvor's jettison is "directed" by the federal on-scene coordinator, exercising OPA 90 and/or the Intervention on the High Seas Act "removal" authority, neither the federal government nor the salvor is subject to any penal or civil sanctions or civil liability for jettisoning oil into the exclusive economic zone (EEZ)[5] or into territorial waters. The responsible party will be responsible for any removal costs and damages.[6]

Any analysis of the lawfulness of jettisoning oil must first focus closely on the President's removal authority which is treated in a separate subtitle of OPA 90 and in the Intervention on the High Seas Act.

Presidential Authority to "Direct" a Jettison

As Dean and Crick shows, OPA 90 contains many provisions regarding the lawfulness of discharges, liability of the "responsible party" for penal and civil sanctions and for recovery of removal costs and damages arising out of jettisoning. Both OPA 90 and the Intervention on the High Seas Act contain explicit authority for the President and Secretary to remove oil, which includes authority to destroy a vessel.

OPA 90 Removal Provisions—

Responsibility and Authority to "Direct" Efforts

OPA 90 amended the Federal Water Pollution Control Act removal authority by specifying two authorities given to the President: first, the general removal authority and, second, authority where a discharge poses a substantial threat to public health and welfare.[7] In both provisions, explicit authority is given to "remove and, if

[5] Proclamation No. 5030, 48 Fed. Reg. 10,605 (Mar. 10, 1983).

[6] OPA 90, § 1002, 33 U.S.C. § 2702(a).

[7] 33 U.S.C. §§ 1321(c)(1) and (2). Section 4201(a) of OPA amends the FWPCA's removal authority to read as follows:

(c) FEDERAL REMOVAL AUTHORITY.—

"(1) FEDERAL REMOVAL AUTHORITY REQUIREMENT.—(A) The President *shall* , in accordance with the National Contingency Plan and any appropriate Area Contingency Plan, *ensure* effective and *immediate* removal of a discharge, and *mitigation or prevention* of a substantial threat of a discharge, of oil or a hazardous substance—

"(i) into or on the navigable waters;

"(ii) on the adjoining shorelines to the navigable waters;

"(ii) into or on the waters of the exclusive economic zone;

"(iv) that may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States.

(B) In carrying out this paragraph, the President may—

"(i) remove or arrange for the removal of a discharge, and *mitigate* or *prevent* a substantial threat of a discharge, at any time;

necessary, destroy a vessel discharging, or threatening to discharge, by whatever means are available." The first authority permits the President to "ensure" proper action and "monitor" actions to remove the discharge or to mitigate or prevent the threat of the discharge, whereas the second authority requires that the President "shall direct all Federal, State, and private actions" to achieve those objectives without regard to federal contracting and personnel employment laws.[8]

The amended subsection (Section 1321(c)) is designed "to eliminate the confusion evident in recent spills where a lack of clear delineation of command and management responsibility impeded prompt and effective response"; the exemptions "to facilitate emergency response."[9]

OPA 90 requires that "affected trustees" must be consulted on the appropriate removal action to be taken[10] and that federal, state, and local officials are to be heavily involved in the extensive planning preparation process.[11] Nevertheless, the OPA 90 "Removal" subtitle, and its legislative history, distinguishing as it does the President's responsibility for substantial threats from other threats, makes it abundantly clear that the President<[12] has the authority, and, for substantial threats, the clear mandatory responsibility to direct all actions, even those of a state and private parties, to mitigate or prevent a threat of discharge, including the authority to destroy a vessel.[13] In addition, legislative history makes it clear that Congress expects the Coast Guard to act promptly and effectively in directing all efforts to prevent a discharge.

[8] OPA 90, § 4201(a), 33 U.S.C. § 1321(c)(2). Contrast the former 33 U.S.C. § 1321(d)—for marine disasters creating a substantial threat because of a discharge, or an *imminent discharge* of large quantities of oil, the President has discretion, i.e., "*may*" coordinate all "*public* and *private* efforts directed at the removal or elimination of such threat." The President also had summary vessel removal and destruction authority. States were not specifically mentioned.

[9] H.R. Conf. Rep. No. 653, 101st Cong., 2d Sess. 146 (1990).

[10] OPA 90, § 1011, 33 U.S.C. § 2711.

[11] See OPA 90, § 4201, 33 U.S.C. § 1321 (c) and § 4202, 33 U.S.C. 1321(j)

[12] This authority has been delegated to the Coast Guard. Exec. Order No. 12,777, Implementation of Section 311 of the Federal Water Pollution Control Act of October 18, 1972, as Amended, and the Oil Pollution Act of 1990, 56 Fed. Reg. 54757 (1991); 49 C.F.R. § 1.46(m)(1992). The Coast Guard's authority has been further redelegated to various staff and command levels, see 33 C.F.R. §§ 1.01-70 and 153.105(e); see also Delegation of Authority Under the Oil Pollution Act of 1990, 33 U.S.C. § 2701, et seq., USCG Commandant (LCL) letter of March 19, 1992.

[13] This destruction authority was retained by the Commandant. See 33 C.F.R. §§ 1.01-70 and 153.105(e). See also ltr *supra* note 13 and Policy Guidance for Intervention and Ship Related Marine Pollution Incidents on the High Seas and Navigable Waters of the United States, COMD'T INST 16451.5A of 1 Feb 1988. This Commandant Instruction, now expired, included, as a possible intervention action, the "disposal or destruction of the cargo on board (e.g., burning)" but did not set forth specific steps to be taken regarding a jettison option. No successor instruction has been promulgated.

"(ii) direct or monitor all Federal, *State, and private* actions to remove a discharge; and

"(iii) remove and, if necessary, *destroy* a vessel discharging, or threatening to discharge, by whatever means are available. (Emphasis added.)

Intervention on the High Seas Act

The Intervention on the High Seas Act implements the 1969 Intervention on the High Seas Convention.[14] The 1969 convention clarified a nation's right to direct removal of pollution damage threats from vessels on the high seas. The act made it clear that any reasonable measures could be taken, even the destruction of ship and cargo, without any liability to the owner, operator and other similar interests.[15] A 1973 protocol regarding substances other than oil entered into force in 1983.

The 1969 convention and its 1974 implementing legislation were driven by the *Torrey Canyon*. The British government, unsure of its authority to destroy a vessel and its oil cargo on the high seas off England, delayed action. The objective of both the convention and legislation was to ensure the clear authority of the coastal state to take action against such vessels and cargo on the high seas.[16] The Secretary of Transportation in his legislative transmission letter noted that neither the Convention nor the bill articulated the types of actions which could be taken because not all possible incidents could be defined. Consequently, he noted that the full exercise of "Executive Branch discretion should be available."[17] This authority has been exercised by the Coast Guard on a number of occasions.[18]

Jettisoning of Oil Cargo is within OPA and Intervention Act Removal Authority

Jettisoning cargo to prevent an even greater spill is not explicitly authorized by OPA 90, nor by the current National Contingency Plan[19] nor was any significant treatment given in the last effective Commandant's directive.[20] However, within the range of permissible "removal" actions, which the President can exercise, is the ultimate authority—to destroy a vessel discharging or threatening to discharge oil. If a vessel containing oil were destroyed, it is virtually certain that additional oil would be lost into the sea. Given the purpose of the Intervention on the High Seas Act, enacted prior to OPA 90, which authorizes destruction of tankers like the *Torrey Canyon*, Congress must have been aware that such a loss would occur. Such destruction action is not "discharge" or, at least, not an unlawful discharge. If the entire cargo could be lost to the sea, pumping some cargo off the vessel to mitigate/prevent the substantial threat of the loss of a much larger amount must also

[14] The Intervention on the High Seas Act, 33 U.S.C. §§ 1471-87 (1974), was amended in 1978 to include the 1973 Protocol regarding substances other than oil.

[15] 33 U.S.C. § 1472. Claims for excessive measures can be brought against the United States in the Court of Claims, district courts, and certain other courts. 33 U.S.C. § 1479.

[16] Senate Report No. 93-482, 93rd Cong., 1st Sess. 2773 (1973).

[17] Id. at 2776.

[18] See submission of the United States to the IMO Legal Committee during consideration of the Salvage Convention. LEG 54/4/4 of 27 February 1985.

[19] The current National Contingency Plan states that the Secretary (of Transportation) is "authorized" to initiate appropriate "response activities" (not defined for the Clean Water Act, i.e., FWPCA) when a marine disaster has created a substantial threat of a pollution hazard because of a discharge or imminent discharge of large quantities of oil or hazardous substances. Under such circumstances, the Secretary "may" Coordinate and direct all public and private efforts to abate the threat"; and "summarily remove and, if necessary, destroy the vessel by whatever means are available." 40 C.F.R. § 300.130 (b) and (c).

[20] See *supra* note 14.

be authorized.[21] Consequently, if jettisoning "directed" by the President is part of "removal" action to prevent the substantial threat, it should not be considered an "unlawful discharge" and is authorized under OPA 90.

National and Area Contingency Plans— Incorporation of Jettisoning as a Mitigation or Prevention Measure

OPA 90 requires the President to revise the National Contingency Plan to meet the new objectives set out in OPA 90. New objectives include establishing criteria and procedures for identifying and responding to a substantial threat as required by Section 1321(c)(2) and establishing procedures and standards for removing a worst case discharge of oil and for mitigating or preventing a substantial threat thereof.[22] The pre-OPA 90 National Contingency Plan has not yet been revised.

In addition to the designation of federal on-scene coordinator's, OPA 90 requires procedures for area committees and area contingency plans, a national response unit, cistrict response groups, federal on-scene coordinators, and strike teams to be established as part of the new national planning and response system.[23] Area committees, composed of members appointed by the President from federal, state, and local agencies, prepare the area contingency plan. The plan, to be approved by the President, must also be adequate to not only remove but also to mitigate or prevent the threat of a substantial discharge.[24]

After the National Contingency Plan has been published, removal and "actions to minimize damage from oil or hazardous substance discharges shall *to the greatest extent possible*, be in accordance with the National Contingency Plan." (Emphasis added.)[25]

Jettisoning oil cargo is clearly not a first choice. Though undesirable, in most situations under certain emergency conditions, it may be a necessary choice to minimize or prevent a large discharge or a threat thereof. Weather, bottom characteristics, availability and ability to get lightering vessels alongside a stranded vessel, and other conditions could combine to create a realistic threat that, but for lightening a vessel by jettisoning oil and removing it from its strand, the vessel, and

[21] As noted above, the Intervention on the High Seas Act legitimized the high seas reasonable destruction of threatening vessels without government liability to vessel interests. OPA 90's trust fund is available for intervention actions. OPA 90, § 2001, 33 U.S.C. § 1486. Intervention on the High Seas Act penalties were also enhanced. OPA 90, § 4302(1), 33 U.S.C. § 1481(a).

[22] OPA 90, § 4201(b), 33 U.S.C. § 1321(d)(2)(I) and (J), amending former 33 U.S.C. § 1321(c). The Implementing Executive Order directs that the National Contingency Plan provide for a National Response Team (NRT) and Regional Response Teams (RRT's) as included in the present National Contingency Plan. Sec. 1, Executive Order No. 1277, 56 F.R. 54757, (1991). The NRT, composed of representatives of a number of departments and agencies, is responsible for national planning and coordination of preparedness and coordination of preparedness and response actions. RRTs are regional counterparts. The latter may include representatives of state, local and Indian tribal governments.

[23] OPA 90, § 4201(b), 33 U.S.C. § 1321(d)(2)(K) and (L) and OPA 90, § 4202(a), 33 U.S.C. § 1321(j)(2) and (3). See also H.R. Conf. Rep. No. 653, 101st Cong., 2d Sess. 148 (1990).

[24] OPA 90, § 4202(a), 33 U.S.C., §1321(j)(4)(C)(i) and (iii).

[25] OPA 90, § 4202(b), 33 U.S.C. § 1321(d)(4). OPA 90 duties regarding removal are not fully consistent: OPA 90, § 4201 (a), 33 U.S.C. § 1321(c)(3)(A) requires those participating in efforts under the federal removal authority subsection to "act in accordance with the National Contingency Plan or as directed by the President"; OPA 90, § 4201(a), 33 U.S.C. §1321(c)(4)(A), makes responder immunity available to a person whose actions are "consistent with the National Contingency Plan or as otherwise directed by the President."

its entire cargo are likely to be lost to the sea. Total loss could cause greater environmental damage than the loss of part of the oil aboard.

If this symposium or other experience identifies the need to have the jettison tool available, since Congress expects prompt and effective action, the National Contingency Plan and area contingency plans must ensure that criteria, standards, and procedures are in place and exercised by the national response team, regional response teams, COMD'T, and federal on-scene coordinator to consider the jettisoning possibility expeditiously and make a prompt decision to direct this action if, in the judgment of the President's delegate, it will mitigate or prevent substantial threats of discharge.[26]

President's Authority to Amend Definition of Harmful Quantity Under 33 U.S.C. § (b)(3) and (4)

Another way to authorize the jettison of oil under certain specialized circumstances is for the President to amend the definition of "harmful quantity" so that such jettison action, even without "direction" of the President, would not be an unlawful discharge.[27] The President thus has authority to determine that jettisoning oil under certain circumstances and other operations, which might create a sheen, may not be a discharge of a harmful quantity.[28] In addition to helping to mitigate/prevent oil discharges, such actions, if authorized, would remove one of the current bases for breaking OPA 90 liability limits, i.e., violation of a federal operating regulation, a provision which has an inhibiting effect on salvors.[29] Any such authorizing would, of course, have to be carefully circumscribed to ensure that the OPA 90 mitigation/prevention goals are met.

[26] The Environmental Protection Agency (EPA) has been delegated responsibility to revise the National Contingency Plan. In the Coastal Zone, the Coast Guard has been delegated the responsibility to establish criteria for the development of coastal, local and regional oil and hazardous substance removal contingency plans. Sec. 1(b)(1) & 2(a), Executive Order 1277, 56 Fed. Reg. 54757 (1991).

[27] The Federal Water Pollution Control Act prohibits discharges of harmful quantities of oil and hazardous substances into or upon navigable waters, waters of the contiguous zone, or which affect U.S. managed resources in the Exclusive Economic Zone (EEZ), except where "permitted" under certain circumstances. MARPOL, as implemented, permits jettisoning oil outside territorial waters to save a ship or life or as a result of damage to a ship provided certain precautions are taken. 33 C.F.R. § 151.11. Under 33 U.S.C. § 1321(b)(3)(A), the President (delegated to EPA) may permit other non-harmful discharges "in quantities and at times and locations or under such circumstances or conditions" by regulations consistent with maritime safety and with marine and navigation laws and regulations and applicable water quality standards. The current harmful quantity "sheen test" contains two exceptions: MARPOL-permitted discharges in the contiguous zone and seaward and oil from properly functioning vessel engines. 40 C.F.R. § 110.9 (sic, misnumbered, should be 110.6) and 110.7.

OPA 90 amended 33 U.S.C. § 1321(b)(4) by adding "the environment" as a factor to be considered when determining a harmful quantity.

[28] Other examples of such non-harmful quantities might include: a salvor's pumping out a damaged compartment which might contain a small but yet sufficient quantity of oil to create a sheen; "decanting" action by a cleanup contractor (i.e., pumping off excess water from oil vacuum operations on-scene) where the excess water may have traces of oil in situations where barge capacity is limited and stopping pickup operations could reduce recovery.

[29] Prevention of Pollution from Ships, 33 U.S.C. § 1908 and OPA 90, § 1004(c)(1)(B), 33 U.S.C. § 2704(c)(1)(B).

Potential Penalties And Civil Liability For "Directed" Removal Action

Criminal Or Civil Penalties And Civil Liability Under Federal Law

As noted above, certain "discharges" into the EEZ, which could include jettisoning of oil, are not violations of law calling for penalties under MARPOL as implemented, or the Federal Water Pollution Control Act.[30] However, even if jettisoned into territorial waters, a "directed" jettison is not an unlawful "discharge" under federal law. Accordingly, there is again no violation of federal law and no penalties, either criminal or civil.[31]

If a jettison is "directed" by the Coast Guard, it is unlikely that the vessel owner/operator, and related interests, damaged third parties and states, including local jurisdictions, have any right of recovery for removal costs and damages against the federal government or the salvor, either under OPA 90 or another theory of recovery, including contribution and subrogation. Exceptions include measures deemed to be "excessive" under the Intervention on the High Seas Act,[32] or other salvage/response actions which are in the "grossly negligent/ willful misconduct" category.[33]

Admiralty jurisdiction and suits against the federal government. If damages are sustained by a party on navigable waters or on the high seas and bear a significant relationship to maritime activity, admiralty jurisdiction applies.[34] Under the Suits in Admiralty Act (SIAA), the federal government has waived its sovereign immunity for suits where, if a private party or person were involved, "a proceeding in admiralty could be maintained."[35] The act generally applies to federal actions injuring a party. But since a federal on-scene coordinator decision to destroy a vessel or jettison cargo would involve balancing economic, social, and political concerns, the act's discretionary function exception granting federal immunity would likely apply.[36] Consequently, it is unlikely that a federal court would have jurisdiction

[30] 33 U.S.C. § 1321(b)(3). See *supra* note 8. See also 33 U.S.C. § 1319(c)—criminal penalties and § 1321(b)(6)—civil penalties. Criminal penalties are based upon a violation event, i.e., a discharge, not existence of a "sheen" (Dean and Crick, page 65). See 33 U.S.C. § 1321(b)(3).

[31] For both criminal and civil penalties, there must be a violation of 33 U.S.C. § 1321(b)(3).

[32] See *supra* note 15.

[33] OPA 90's responder immunity does not protect gross negligence/willful misconduct. In addition, for a nondistinguishable injury, a salvor is liable for gross negligence. See *infra* pp. (26-29). See also *infra* note 52.

[34] Sisson v. Ruby, 497 U.S. 358 (1990); Executive Jet Aviation, Inc. v. City of Cleveland, 409 U.S. 249, 253-254 (1972).

[35] 46 U.S.C. § 742. Dean and Crick concluded that the federal government has not waived its immunity for state oil pollution liability (pages 69 and 79). I question the basis for this conclusion, since state-created vessel oil pollution liability statute can be pursued in admiralty, Stewart Transportation Co. v. Allied Towing Corp., 596 F.2d 609, 620 (4th Cir. 1979). See also Maritime Overseas Corp. v. United States, 433 F. Supp. 419 (D. Cal. 1977) *remanded on other grounds,* 608 F.2d 1260 (9th Cir. 1979) where the court said in actions where, if a private person were involved, an admiralty proceeding can be maintained, a SIAA action may be brought against the United States. But for the discretionary act immunity, the federal government may have waived its immunity for state-created oil pollution liability.

[36] In describing the scope of discretionary function immunity under the Federal Tort Claims Act (FTCA), (28 U.S.C. § 2680(a)), United States v. S.A. Empresa De Viacao Aerea Rio Grandense (Varig Airlines), 467 U.S. 797, 813, *reh. denied,* 468 U.S. 1226, *remanded,* 744 F.2d 1387 (9th Cir. 1984), the Supreme Court held the test is whether the challenged acts of a government employee, of whatever rank, are of the nature and quality that Congress intended to shield from tort liability.

against the United States under OPA 90, or under a maritime tort theory or recourse action.

Liability of salvor. With regard to salvor liability, "acts of subordinates in carrying out operations of government in accordance with official directions cannot be actionable,"[37] especially in those cases where the President has a specific mandatory duty to direct all removal, mitigation, and prevention actions, including those of private parties. The government's direction to a salvor to jettison should be no different from a direction to an employee.[38] Consequently, the salvor should have the same protection as a governmental subordinate. Any recovery would be against the "responsible party."[39]

Criminal or civil penalties and civil liability under state law. Even though OPA 90 amended the Federal Water Pollution Control Act to extend the non-preemption clause to include "any removal activities related to such discharge" (i.e., into any waters within such state),[40] State law will not operate to impose penal or civil

[37] Dalehite v. United States, 346 U.S. 15, 36 (1953), but cited in *Varig,* 467 U.S. 797, 820 (1988) and in U.S. Fidelity, 837 F.2d at 121.

[38] To receive protection, the party need not be a government employee. Outside agents of the federal government acting under government direction have been held to be immune from damage suits for actions within official duties. Bradley v. Computer Sciences Corp., 643 F.2d 1029 (4th Cir. 1981), *cert. denied,* 454 U.S. 940 (1981); Peterson v. Weinberger, 508 F.2d 45 (5th Cir. 1975), *cert. denied,* 423 U.S. 830, reh. denied 423 U.S. 991 (1975); Central Claims Service, Inc. v. Computer Science Corp., 706 F. Supp. 463 (E.D. La. 1989).

[39] OPA 90, § 1002(a) and (b). It is unlikely that a salvor can be considered a "responsible party", i.e., an "owner, operator or demise charterer", (OPA 90, § 1001(32)). While the salvor is clearly not the owner or the demise charterer, neither the FWPCA definition of "operator" i.e., a person "operating" a vessel nor the similar Coast Guard definition adopted for Certificate of Financial Responsibility purposes, 33 C.F.R. § 130.2, is a model of clarity.

While a salvor will make certain decisions regarding the distressed vessel, a salvor should not be considered an "operator" under OPA 90, since doing so will result in strict liability for removal costs and damages. Such an outcome would create substantial financial risks and liability exposures to those rendering care and assistance thereby running directly contrary to the OPA 90 Conferees' objective of encouraging prompt and effective response and contrary to the Supremacy Clause, See discussion *infra* pp. 19-20. Any salvor's contract should minimize salvor's operational control factors.

[40] OPA 90, § 4202(c), 33 U.S.C. § 1321(o)(2). For National Contingency Plan purposes, "removal is complete when determined by the President (federal on-scene coordinator) in consultation with the affected Governor(s)."

The FTCA's discretionary function exception has been engrafted onto the SIAA giving the government immunity for policy decisions in admiralty cases. While Corps of Engineers' (COE) inspection and maintenance of installed navigational systems may be operational, not policy, decisions, Arkansas River Co. v. CSX Transp. and United States, 1992 A.M.C. 1108 (W.D. Ky. 1991), actions in failing to restrict water flow, not coordinating ice passing activities, and not compensating for immobilized submergible gates were policy decisions and immune. In re Ohio River Disaster Litigation, 862 F.2d 1237 (6th Cir. 1988), *cert. denied,* 493 U.S. 813 (1989).

The federal on-scene coordinator's decision in deciding when to schedule venting of a tank posing a major threat of fire, explosion, and release of pollutants, left room for and, indeed, required "the exercise of policy judgment based upon the resources available and the relative risks to the public health and safety from alternative actions." U.S. Fidelity & Guaranty Co. v. United States, 837 F.2d 116, 122 (3rd Cir.) *Cert. denied,* 487 U.S. 1235 (1988). Finding immunity, the court found irrelevant whether the government employee actually balanced the *Varig* factors of economic, social, and political concerns in reaching a decision and also found that "operational acts mandated by orders of planning level superiors are protected by the exception even though the actual actor does not exercise discretion." Id. at 120 & 121. The judicial characterization of these decisions as policy is consistent with the Secretary of Transportation's characterization of vessel destruction decisions under Intervention on the High Seas Act. See discussion *supra* p. 9. Since a federal on-scene coordinator decision to destroy a vessel or jettison oil under either OPA 90 or Intervention on the High Seas Act involves a similar policy judgment, such decision should also be within SIAA's discretionary function immunity. The federal on-scene coordinator who acts within the scope of employment is immune from any personal actions. OPA 90, § 1018(d).

sanctions upon a salvor who jettisons oil under federal on-scene coordinator "direction."[41]

If a state law has no destruction authority parallel to OPA 90, an argument can be made that if the federally directed discharge causes damage to the state or third parties, that state law could make the federal government and, perhaps, the salvor liable for damages because of the non-preemption clause. Upon further review, however, such a state law would probably be invalid under the Supremacy Clause, Article IV, Cl. 2 of the U.S. Constitution.

The federal supremacy doctrine set forth in *Ray v. Atlantic Richfield Co.,*[42] was made applicable to OPA 90, explicitly with respect to section 1018's statutory history and, implicitly, to 33 U.S.C. § 1321(o).[43] A state statute is void to the extent that it "actually conflicts with a valid federal statute," i.e., where a state law stands as an obstacle to the accomplishment and execution of the full purposes and objectives of Congress.[44] Finding that both federal and state statutes had the same purpose but the state statute was more stringent, Ray held that the federal judgment as to standards took precedence over a contrary state judgment which, if upheld, would frustrate the congressional intention for uniform standards.[45] Recently, the Alaska Court of Appeals found that a state's inevitable discovery exception to the federal grant of

[41] Dean and Crick are not clear on a state's authority to create liability and impose penalties for a discharge occurring outside state waters but affecting state resources (possibly by drifting into state waters). Several statements are made: liability may exist under a state law contribution action or for removal costs, damages and penalties for discharges that occur within *or affect* state resources (pages 68, 76, and 78); liability may exist for discharges *within* the state since OPA 90 does not expand state authority for discharges outside the state but affecting state resources (page 1).

The non-preemption authority in OPA 90, § 1018(a)(1), 33 U.S.C. § 2718(a)(1), addresses "the discharge of oil or *other pollution by oil* within such state." (Emphasis added) "Discharge" is a broad term associated with "spilling." "Other pollution by oil" must mean a different concept and may include oil drifting on the surface into state waters, a concept which is probably not included within the parameters of "discharge." See 33 U.S.C. § 1001(7) and § 1321(a)(1). Thus, a state may not be precluded from establishing liability for discharges which affect state resources but occur outside. The issue of penalties for such a discharge is more difficult. As noted, this liability and potential penalties will not apply to a "directed discharge".

[42] 435 U.S. 151 (1978).

[43] OPA 90, § 1018(a), 33 U.S.C. § 2718(a), states that nothing in OPA 90 or the Act of 1851 (Limitation Act) is to be preemptive of any state additional liability or requirements with respect to the discharge of oil or other pollution by oil within such state or any "removal activities in connection with such a discharge." This provision mirrors the amendment to the FWPCA, 33 U.S.C. § 1321(o). The statutory history of § 1018 states that: "The Conference substitute does not disturb the Supreme Court's decision in Ray v. Atlantic Richfield Co., 435 U.S. 151 (1978)." H.R. Conf. Rep. No. 653, 101st Cong., 2d Sess. 122 (1990).

Ray addressed the validity of a Washington state law governing tanker design, size and movement. The state statute, among other requirements, attempted to more stringently regulate design and size and impose tug escort and pilotage requirements for tankers entering Puget Sound. Since under the Port and Tanker Safety Act, Congress had demonstrated its desire for uniform regulation by the Coast Guard and size was part of a traffic control scheme created by the Coast Guard, both the state design and size limitations were preempted. Because the Coast Guard had not decided upon tug escort requirements, the state tug escort requirements were upheld. Id. at 165, 166 and 172.

[44] Id. at 158, citing Hines v. Davidowitz, 312 U.S. 52, 67 (1941) and Jones v. Rath Packing Co., 430 U.S. 519, 526, 540-541, *reh. denied,* 431 U.S. 519 (1977).

[45] Id. At 166.

However, the determination does not preclude additional removal actions under state law see OPA 90, § 1011, 33 U.S.C. § 2711.

immunity for reporting oil discharges would frustrate the Congressional purpose of encouraging prompt notice in all cases.[46]

The clear purpose of the "removal" authority, in particular regarding discharges/threats "posing substantial threat to public health or welfare," is that the President (Coast Guard) should direct "all efforts" in an expeditious manner. Just as in *Hazelwood v. State of Alaska,* the OPA Congressional intention could be frustrated by any salvor hesitation in carrying out federal on-scene coordinator directions, especially in the critical early stages. Such hesitation could be caused by the spectre of a state penalty or liability against the salvor.[47] The non-preemptive language set forth in OPA, § 1018 and 33 U.S.C. § 1321(o) appears directed toward giving states authority to continue state removal after federal removal is completed under OPA, § 1011.[48] *Ray* supremacy principles, as recently applied in *Hazelwood* , preclude any such state action which could clearly deter a salvor from a prompt, effective, and aggressive response. Discretionary immunity principles for "directed" actions also apply. Thus, state law imposing penal or civil sanctions and liability against a salvor making a directed jettison would seem to be contrary to *Ray.*

Potential Liability For Salvor Actions Taken Consistent With The National Contingency Plan

Under the current National Contingency Plan, a salvor independently jettisoning oil on its own runs the risk that authorities will not agree that the action was a mitigation/prevention initiative. Thus, a salvor should seek federal on-scene coordinator direction or at least explicit agreement that the jettison is acceptable. OPA 90 responder immunity should then be available and, very arguably, "directed jettison" immunity to the extent that the salvor does not engage in grossly negligent/willful misconduct.

If, when revised, the National Contingency Plan specifies circumstances or sets forth firm parameters when a vessel could be destroyed or cargo jettisoned, such actions taken by a salvor would be more clearly the equivalent of a "direction" by the President and therefore should be fully protected. If the National Contingency Plan

[46] The master of the *Exxon Valdez* immediately reported the grounding and discharge of oil under 33 U.S.C. § 1321(b)(5), which grants use and derivative use immunity for such reports. After the independent source rule and inevitable discovery doctrines were invoked, the master was convicted, under Alaskan law, of negligent discharge of oil. Overturning the conviction on appeal, the court found that, a state inevitable discovery exception to the federal immunity doctrine would frustrate the Congressional purpose of encouraging prompt notice in *all* cases, by discouraging compliance by persons where, because of the size of the discharge, immunity could not subsequently be claimed. Hazelwood v. State of Alaska, 1992 A.M.C. 2423, 836 P. 2d 943 (Ct. App. 1992).

[47] 33 U.S.C. 92711. OPA 90, § 4201(a), amending 33 U.S.C. § 1321(c), provides an exemption from removal costs and damages to a person who takes actions in the course of rendering care, assistance and advice consistent with the National Contingency Plan as long as those actions are not grossly negligent or a result of willful misconduct. This immunity reflects the intention that "responses to oil spills be immediate and effective." The conferees recognized that without such a provision, "the substantial financial risks and liability exposures associated with spill response could deter vessel operators, cleanup contractors, and cleanup cooperatives from prompt, aggressive response." H.R. Conf. Rep. No. 653, 101st Cong., 2d Sess. 146 (1990). While a salvor is not explicitly mentioned in the statutory history, the interim final rules on vessel response plans require that a response plan must identify and ensure the availability of, through contract or other approved means, "a salvage company with expertise and equipment." Vessel Response Plans, 58 Fed. Reg. 7436 (1993) to be codified at 33 C.F.R. § 155.1050(1). Thus, salvage actions consistent with the National Contingency Plan, or "as otherwise directed" by the federal on-scene coordinator, should come within the responder immunity envelope.

[48] See also OPA 90, § 1018, 33 U.S.C. § 2718, which preserves state authority to maintain a state pollution fund.

only acknowledges that such action could be taken, the salvor so acting should maintain its OPA 90 responder immunity but may not have the full directed discharge immunity. If, however, the federal on-scene coordinator is made aware of the jettison plan but voices no objection thereto, a good argument can be made that the Coast Guard's acceptance of such action should also be considered an implicit "direction" with all the protections described above.

Whether a court would consider the lack of a specific federal on-scene coordinator "direction" a factor significant enough to change the result remains to be seen. Even if full "direction immunity" is not available, responder immunity should be. Whether a salvor's responder immunity for actions consistent with the National Contingency Plan extends to causes of action created under state law is presently unclear. This issue is clearly most critical in territorial waters where MARPOL's protection of safety related and damaged vessel discharges is not extended.

Summary And Recommendations

Summary

Because the Congressional direction and intention regarding the President's prompt and effective direction of all efforts to mitigate/prevent as well as to remove a substantial threat of an oil spill are so explicit, both the possibility of destroying a vessel and possibly jettisoning its cargo will have to be given serious consideration. Such "directed" action can be taken with little fear of penal sanctions and liability to the government or the salvor. Actions merely "consistent with the National Contingency Plan" may not be as well protected.

Recommendations For The Federal Government

In order to maximize its ability to mitigate and prevent a substantial threat of an oil spill, the following actions by the Environmental Protection Agency and the Secretary of Transportation/Coast Guard are recommended:

- Revise the National Contingency Plan to specifically address the possibility of not only destroying a vessel but the possibility of a lesser measure, jettisoning oil.
- Conduct a review of past casualties where the Coast Guard has intervened or considered intervention to determine circumstances when the lesser measure has been used or might have been used and the consequences thereof.[49]
- Include criteria, standards, and procedures in the National Contingency Plan and area contingency plans so that these possibilities can be expeditiously considered and carried out.
- Ensure that the procedures of the national and regional response teams allow for rapid decision making so that the Congressional mandate can be carried out.
- Revise and reissue the Commandant Instruction[50] regarding intervention, regarding ship-related marine pollution incidents to more explicitly deal with the jettison option, including, for example,

[49] See *supra* note 19.
[50] See *supra* note 13.

ascertaining availability of lightering resources, expected weather, currents, bottom character, vessel condition, etc.

- Amend the harmful quantity definition to permit jettisoning or other pumping of small quantities of oil under carefully circumscribed circumstances to achieve OPA 90 mitigation/prevention goals.
- Work closely with states to ensure advance understanding of the limited circumstances when these measures will be utilized to minimize factors which could delay prompt decision making in emergencies.

Recommendations to Salvors

Through the salvage community, conduct a review of past casualties to determine when jettisoning could have been utilized to mitigate damage under the following circumstances:

- When engaged in salvage activities, consistent with accomplishing the salvage mission, reduce the exercise of operational control factors.
- When contemplating jettison of oil or destruction of a vessel, establish early communications with the federal on-scene coordinator and obtain a "direction" to jettison cargo, preferably in writing.
- When considering an indemnity hold harmless clause to cover liabilities arising out of actions to which full immunity may not apply.

STANDARD OF CARE FOR SALVORS

While acknowledging the nondistinguishable injury standard of care for salvors to be gross negligence, Dean and Crick suggest that the standard of care of a salvor is negligence. In particular, the United States is said to be liable for "negligence" (pages 63, 68, and 80). The issue is more complicated and deserving of further discussion. I submit that there are several standards of care which need to be addressed: the standard of care under U.S. law; under the 1989 Salvage Convention; and, lastly, under Lloyd's Open Form 90 and the applicable English law. In addition, it is important to note to whom the standard of care is owed.

Current Standard Of Care Under U.S. Law

Under U.S. salvage law, there are generally four situations governed by essentially two different standards of care: a nondistinguishable injury to salved vessel; a nondistinguishable injury with the salvor worsening the position of victim; a distinguishable injury to salved vessel; and an injury to a third party arising out of the salvage. The two standards are gross negligence or willful misconduct (more recently, reckless and wanton conduct); and negligence.

The nondistinguishable injury in the broad sense covers those errors which made the salvage ineffectual. The standard of care is gross negligence/willful misconduct or reckless or wanton conduct.[51] For an injury where the salvor's action

[51] The *Noah*'s Ark v. Bentley & Felton Corp., 1961 A.M.C. 1641, 1648, 292 F.2d 437 (5th Cir. 1961). Martin J. Norris, *Benedict on Admiralty, The Law of Salvage,* Vol. 3A, § 121 (Matthew Bender Ed., Times Mirror Books (7th ed. 1992), states: "Generally every salvor is bound to the exercise of ordinary skill and reasonable diligence. He should use

worsened the condition of the victim[52] and for the distinguishable injury[53]—meaning damage or a harm distinct from that from which the vessel is being saved—the standard is ordinary care or negligence.[54]

Lastly, with respect to injuries to third parties arising out of the salvage, the standard of care is gross negligence/willful misconduct. The most notable recent example of this principle is the *Amoco Cadiz,* where claimants damaged by discharged oil were denied any recovery against the salvor since no causative gross negligence or willful misconduct was found.[55]

Since jettison activity would be undertaken as part of the salvage, damages sustained would be subject to the nondistinguishable and damage to third parties standard—gross negligence/willful misconduct. There is no basis for holding the Coast Guard or Navy to a higher standard of care.[56] OPA 90 is consistent with this standard since it too grants immunity to persons rendering care, assistance or advice if the person is not grossly negligent or engaged in willful misconduct.[57]

[52] United States v. Devane, 1963 A.M.C. 1406, 306 F.2d 182 (5th Cir. 1962); Berg v. Chevron, 1986 A.M.C. at 364, 759 F.2d at 1429; Wright v. United States, 1989 A.M.C. 1338, 1343-44, 700 F. Supp. 490 (N.D. Cal. 1988).

[53] *Noah's Ark,* 1961 A.M.C. 1641, at 1648. See also *Cape Race,* 1927 A.M.C. 628, 631, 18 F.2d 79, 81 (2d Cir. 1927); Jean L. Somerville, 1923 A.M.C. 142, 286 F. 35 (5th Cir. 1923).

[54] Acts which might be negligent under other circumstances will ordinarily be found non-negligent during rescues. Johnson, 378 F. 2d at 732, Wright v. United States, 1989 A.M.C. 1338, 700 F. Supp. 490 (N.D. Cal. 1988).

[55] *Amoco Cadiz, supra* note 51 at 2189, citing many cases in that note. While French law was applicable, it was not proved different from U.S. law.

[56] Frank v. United States, 1958 A.M.C. 796, 250 F.2d 178 (3d Cir. 1957), cert. denied, 356 U.S. 962 (1958); Basic Boats v. United States, 1973 A.M.C. 522, 352 F. Supp. 44 (E.D. Va. 1972); Wright, 1989 A.M.C. at 1343. Wright v. P.J. St. Pierre, Inc., 1990 A.M.C. 325, 334 (S.D. Tex 1989). It is also unlikely that the "direction" will come from the captain of a Navy or Coast Guard vessel. More likely the Commandant will make that decision; see *supra* note 13.

[57] OPA 90, § 4201(a), 33 U.S.C. § 1321(c)(4). At least with respect to damages from salvage efforts falling within the scope of OPA 90 responder immunity principles, a good argument can be made that the negligence (worsening victim's position and distinguishable injury) standard has been changed to gross negligence/willful misconduct.

the care and skill exercised by persons of ordinary skill and prudence in the operation undertaken." Salvors may be affirmatively liable for a *distinct* injury. Id. §123.

However, the weight of more recent authority is that a salvor's failure to rescue is only actionable if salvor was grossly negligent or engaged in willful misconduct. See P. Dougherty Co. v. United States, 1953 A.M.C. 1541, 207 F.2d 626 (3d Cir. 1953), *cert. denied,* 347 U.S. 912 (1954); Johnson v. United States, 1967 A.M.C. 1882, 378 F.2d 732 (9th Cir. 1967); Dorrington v. Detroit, 223 F. 232 (6th Cir. 1915); The S. C. Schenk, 158 F. 54 (6th Cir. 1907); Shupe and Curtis Boat Holders Ltd. v. United States, 1979 A.M.C. 2282 (C.D. Cal. 1979); Basic Boats, Inc. v. United States, 1973 A.M.C. 522, 352 F. Supp. 44 (E.D. Va. 1972); Chesapeake Bay Bridge & Tunnel Dist. v. *Oil Screw Prince,* 1968 A.M.C. 1427, 298 F. Supp. 881 (E.D. Va. 1968); A.C. Tisdale v. United States, 1963 A.M.C. 2662 (S.D. Fla. 1962); *Amoco Cadiz* Limitation Proceedings, 1984 A.M.C. 2123, 2189 (N.D. Ill. 1984), aff'd on other grounds, 954 F.2d 1279 (7th Cir. 1992).

More recent cases have used the terms "reckless or wanton conduct". Furka v. Great Lakes D. & D. Co., 1985 A.M.C. 2914, 2917-19, 755 F.2d 1085, 1089 (4th Cir. 1985), *cert. denied,* 108 S.Ct. 775 (1987); Berg v. Chevron, 1986 A.M.C. 360, 364, 759 F.2d 1425, 1429 (9th Cir. 1985), appeal after remand, 819 F.2d 256 (9th Cir. 1987), *cert. denied,* 484 U.S. 914 (1987).

But see McDonough Marine Serv., Inc. v. M/V Royal St., 465 F. Supp. 928 (E.D. La), aff'd, 608 F.2d 203 (5th Cir.) (1979); Riverway Co. v. Trumbull River Services, Inc., 674 F.2d 1146 (7th Cir. 1982) (held salvor must exercise reasonable care—but improperly relied upon *Noah's Ark, supra* and The Cape Race, infra, both of which involved "distinguishable injury"); Southern Holdings v. Sandbar II, Inc., 1992 A.M.C. 1706, 1713 (E.D. La. 1992) (also improperly relied on Noah's Ark and Riverway Co. and upon *Miss Janel,* Inc. v. Elevating Boats, 1989 A.M.C. 1870-1877, 725 F. Supp. 1553-1569, (S.D. Ala. 1989) which held that salvor's negligence must be *extraordinary*).

Standard Of Care Under The 1989 Salvage Convention

Under the 1989 Salvage Convention, Article 13(1)(b) as well as Article 14, considers the salvor's actions to prevent or minimize damage to the environment. Article 8 uses the term "due care" in describing the reciprocal duties between the salvor and the owner/master of a vessel; Articles 14 and 18 use the terms "negligent" and "neglect" when describing the effect of salvor shortcomings which would reduce the special compensation or the salvor's payment (reward), respectively. The terms are not defined within the convention, nor do the diplomatic conference documents address the issue. Likewise, there was little discussion of the meaning of those terms during the legal committee's preparation of the draft convention.

The legal committee's most significant discussion regarding the final Article 8 was its amendment to an article containing reciprocal duties between salvor and owner/master from an article with general duties originally contained in Articles 2-1 and 2-2 of the Comité Maritime International Draft Salvage Convention. The draft was used as the basis for the International Maritime Organization Legal Committee's deliberations.[58] Admiral J. William Kime's testimony before the Senate Committee on Foreign Relations noted the private law nature of the convention, that it did not create a basis for legal liability for third party damages and repeated the term "due care" without further elaboration as to its meaning.[59]

Articles 14 and 18 address the interrelationship between the salvor and owner/master of the salved vessel using negligence terms, but do not affect any rights which third parties may have against a salvor.[60] When the convention enters into force, the standard may come into play should there be recourse actions between vessel owner and salvor.[61] The standard of care toward the vessel owner is negligence.

[58] Note by the IMO Secretariat, Consideration of the Question of Salvage, in Particular Revision of the 1910 Convention on Salvage and Assistance at Sea, and Related Issues, Legal Committee-52nd Session, (LEG 52/4) of 3 July 1984. The change in content and format was proposed by United Kingdom at the 56th Session of the Legal Committee in 1986. The change was made to emphasize the largely private law nature of the convention; leaving MARPOL and other public law convention provisions to set public law duties. In fact, informal notes of Diplomatic Conference deliberations show that the major action by nations on this Article 8 issue was an unsuccessful attempt to broaden the private law duties into public law obligations.

[59] Statement of the Coast Guard Commandant, Admiral J. William Kime, on the International Convention on Salvage, 1989, and the International Convention on Oil Pollution Preparedness, Response and Cooperation, 1990, before the Senate Committee on Foreign Relations, October 2, 1991, p. 18 and 23. See also, The International Convention on Salvage 1989-How It Came To Be, *International and Comparative Law Quarterly,* July 1990, Vol. 39, 530, 550 and 552, Michael Kerr.

[60] CMI's explanation of the predecessor of Article 13(5), (Article 3-7, CMI Draft) was that it was "based on the principle expressed in the 1910 Convention, Art.8, paragraph 3." LEG 52/4, Annex 2, p.32. Art. 8, paragraph 3 of the 1910 Salvage Convention used the expression "by their fault." The CMI explanation also noted that a special and more far-reaching rule concerning "salvor's negligence" with relation to damage to the environment is contained in Article 3-3.5, CMI Draft. That article then contained the general duty. By making a salvor's recovery from the vessel owner dependent on neglect, the Salvage Convention may generate more careful, environmentally-conscious action may result, thereby benefitting, but, giving no rights of recovery, based on negligence, to third parties.

[61] The outcome is not clear since the U.S. as a party to the 1910 Convention has implicitly interpreted "fault" to mean "gross negligence/misconduct." Given the CMI explanation, the paucity of discussion during the Legal Committee's deliberations and the lack of explanatory record of the 1989 Salvage Diplomatic Conference, it is arguable that the convention should make no change in the salvor's standard of care for nondistinguishable injuries under current law, i.e., gross negligence/misconduct.

Standard Of Care Under Lof 90

The 1989 Salvage Convention itself may not have a significant near-term impact, especially since it is not yet in force.[62] Rather, a more significant but related impact will be Lloyd's Open Form 1990 (LOF 90) since the inclusion of several key convention articles, most notably, special compensation, will give current salvors a significant extra incentive to work under a LOF 90 contract.[63]

In determining liability to a vessel salved under LOF 90, the House of Lords applied the English rule of negligence. The duty of care is "that care which the circumstances demand and, where he holds himself out as carrying on a business or profession of undertaking services of that kind, using such skill that a person carrying on such business may reasonably be expected to possess."[64] Lord Diplock rejected a standard which would be more favorable to a salvor than those providing services on land. He held that negligence can not only be the basis for diminishing an award, but also the basis for affirmative damages by the salved vessel against the salvor.[65] It is not clear whether a third party can recover damages on a contractual theory against a negligent salvor working under LOF 90 contract. If the basis for a third party's suit is OPA 90, responder immunity would apply to salvor's actions consistent with the National Contingency Plan and thus the standard of care will be gross negligence/willful misconduct.

Summary Of Duty Of Care

The duty of care of a salvor will thus depend on the governing law, the type of injury, whether distinguishable or nondistinguishable, and the identity of the claimant. The U.S. precedent of no recovery for nondistinguishable injuries by either the salved vessel or third parties absent gross negligence or willful misconduct is fully consistent with the rationale underlying the grant of qualified immunity in OPA 90 and should be maintained. Damages caused by a decision to jettison to salve the ship and cargo are nondistinguishable injuries subject to that standard. While the standard of care for an injury caused by a salvor's worsening a victim's condition or for a nondistinguishable injury may be negligence, OPA 90 responder immunity, and any applicable similar state provisions may change that negligence standard into a "gross negligence/willful misconduct" standard.

[62] But see the recently decided Trico Marine Operators, Inc. v. Dow Chemical Co., Nos. 91-333, 91-2796, 1992 W.L. 394141 at *3-4 (E.D. La. Dec. 2, 1992), where the court denied liability salvage (recovery for averted salvage considered by Allseas Maritime S.A. v. *M/V Mimosa,* 812 F.2d 243, 245-46, (5th Cir 1987)), and, though recognizing that the 1989 Salvage Convention is not in force, nevertheless, found it represents an important statement of law by the world's maritime nations and was signed by the President and ratified by the Senate. The court then added the skill and efforts in preventing or minimizing damage to the environment factor (from Article 13, 1989 Salvage Convention) to the list of criteria applied by *The Blackwall,* 77 U.S. (10 Wall.) 1 (1869) in determining the salvage award.

[63] LOF 90 requires the salvor to use "best endeavors" to salve the vessel and, while doing so, to prevent or minimize damage to the environment, clause 1(a). Clause 2 incorporates the following articles from the 1989 Salvage Convention: Article 1 (Definitions), 8 (Duties of Salvor and of the Owner and Master), most of Article 13 (Criteria for fixing the reward), and Article 14 (Special Compensation). By clause 1(g), English law, including English law of salvage, governs the agreement and arbitration.

[64] The *Tojo Maru,* 1 Lloyd's Rep. 341, 364 (1971).

[65] Id. at 364 and 366.

Whether the reciprocal standards of care in the salvage convention will change the current U.S. standards of care as affected by OPA 90 responder immunity is difficult to gauge. Even though LOF 90 incorporates reciprocal duty clauses from the 1989 Salvage Convention, and English law applies a negligence standard to damage to the salved vessel, it is unclear whether the same standard will apply to third party damages against the LOF 90 salvor.

CONCLUSION

Dean and Crick set forth a view of the liability consequences to the salvor of jettisoning oil in both the EEZ and territorial waters without focusing on the President's mandatory responsibility and authority to direct all federal, state, and private efforts, including vessel destruction and jettison of oil to mitigate or prevent the threat of a substantial discharge of oil have described the responsibility and authority for, as well as the no-liability consequences to, the government and salvor of a directed destruction/jettison action. Although obtaining direction or "permission" (see page 80) may be difficult, given Congress' explicit instruction, this option should be seriously considered. Accordingly, advance preparations in contingency plans and other planning directives are necessary to ensure expeditious decision making in emergency circumstances. Governmental paralysis can cause far more serious consequences than a wise jettison decision. Recommendations have been provided.

Regarding a salvor's standard of care, LOF 90 and the 1989 Salvage Convention, use or incorporate "negligence" terms in several articles. Under those regimes, because that standard is likely applicable only between salvor and distressed vessel owner, third parties will only indirectly benefit from any increased standard of care exercised by the salvor. Especially given OPA 90's responder immunity, for actions consistent with the National Contingency Plan or otherwise directed by the President, in order to encourage salvage efforts, the general standard of care owed to third parties by a salvor jettisoning oil to refloat a vessel and to minimize or prevent a substantial discharge is more likely gross negligence, willful misconduct or wanton or reckless conduct. That standard also applies to the government as salvor. Nevertheless, because of the increased concentration on environmental considerations, both domestically and internationally, all parties can be expected to exercise increased awareness of the impact of their actions on the environment. Legislative history makes it clear that Congress expects the Coast Guard to act promptly and effectively.

Frederick Burgess *is Of Counsel in the Washington, D.C. office of Leboeuf, Lamb, Leiby and MacRae, specializing in maritime and environmental law. Mr. Burgess (CAPT, USCG Ret.) the former Chief of the Maritime and International Law Division in the USCG's Office of Chief Counsel, represented the United States at the International Maritime Organization Legal Committee during consideration of the Salvage Convention and was Alternate U.S. Representative during the 1989 Salvage Conference.*

NEW LAWS GOVERNING THE JETTISONING OF OIL

Robert H. Nicholas, Jr.

This paper is divided into two sections: the first is a discussion of the law of salvage as part of the existing general maritime law of the United States. The remaining part is directed at responses to specific parts of the paper by Warren Dean and Laurie Crick (pages 58-97).

THE LAW OF SALVAGE-A NEED FOR CHANGE

The policy behind the existing law of salvage as practiced in U.S. courts and in other parts of the world is derived from the principle that the law should encourage those who come upon property in peril upon the sea to attempt to rescue and save such property. In the event a would-be volunteer salvor or even a contract salvor is successful in rescuing property from marine peril, they are entitled under the law to an award. The amount of financial remuneration is based on criteria that will be enumerated later in this paper. The maximum salvage award has traditionally been limited to the value of the property salved.

When successful services in the nature of salvage are rendered, a maritime lien arises by operation of law that creates special rights in the salvor. The salvor is said to have a lien in the property and is entitled to keep possession of the property until such time as the owner provides adequate security to satisfy the salvor's potential claim.[1] The fact that a salvor surrenders the salved property to the owner without first obtaining security does not in any way remove the salvage lien. The lien will remain with the property until such time as the property is either destroyed or the lien is foreclosed through an action *in rem.* The lien can also be lost by the failure of the salvor under U.S. law to bring an action against the property within the required statutory prescriptive period of two years (46 U.S.C. § 730).

If the salved property is lost or removed from the possession and control of the salvor without the salvor having first obtained security, the salvor under certain circumstances can proceed against the owner of the property (*in personam*).[2] However, once the property salved is lost, there is no (res) property upon which the salvor can foreclose its maritime lien and reduce it to judgment. In the case of a vessel owned outside the United States, the only legal proceeding that may be available to a salvor is an action *in rem* against the salved property.

Absent the element of success or partial success, under existing U.S. law a salvor is not entitled to an award. The salvor's traditional rights arise only out of the

[1] 3A Benedict on Admiralty, The Law of Salvage (6th Ed., 1992), § 143 at 10-8 and 10-9; § 145 at 10-10 and 10-11; § 151 at 11-3 to 11-5.

[2] Id. § 143 at 10-8.

maritime lien it acquires once it has been successful in rescuing property from marine peril. Even in cases where a salvor's success has benefitted the property of others not directly involved in the salvage operations, this fact has to date carried little or no weight with the U.S. courts in assessing a salvage award. Instead, the courts have continued to base their awards upon such traditional criteria as the degree of danger; the value of the property saved; the risk incurred by the salvors; the promptitude, skill, and energy displayed; the value of the property of the salvor; and the time and labor expended by the salvor.[3]

Given the current state of the law in the United States, if the focus of the salvor's efforts is to be redirected so that a salvor's primary concern becomes pollution prevention and mitigation as expressed by Dean and Crick, there must be a corresponding change in the law of marine salvage that will allow adequate compensation to salvors who assume such risks. The recent U.S. ratification of the 1989 Salvage Convention appears to be a step in the right direction.[4] However, in order to put in perspective the potential impact the ratification of the convention may have on the practice of the law of salvage in the United States, it may be useful to briefly examine the development of this document at the international level. The drafting of the convention took into consideration a number of important factors that impact not only the international salvage industry but also marine underwriting and the marine industry in general.

In 1980, the Lloyds Open Form of Salvage Agreement (No Cure No Pay) (LOF 80) was amended to provide additional compensation to a contract salvor under certain circumstances involving a laden or partially laden tanker. In particular, the so-called "safety net" provision permitted the salvor to recover from the owner of the tanker, in the event it was successful in preventing or mitigating pollution, its reasonably incurred expenses and an increment not to exceed 15 percent of such expenses in cases in which the salvor's primary efforts were either unsuccessful or only partially successful in salvaging the vessel. This limited concept of "liability salvage" has been incorporated in a modified form into the International Convention on Salvage 1989 (Article 14), which has been submitted for ratification. Under Article 14, "special compensation," a salvor in a salvage operation involving any type of vessel is entitled to recover compensation from the vessel owner in the event its primary efforts at saving the vessel are unsuccessful or only partially successful.[5]

[3] Id. § 237; Ingredients Comprising the Salvage Award at 20-3.

[4] The United States Senate gave its advise and consent to the ratification of the 1989 Salvage Convention on October 29, 1991, (Congressional Record—Senate; October 29, 1991, at 15398 and 15399). The instrument of ratification was deposited March 6, 1992. The convention will not come into effect until one year after it has been ratified by fifteen countries (Article 29).

[5] If in connection with a salvor's efforts to prevent or mitigate pollution, the salvor removes cargo or fuel from the vessel, the salvor is entitled to an award for the property salved. Specifically, Article 14 permits a salvor to receive "special compensation" when its salvage efforts have met the following conditions:

(1) If the salvor has carried out salvage operations in respect of a vessel which by itself or its cargo threatened damage to the environment and has failed to earn a reward under article 13 at least equivalent to the special compensation assessable in accordance with this article, he shall be entitled to special compensation from the owner of that vessel equivalent to his expenses as herein defined.

(2) If, in the circumstances set out in paragraph 1, the salvor by his salvage operations has prevented or minimized damage to the environment, the special compensation payable by the owner to the salvor under paragraph I may be increased up to a maximum of 30% of the expenses incurred by the salvor. However, the tribunal, if it deems it fair and just to do so and bearing in mind the relevant criteria set out in article 13,

The international efforts previously referred to were specifically directed at revising the 1910 Salvage Convention,[6] which does not recognize any form of liability salvage. Meeting in Montreal in 1981, the delegates began consideration of a number of issues dealing with the subject of marine salvage. Included in their discussions were the concept of liability salvage and its impact on the protection of the marine environment. This concept—which was already part of the LOF 80 through the so-called safety net provisions previously discussed—was one of the main topics under consideration. However, the delegates were divided into two groups over the issue of liability salvage. One group was interested in providing for unlimited liability salvage remuneration while the other preferred the limited concept of special compensation similar to that provided for in the LOF 80. In an effort to bring the two factions together it was suggested to the delegates that they give careful consideration to a number of issues before proposing any major changes to the international law of salvage. In a document identified as a Preliminary *Report to the International Sub-Committee* the following was suggested to the delegates:

(a) when revising the law of salvage one should probably distinguish between cases where only the ship and her cargo are at risk and cases where, by the marine accident, there is created a risk of damage to third party interests. The need for revision is particularly clear with respect to the latter cases. *However, the need for a coherent legal framework for salvage must also be kept in mind;* (emphasis added)

(b) the concept of salvage should be extended so as to take account of the fact that damage to third party interests has been prevented. Since the ship, which created the danger, will have a duty to take preventive measures in order to avoid such damage, this will mean that the salvage should refer not only to ship and cargo, but also to the ship's interest in avoiding third party liabilities (liability salvage).[7]

These suggestions were partially accepted in the sense that the resulting draft convention represents a compromise between the two factions over the issue of liability salvage. The resulting compromise recognizes the concept in a limited way by providing for special compensation[8] to a salvor not unlike that contained in the LOF 80. What was rejected was a broader liability salvage regime, which would have provided for an award based upon the concept of liability salvage without restriction to

[6] Convention for the Unification of Certain Rules of Law Respecting Assistance and Salvage at Sea, Signed at Brussels, September 23, 1910.

[7] Vincenzini, E. 1992. International Salvage Law. Londont: Lloyds of London Press, Ltd. At 120.

[8] Article 14, International Salvage Convention 1989.

paragraph 1, may increase such special compensation further, but in no event shall the total increase be more than 100% of the expenses incurred by the salvor.

(3) Salvor's expenses for the purpose of paragraphs 1 and 2 means the out-of-pocket expenses reasonably incurred by the salvor in the salvage operation and a fair rate for equipment and personnel actually and reasonably used in the salvage operation, taking into consideration the criteria set out in article 13, paragraph 1(h), (i) and (j).

(4) The total special compensation under this article shall be paid only if and to the extent that such compensation is greater than any reward recoverable by the salvor under article 13.

(5) If the salvor has been negligent and has thereby failed to prevent or minimize damage to the environment, he may be deprived of the whole or part of any special compensation clue under this article.

(6) Nothing in this article shall affect any right of recourse on the part of the owner of the vessel.*

* International Salvage Convention 1989, Article 14, "Special Compensation."

the amount of remuneration in cases in which the salvor could demonstrate prevention of harm or mitigation of damage to the marine environment.[9]

If the delegates had elected to adopt a much broader or unlimited award provision for so-called liability salvage, they would have substantially altered two basic principles upon which both voluntary and contract salvage have been based: first, success that embodies the concept of "no cure-no pay," and, second, the longstanding role that the award not exceed the value of the property salved. Recognizing this potential problem, the delegates settled on a compromise position that appears to provide a salvor with the financial incentive to perform traditional salvage services aimed at rescuing property from marine peril, while at the same time providing for the payment of limited compensation for efforts directed at pollution prevention or mitigation when no award or only a partial award is payable for the salvor's primary service.

This compromise position also reflects the impact of the role marine insurance plays in any salvage situation. Without some realistic limits to a potential award of special compensation, it is doubtful the marine underwriting industry would have been willing to accept the principle of recovery under liability salvage. Even though the 1989 convention is not yet in force, marine underwriters now provide coverage for awards to be paid under Article 14, "special compensation."[10]

Liability salvage as it appears in Article 14 of the 1989 convention has gained limited acceptance by the international maritime community in two important areas: incorporation into the LOF 90, and inclusion in policies of marine insurance, both of which give some credence to the argument that the principle of liability salvage should be considered as part of the existing body of customary international law. For the present, its application has been limited to London salvage arbitration conducted under the auspices of Lloyds and to marine underwriting. As it may apply to voluntary salvors or contract salvors operating under salvage agreements other than the LOF 90, there is no guarantee that the concept will find acceptance by domestic courts in countries that do not ratify the 1989 convention. Even though the United States has recently ratified the convention, no salvage cases involving a claim for liability salvage have been litigated. Until now, no U.S. court has adopted the concept of liability salvage or special compensation, even though these issues have been raised.

In *Westar Marine Services v. Heerema Marine Contractors*,[11] the salvor claimed an enhanced award for saving the owner the expense of certain third-party liability claims. In rejecting the salvor's contention that it was entitled to a liability salvage award, the court analyzed the existing U.S. and international laws of salvage.[12] The court first concluded that this concept was not part of the general maritime law of the United States, nor was it an acceptable principle under the 1910

[9] Vincenzini at 120-121.

[10] Rules of The Britannia Steam Ship Insurance Association Limited; Rule 19(12)(E)(1991) Salvors Special Compensation [hereinafter Britannia Club Rules]:

Liability which a member may incur to pay special compensation to a salvor of an Entered Ship in respect of work done or measures taken to prevent or minimise damage to the environment under the provisions of Article 14 of the International Convention on Salvage 1989 or the terms of a standard form salvage agreement equivalent thereto approved by the Association.

[11] 621 F. Supp 1135 (ND Cal 1985).

[12] Id. at P. 1140.

Salvage Convention, which has been ratified by the United States. The court, in its discussion of the Montreal Draft International Convention on Salvage, which later became the 1989 Salvage Convention, also pointed out that the Draft Convention rejected, as previously mentioned, a broad unrestricted concept of liability salvage and instead accepted the more limited principle of special compensation as an award for prevention or mitigation of pollution.[13]

A similar argument was made by the owners of a tug that was instrumental in salvaging a crewless, moving ship that had been involved in a blazing collision with a loaded tanker off the entrance to Bolivar Rhodes near Galveston, Texas, in November 1979.[14] Following the collision between the M/V *Mimosa* and the tanker *Burmah Agate,* the *Mimosa* continued to circle in an area populated with offshore oil and gas production platforms.[15] With no living crew aboard the vessel, it was an obvious hazard to navigation. The tug *Throze Vizier* out of Galveston finally succeeded in taking the Mimosa in tow after several heroic attempts to stop the vessel.[16]

As part of their claim for salvage, the tug argued it was entitled to an enhanced award based on the fact it saved the vessel owners from considerable third-party liability by preventing the *Mimosa* from colliding with any of the oil and gas production structures located in the area.[17] The Fifth Circuit Court of Appeals, in discussing the trial court's rejection of the salvor's claim, found some merit in the salvor's position that it was entitled to an award based on the concept of liability salvage. However, the court rejected the salvor's claim on the basis that the owners of the *Mimosa* would have been entitled to limit their liability under the 1851 Shipowners Limitation of Liability Act (46 U.S.C. 181-189).[18] Whether this language in the court's opinion amounts to acceptance of the concept of liability salvage by the Fifth Circuit remains to be seen. The issue has not been raised again in the Fifth Circuit since that decision.

However, the issue was presented once again on the west coast in the case of *Hendricks v. Tug Gordon Gill.*[19] In this instance a fishing vessel picked up a tug that had been adrift for some time. Because of the position in which the vessel was located, it was in danger of going ashore on an island in the Aleutian chain. The salvors contended they were entitled to an award for liability salvage for saving the vessel owner the cost of wreck removal and potential oil pollution cleanup costs for the spillage of oil from the tug's fuel tanks. In rejecting the salvors' contention, the District Court for Alaska held that:

> Such an award cannot be made, under the terms of the salvage treaty and the Convention for the Unification of Certain Rules of Law Relating to Assistance and Salvage at Sea, called the Brussels Convention of 1910. Citing *Westar Marine Services v. Heerema Marine Contractors.* [20]

[13] Id. at PP. 1141 and 1142.
[14] Allseas Maritime S.A. v. M/V Mimosa, 812 F.2d 247 (5th Cir. 1987); 820 F.2d 130 (5th Cir. 1987).
[15] Id. at 245.
[16] Id. at 247-248.
[17] Id. at 247-248.
[18] For a more detailed discussion of the liability salvage issue in the Allseas decision, see Texas Tech Law Review, Vol. 19, No. 2, Symposium 1988 Fifth Circuit.
[19] 737 F. Supp. 1099 (USDC Alaska 1989).
[20] Id. At 1104.

In spite of the fact that the United States has ratified the 1989 Salvage Convention, it is still too early to determine what impact this action will have on U.S. courts in the event they are asked to decide a case involving the issue of liability salvage. The convention was ratified without the passage of enabling legislation addressing liability salvage and, according to Article 29, the convention will not come into force until one year after the date on which fifteen countries have expressed their consent to be bound.

Whether a U.S. court in the interim will consider the concept of liability salvage as part of the general maritime law remains to be seen. Until this issue is clarified, a salvor who chooses to litigate its claim for salvage in a U.S. court may find its award limited to the traditional elements involved in fixing an award. At such time as the U.S. courts begin to consider cases which involve claims based on the concept of liability salvage, it will be important for the courts to take into consideration the realities of present day marine insurance underwriting.

To date, hull and P&I underwriters have only accepted the concept of liability salvage in the limited manner in which it is set forth in Article 14 of the 1989 Salvage Convention and the LOF 90 agreement "special compensation." Any attempt to broaden the scope of this principle beyond that set out in the convention could result in a denial of coverage.[21] It should be borne in mind that a vessel owner's insurance may be the only asset available for the payment of a salvage award, as well as any other claims, in the event the vessel becomes a total or constructive total loss. Most vessels that are currently trading in and out of U.S. ports are foreign flag and are owned by companies with little or no assets in the United States.

SPECIFIC COMMENTS

1. In connection with the discussion on page 66 (Dean and Crick) of potential vessel owner/salvor's liability for jettisoning of oil into the waters of the U.S. excusive economic zone (EEZ), a damaged party, private or governmental, state or federal, may as a practical matter have no recourse against an offending party (vessel) in the event either the damaged vessel or the salvor's vessel enters U.S. territorial waters where each may be subject to U.S. admiralty jurisdiction (*in rem*). Unless either party can be brought before a U.S. court, it may be difficult, if not impossible, to commence any type of legal proceedings. This would be true in the case of a vessel not bound for a U.S. port, not possessing a U.S. certificate of financial responsibility, and utilizing the salvage services of a foreign-operated salvage company.
2. Concerning the statement made at the top of page 67 that a salvor would not be a responsible party under OPA 90, this may not be the case where a salvor is the party in possession of the vessel after abandonment by the owner or demise charterer. Even though OPA 90 states that the persons who would have been responsible parties prior to abandonment are to remain such, if the salvor takes operational control of the vessel after abandonment or even in the case where the crew is aboard, the salvor may be considered as an "operator" and as such would be in the same liability position as the owner or demise charterer.

[21] Britannia Club Rules, Supra, Note 10. to U.S. Admiralty jurisdiction (in rem). Unless either party can be brought before a U.S. court, it may be difficult, if not impossible, to commence any type of legal proceedings. This would be true in the case of a vessel not bound for a U.S. port, not possessing a U.S. certificate of financial responsibility, and utilizing the salvage services of a foreign-operated salvage company.

3. With respect to the discussion on pages 67 and 68 concerning a salvor's right to limit its liability under the 1851 Shipowners' Limitation of Liability Act, such may not be the case if the salvor's operation is not completely controlled by a particular salvage vessel or a salvor utilizes chartered equipment. For example, a salvage company operating under contract (LOF 90) may not own any of the vessels utilized to support its salvage activity. Under these circumstances, the salvage company, as the prime contractor, would not be entitled to invoke the rights accorded by the 1851 Act. However, each individually owned vessel may file a petition for limitation.
4. Concerning actions that may be brought under state law, see page 68, salvage claims are subject to the admiralty and maritime jurisdiction of the federal judiciary. Any attempt by a state to alter or change the general maritime law as it relates to the law of salvage would be an unconstitutional exercise of state authority in spite of the non-preemption wording of OPA 90. Only Congress, or to a limited extent the federal courts, can alter or change the general maritime law. Additionally, Congress does not have the authority to legislatively delegate to the states the right to change or alter this exclusive body of federal law, Knickerbocker Ice Co. v. Stewart, 253 U.S. 149, 40 Sup. Ct. 438, (1920).
5. The discussion on page 72 and also at the end of the paper on page 78 concerning the change in focus of the salvor should be read in connection with the reply in the first section of this paper ("The Law of Salvage").
6. In response to the discussion of contribution actions against third parties on page 72, it should be noted that any action against an offending foreign-flag vessel that has discharged oil in U.S. territorial waters can only be initiated as an *in rem* action in the federal court within whose jurisdiction the vessel is located. In the event there are numerous pollution claims against the vessel by either private litigants or state, federal, and local governments, as well as a claim for salvage, the general maritime law will recognize the salvage claim as having priority over all other claims; in other words salvage claims are satisfied first. No state law can alter this designation of priority of claims. Any attempt to do so would be a clear violation of the admiralty jurisdiction clause of the U.S. Constitution. Only Congress can change the general maritime law as it relates to the priority of maritime liens. Any proposal by Congress to reconfigure the priority of maritime liens should carefully consider the impact any such change might have on the liberal award policy of the law of salvage. Any such alteration of the priority of salvage liens could substantially reduce the likelihood of a salvor being willing to engage in salvage services in U.S. waters.
7. In response to the indemnity discussion on page 77, professional salvors may, in connection with contract salvage services, require a vessel owner (particularly in the case of a laden tanker) to sign what has become known as the P&I Pollution Indemnity Clause (PIOPIC Clause). This clause has been approved by the International Group of P&I Clubs for execution by vessel owners requiring salvage services. However, it is limited in coverage up to the sum of $15 million and is subject to construction in accordance with English law. The wording of the clause is as follows:

Notice to Shipowners

The undersigned, members of the International Salvage Union have decided that in view of the claims which may be made against them as a result of pollution which may occur as a consequence of a casualty to a tanker and the salvage operations necessitated by such casualty; they will not be prepared to render salvage services to loaded or partly loaded tankers unless they are given the following indemnity (which shall be countersigned

by the P and I Club in which the relevant vessel has been entered) and which shall be known as PIOPIC:

The Owners shall be responsible for and shall indemnify the Contractor, unless guilty of personal willful misconduct, in respect of all claims for oil pollution damage, including preventive measures, howsoever arising (including contractual liabilities to subcontractors) out of the services performed hereunder provided always that the Owners' total liability arising under this indemnity shall in no circumstances exceed: (AAA) US dollars fifteen million less the aggregate amount of all liabilities, costs, and expenses for or in respect of oil pollution damage, including preventive measures, (otherwise than under this indemnity or similar indemnities given to other persons performing salvage operations in connection with the vessel) incurred or to be incurred by the Owners arising out of or in connection with the casualty to the vessel or the consequence thereof or (BBB) US dollars ten million, whichever is the greater.

Provided always that if the Owners' total liability arising under this and any other similar indemnities given or to be given to other persons performing salvage operations in connection with the vessel exceeds the amount of the applicable limit of liability referred to above such amount shall be distributed rateably among the Contractor and such other persons and the Owners' liability hereunder shall be reduced accordingly.

This clause shall be construed in accordance with English law.

Notwithstanding the foregoing they may require special or general contractual conditions, alternative indemnity arrangements in certain circumstances, or similar or other indemnity arrangements in cases of vessels other than loaded or partly loaded tankers.

8. State law considerations. Given the fact that any jettisoning of cargo in most cases will be considered a violation of federal law and, as such, could subject the salvor to basically the same liabilities as the responsible party, it may be purely an academic discussion as to whether a salvor would be liable under the laws of the various states. Because of the potential liability, under federal law, it would not be advisable to even consider the jettisoning of cargo or bunkers even though there might be some basis for doing so legally under the laws of certain states, as pointed out by the authors of the paper. In addition, since the state law is unclear on the subject, no attorney advising a would-be salvor could provide adequate assurance that the salvor could engage in such an activity as jettisoning in connection with a salvage operation without incurring substantial liability.

CONCLUSION

Congress, in ratifying the 1989 Salvage Convention, has moved the United States one step closer toward the recognition of liability salvage as set forth in Article 14, special compensation. Eventually, this principle will be applied by the U.S. courts and will become part of the general maritime law of salvage.

Concerning the issue of jettisoning, while it is clear that it is a concept recognized by the general maritime law, it is not a viable alternative to a salvor conducting salvage operations off the U.S. Coast. If jettisoning is considered to be a necessary alternative that should be available under certain circumstances, Congress will have to change the Clean Water Act as well as OPA 90. In addition, unless this change in the law preempts state laws —a very unlikely result—the laws of many of the states will also have to be changed in order to legally permit jettisoning as part of a salvage operation.

Robert H. Nicholas Jr. *has served as General Counsel of Exxon Shipping Company since 1982. He has been actively engaged in the practice of maritime law for over 25 years. He is a former Assistant U.S. Attorney of the Eastern District of Texas. In addition to his current duties, Mr. Nicholas teaches admiralty law and marine insurance at Texas A&M University in Galveston.*

SALVAGING A COHERENT APPROACH TO POLLUTION RESPONSE: NEW FEDERAL AND STATE LAWS GOVERNING THE JETTISON OF CARGO

V. Lee Okarma Rees

If Congress meant what they said, they should have said so
Anon.

August 18, 1990, the 101st Congress enacted Public law 101-380, the Oil Pollution Act of 1990 (OPA 90). OPA 90 created a new oil pollution liability and compensation scheme and reaffirmed the direct role of state law in governing oil pollution. As with any new law, issues arise as a result of the practical application of the printed word. Congress seldom addresses every contingency and even when that body does appear to address certain issues, it isn't always clear that they meant what they said. Such appears to be the case with respect to OPA 90 and marine salvage.

This paper comments on a legal review of international, national and state laws governing oil pollution, and the jettisoning of oil in the course of salvage operations by public or private salvors.[1] Part I focuses on the relationship between federal and state oil pollution laws. Within a recognized framework for analyzing the issue of preemption of state law, we assess basic questions raised by legal review regarding potential conflicts with federal oil pollution laws. We also provide some insight as to the nexus of concurrent state versus federal maritime jurisdiction over salvage operations. Part II focuses on some of the other issues raised by the laws governing the jettisoning of cargo during salvage operations including the doctrine of liability salvage.

PART I: THE RELATIONSHIP BETWEEN FEDERAL AND STATE OIL POLLUTION LAWS

***Question*: Given the maritime nature of salvage operations, is a state preempted from imposing liability and other requirements on salvors jettisoning cargo?**

***Answer*: It appears states can impose liability on salvors for the jettisoning of cargo and are not preempted by federal law.**

Preemption, as the word is used here, means the federal government's supreme authority would leave no room for state regulation.[2] Laws enacted by

[1] This legal review [Dean and Crick, pages 58-97] was commissioned by the Marine Board of the National Research Council on behalf of the United States Navy and was conducted by the law firm of Dyer, Ellis, Joseph & Mills, Washington, D.C.

[2] Article VI of the United States Constitution, the "Supremacy Clause," provides: "This constitution and the laws of the United States which shall be made in pursuance thereof; and all treaties made, or which shall be made under the authority of the United States shall be the supreme law of the land ..."

Congress pursuant to a constitutionally delegated power would take precedence over inconsistent state laws. The U.S. Supreme Court has declared there is no constitutional or statutory impediment to permitting states to establish any "requirement or liability" concerning the impact of oil spillages on state interests or concerns.[3] This general rule does not mean state law cannot be preempted.[4] Although courts generally have found no preemption as to states regulating oil pollution,[5] states do not have absolute power to so regulate, particularly if there is a conflict with an overlapping federal liability scheme.

Even though OPA 90 expressly disclaims preemption, an express disclaimer of preemption is not conclusive. Courts may still find preemption if an actual conflict with federal law exists. The preemption issue becomes more complicated if maritime law is involved. The general rule on preemption in maritime cases may be summarized as follows:

States may supplement federal admiralty law as applied to matters of local concern, so long as state law does not actually conflict with federal law or interfere with the uniform working of the maritime legal system.[6] "A state may modify or supplement maritime law ... provided that the state action does not contravene any act of Congress, nor work any prejudice to the characteristic features of the maritime law, nor interfere with its proper harmony and uniformity in its international and interstate relations."[7]

Given this preemption framework, are state laws, which appear to impose strict unlimited liability on salvors who jettison cargo within or without state waters, valid? For the reasons set out below the answer appears to be yes.

First, Congress, by way of its non-preemption language, clearly envisioned a state oil spill scheme in addition to that provided by OPA 90.[8]

Second, a jettisoning of cargo to save the vessel and minimize risk to the environment in a salvage situation is a "removal" action, as defined by federal law.[9] Both the plain language and the legislative history of OPA 90 support a concurrent system of state regulation regarding oil pollution and removal activities.[10] Since Congress preserved explicitly a state's authority to impose liability on persons

[3] Askew v. American Waterways Operators, 411 U.S. 325,___, 36 L.Ed.2d 280, 284, 93 S.Ct. 1590,___(1973). There, Florida imposed strict liability for any damage incurred by the state or private persons as a result of an oil spill in the state's territorial waters from any waterfront facility used for drilling for oil or handling the transfer or storage of oil ("terminal facility") and from any ship destined for or leaving such facility.

[4] This same court subsequently preempted a state law designed to regulate equipment and movements of oil tankers entering Washington State. Ray v. Atlantic Richfield Company, 435 U.S. 151, 98 S.Ct. 988, 55 L.Ed2d 179 (1978).

[5] Chevron U.S.A. v. Hammond, 726 F.2d 483, 487-488 (9th Cir. 1984) cert. denied 471 U.S. 1140 (1988). (No preemption of Alaska statute enacted to regulate tanker discharges of oil ballast into state waters—court distinguishes state regulation of oil pollution versus tanker design).

[6] Pacific Merchant Shipping Association v. Aubry, 918 F.2d 1409, 1422 (9th Cir. 1990).

[7] Slaven v. BP America, Inc., 786 F. Supp 853,862 (C.D. Cal 1992) (citing Askew, 93 S.Ct. at 1598 and quoting Just v. Chambers, 312 U.S. 383, 668, 61 S.Ct. 687, 692, 85 L.Ed. 903 (1941).)

[8] See OPA 90 references to state law set out in Addendum A.

[9] "Remove" or "removal," as defined in the federal Clean Water Act refers not only to containment and removal of oil, but also to other actions necessary to minimize or mitigate damage to public health or welfare, including, but not limited to, fish, shellfish, wildlife, and public and private property shorelines and beaches. 33 U.S.C. 1321(a)(8)

[10] See Addendum B.

involved in the removal of oil, it follows that a state can impose liability on a salvor who jettisons cargo in state waters.

Third, state laws do not actually conflict with federal laws as to the jettisoning of cargo. Neither the Federal Water Pollution Control Act, nor UPA 90 allow discharges, even emergency discharges, to the navigable waters of the United States, within which states exercise jurisdiction.

Fourth, even where federal and state laws differ, state laws are not necessarily preempted. For example, certain state laws may impose liability on non-sole-cause third parties, such as salvors who jettison cargo and pollute state waters.[11] These state laws would not necessarily be construed to be in conflict with federal law. While it may be true that a state could not impose liability on a partially responsible salvor under the Federal Water Pollution Control Act, it does not follow that a state is preempted from imposing such liability on this partially responsible, non-sole-cause discharger/salvor under state law. The *Bear Marine* case referred to in the council's legal review merely provides that a partially responsible party has no liability under the Federal Water Pollution Control Act. However, the act only provides a cause of action to the federal government, not to state governments.[12] A prohibition on a cause of action arising under the act would only apply to those parties who can bring a cause of action under that statute. Thus, the *Bear Marine* ruling may not be applicable to causes of action under state law. UPA, which amended the Federal Water Pollution Control Act, provides that states are not precluded from imposing liabilities for removal actions under state law. Congress clearly expressed its intent to preserve explicitly state authority regarding the imposition of liability to persons involved in the removal of oil.[13] Thus, a state should still have authority to impose direct liability on responsible salvors, even if they are not the sole cause of the discharge, if their state laws so provide. There should be no conflict with federal law in this regard.

In order to have preemption, there must be actual conflicts between the federal and state statutory scheme. In coincident federal and state regulation, the court will not seek out conflicts between state and federal regulation where none clearly exist.[14]

***Question*: Are there limits on a state's ability to impose liability and other requirements on salvors under state law?**

***Answer*: Yes, there appear to be limits on a state's authority to Impose liability and other requirements on salvors as the following scenarios suggest.**

First, there could be a conflict if a state attempted to exercise jurisdiction over and impose liability on a salvor for the jettisoning of cargo outside state waters. The majority rule appears to be that a state has authority to control pollution up to three miles of shore.[15] President Reagan's proclamation extending the seaward boundary of the territorial sea of the United States to twelve miles from the coast line does not

[11] Some states impose liability on the owner of the oil and the ship operator. Other states impose liability on not only these parties, but also on persons "exercising control over the oil" or persons "accepting responsibility for the vessel." Salvors would likely fall within the scope of this third party liability, which is generally strict, joint, and several. See sample state laws in Dean and Crick, Addendum A.

[12] Complaint of Ballard Shipping Co., 772 F. Supp 721, 723-724(D.R.I. 1991).

[13] H. R. Conf. Rep. No. 653, 101st Cong., 2d Seas. 146.

[14] Beveridge v. Lewis, 939 F.2d 859, 863 (9th Cir. 1991).

[15] Beveridge v. Lewis, 939 F.2d 859, 864 (9th Cir. 1991) We have stated that there is congressional intent that there be joint federal-state regulation of ocean waters within three miles of shore.

appear to have specific language that would extend state jurisdiction beyond the three-mile limit.[16]

Does that mean if discharged oil drifts into state waters and harms state resources or property within the state, the state may not impose liability on the salvor who jettisoned the oil outside of state waters? There is no clear answer to this question. From a state's perspective, federal law would not interdict an exercise of state jurisdiction. The Federal Water Pollution Control Act allows states to impose liability with respect to oil pollution or removal activities.[17] OPA 90 allows a response to a "threat of discharge."[18] Congress stated that nothing should in any way affect the authority of a state to impose additional liability or other requirements with respect to oil pollution or a discharge of oil.[19]

Courts have repeatedly acknowledged a state's strong interest in preventing oil pollution off its coast, noting that state and federal regulation of oil tankers are compatible and there is "no dominant national interest in uniformity in the area of coastal environmental regulation."[20] States may thus have a persuasive case that Congress did not intend to restrict a state from imposing liability for discharges outside state waters that threaten or impact state waters or resources. Nonetheless, if a state were to attempt to exercise jurisdiction outside of a generally accepted three-mile state boundary without a clear grant of statutory authority, a conflict with federal jurisdiction may arise. A corollary scenario might occur where a federal on-scene coordinator (OSC), acting pursuant to federal removal authority under the Federal Water Pollution Control Act, authorized a jettisoning of cargo that subsequently impacted state resources.[21] Some states' statutes have language that appears to "authorize" a discharge if such an action is taken at the direction of the federal on-scene coordinator. If states were to impose additional requirements or liability on a federally authorized discharge, then a court could conclude that a conflict exists between a federal and state exercise of jurisdiction.

Second, even though OPA 90 appears to allow states to impose liability in addition to that imposed under federal law, a court could find that the limits of liability under federal law conflicts with the unlimited liability imposed under most state pollution laws.[22] One court opined that Congress does not have authority to allow states to impose greater liability than that afforded under federal law.[23]

[16] Although it appears that the territorial seaward boundary could be altered by presidential fiat, it probably would not impact any congressionally limited definition of the Territorial Sea as is the case in the FWPCA, see 33 U.S.C. 1362(8).

[17] 33 U.S.C. 1321(o)(2)

[18] OPA acknowledges authority to respond to and impose liability for removal costs and damages that result from a "substantial threat of a discharge of oil, into or upon the navigable waters or adjoining shorelines or the exclusive economic zone." Sec. 1002 (a), 33 U.S.C. 2702 (a)

[19] H.R. Conf. Rep. No. 653, 101st Cong. 2nd Sess. 121 (1990).

[20] Pacific Merchant Shipping Ass'n. v. Aubry, 918 F.2d 1409, 1426 (9th cir. 1990).

[21] Section 311(c) of the FWPCA, 33 U.S.C.1321(c), as amended by sec. 4201 OPA 90.

[22] One court has held an Alaska Act invalid insofar as these limits exceed the $100 million limits of liability under the federal Trans-Alaska Pipeline Authorization Act. In Re *Exxon Valdez,* 767 F. Supp 1509, 1516 (D. Alaska 1991). (Alaska Act technically not preempted by TAPPA to the extent of TAPPA's $100 million liability because the remedy is uniform whether a claim is brought under either the Alaska Act or TAPAA.

[23] Id.

Third, state laws imposing liability for the jettisoning of cargo cannot interfere with the uniform working of the maritime legal system. Traditional maritime activities such as salvage are governed under the maritime jurisdiction of federal admiralty courts.[24] Congress made clear its intent, in passing OPA 90, not to change admiralty or maritime laws and to promote uniformity regarding these laws.[25] Uniformity in admiralty law must be considered in determining the validity of state regulation of maritime activities and the question must be asked whether the state statute "unduly disrupts" harmony in the federal admiralty system, so as to render unconstitutional the state's actions.[26] In analyzing this issue, a court may consider whether maritime law in this area is developed or does not require a uniform rule on the issue and how the significance of the local state interest compares to the maritime interest at stake.[27]

The Supreme Court and circuit courts have recognized states' significant interest in environmental regulation.[28] Salvor's also have a "duty" to prevent or mitigate pollution damage. Nonetheless, enforcement of state oil pollution laws against salvors may impact the characteristic features of continued ownership of the distressed vessel, an incentive for rescue, and the availability of a salvage award. Arguably, imposition of civil and criminal liability and the threat of a contribution action from the shipowner are a disincentive to rescue the vessel. If so, then a court could determine that state law so alters maritime law and disrupts the federal admiralty system that state law must be preempted.[29]

***Question*: Are there exceptions to potential liability for salvors jettisoning cargo under state law?**

***Answer*: Yes, but there may be conditions precedent to obtaining limited immunity.**

Responder Immunity. Most states have some form of limited immunity for response contractors (see state law analysis). However many states require some sort of pre-registration with or "certification" by the state as a condition precedent to securing response contractor immunity.[30]

Good Samaritan Immunity. Most states also have "good samaritan immunity" regarding volunteer response. However, these laws may not apply to limit liability for salvage operations. Most good samaritan laws require a request for

[24] See Addendum C.

[25] See Addendum D.

[26] Pacific Merchant Shipping Ass'n. v Aubry, 918 F.2d 1409, 1424 (9th Cir. 1990).

[27] Slaven v. BP America, Inc., 786 F. Supp 853, 863 (C.D. Cal 1992) (citations omitted).

[28] Askew v. American Waterways Operators, Inc., 411 U.S. 325, 93 S.Ct. 1590, 36 L.Ed.2d 280 (1973) and Chevron U.S.A. v. Hammond, 726 F.2d 483, 488 (9th Cir. 1984).

[29] See Jupiter Wreck, Inc. v. Unidentified Sailing Vessel, 691 F. Supp. 1377,1393 (S.D. Fla 1988) (We have found that the state statutes are not pre-empted by salvage law. Specifically, the characteristic features of continued ownership of the distressed vessel, an incentive for rescue, and the availability of a salvage award remain intact.) The court also notes that admiralty's jurisdiction is "exclusive" only as to those maritime causes of action begun and carried on as proceedings in rem ... The jurisdictional act does leave state courts competent to adjudicate maritime causes of action in proceedings in personam ... Id at 1392. (Citing Madruga v. Superior Court, 346 U.S. 556,560-61.74 SCt 298, [?] (Ed 290)(1954))

[30] Under Washington State law for example, there is a requirement to pre-register all primary contractors with the state before limited immunity would apply. RCW 90.56.390. Most states responder immunity provisions are conditional and require state approval or a listing in the shipowner's contingency plan.

services first be made by an incident command agency and require the responder not "profit" from assisting in the response.[31]

Sovereign Immunity. The decision of the U.S. Coast Guard or the U.S. Navy to undertake salvage is a discretionary one, which is why sovereign immunity initially applies. Once the U.S. government makes a decision to supply a salvage service, then sovereign immunity is waived and recovery allowed for negligent actions of the government in salvaging a vessel.[32] Sovereign immunity is strictly construed and thus, unless waived as to state law, may interdict a suit under state law to recover removal costs or damages resulting from a negligent jettisoning of cargo.

Nonetheless, there is an argument that the sovereign immunity of the U.S. government is waived for purposes of a state law action. First, the Federal Water Pollution Control Act has a waiver of sovereign immunity for federal facilities. This provision requires each department, agency, or instrumentality of the executive, legislative, and judicial branches of the federal government engaged in any activity resulting, or which may result, in the discharge of pollutants to comply with all state requirements, administrative authority, process, and sanctions in the same manner as any nongovernmental entity, notwithstanding any immunity of such agencies under any law or rule of law.[33]

Second, federal agencies are under a directive to comply with environmental laws.[34] A court might consider these factors in analyzing whether the United States had waived its sovereign immunity, although the general rule mandates an unequivocal waiver as to imposition of liability under state laws.

PART II: LIABILITY AND CONSISTENCY UNDER SALVAGE AND POLLUTION LAWS

Part II focuses on other issues raised by [Dean's and Crick's] review of international salvage, national, and state pollution laws.

Liability Salvage

The term "liability salvage" appears to embrace two separate concepts:

1. Risk of liability to the salvor
2. Liability avoided to the shipowner or third parties by the salvor's actions. Both concepts are explored below.

Risk Of Liability To The Salvor

It appears a salvor may face increased risk of liability for jettisoning of cargo during salvage operations. In certain circumstances there may be some relief for the salvor's increased risk. Article 8 of the Convention for the Unification of Certain

[31] For example, See RCW 70.136.010

[32] 29 Hood v. U.S., 695 F. Supp 237, 242 (E.D. La 1988)

[33] 33 U.S.C. 1323(a). This waiver applies to federal facilities. However, the language may be broad enough to apply to vessels.

[34] 43 Fed. Reg 47707 (1978) Executive Order signed by President Carter October 1979 refers to all of the environmental acts, including the FWPCA. (Each Executive agency is responsible for compliance with applicable pollution control standards.., which means the same substantive, procedural and other requirements that would apply to a private person.)

Rules of Law Relating to Assistance and Salvage at Sea (1910) allowed consideration of the "risks of liability and other risks run by the salvors." Article 13(g) of the 1989 International Convention on Salvage provides among its criteria for fixing the salvor's reward, "the risk of liability and other risks run by the salvors or their equipment."

A salvor may be liable for damage inflicted by property in their care.[35] Although the likelihood of being named in a lawsuit from third parties may be too tenuous,[36] the threat of arrest may be considered as an element of the risk to salvors in calculating the salvage award.[37] Thus, it is arguable that at least a portion of a salvor's increased risk of liability could be recovered by an increased monetary award to the salvor. This may not provide much solace to a salvor who still may face a potential contribution action from the shipowner.

Liability Avoided

If a salvor in jettisoning cargo thereby prevents an even greater oil spill, then that salvor arguably should be entitled to all or a portion of the potential liability avoided by the shipowner. Some courts have declined to consider the prevention of liability to third parties, the public interest or "benefits to the shipowner" as part of the salvor's award.[38] Under the 1910 Salvage Convention, a private or public salvor was apparently precluded from asserting an avoidance of environmental damage as part of a salvor's claim.[39] Given the new emphasis on avoidance of environmental damage in the 1989 convention, it is possible a court could acknowledge liability salvage as a legitimate part of a salvage award, whether to a private or public salvor. Environmental liability avoided by virtue of a public salvor's actions would seem to be a powerful "bargaining chip" to offset claims for damages in any negligence action instituted against the U.S. Navy or U.S. Coast Guard.

Consistency With The National Contingency Plan

The current National Contingency Plan does address marine salvage operations and may provide guidance as to consistency with the plan.[40] The federal on-scene coordinator must ensure that proper actions are taken. The National Contingency Plan acknowledges the complexity of salvage operations, which may be compounded by local environmental and geographic conditions. Responsible parties or other persons attempting to perform such operations are forewarned that their actions could aggravate, rather than relieve, the situation.

This language indicates public salvors must seek advice from the Department of Defense, strike teams, and commercial salvors before engaging in any salvage operations. Private salvors would appear to act at their peril if they do not continuously seek advice from the federal on-scene coordinator, particularly as to the jettisoning of cargo.

[35] 3A M. Norris, Benedict on Admiralty, Sec. 120.
[36] Westar Marine Serv. v. Heerema Marine Contractors, 621 F. Supp. 1135, 1145 (D.C. Cal 1985).
[37] Cobb Coin Co. v. Unidentified, Wrecked & Abandoned Sailing Vessel, 549 F. Supp 540, 559 (S.D. Fla 1982).
[38] Westar Marine Serv. v. Heerema Marine Contractors, 621 F. Supp. 1135, 1144 (D.C. Cal 1985).
[39] Hendricks v. Tug *Gordon Gill,* 737 F. Supp 1099, 1104 (D. Alaska 1989).
[40] See 40 cfr 300.145(e), Special teams and other assistance available to OSCs/RPMs.

CONCLUSION

Shipowners and public and private salvors face uncertainty regarding potential liability for jettisoning cargo, even if the salvor's actions may be in the public interest, by avoiding a greater discharge of oil and greater harm to the environment. While there are still questions as to the extent of state authority, it appears states have "concurrent" jurisdiction with the federal government and can impose direct and possible unlimited liability on salvors who jettison cargo and impact state waters.

One should not lose sight of the public policy implications of such a liability scheme. States should proceed with caution if, in imposing such liability, their actions unduly impact the characteristic features of salvage. If state liability schemes were construed to alter the salvors' incentive for rescue, impact the salvage award, or unduly interfere with traditional maritime activities, then states could face a preemption challenge. Hopefully, in lieu of a legal challenge, states, the federal government, and public and private salvors will work together to facilitate a clarification in the laws to resolve this issue.

ADDENDUM A

OPA 90 explicitly provides for state regulation and preserves states rights to impose state liability in addition to federal liability. OPA 90 contains the following references regarding state law:

* Title I, Oil Pollution Liability and Compensation, Section 1018 Relationship to Other Law (33 U.S.C. 2718)

(a) Preservation of State Authorities; Solid Waste Disposal Act.

Nothing in this Act or the Act of March 3, 1851 shall

(1) affect, or be construed or interpreted as preempting, the authority of any State or political subdivision thereof from imposing any additional liability or requirements with respect to—

(A) the discharge of oil or other pollution by oil within such State; or

(B) any removal activities in connection with such a discharge; or

(2) affect, or be construed or interpreted to affect or modify in any way the obligations or liabilities of any person under the Solid Waste Disposal Act (42 U.S.C. 6901 et seq.) or State law, including common law.

(b) Preservation of State funds

Nothing in this chapter or in section 9509 of Title 26 shall in any way affect, or be construed to affect, the authority of any State—

(1) to establish, or to continue in effect, a fund any purpose of which is to pay for costs or damages arising out of, or directly resulting from, oil pollution or the substantial threat of oil pollution; or

(2) to require any person to contribute to such a fund.

c. Additional requirements and liabilities; penalties

Nothing in this chapter, the Act of March 3, 1851 (46 U.S.C. 183 et seq.), or section 9509 of Title 26 shall in any way affect, or be construed to affect, the authority of the United States or any State or political subdivision thereof—

(1) to impose additional liability or additional requirements; or

2 to impose, or to determine the amount of, any fine or penalty (whether criminal or civil in nature) for any violation of law; relating to the discharge, or substantial threat of a discharge, of oil.

* Title IV, Prevention and Removal, Subtitle B-Removal, Section 4202 National Planning and Response System, 33 U.S.C. 1321

(c) State Law Not Preempted—Section 311(o)(2) of the Federal Water Pollution Control Act (33 U.S.C.1321(o)(2) is amended by inserting before the period the following: "or with respect to any removal activities related to such discharge."

ADDENDUM B

OPA 90 amended the Federal Clean Water Act to reflect that a state is not preempted with respect to any removal activities related to discharges of oil. See 33 U.S.C. 1321(o)(2).

See H. R. Conf. rep. No. 653, 101st Cong., 2nd Sess. 121 (1990) regarding Section 1018 of OPA regarding its relationship to other law. "Nothing in the substitute, or the Act of March 3, 1851 (the Limitation of Liability Act), shall affect in any way the authority of a state or local government to impose additional liability or other requirements with respect to oil pollution or to the discharge of oil within that State or with respect to any removal activities in connection with such a discharge..."

See also H.R. Conf. Rep. No. 653, 101st Cong., 2d Sess. 146 (1990) (Finally, the conference substitute amends section 311(o) of the FWPCA to preserve explicitly the authority of any state to impose its own requirement or standards with respect to the liability of persons involved in the removal of oil.

ADDENDUM C

When a wrong occurs on navigable waters and bears a significant relationship to a traditional maritime activity (operating a vessel and engaging in maritime commerce) then cases arising out of such activities fall within maritime jurisdiction of the courts. Slaven v. BP American, Inc., 786 F. Supp 853, 856 (C.D. Cal 1992). Article III, section 2, clause I of the Constitution contains a specific jurisdictional grant to the federal courts to "all cases of admiralty and maritime jurisdiction." The implementing legislation of that grant, 28 U.S.C. section 1333 provides: The district courts shall have original jurisdiction, exclusive of the courts of the States, of:

1. Any civil case of admiralty or maritime jurisdiction, saving to suitors in all cases all other remedies to which they are otherwise entitled.
2 Any prize brought into the United States and all proceedings for the condemnation of property taken as a prize.

See Jupiter Wreck, Inc. v. Unidentified Sailing Vessel, 691 F. Supp 1377, 1391 (S.D. Fla 1988).

ADDENDUM D

The legislative history of the "Savings Clause" of OPA 90 reflects that, "It is not the intent of the Conferees to change the jurisdiction in incidents that are within the admiralty and maritime laws of the United States. The Conferees-wish to promote uniformity regarding these laws. H.R. Conf. Rep. No. 653, 101st Cong., 2d Sess. 159 (1990). The Conference substitute adopts the House provision with respect to admiralty

and maritime laws with an amendment clarifying that the provision was subject to the provisions of the substitute. Section 1002 of the Conference substitute establishes liability notwithstanding any other provision or rule of law, including the Act of March 3, 1851 (46 U.S.C. 183). Therefore, there is no change in current law unless there is a specific provision to the contrary.

(Section 6001 of the House bill does not affect admiralty and maritime jurisdiction, saving to suitors in all cases other remedies to which they are otherwise entitled. Article III, clause 2 of the Constitution creates the basis for admiralty and maritime law of the United States. This section is intended to clarify that the House bill does not supersede that law, nor does it change the jurisdiction of the District Courts under section 1333 of title 28, United States Code (the codified section of the Judiciary Act of 1789).

Lee Rees *is an attorney with the firm of Graham & Dunn in Seattle. Her practice includes legislative and regulatory environmental compliance in water resources and water quality. Prior to entering private practice, Ms. Rees worked for the Washington State Attorney General's Office, where she helped implement comprehensive federal and state oil spill legislation.*

DISCUSSION: QUESTIONS AND COMMENTS ADDRESSED TO THE PANEL ON THE LEGAL STATUS OF JETTISONING

Following the presentation of the papers in Part II, the panel members entertained questions from the symposium attendees. The discussion session was moderated by Gordon Paulsen.

NINA SANKOVITCH, NATURAL RESOURCES DEFENSE COUNCIL: I have a question for Mr. Berns. I agree with Mr. Berns that this panel-indeed this whole day-cannot get us to a point where we will have a legal certainty as to what will happen if the salvor jettisons cargo. But I wanted to know if you agreed with what Mr. Burgess said, that the federal on-scene coordinator can play a real role in whether or not the salvor will be held liable.

MR. BERNS: Yes, I sincerely feel that if the on-scene coordinator is going to be making decisions, that will have a major effect on whether there is going to be a liability aspect. If you want to take it another step, it was raised in Dean and Crick that under the Suits in Admiralty Act, Public Vessels Act, that the government itself may be negligent. I disagree. The government can't be negligent under OPA or the Clean Water Act because of the sole fault exceptions, and public vessels cannot be found liable or involved under OPA. So if the government couldn't be liable in the first instance, how would it be liable if we do something during a salvage incident and there is a loss? I don`t think we would be liable.

I also want to point out, in my paper I refer to *Sammi Superstars* in this issue of limitation of liability. My understanding is that that case may have settled and you may not see a decision on that case. Sometimes, discretion and certified checks are the better part of valor.

WILLIAM PECK, U.S. NAVY: I am assistant supervisor of salvage, Admiralty, U.S. Navy. The question is for the entire panel and it is a burning question for the salvors in the field. We still don't have-and I think it is reasonable to conclude that by the end of the day` as Nina Sankovitch said, we won t have a definitive answer on the question of whether the on-scene coordinator's blessing, direction, or authorization for a jettison will relieve the salvor of liability in the first instance of liability to third parties

I understand Mr. Berns to saying that we have to rely on prosecutorial discretion to solve that problem. But I think we need to go back one step and look at

what is going to prompt the on-scene coordinator to grant authority to or to direct a jettison, without some specific provision in law or regulation. I think the practicalities are that he or she won't. Yet the law is so vague on this point and the potential liability so overwhelming that without some specific provision, such as appears in MARPOL, it is hard to conceive of an on-scene coordinator determining that a jettison is appropriate and authorizing or directing a salvor to do one.

MR. PAULSEN: In a way, that could be summarized by asking you, if you were the on-scene coordinator, would you authorize a jettison?

MR. PECK: At present, certainly not.

MR. BERNS: There seems to be a skewing here of an approach that we are forgetting. There is no doubt in my mind that if we had a vessel that is on the rocks, fully loaded, and that there was danger to life involved, and jettisoning is needed to protect that life, there is going to be a jettison. If you are talking about a human life and you have to take a risk to protect that human life, so be it. I don't think there is going to be an on-scene coordinator around who is going to say "no, we are not going to do it."

The damages that result are going to be paid for by the person who was initially responsible for causing the incident. I think it is fair to say that if you are going to have environmental damage versus the saving of a vessel, you are going to lose the vessel. The environmental damage is going to be the top priority. There is a balancing, however. I can't tell you under what circumstances you save the vessel versus sacrificing the environment. I can tell you, when it came down to Prince William Sound versus destruction of the *Exxon Valdez,* if the environment could have been preserved, I am pretty sure that you know what the answer would have been. That is an attitude, a whole atmosphere that has been created.

Are there going to be situations where you are going to say jettison? Of course there are. But I don't think we can safely say what they are. Many times, jettisoning is only considered because someone refuses to pay the cost of lightering, because it is too expensive to bring a lighter alongside. I have had cases in which that cost was discussed. That is a circumstance you have to take into account.

MR. DEAN: When you talk about the responsibilities and the potential liabilities of the United States government and the effect of its actions on other people's liabilities, it is worth keeping in mind that the government performs two separate functions in this area.

The first is its regulatory function, which Captain Burgess alluded to, as the on-scene coordinator or the delegate of the President, who has the right, but not the duty, to direct a response to the spill. The Oil Pollution Act stopped short of making that function mandatory. The Coast Guard may remove, or arrange for the removal, direct or monitor federal or private actions to remove or destroy a vessel. There is nothing in the statute that says it shall. The Coast Guard shall only ensure that there is a proper response and that the cleanup occurs. But the only thing that governs its own direct action, including federalization of the spill or directing the response to a spill is preceded by the word "may." However, once the government decides to do that, it does affect the liability and accountability of a potential responder or salvor. I am not sure, at this time, that I would expect the Coast Guard or the on-scene coordinator,

however, to order a spill or even sanction a spill into the territorial waters without further clarification of the Coast Guard's own regulations in this regard.

The second major function the United States performs is as a salvor. In performing that function, which is inherently different from directing or coordinating a response, the federal government is entitled to claim compensation for its actions as any private party would do. As any private party, the federal government will take on duties and obligations that private salvors would take on, including potential liability. It may be that the principal effect of this potential liability is increased exposure of the owner-operator to pollution damages. The changes in the duty of salvors under the new convention, to consider and respond to pollution damage and to mitigate pollution damage, may result in owners being able to claim or being able to pay reduced compensation awards (special compensation awards or regular compensation awards) to the federal government as a salvor or to bring claims against the United States for aggravated fault or simple negligence on the basis of acts and omissions performed by the United States in the context of performing its responsibilities as a salvor.

Those are two inherently different barriers of U.S. intervention with two very different legal consequences.

MR. BURGESS: In answer to your question, Bill [Peck], if I were an on-scene coordinator now, under the current directives, I wouldn't jump out there and do it. That is the point I tried to make-that I think what Congress said was, the ball game has changed with respect to cases that will give rise to a substantial threat, and that you had better prepare for them. The National Contingency Plan, right now, doesn't have much in it. The commandant's instruction has a little comment about disposal which has expired and probably needs to be deleted, but my suggestion is that these aspects need to be looked at. With regard to the question of whether it is mandatory that the federal government direct a disposal, I am not saying it is. It is mandatory that they take control over what happens, and decide the right thing to do. If that decision is made and that direction is given to the salvor, there is protection provided by the statute.

MR. NICHOLAS: Even if you consider changing the law to make it clearer with respect to jettison, there is another major problem. If you have a major oil spill, by the time it is aired in the press you have a political situation that any state or federal public official is going to be very sensitive to. That political atmosphere may, in the long run, be the deciding factor as to whether anybody considers authorizing jettison as a viable means of saving the vessel or preventing environmental harm. There will always be competing political interests. That is a factor that needs to be considered in the decision-making process.

MS. REES: If we are talking about a circumstance in which there is a substantial threat, then the statute basically says, the President shall direct all federal, state, and private operations, and that is really crucial. If we are going to jettison cargo, we are talking about a duty, a duty to direct. But I would also draw your attention to another part of OPA, which says the President shall consult with the affected trustee, which includes the states and the tribes. I am not so sure this is a singular decision.

WILLIAM GRAY, SKAARUP OIL CORPORATION: I would like to ask each of the panelists, looking at Ken Fullwood's scenario [page ref tk], it seems to me to have about all the information that many people will have in the short time period in which that vessel was aground, if you were the counsel for the ship owner, or his qualified individual, what would you advise them to do and why?

MR. DEAN: I understand that vessel to have been within territorial waters, so I would not jettison under any circumstances unless I was ordered to do so by the United States Coast Guard.

MS. REES: I am here not representing the states, but I am attempting to give their perspective. I think you would have to have state and federal concurrence before you would discharge, if you wanted to do so without facing the potential of some real liability from the state.

MR. BURGESS: I think the consultation requirement is there and it has to be done. I agree with Warren Dean, that the Coast Guard would have to direct. But before this, people need to educate the populace in the states, much the way we have been educated this morning. That is a very important aspect. Bob Nicholas talked about the practical political problem. I fully agree with that, but people need to focus their interests on convincing those in state governments to consider the alternatives. "If we don't do it [jettison], here is what happens." Otherwise, you are going to get a knee-jerk reaction.

MR. NICHOLAS: I would like to throw in another ingredient that has always been a problem in the decision-making process, a tremendous lack of trust between all the parties involved because of the litigiousness and the competing interests that are always involved. Unless somehow we can figure out a way to get around that, we are never going to solve the problem.

MR. BERNS: One of the first things you do if you have time is to go to the regional response team, which takes in the state, the local, the federal, everyone else. They will probably say, if you are going to drop 2,000 gallons in the ocean to prevent spilling 80,000 gallons, and that is going to present a greater damage, we are going to tell you to jettison.

The second thing, even if the regional response team did not come forward with a decision, but I look at the situation and tell my client that if you don't do it and it breaks up, you are going to be liable for all the damages that come out of spilling 80,000 versus 2,000 gallons, then there is a fair chance the regional response team is going to say "you had better jettison." I think there is a time-and I think the on-scene coordinator, contrary to some of the comments-that the Coast Guard officer or Navy salvage officer who is on the scene is probably not going to pull out the statute books and say, "this exposes me." He is going to say, "I am a professional and this is what I have to do as a professional and this is the best way to do it."

MR. NICHOLAS: Let me add one brief comment. In terms of giving practical legal advice, any time you tell a client that somebody is going to potentially go to jail, that is the key point they want to hear. That scares the client more than anything else.

MR. GRAY: I agree with what Fred [Burgess] said about getting everybody educated in the states and everywhere else. I think within the beltway here, some education would be helpful, too. There won't be time, with that ship aground, to get a consultation and decision before events determine what is eventually going to happen.

Looking back at the *Exxon Valdez,* Exxon tried very hard to get everybody to agree to use dispersants and the whole weekend was wasted.

MR. BERNS: As I understand it after 15,000 pages of transcript of testimony, there were 55 barrels of dispersants available in that area, with one helicopter that had a dump tank that didn't work properly. A DC-3 was brought up to Alaska, but it wasn't until late Sunday that it was determined whether there would be enough dispersants in the area where the planes were brought in. Sure, it took that long, but the dispersants weren't there.

PAUL PREUS, MACKINNON SEARLE CONSORTIUM LTD.: With regards to responder immunity, in the 1940s and the 1950s, even into the 1960s, "soaps, detergents, emulsifiers" were utilized in flooded engine rooms, and the mixture went over the side as emulsified oil. Ms. Rees, you mentioned the three-mile limit. In the state of Texas, it is a little over nine miles and the state of Florida is over nine miles.

MS. REES: You are correct.

MR. PREUS: So, for the people in the salvage and oil pollution control business, one thing has to be settled. If, in conjunction with jettisoning and with getting rid of dirty ballast water and container ships, in using chemicals what needs to be fully understood is that people involved with the use of detergents must be under responder immunity, in getting permission under the Presidential Order or the Coast Guard.

MR. BERNS: The statute seems to provide that responder immunity. If they are acting in accordance with the statute. Remember, however, that it doesn't protect you for personal injury.

MR. PREUS: But does it protect the use of dispersants if so ordered?

MR. BERNS: You have got an on-scene coordinator on the scene who is responding. They are using aa approved dispersant in an area that everyone (let's say the regional response team) has said, "go ahead." I think you have immunity.

THOMAS DALY, MCCARTER & ENGLISH, ESQUIRES: I am an attorney who has made a reasonably comfortable living over the years litigating because of the ambiguities in statutes and regulations. I put this question to Admiral Henn. Is the Coast Guard prepared to make recommendations to Congress or to pass legislation that will remove these problems we have addressed this morning? For instance, if the on-scene coordinator approves jettison, can we have legislation that will immunize the Coast Guard as well as the salvor.

ADM. HENN: [Portion of answer off microphone] Obviously it is up to the Coast Guard federal on-scene coordinator to weigh the options-jettison or not jettison. The chances of his making a decision to jettison are extremely slim, for all the reasons that we have stated so far.

Proceedings of the
Symposium on the Purposeful Jettison of Cargo

PART III:

CONSIDERATIONS IN MAKING TIME-CRITICAL DECISIONS

DECISION FRAMEWORK: A SCENARIO FOR DECIDING WHETHER TO JETTISON CARGO

Captain Kenneth Fullwood

I think it true to say that no one with any knowledge of ships and Archimedes' principle would question that one way, and often the only way, to float a stranded ship is to make her lighter by removing some of the cargo. The problem arises when the ship happens to be a loaded oil tanker and there is no time to obtain another vessel to receive the cargo. To focus on the question of whether to deliberately discharge a relatively small quantity of oil into the environment, and by so doing to avoid the eventual release of a much larger quantity, I developed the following horror story. I rather like sea stories, but not this one.

The possibility of the particular set of circumstances described in our story coming together like this is very remote. I should point out, however, that 80 percent of accidents can be traced to human error and are seldom due to a single factor. It is almost always the cumulative effect of a series of unique events which finally trigger a disaster.

An 80,000-ton tanker is enroute from Mexico to a refinery on the Delaware River with a cargo of 78,500 tons of Isthmus crude oil. The ship is at a draft of 40 feet and making a speed of 15 knots. The captain had been plotting the track of a hurricane which was centered about 430 miles away, just ahead of the starboard beam and heading west at 12 knots. The storm was guided by a very large and stable ridge of high pressure stretching from Tennessee, through Ohio, northeast to Quebec, Nova Scotia, and Newfoundland. It was expected to cross the coast near Wilmington, North Carolina.

The captain decided to continue his voyage to the Delaware, expecting to pass 350 miles ahead of the hurricane. He made the first human error in our story by deciding to increase his distance from the hurricane by setting his course closer to Cape Hatteras than he normally would have done. This was unnecessary and based on emotion, but nevertheless he did it. Shortly after course was changed to pass closer to Cape Hatteras, the gyro compass developed a mechanical problem, which resulted in the ship steering to the west of her set course. This was followed by more human errors when the officer of the watch failed to observe that the ship was straying from her set track, and again when he failed to notice that Diamond Shoal light and the R2 buoy were on the wrong side of the ship. The ship ran onto the shoal at 15 knots and came to rest with 80 percent of her length resting on the sand.

The shoal is soft sand, and although the bottom plating may have been set up, there were no leaks. The power plant was not damaged, and the captain tried unsuccessfully to back the ship off using her engine.

The wind by this time was in the northeast at 20 knots, and the center of the hurricane was still some 300 miles away to the east. Figures 1, 2, and 3 show the

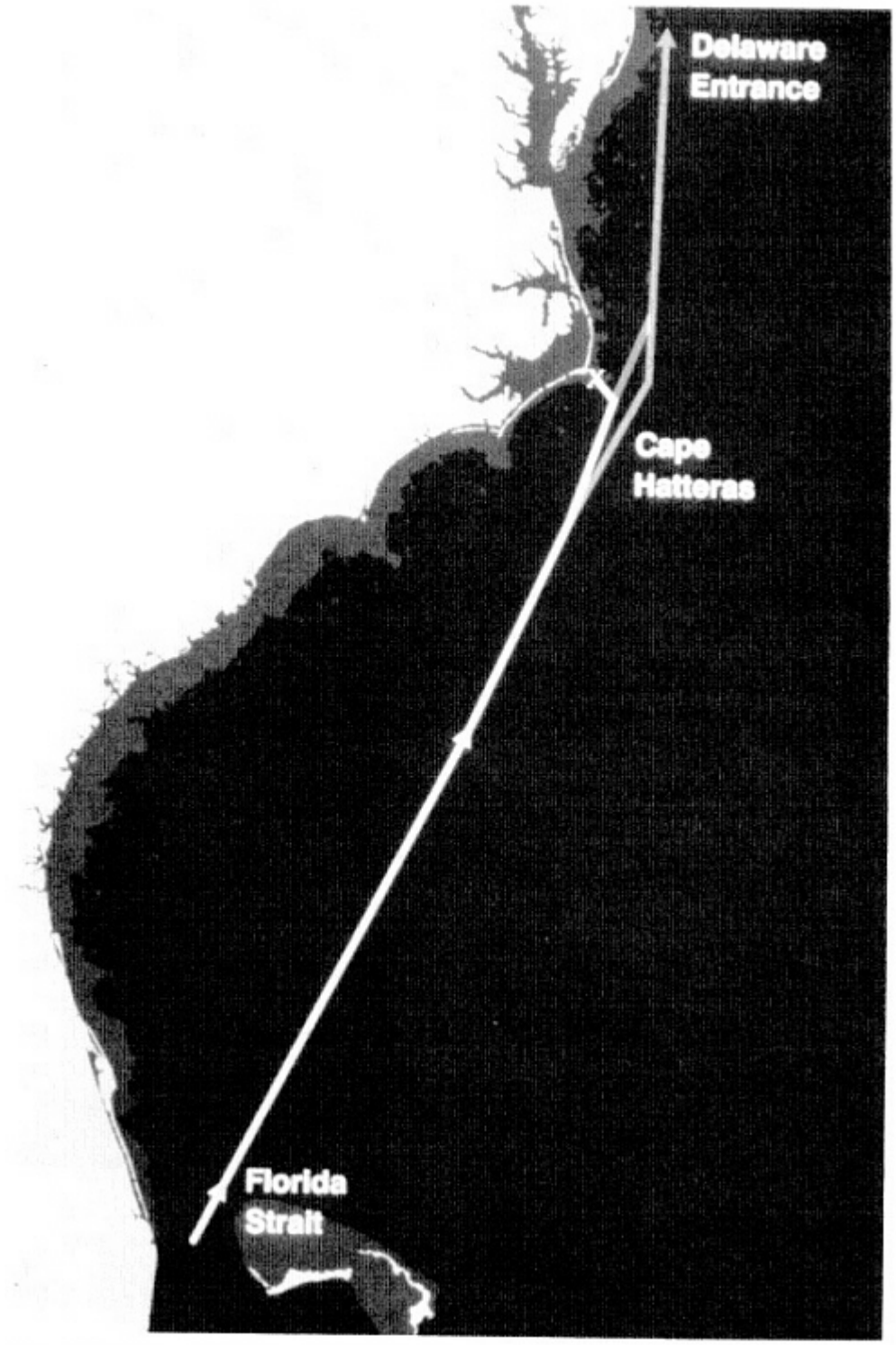


FIGURE 1. Track of ship.

FIGURE 2. Track of ship and hurricane.

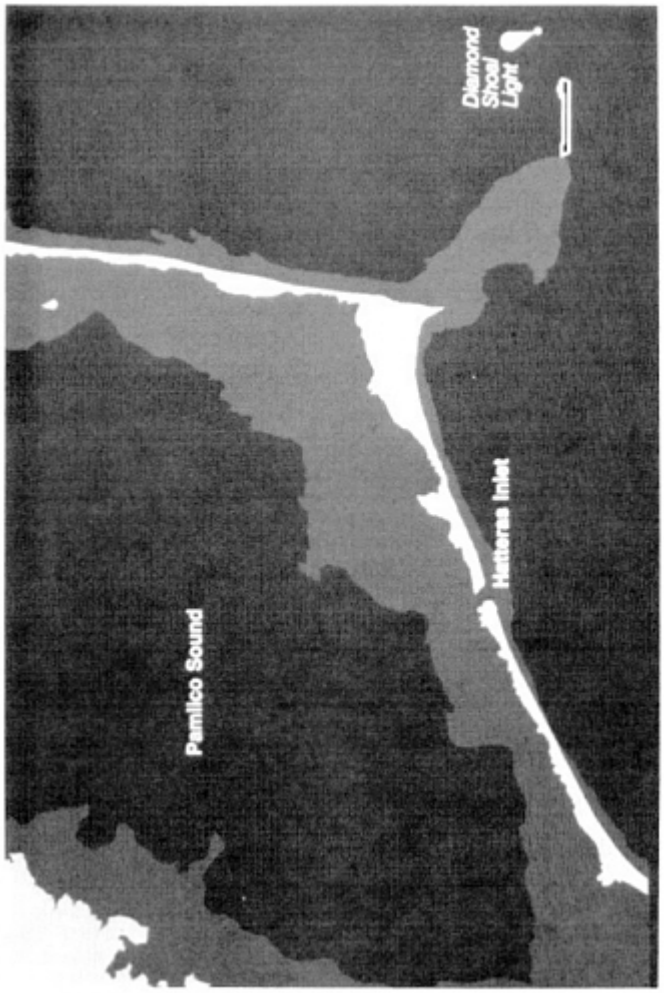


FIGURE 3. Area of grounding.

planned and actual tracks of the ship and the hurricane and the area where the ship grounded.

The captain promptly notified the United States Coast Guard, the owner, and his agents in Philadelphia of the situation. Measures to provide assistance were immediately put in hand. The Coast Guard strike team was dispatched, a salvor was engaged, the owner dispatched technical experts from his shore staff while at the same time placing his classification society on standby to make stress calculations, should this be required.

It transpired that it would take 16 hours to get a tug and barge to arrive from Norfolk to offload cargo from the stranded vessel. A light tug could be there in 13 hours. This was the shortest time in which a lightering vessel or a tug could be on scene. Based on data in their files and sounding information from the captain, the owner's technical experts and the class society naval architects calculated that the vessel could not be refloated by internal transfer of cargo. To refloat, displacement must be reduced to allow the vessel to rise bodily. It was determined that discharging 2,000 tons of cargo from No. 3 Tank would enable the vessel to back off the shoal under her own power.

Four hours after the vessel grounded, the center of the hurricane was 250 miles away and still heading west at a speed of 12 knots. The wind was from the east-northeast at 25 knots and increasing. The salvage master and the USCG strike team had been placed onboard by helicopter.

At about this time, the class society naval architects and the owner's technical staff reached the conclusion that unless 2,000 tons were pumped overboard from No. 3 cargo tank within the next few hours, the ship would be driven further onto the shoal and break up as the force of winds and waves increase with the approach of the storm. Large violent and confused seas were forecast for the area off Cape Hatteras. The possibility of ballasting the vessel down was considered, but it was determined that she would be unable to survive the pounding of the hurricane-generated seas.

The situation now exists, eight hours after the grounding with the wind at 30 knots from the east-northeast and freshening and large seas building, where immediate action in deliberately discharging 2,000 tons of crude oil into the sea will save the ship and prevent the eventual discharge into the sea of a further 76,500 tons of crude oil. Lightening into another vessel is not possible because of deteriorating weather conditions. Further delay will result in the ship being damaged beyond the point where she and her cargo can be saved.

The wind speed is expected to increase to 45 knots in the next 8 hours and then increase further, eventually reaching 65 knots around the time of the closest approach of the eye of the hurricane. The hurricane is forecast to stall over the coast of North Carolina and weaken slowly. This will result in initially strong but diminishing winds from the east for several days. All oil discharged either by jettison or due to the vessel breaking up is expected to reach shore.

Figure 4 shows what would happen if 2,000 tons of crude oil were to be discharged deliberately-jettisoned-in order to refloat the ship.

Figure 5 shows the jettisoned 2,000 tons of cargo, on a chart covering a much larger area, with the potential full cargo spill of 78,500 tons superimposed on it. The superimposing of the 2,000 tons and the 78,500 tons on the charts was not done on a particularly scientific basis, but the point is that the voluntary discharge in the jettison case releases 2.5 percent of the potential involuntary discharge when the ship breaks up.

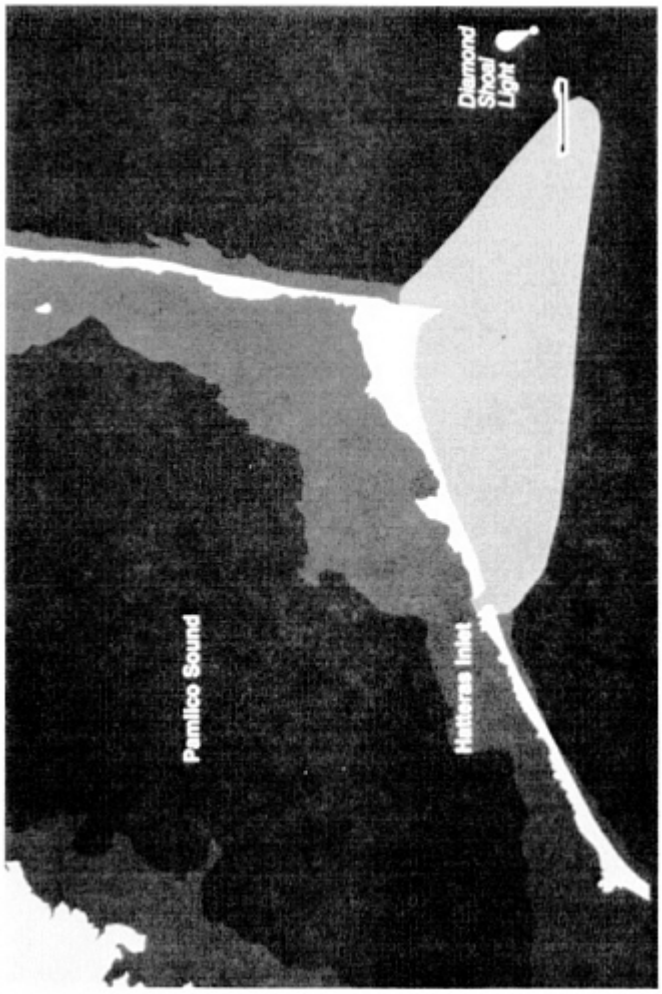


FIGURE 4. Two-thousand tons spilled.

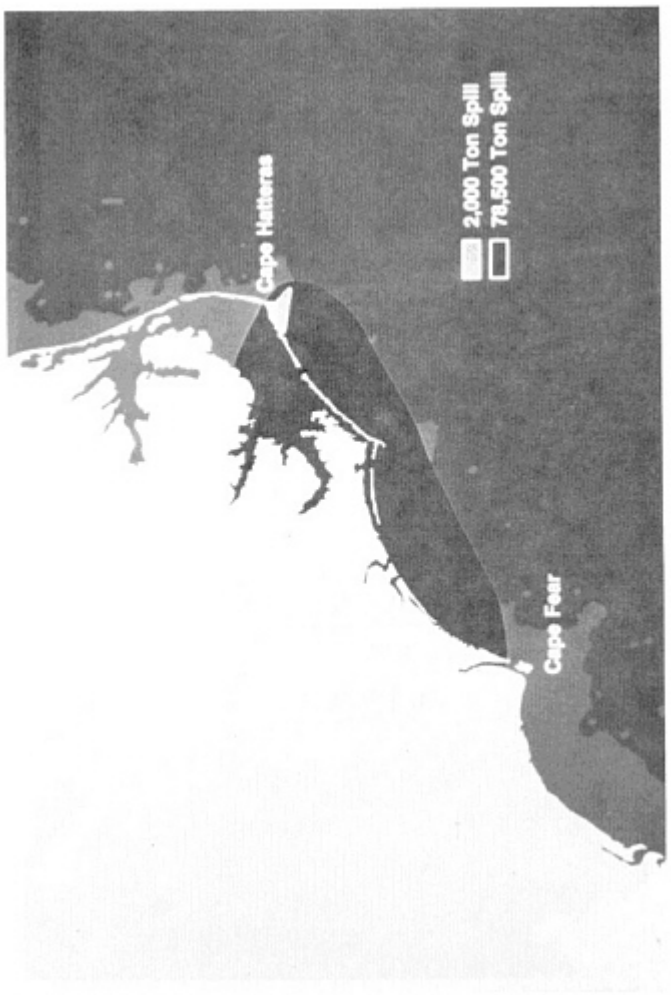


FIGURE 5 Seventy-eight thousand five hundred tons spilled.

Presumably, from about four hours after the grounding, when a full assessment of the situation had been made, the idea of jettisoning 2,000 tons of crude oil had been under active consideration by all of the interested parties which, in addition to federal and state representatives, would hopefully include the shipowner and his P&I Club.

A decision tree (Figure 6) may assist those stressed individuals in their unenviable task of answer the question "to jettison or not to jettison?" Before that, at least, 64-million-dollar question is answered, several other questions should be asked:

- *Is the hull intact?* If the answer is no, then there may be no point in jettisoning, but this is not necessarily the case, so we should look further. In any case, arrangements must made to handle the impacts of oil spills from the breached tanks.
- *Is the vessel's power plant operative?* If the answer is no, send for a tug. Jettison may still help, although in our scenario we know a tug cannot get there in time.
- *Is the vessel hard aground?* The answer to that question seems like a given, or we wouldn't be here. A word of caution on the box labeled "maneuver to refloat vessel"-this is very often not the right thing to do, and it can make matters much worse. However, our ship is on soft sand and in this case it is a proper course of action. If she were on a rock ledge, it usually would not be.
- *Can the vessel float free with internal cargo transfer?* Often this would be the case. If the answer is yes, go ahead and do it and forget about the jettison question.
- *Are lightering assets available?* If they are, use them; don't jettison. Or rather, use them provided they can operate in the current and the projected environmental conditions.
- *Will the ship break up in the weather?* If the answer is "no," we don't have a problem. If the answer is "yes," take one step further toward the jettison decision.
- *Will cargo loss affect a sensitive environment?* Based on real life incidents, I have to believe that the answer to this question is very subjective. In someone's view, a particular environment will always be sensitive. As a realist, I find it hard to imagine any environment that would not suffer from having 80,000 tons of crude oil dumped onto it.
- *Is jettisoning allowed?* If the answer is "yes," go ahead and jettison. If "no," prepare to receive 78,500 tons of crude oil on the Carolina beaches and in the sounds.

I hope this scenario and the proposed decision process will provide the basis to determine if a jettison decision could ever be the right decision; and if it could, how do you reach that conclusion.

Captain Kenneth Fullwood *is Manager of Maritime Relations, Environmental Affairs, Safety, and Nautical Services for Mobil Shipping & Transportation Co. Captain Fullwood is a master mariner with 39 years of experience in the tanker industry.*

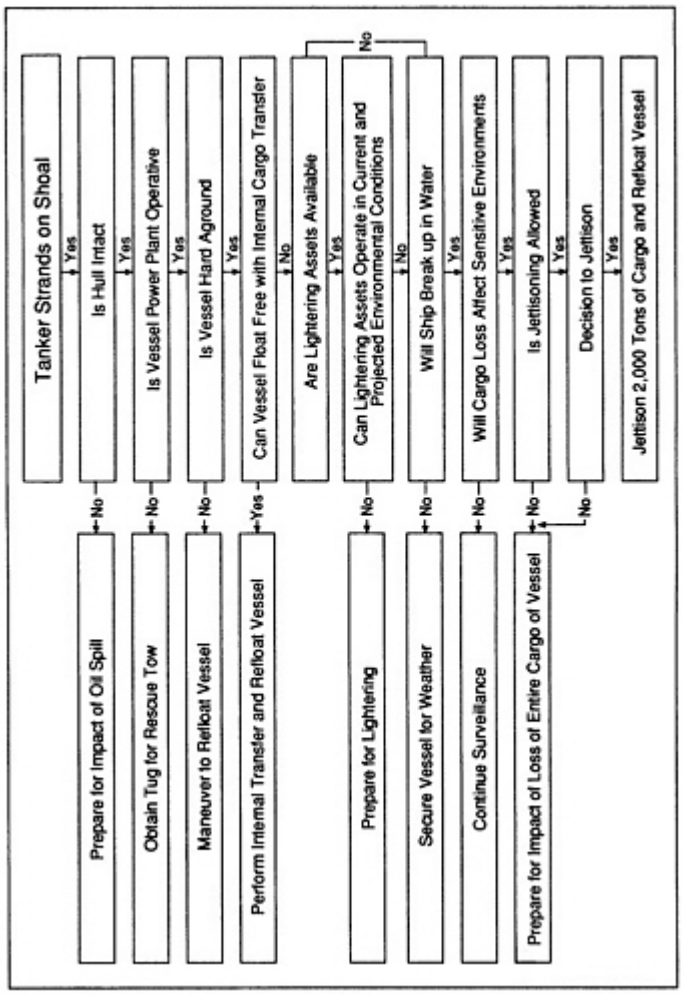


FIGURE 6.
Decision tree.

THE ON-SCENE COORDINATOR AS DECISION MARKER

Captain Donald S. Jensen

There are two roles I could assume in addressing this problem:[1] (1) Commander, National Strike Force (NSF) and (2) Commanding Officer, Marine Safety Office (MSO), Hampton Roads, Virginia. As Commander, NSF, my role would be that of technical and environmental response adviser to the federal on-scene coordinator (OSC). As CO, MSO Hampton Roads, I would be the federal OSC and, in addition to the technical and environmental aspects, would have to address the political aspects as well. Since the OSC role is more challenging, I will assume that role.

In this situation, there is a hurricane coming. A captain of the port has a lot of work to do to get a port ready, and he doesn't need a tanker grounding on top of the job he would normally face with a hurricane coming. I was captain of the port in Providence, Rhode Island, in 1984 to 1988. During that time, Hurricane Gloria came through in the fall of 1985. It was the first major storm that had come through in a number of years. First, I was concerned with the safety of my crew and their families. I was also concerned about the safety of my equipment and boats-I had to be sure they would be able to survey the damage after the storm passed-and about the safety and security of the port. I spent time calling the agents and checking the anchorages to make sure that any vessels at anchor got underway or came alongside and doubled up their mooring lines or whatever they needed to do to secure themselves.

The purposeful jettison of cargo is a radical response technique, a last resort to be employed only after all conventional alternatives have been carefully considered. It is by nature very controversial in that, in attempting to prevent a major spill and destruction of a vessel, it creates a pollution event in the process.

If faced with, and based solely on the parameters of, this scenario, as federal OSC I would advocate and recommend the jettisoning of 1,700 tons of cargo to permit the vessel to refloat and get underway to the Northeast to escape the full impact of the approaching hurricane.

In arriving at my decision, I would consider several criteria:

- *Time. to make decision.* I would want to delay my decision (consistent with other criteria) as long as possible to gather the most data possible and make the most informed decision. In this case, there are only two to four hours in which to make this decision.
- *Weather forecast.* I would determine the tide and current patterns at the scene as well as projected weather patterns for the area. In this case, the approaching hurricane makes these criteria of paramount importance.

[1] The views expressed in this paper are the author's alone, and should not be construed to reflect the views of the United States Coast Guard, the Department of Transportation or any government entity.

- *Other alternatives.* Pulling the vessel off the ground with tug assist and lightering are preferred alternatives and must be carefully evaluated. In this case, tugs and lightering vessels are unable to be brought to the scene in time to make the alternatives viable.
- *Spill trajectory.* I would ask the National Oceanic and Atmospheric Administration (NOAA) to conduct a spill trajectory analysis for a point-source release of 1,700 (386,680) of Isthmus crude oil. Twenty-five-knot, northeasterly winds provide a Gulf Stream current deviation three degrees to the left of normal. Using the formula that oil moves at 100 percent of the current speeds and 3 percent of the wind velocity, the oil slick movement should be, for all practical purposes, stationary with perhaps a slight northeasterly movement. Even if conditions change and the slick movement were to proceed to the northwest at 0.1 to 0.2 knots, shore impact at the closest point of land would not occur for approximately 45 hours. If the oil moves in any direction other than to the west, the land mass is such that it actually recedes from the point of discharge, increasing the distance and time to land impact and decreasing the probability of any impact at all.
- *Crude oil characteristics.* The product is a fairly light crude oil. Much will evaporate quickly upon release and a good portion of the remainder will naturally disperse into the water column under action of the arriving storm.
- *Shoreline impact and resources at risk.* Based on the spill trajectory, I would consult the vulnerability index maps for the outer banks and determine resources at risk. I would ask my NOAA Scientific Support Coordinator to head up this task and report to me any extraordinary environmental, economic, or political resources at risk that would require special consideration prior to making a decision.
- *Verification of vessel condition.* Gathering reliable and credible data in the early stages of an event is difficult. The data come comes from few source and are often contradictory. I am in contact with the ship's master and have gotten his assessment and recommendation to jettison the cargo. I was able to dispatch, by Coast Guard helicopter, a damage assessment team from the Atlantic Strike Team and a commercial salvage master. The data they are able to gather and transmit back to me in Hampton Roads collaborates the data provided by the master and reassures me that I am dealing with a responsible ship's crew. I am reassured that the vessel is hard aground and unable to free itself before the approaching storm; the vessel's pumps and propulsion machinery are function, enabling it to both jettison the cargo and then get underway on its own once it refloats..
- *Verification of both damage and intact stability.* I would request the assistance of the Coast Guard's Marine Safety Center naval architects and USN Supervisor of Salvage to independently determine the vessel's stability condition to collaborate the vessel owner/classification society calculations. I would desire to verify the

amount of cargo necessary to jettison to refloat the vessel and the intact stability of the vessel once refloated.

- *Consultation of area contingency plan.* I would consult the local area contingency plan that has been developed by local, state, and federal government agencies to determine if there are any particular considerations for the Cape Hatteras Outer Banks area that I should consider in addition to the above criteria before making a recommendation to jettison.

In making and implementing the decision to jettison, I would receive recommendations from my staff, the master, and the qualified individual (as required by the OPA 90 vessel response plan). Based on both the likely assumption that all would be in favor of jettisoning the needed cargo and the conclusion that the situation represents a significant and substantial threat the public health and welfare, I would make a recommendation to my boss, Commander, Fifth Coast Guard District, that the Commandant intervene under his legal authority pursuant to the Intervention on the High Seas Act and authorize the master to jettison the 1,700 tons of cargo. Both the District Commander and Commandant are extremely sensitized to the time criticality of such incidents and would likely make a decision very quickly.

Captain Jensen, *USCG, is Commanding Officer of the National Strike Force Coordination Center out of Elizabeth City, North Carolina. Prior to reporting to this assignment in July 1991, he was Chief of Applied Science Division and Acting Chief, Flight Engineering Development Center at Groton, Connecticut.*

THE ENVIRONMENTALIST'S PERSPECTIVE

Anne Rothe

I am a biologist and a public policy specialist who has experienced firsthand some of the biological, social, and economic costs of oil spills. My objective is to give you some perspective of how my constituency views this problem. My constituency can be described as those folks who are usually on the receiving end of oil spills.

In looking at the question of intentional jettison of cargo from this perspective, my first reaction to a situation that requires such a decision is that it should be recognized for what it is, a failure of prevention mechanisms and a failure of response mechanisms. Captain Fiske said in his remarks that you can't legislate marine accidents out of existence. I would submit to you that we can certainly improve over what is presently in place. Some of the improvements my organization has been pursuing, through groups like the regional citizen's advisory council, are improvements and standardizations of inspection and management standards, exclusion zones, designated traffic lanes, escort vessels in high-risk areas, and required salvage contracts. These are the issues we will continue to pursue on a national and international level.

In considering Captain Fullwood's scenario, the outer banks of North Carolina are probably one of the most productive biological systems on the east coast. Several national and state parks, national and state wildlife refuges, and national historical areas are located within the region. Why wasn't there an exclusion zone around this area? Had there been one, the initial human error that Captain Fullwood described-the tanker captain going too close to Cape Hatteras-wouldn't have occurred, because he wouldn't have been able to go that close into a zone of exclusion.

Another factor is that Cape Hatteras itself has long been known as an area of hazardous water. Hundreds of ships have wrecked in this area over the time that mariners have been traveling along that coast. I found it unusual-probably unacceptable-that salvage and lightering equipment was so far away. Another good prevention strategy, a good response strategy, would be to have lightering and salvage capability closer to areas of high risk, such as Cape Hatteras.

In really looking closer at this scenario and considering ways to facilitate jettison, I fear that we may create a disincentive for shippers to secure lightering and salvage services through contract and to ensure that those contracts are readily available on their shipping routes. Also, given what I have heard at this symposium about how often a jettison decision is required, or has been necessary, I question the need to develop standardized criteria, particularly in light of comments about the tremendous variability in situations where a jettison decision might be called for.

I would also like to comment on the liability panel discussion. As we consider a jettisoning decision, perhaps the question we should ask is not whether the owner's liability will be limited, but rather which risk do you want to incur-the risk of liability for damages from the jettisoned cargo or the risk of liability for damages from the

entire cargo? As for criminal liability, that is a legitimate concern. I can't speak for the entire environmental community, but I believe we would be amenable to discussing and considering an immunity from criminal liability in the event of a decision on the part of the owner to jettison cargo after an accident has occurred. With regard to civil liabilities, we feel that the liability provisions in OPA 90 are probably one of the most effective prevention measures in the law. That is, they make the cost of an oil spill sufficiently great that an owner is faced with a very powerful incentive to pursue prevention mechanisms.

As far as my constituents are concerned, prevention is what it is all about. The best way to respond to an oil spill is to prevent it from happening. Hopefully that the industry and the government will come to that realization as well.

Anne Rothe *is the Alaska Regional Representative of the National Wildlife Federation. A wildlife biologist and journalist with 15 years' experience in Alaska resource management, she worked for the U.S. Department of the Interior, the Alaska Department of Natural Resources, and the National Audubon Society, before joining the staff of the National Wildlife Federation, in 1987. In the wake of the Exxon Valdez oil spill, Ms. Rothe helped organize a regional citizen's advisory council for Prince William Sound, composed of representatives from communities, commercial fishermen, and the tourism industry.*

THE SALVOR'S PERSPECTIVE

John Jay Driscoll, Jr.

With regard to Captain Fullwood's scenario, the resident salvage master at Smit Americas has advised me that if the vessel ran head-on into the shoal at 15 knots, he very much doubts that discharging 2,000 tons of cargo would be enough to free it. If we assume that he is correct (which I have found over the years is usually the case), then we already have an answer. However, this would not accomplish what we are here to do, which is to discuss the issue of intentionally discharging some oil into the environment in order to save a lot more oil from being spilled and to come up with guidelines for answering two relatively innocent-sounding questions:

1. What information is necessary to make an informed decision on the issue of an intentional discharge?
2. Who will make that decision?

Chairman Paulsen has proposed four groups of questions. The first two are: would we advocate the jettison of cargo? and why or why not? If we accept the scenario as fact and if the owner's technical experts, the class society, our own evaluation, and the vessel's master all believe that if the vessel is not refloated prior to the hurricane she will break apart, then we would advocate discharging some oil to save both the vessel and the environment from greater danger. The common sense approach is analogous to creating a fire break when combating forest fires. The use of the word "advocate" makes for a fairly easy answer for the salvor. He only has to advocate the discharge-this is far from actually turning on the pump and destroying fragile marine life.

The next two groups of questions deal with accumulating information and weighing it. I have included a check list of general criteria that our salvage masters must consider when dealing with a casualty (Table 1), which is by no means complete. It includes a separate category noting factors that should be considered when dealing with a threatened spill.

To some extent, the Lloyd's Open Form of Salvage was adopted because of the nature of the casualty and because the required response of equipment, personnel, and materials to remedy the situation is never known ahead of time. The response must be timely and tailored to meet the casualty. In a distress situation, the salvor can be faced with the dilemma that he must act before all the information is known, because the alternative means losing the vessel altogether.

There does not seem to be a uniform way that ships get into trouble-except perhaps that it always seems to occur over a weekend or the middle of the night. Consequently, a salvage plan is different in each case. The criteria to be considered in formulating the plan (Table 1) is generally basic to most salvage operations and should serve as a first step in assessing just what the salvage master has on his hands.

TABLE 1 General Criteria to be Considered by the Salvor in Evaluating A Stranded Vessel

To begin an on-scene assessment of the situation the following information should be obtained:
1. Circumstances of the vessel's stranding
• Vessel's course and speed on grounding
• Vessel's loading condition on groudning
• Level of tide at the time of grounding
• Reason for grounding (loss of power, equipment failure, etc.)
• Weather conditions at time of grounding
2. Current situation of vessel
• Chart coordinates of the grounding
• Vessel's position relative to the shore and surf
• Type of sea bottom and whether subject to change (silting, scouring, etc.)
• Area in contact with the vessel's hull
• Water soundings under and around the vessel
• Vessel's drafts, list, and trim
• Vessel's stability aground
• Any observation of vessel movement
• Vessel's structural condition; if possible of principal strength members-main deck, sheer strake, bilge strake, keel-should be examined
• Any possibility that vessel is subject to bogging or sagging
• Condition of vessel's propulsion and pumping machinery
• Cargo, fuel, water onboard
• Potential removable weights
3. External Factors
• Range of tides for the area
• Prevailing winds and seas in the area, and the weather forecast
• Currents
• Other factors, such as commercial and recreational vessel traffic in the area of the stranding
4. Additional considerations when contemplating a purposeful jettison of cargo (oil)
• Determination of location, likely path, and/or destination of the product should it be jettisoned.
• Determination of the character of the beach/shoreline and hydrographic characteristics of the contiguous waters/estuarine systems (surf, swamp, estuarine currents) of projected oil impact areas.
• Determination of the availability of containment, recovery, and beach cleanup equipment, materials, and manpower, and time of response from their stored locations to full deployment.
• Identification of environmentally sensitive areas that must receive early protection.

The question of how to ensure that decisions are made uniformly and to protect against unnecessary discharges is interesting. Under the current OPA 90 framework of civil and criminal sanctions, it seems that the opposite question should be addressed: how can we protect those who make a decision that discharges are necessary? As matters now stand, it would seem that the risk of taking some action with regard to jettison of cargo is almost prohibitive.

In the present scenario, the hurricane is the wild card. Therefore, as much meteorological data relative to the storm's track and intensity should be accumulated as quickly as possible. The effect the hurricane will have on the intentional discharge

of cargo should be considered. We have seen in past spills that harsh weather can accelerate the natural cleansing process. Input from local environmental interests can form part of the area committee established by OPA 90, and is absolutely critical in assessing the potential natural resource damage. Following our scenario, there should be a consensus on two primary issues among the naval architects involved, the master of the vessel, and the salvage master:

1. If the hurricane comes ashore close to the vessel's location, is there is more reason to believe the vessel will break apart and spill her entire cargo than there is that she will come through it relatively undamaged?
2. Will the discharge of 2,000 tons of cargo be enough to refloat the vessel with some margin for any unknowns?

Once all the above data are accumulated, reviewed, and considered, we come to the pivotal question of who is going to finally make the decision and bear the ultimate responsibility of the outcome. With the full reach and effect of OPA 90 legislation still very much unknown, it is inconceivable that any of the above-mentioned persons or entities-the vessel master, the salvage master, or vessel owner-can make this decision, either individually or collectively, without the approval of responsible state and federal authorities. Mere approval should be considered an absolute minimum. In fact, it is doubtful that we would allow our salvage master to intentionally discharge any cargo, unless doing so under a direct order from the federal on-scene coordinator who has announced that he or she is federalizing the operation, or at least that portion of the operation dealing with intentional discharge.

We are uncertain whether acting under such an order would insulate the salvor from liability arising from damage suits brought by state and local governments and private third parties. But we may have a reasonable defense if the discharge was done under an order from the on-scene coordinator. While it may be argued that the salvor can avail itself of the responder immunity provisions of OPA 90, we would like to see this section amended to specifically include salvage, along with care and assistance.

Regarding the area committees, unless tough issues such as jettison can be recognized and addressed by these committees in their local port area contingency plans prior to the incident, procedural avenues established by OPA 90 become too cumbersome and contain too many adverse interests to allow for a timely decision in an emergency. To some extent, the success or failure of the decision-making process depends on how well the area committee (composed of representatives from federal, state, and local agencies, the marine industry, and environmental groups) and the U.S. Coast Guard's port contingency plan address these issues.

Still, there is the question of who will give the final order. Assuming the various committees and the port contingency planner have adequately addressed such issues as jettison and have a procedure for making a timely recommendation to the captain of the port, if the recommendation is to jettison the questions are:

- Will the federal on-scene coordinator order the discharge?
- Will the federal on-scene coordinator defer to the district commander?
- Will the district commander, in turn, defer to someone in the commandant's office in Washington, D.C.?

If the area committee comes forward with a recommendation, the federal on-scene coordinator must be prepared to and have the authority to act on it.

John Jay Driscoll, Jr. *is executive vice president of Smit Americas, Houston, Texas. He has a bachelor's degree in finance from the University of Texas and a law degree from the South Texas College of Law. He is a member of the Maritime Law Association of the United States, the Houston Mariners Club, and the Propeller Club, Port of Houston.*

THE SHIPOWNER/OPERATOR'S PERSPECTIVE

Roger Gale

I was pleased to be asked here today because in my position I feel I could potentially be asked to provide input to a jettison decision. If I were in a situation in which I might be asked to implement one of these decisions, I would question whether we have the proper tools to say the solution to this problem is jettisoning of cargo. Given that I know the vessel has been beached, is said to be sitting on the bottom 80 percent, and had been going 15 knots, can I be sure, for instance, that the bottom of the vessel had only been set up. Is it possible that the bottom was more severely damaged than was estimated? Is the hull strong enough that if we refloat the vessel it will remain intact?

Some of my vessels are outfitted with hull stress monitoring systems. BP Oil's initial efforts at that gave us a tremendous amount of information, and we started expanding the system within the vessels. Would systems like these placed on tankers give us better information about the state of the vessel in an accident like this? Again, I would ask, is this ship really safe to refloat? Are there any damage control measures available onboard that could be put into effect if, we refloat this vessel? Are there damage control measures available if we find out there is more damage to the bottom than previously thought? We have to make sure that the vessel is, in fact, stable.

When a vessel goes aground we know that the effect is that it loses buoyancy. If we raise the center of gravity, we could put the vessel into an unstable position. It is highly unlikely in a tanker. Most tankers have a pretty large positive GM (metacentric height, that is height of metacenter above center of gravity) when they are loaded properly, but the change in any GM must be considered at all times. Next, is this is a sandy bottom and am I sitting on it fiat? Would it be better to try to make the ship set more firmly aground? We know this ship is not sitting on some pinnacle; this is a gently shelving sand beach. Will the sand cradle the vessel and keep it there? This must be established ahead of time because when the hurricane arrives, the wind will turn the ship around and maybe put it into a breaching mode.

There is also the danger, in a very heavy seaway (which is developing in this case) that when we use that ground force, we will lose control of the vessel and cause it to breach.

I would like to ask the salvage masters here to address that issue because I think that it is probably almost as big a risk as pumping the oil out. When this vessel, which grounded at pretty high speed, breaks that ground force in heavy seas and high winds, you could lose control and cause it to breach and make the situation worse. I assume that this vessel also has a fair amount of ballast space. I would ask the salvage masters and naval architects if there is some way we could break the ground suction and get the vessel off by either pumping water from one side to the other very

quickly or some other method before we try another more drastic method, such as jettison.

Perhaps I have raised more questions than provided answers, but I believe it is important that before we decide whether to pump oil out we make sure it is the right decision. It is a technical problem above all. I concluded at this time that I would not be prepared to pump the oil over the side. The hurricane had a lot to do with this decision. If I were in this position, climatology would tell me that the hurricane is likely to keep veering off to the northward. It is not certain that my ship would break up in the heavy seas.

Again, I think the *Braer* was a very interesting case. She was ashore on a different kind of coastline, and I don't think she was sitting on the bottom but she lasted for seven days before anything happened. I ask my original questions again: Can I bed the ship down? Can I ride out the storm? Will my ship take it, rather than having to pump the oil out? I am not sure we have enough facts at this time to reach a decision.

Roger Gale *is manager of shipping and logistics for BP Oil Company. He was educated at the Worthing High School in the UK, then went on to the Royal Thames Nautical Training College, from there to King Edward VII Nautical College, and then to Sir John Cass College in the UK.*

THE SALVAGE ENGINEER'S PERSPECTIVE

Jack Kalro

For a salvage engineer who is asked to give a technical analysis of a situation, the option of being able to jettison cargo is a very practical one. To seriously curtail his liberty by restricting the use of this option is like tying up his hands and telling him to stop. When the salvage engineer comes to a scene, he or she and often doesn't have many facts as to the exact condition of the vessel, the weather conditions, lay of the land, and so on. For this panel discussion I presumed that the only facts available to the salvor and salvage engineer are the ones presented in Captain Fullwood's scenario.

Pending further acquisition of data, what would be my gut reaction to this scene as a salvage engineer? How would I tackle the situation? What would be the recommendation? To recommend jettisoning of the cargo, four conditions need to be prevalent:

1. *The vessel must be in imminent danger of breaking up.* Mr. Gale stated he was not really sure that the vessel was in danger of breaking up. Given that it is on sandy bottom and is grounded over 45 percent of its length, I believe it is in a fairly safe condition. It is uniformly supported, although its stability is lower because of the ground reaction. The substrate supporting the vessel would prevent it from capsizing or turning on its side. My conclusion would be that the vessel is not in imminent danger of breaking up during this scenario.
2. *There should be no other possible way of discharging cargo in the time available.* In this scenario, it would take 16 hours for a lightering barge to come alongside to discharge the cargo. However, we haven't looked at other unconventional means of lightering the cargo. What if you could bring in a deck barge, or a hopper barge, or an offshore supply vessel? There are several of these vessels within four or five hours of Cape Hatteras. They could be brought alongside and pumps and hoses could be used to offload the cargo into other vessels.
3. *The jettisoning of a small amount of cargo would save the remaining cargo, thereby preventing a large disaster.* For an 80,000-ton tanker aground by about five feet, we would need to discharge more than 2,000 tons of cargo (this assumption is based on normal tankers because the scenario doesn't outline what kind of tanker it is). I believe 2,000 tons would be a very small amount, and you would probably need to jettison a much larger volume, about 4,000 tons of cargo.

4. *All other possible solutions, however remote, must have been exhausted.* Have all possible solutions been considered? My gut reaction upon arriving on the scene would be that you need to gather more data before you can come to any kind of conclusion that jettisoning would be the proper means of salvaging the vessel. Given that, I would like to point out that the salvor does his job based on modeling the technical aspects and legal consequences of his actions. For instance, what are the liabilities involved by jettisoning cargo? The speakers on the first panel of this symposium gave different viewpoints on the legal aspects of OPA 90. The final conclusions that may be reached about legal liability will influence the salvage engineer's and salvor's decision.

One thing that was not discussed is the liability of the government if it does not direct the salvor to jettison the cargo when that is the optimum solution, or does not allow jettisoning, or does not give permission to jettison, as was the case in *Argo Merchant.*

Jack Kalro *is a naval architect with Diversified Technologies in Alexandria, Virginia. He has been working exclusively as a salvage engineer since 1983. He has a bachelor of science degree in engineering and naval architecture and a master's degree in engineering mechanics.*

THE STATE PERSPECTIVE

Peter Bontadelli

Intentional jettisoning may or may not be the realistic scenario that we are facing relative to liability. Many possible actions outlined at this symposium, such as pumping out the water from the engine room, would likely put this vessel in almost identical legal positions. Therefore, the issue is one of adding a degree of pollution to the ocean in an attempt to refloat or minimize an even larger impact. While the scenario may or may not be highly realistic, the issues and checklist that you need to go through relative to making that decision, and the legal impediments that need to be overcome, are very real. Federal on-scene coordinators and those of us who have similar responsibilities face these same issues in light of OPA 90.

The biggest problem is the availability of data for decision making. That problem was recognized during the negotiated regulatory process, which raised several major issues. First, any vessel functioning within U.S. waters must have a contingency plan. In that process, some specific information that is not now generally available must be offered and made available. Significant vessel calculation, or stability calculation data, must now be available. I hope this is one of your own tankers so that you have the data. A vessel under charter might not have such information readily available. Another issue is whether the information needed by the salvor and decision makers is reliable.

Identification of lightering equipment within specified time frames based on a distance from shore is now going to be required in contingency planning. The contingency planning process specifies that you must be able to show that you have identified, although not yet contracted for (contracting is about five years off, according to the Coast Guard's current program), salvage capability of delivering pumps, fenders, and reasonably being able to identify a lightering vessel within 12 hours if you operate within 12 miles of shore, within 18 hours if you operate within 50 miles, and within 36 hours if you operate beyond 50 miles. That process would help answer questions about overall U.S. salvage capability, which may not be available for the scenario we are discussing today.

We need reliable information on the environmental consequences to the area of grounding. That, too, may not always be available. Much of the information, even on the California coastline, is based on NOAA surveys that are 10 to 15 years old or older in many instances. The state of California has recently completed a significant mapping of its coastline. However, even this effort is largely geomorphological and does not include all identifiable environmental data.

From my preliminary review of the location of the grounding under discussion it appears that this is largely a sandy beach. From a cleanup perspective, it is a much better option than many other types of substrate. It is clear that if we must weigh the merits of loss, which is what we are doing from an environmental perspective, the decision-making process should be the same as that used for dispersants. A NOAA

checklist or similar program must be available for use by on-scene coordinators and others as a preliminary guide. A decision must be able to be made quickly, the information must be clearly available, and there must be a reasonable likelihood of success.

The key ultimately gets down to the likelihood of success. Will the vessel float once free, or will we create a bigger problem with an intentional discharge, only to put ourselves at risk of the vessel breaking up anyway. If that is the case, the situation will intensify from single to double jeopardy. Ultimately, somebody has to make the call.

If I had a panel to provide the type of information I have heard at this symposium, the answer would be an easy "no," because the likelihood of success is unclear. If, on the other hand, all panel members reviewed the available data and said "yes, it will stabilize; yes, it is a better alternative," the decision, again, would be relatively easy. Unfortunately, most of the time, the answers will probably be somewhere in between. At that point, the on-scene coordinator, in consultation with the state, must make a decision. They will rely on information from the following people:

- *The salvor*. Frequently screened from decision makers by the owner of the vessel or others who make the calls and are part of the unified command system.
- *Owner/operator*. Usually has a clearcut representative in a unified command, assuming that the approach recommended by the area planning processes is ultimately put in place.
- *P&I clubs*. Most likely to have a significant amount of input along with legal counsel from the standpoint of the owner of the vessel, far more likely to be frankly available than governmental legal advice at that time.
- *The federal on-scene coordinator*. Unfortunately, not all federal on-scene coordinators have the same experience and background The same is true for state officials.
- *The regional response team*. This is a functioning viable body to provide input at the time of an incident. Have they looked at scenarios such as this one? Have such issues as dispersant use, jettison, and so on been fully explored? From my standpoint, the answer would be not to jettison because I do not have clearcut legal authority to do so. However, if the National Contingency Plan is amended to create the potential for authorization (this would require the blessings of the Environmental Protection Agency and the Coast Guard), and assuming that a national pollution discharge permit that could be reviewed in advance is available from a state board, blanket permitting authority may be available under the new act for limited discharges resulting from mechanical pickup under the new act. There is some question as to whether that same type of permit still may be required.

If such legal issues are resolved in favor of the on-scene coordinator and/or state authority holding those permits and if the area committee has gone through the review process with input from federal, state, and local government agencies, then a quick decision could possibly be made. The area planning process will not be that far

along for several years under the best of circumstances, however. The plans available in July 1993 will be a first draft. We will have preliminarily covered the issues. The major legal issues have yet to receive substantive input from Washington, which would be required along with input from the states.

California has taken an additional step. We have already contacted the state water board, much the same as we have for dispersants, and specifically asked for a blanket discharge permit for maritime emergencies. The federal government, however, has told the state that this is probably not covered by the Clean Water Act. It also indicated that in the event of an incident, a waiver might be granted by a regional board, in the event that an ongoing or additional pollution discharge is not likely to ensue. Hence, the state received an equivocal answer. The federal government determined it was best to wait for the input of this particular symposium before making a final decision.

Assuming, then, that we have gotten through some of these questions, at some point a policy call must be made. Absent that, the answer today is no. I am hopeful that the Marine Salvage Committee, with input from this symposium's deliberations, might provide guidance to the Coast Guard, the Environmental Protection Agency, and others about what elements of the National Contingency Plan should be scrutinized to formulate the checklist of minimum alternatives that must be reviewed prior to making a jettison decision.

Peter Bontadelli *is administrator of the Office of Oil Prevention and Response and Californians on-scene coordinator for all spills of 100,000 gallons or greater. He is the former director of the California Department of Fish and Game.*

DISCUSSION: QUESTIONS AND COMMENTS ADDRESSED TO THE PANEL ON THE DECISION-MAKING FRAMEWORK

Following presentations, the panel members entertained questions from the symposium attendees. Participants are identified where possible. The discussion session was moderated by John Witte.

MR. WITTE: Captain Fullwood, you asked for a minute?

CAPTIN FULLWOOD: Some speakers have inappropriately critiqued the scenario. The goal was to put a ship on the beach on the east coast of the United States where you could justify a jettison situation. It was very difficult because almost everything we looked at said the prevailing winds and the current, are going to take the oil well offshore, across the Atlantic Ocean, where it would not do any harm—just like the *Argo Merchant*.

You have to have a series of errors to have a major accident. That is why the captain didn't put the wind on his port quarter and do the sensible thing. The occasions when you will have to make the decision to jettison cargo will be very few and far between. There is no question about that. To get a realistic situation, this is about the best we could do. The shoal we picked is a 35-foot shoal. If she had gone head on to it, she would have grounded 5 feet. In fact, we found she could slip around to the side of the shoal and would probably be aground about 18 inches. In this case, jettisoning 2,000 tons would float her and a bit of hurricane surge would lift her the rest of the way.

MR. WITTE: Peter, you indicated that as opposed to spill response, the current regulations with regard to OPA 90 and salvage and firefighting, really only acquire teeth after some five years. Why is that and what might the circumstances be in the future?

MR. BONTADELLI: Based on preliminary data, it was concluded that there was probably not sufficient salvage capability within the United States to be able to require it at this time. Therefore, a five-year window was created because that is the next point at which federal plans would be due and filable under OPA 90. That is my reading of it.

The issue of identification is to help in the ultimate evaluation of what is available now, to see if industry can begin to focus on those questions and determine what needs to be done. Admiral Henn said it well this morning—anyone who thinks that within five years there will not be a requirement is not correctly reading the intent of the Coast Guard, at least as of this point. Perhaps it could be done more quickly, since we are only with interim final regulations and the final regulations are yet to be put on the street.

MR. WITTE: I have a follow up to that. What would be the state of spill response today if the Coast Guard took the same attitude in the regulations for spill response that they did with salvage? Would there be a Marine Spill Response

Corporation today? Does that argument fail when comparing spill response to salvage?

MR. BONTADELLI: Yes.

MR. DRISCOLL: We also advocated that the same rules be implemented for salvors as for oil spill responses. The salvor would be contracted for, identified, and provided by contract. We had some resistance at that meeting from the vessel owners. I think this was a compromise.

MR. BONTADELLI: Quite honestly, the decision was made that the regulations for spill response equipment were achievable at the current time by stretching and pushing available resources. The same level of comfort was not there for salvage. The 12-, 18-, and 36-hour thought process and positioning of pumps, etc. was thought to be a better alternative and more rapidly available than having salvage capability. Hence, those were the items that were used. Frankly, there will be a time when, as I read the statute, there must be a requirement for salvage and fire fighting to be in place. Even though some salvage could reasonably be put together, firefighting is a far greater concern, from my evaluation of this in California. I am not sure we could get there overnight.

JAMES STILLWAGGON, MACKINNON SEARLE CONSORTIUM LTD.: This is an exercise in preaching to the choir. This choir came here today to find out what note they should sing. I have been a pilot for 32 years and I would like to take Ken Fullwood's ship up a little farther. He has a pilot onboard. As you know, as a pilot I am not responsible for anything that happens, I am there as a servant of the vessel.

Let's pretend this vessel is going around Sandy Hook Point and there is a place where I change course from 281 to 242, and for some reason I might be thinking of something other than the job, and the ship goes aground on Flynn Knoll. It is a hard bottom. Pretend also that when the ship goes aground the pilot suggests to the captain "maybe we ought to dump some of that stuff out of number one or two forward and back off." Pretend also that the New Jersey Marine Police haven't gotten onboard yet.

[USCG] Captain Jensen comes on board and we say, "give us five minutes, we will dump out of number two, back her off, and away we go."

Being a good-hearted fellow, he says, "let's go." In the case of the *Argo Merchant*, they knew where the oil was going because the wind was offshore and the young Coast Guard fellow who was up there was quoted as saying, "if the wind remains off shore, this is Ireland's problem."

In my scenario, we have Captain Jensen doing the right thing. We have the pilot giving his advice. We have the captain accepting it. And we dump a little bit of oil overboard. What is to prevent the state of New Jersey from picking on Captain Jensen and suing him personally? I think it was Mr. Berns who said, "when you come down to it, somebody is going to be sued and it is going to be whoever caused the accident." My scenario sees the state of New Jersey suing the Coast Guard.

MR. WITTE: Does anyone on the panel have any thoughts with regard to that—New Jersey's Marine Police decide to sue the United States Coast Guard?

MR. BONTADELLI: Effectively, most states have provisions within their statutes that require that state programs not be in conflict with the National Contingency Plan. From review of the data, the legal papers, everything I have heard today, something along that line is probably going to be an initial first step. If the area plans are put in place, which are required by statute to be consistent with the National Contingency Plan, we will probably begin to create a basis whereby the state and federal government are not in direct conflict.

The area planning process is an attempt, federally, to ensure that the consultation mechanism required by the statute is applied both in advance and available through the unified command at the time of an incident. Failure to have those mechanisms working correctly may create the type of a countersuit scenario that you discussed. There is probably no guarantee against someone filing a lawsuit. In today's litigious society, that is likely to be a consequence of all or any action.

ROBERT NICHOLAS, EXXON SHIPPING COMPANY: More important are the criminal violations. Because you were on the ship with the captain, that is very likely to happen.

MR. STILLWAGGON: That is true. They took the chief mate off in handcuffs and he was standing 500 feet away from the command position on the ship which went aground. My point is to see where, if you had that side of the room filled with Congressmen and this side filled with real people, we know that there will be a law eventually to do away with OPA 90 or at least clean it up a little. But don't talk to the sailors about that. Talk to lawmakers and tell them what we know about this business. Congressmen from Iowa and Kansas and those places are the ones who are voting on ship bottoms, double bottoms.

MR. WITTE: I suspect they have a right to do that, don't they.

MR. STILLWAGGON: Like Voltaire, I will give them their right to talk, but my scenario just changes Ken Fullwood's a little in that it brings it in closer to a situation in which the oil is definitely going up on the Jersey coast.

MR. WITTE: I think there are a lot of things that have to be worked out with OPA 90, but the suggestion that OPA 90 is going to go away is not very realistic. It is here. It is here to stay. My suggestion is that we be positive and try to work within that framework.

CAPTAIN RICHARD FISKE, U.S. NAVY SUPERVISOR OF SALVAGE: I appreciate that jettisoning is a choice of absolutely last resort. As I said in my remarks, the issue is not so much what will be done or what will be accomplished, but that provision be made in law or regulation to enable the on-scene coordinator to make the decision to grant permission in sufficient time to be effective.

SIDNEY SHAW, MACKINNON SEARLE CONSORTIUM LTD.: I would like to raise a broader question. If we look historically at what containment and mechanical recovery have done in any number of casualties, you can argue whether the number is one percent, ten percent, or fifteen percent. I think the Office of Technology Assessment did a study and maybe they were in the 10 to 15 percent [range]. If we look back at the *Amoco Cadiz*, 80 percent of the cargo was lightered off and removed. On the *Aegean Sea* in December 1992, eight out of nine tanks were in the forward section that broke off and sank. The salvors removed better than two million gallons out of the one remaining tank in the after section, plus 400,000 gallons of bunkers.

To say that the regulations require booms and skimmers because that is achievable today and not come down harder on what has proven time and time again to be a more effective means of not allowing the oil to get into the sea is begging the question. It looks good on television, it looks good on the front page, but are we truly being effective?

The Norwegians, apparently, are talking seriously about stationing tugs. We have an accident at Hatteras and, we say in the scenario, we can't get a boat in there to put the cargo in. Are we being negligent by saying in five years we will have something more than we have today? Two years ago we didn't have the Marine Spill Response Corporation (MSRC). MSRC has now spent—pick a number—$800 million,

$1 billion—but they do not have the capability or in their mission statement lightering, firefighting, rescue towing, those things which have proven, time and time again, to be effective. Where have we gotten off course?

MR. WITTE: Perhaps successful salvage does not raise any publicity. Spills always do. And politicians pass laws. Any other questions?

CHARLES MACLIN, GALLAGHER MARINE SYSTEMS, INC.: People are under the impression that oil is the only thing we are talking about jettisoning. Remarks made earlier in this symposium are still applicable. Everyone in this room who has had anything to do with salvage has probably jettisoned cargo of one kind or another sometime—and it may not be oil. It can be grain full of rats, it can be clay on some atoll over in Hawaii. But are you going to get permission to do it? The permission process ought to be established no matter what the cargo is. Whether the scenario is realistic or not, we are going to have to either jettison oily water out of machinery, or grain or automobiles or something out of the hold.

PHILIP. BERNS, U.S. DEPARTMENT OF JUSTICE: Before OPA existed, the liability under the Clean Water Act for jettisoning existed. So, it sounds like the people here are saying for the first time, OPA has created a liability. What it really comes down to is, are we really talking about the liability under OPA for jettisoning? Or are we talking about potential exposure for federal liability?

MR. WITTE: We are talking about both aren't we? We are talking about criminal liability, as well as what the existing law is, not only OPA 90.

MR. BERNS: You have the existing Federal Clean Water Act. But I think the stuff they are facing now is a higher penalty. That is the new consequence.

ROGER VAN DUZER, SHELL OIL COMPANY: One area that disappointed me on all the decision tree elements is that no one talked about the time required to get the crew off that ship. We are all doing this as a real problem. If we are playing with somebody's health, then you have a margin for a hurricane coming and you have to get the crew off. Interestingly enough, that didn't come into it. It was just a light comment, "we have only got X amount of time." But you have got to put a margin in for the people when we get into these situations.

MR. WITTE: That is an excellent point.

MR. NICHOLAS: If you are going to promote salvage and promote response capabilities, then there ought to be some mechanism in that act that will give those responders more immunity.

FRED BURGESS, LE BOEUF, LAMB, LEIBY, AND MACRAE: It seems to me the difference is that we are talking about not just any costs, we are talking about damages. There hasn't been an incentive for the states to go out and legislate. So, it seems to me that there is a difference and the difference is that the liability may be very high and unsure. So the question is going to get back to, if I am looking at liability and I am liable, can I get the coverage that I need to have?

WILLIAM GRAY, SKAARUP OIL CORPORATION: Pete Bontadelli alluded to the fact that the decision not to have to precontract for salvage and firefighting capability came out of the Coast Guard's negotiated rulemaking for vessel contingency plans. Is this a recognition that you cannot force people to do things that cannot be done because those capabilities don't exist in the way we want?

I would like this to be addressed. I sat through reg neg, participated in it, and many of us from the industry side said OPA missed the fact that there are other types of accidents than groundings. It is amazing that $1 billion is being spent [on MSRC]

without any towing capability, without any firefighting capability, without any, shall we say, salvage capability.

These are things that I hope this committee is going to bring to light. The salvage working group in Europe has very clearly made the point the marine casualty record worldwide has improved enough that we don't have the capability that we need to do some of these things. I would hope this committee would agree with that proposition and feel that is the proposition we have to work on.

JERRY ASPLAND, ARCO MARINE, INC.: It is interesting that the people who are going to have to make the decisions and the people who are going to have to decide which way we are going to do it will probably end up with people like myself. I resent the comment about MSRC. That was put together for a specific reason. So, it wasn't addressed. I don't think it was their fault.

Mr. Pilot, I don't appreciate what you had to say because, quite frankly, if your organizations did as much in training as they should be doing, we might not have as many accidents. We have been here all day and at the end of the month we are all going to go to Florida. We are all going to listen to more papers on oil spill cleanup. When are we going to sit down and talk about prevention? And prevention comes down to one thing—people. When we decide that we are going to talk about people and properly training people, properly selecting people for these ships, we will make it much much safer.

We cannot, in any way, prevent accidents. So, let's all start right now. It is not a zero sum game. We have to finally decide to talk about people. I happen to like this conference. The captain brought it up because he had a simple question. How can we go about jettisoning if, in fact, we can. That is what we ought to focus on.

BARRY CHAMBERS, CLEAN AMERICA, INC.: I had the good fortune or misfortune of being the salvage officer on the *Argo Merchant* and I sat through all of this decision-making process. I guess I can say simply that if we had it to do over, we would do it exactly the same way. We chose not to jettison, primarily because of the social, economic, political side, not the practical side. There was no doubt at all.

All of the pieces were in place. All the questions that have been posed today were asked during that incident. Not a single one have I heard that was missed during the *Argo Merchant*—whether or not the lightering capability is in place, whether or not barges can be there, whether or not the technical expertise is available, what will happen to the ship if she refloats. All those elements were answered and everybody felt comfortable with the decision. But in reality, the decision was more of a constituency problem than it was a practical issue with regard to the vessel itself.

We could have, at any time, discharged enough cargo to let that fellow get off that shoal. One of the interesting elements of the conversation today is that there is no such thing as a comfortable place at sea to set a ship—whether nestled on sand or hard ground. A ship is designed to float. The minute it goes aground, you are in deep hockey, and it goes from bad to worse from that point on.

I honestly believe that jettisoning has a place. Personally, I would like to have jettisoned at the *Argo Merchant*. That was my input. But I learned in later years from my experience in state government and private industry that it is not a simple question of the practicality of jettisoning and bringing a ship off the shoal and making her safe. There are many other issues that make such a situation considerably more complicated.

So what needs to be done? I am on an area committee and I am chairing the scenario writing. We do need a mechanism. We need a mechanism for making the

decision for jettisoning, for dispersing, and for firefighting. As long as that mechanism is in place and people can address it through that decision-making process, you can put it behind you early in the incident and move on. You then have relieved your conscience. You have relieved your Monday morning quarterbacks who are going to look at the scenario after it is over and say these people either did or did not consider the event. So, if the decision-making process is developed and in place ahead of the incident, we are ahead of the game.

MR. BERNS: I just wanted to let you know that in the *Exxon Valdez* situation, the *Exxon Baton Rouge* was coming up Prince William Sound. She was instructed and authorized by the Coast Guard (no RRT input, et cetera) to drop the slots and ballast that would contain some oil so that she would be empty to go alongside to lighter the *Exxon Valdez*. There has never been an action brought on that. There is no intent of action being brought on that. And there is no way that is a jettisoning.

MR. WITTE: I would make one comment. I was onboard the *Argo Merchant* **, and perhaps enough time has passed for this comment. There was no question in my mind that the owner wanted a total loss. What happened there could not happen today. The vessel could have been saved.**

PART IV:

A REGIONAL RESPONSE TEAM DECISION-MAKING EXERCISE

A REGIONAL RESPONSE TEAM DECISION-MAKING EXERCISE

Moderator, John A. Witte

The second panel of speakers discussed information needs to make a decision about the potential use of jettisoning. To dramatize the complexity involved in making such a decision, participants role-played an actual decision-making exercise based on Captain Fullwood's grounding scenario (page 152).

The following people comprised the mock Regional Response Team:

- Captain Don Jensen, captain of the port
- Captain Ken Fullwood, tanker owner's operating representative
- Warren Dean, owner's legal representative
- Philip Berns, representative of the U.S. Department of Justice
- Fred Burgess, representative of the P&I Club
- Captain Richard Fiske represents the United States Navy Supervisor of Salvage
- Mick Leitz, salvage master
- Nina Sankovitch, Natural Resources Defense Council (a public interest environmental organization)
- Peter Bontadelli, state official
- Jerry Galt, scientific support
- Michael Ellis, marine surveyor
- Mark Miller, Office of the National Response Corporation

MR. WITTE: With the approval of Captain Jensen, I am going to act as the Regional Response Team's executive officer. For purposes of this exercise, the Regional Response Team must stick with the Fullwood scenario. The team has had since 8:30 this morning to consider this casualty. It is now time to make a decision. I would like to start with you, Mick Leitz. You have been out on this ship, you have looked at everything. You see that the hurricane is coming. You have got a serious situation here. You are the salvage master.

MR. LEITZ: First, you need to find out what the circumstances are, which requires you to take a look at the scenario. When a ship goes aground you have got 20-knot winds onshore; four hours later you have 25-knot winds; eight hours later, 30-knot winds; 16 hours later, 45-knot winds; and 25 hours later, 65-knot winds. You can have a tug on scene in 13 hours, which would put the wind velocity somewhere around 40 knots. The ship is in excess of 800 feet long. It is an 80,000-ton ship, 80 percent aground, with a draft of 40 feet. Therefore, she is aground about 38 feet. There

is no mention in the scenario of tide, which would have an effect on the situation. The ship would be subjected to end scour on a soft sand bottom.

I wouldn't attempt to jettison anything off this ship and reftoat it without a tug attached to it. Therefore, the first opportunity to act would be when the tug could get there because I don't know any way that you are going to back an 800-foot ship out to sea. In considering WHAT the legal profession has to say about liability, as salvage master I would probably decline to accept any responsibility for making the decision.

MR. WITTE: Mick, are you suggesting that the ship should not be jettisoned as a consequence of the legal considerations, or are you saying that, as a practical matter, you don't want to jettison.

MR. LEITZ: I am saying two things. One, as a practical matter, it should be ballasted down and left there and pray that it will ride the storm out because I don't think you can back this ship out of there without a tug. You are going to make the situation worse, not better. I am also talking from a technical point of view about this particular scenario. However, as a salvage master, I would decline to make a decision under the current legal situation.

MR. WITTE: Captain Fiske, you are part of the Regional Response Team. We are looking for your opinion.

CAPTAIN FISKE: First, I would mobilize a salvage engineering project manager out of my office in case it did become federalized, to assist in assessing the stability and provide a recommendation. I would alert my east coast salvage contractor. I would also alert the commander-in-chief, Atlantic Fleet, and see about getting tugs underway from Norfolk. I would also alert the Navy Command Center that we had a problem. I would confirm the commitment from the on-scene coordinator for compensation and mobilize my pollution response capabilities out of Cheatham Annex near Norfolk.

As far as recommendation, based on technical input I would say that a jettison is appropriate to get the ship off. That is a technical input. That is not made with any legal considerations. The on-scene coordinator is going to have to accept the legal consequences.

MR. WITTE: Maybe we ought to get the federal government in here right now. Phil Berns, advise Captain Fiske. He is very concerned about the legal considerations.

MR. BERNS: The best I can make out from your scenario is that you have to consider what damage it will do to the environment. What it comes down to is, I am going to look to Captain Fiske and Captain Jensen as professionals to make a recommendation. I am here if you need me.

MR. WITTE: Okay, Jerry, how can you help?

DR. GALT: The following types of information would be available in this scenario. The hurricane is going to cause a surge between two and six feet. What that is going to mean is an overflow of whatever tidal prediction we have. If the ship is bunkered down or loaded down, it is going to have at least that much rise on it. If that hops into shallower water, it is going to be harder aground later. Those things should be considered. That maximum surge will occur somewhat before maximum wind, but not a lot, so it is going to be building throughout the next few hours.

MR. WITTE: Given the wind speed, what kind of a surge do you expect?

DR. GALT: We would have to run a specific model, but typically, this is a relatively slow-moving storm. It is coming more or less perpendicular to the shore, not up the shore, so it is going to be a smaller, not larger, surge.

MR. WITTE: So, Mick Leitz is going to ballast that ship down in light of your thoughts.

DR. GALT: At this point, I would say two to six feet. We could get more accurate, but that is what we are talking about now.

MR. WITTE: What is it going to be? He has got to know what it is going to be.

DR. GALT: That would take another couple of hours. The Weather Service has detailed models that they can run on Hatteras, because I called up. I am talking about an immediate response.

MR. WITTE: Can you help them out, David?

DAVID KENNEDY, NOAA: My guess—I am not a Weather Service person—is three feet.

DR. GALT: Okay, the next point to consider is that with the winds we are forecasting, we are going to be looking at extremely high dispersion. After the storm, particularly if we are talking about a grounding event or a broken ship, we are looking for dispersion in the next two weeks. If the spill occurs over the next couple of weeks, we are not going to have that much dispersion because of the larger spill that would ensue.

The next thing is that with the speed and the distance to shore, we could expect major hits almost immediately, meaning within the first 24 hours, probably the first 12 hours. Most of those hits will occur on the outer bank of Hatteras which is a sandy beach. It would be relatively easy to cleanup and there is some possibility of overwash and movement through the cuts.

MR. WITTE: Michael, you are here on behalf of the owner. He has a vessel aground. You represent hull and machinery. You are the surveyor. You heard what the salvage master has to say, you heard what Jerry has to say. Do you have any input to your owner?

MR. ELLIS: As the hull and machinery underwriters, I have a secondary role. We are dealing with a pollution problem and I think most hull and machinery underwriters would say you have got to do what you can to prevent pollution and not worry too much about the ship. Having said that, I am confused because of the salvage master's recommendation to ballast down. There is a conflict of advice already and I don't find that easy at all. In real life I am not a technical man, so I must be careful.

My concern would be, could she safely refloat? I would be worried about jettisoning and coming off and not exacerbating the problem. But if I could satisfy myself that there is a good chance of coming off, then I would certainly indicate to the master that I would support any decision to jettison. But I hope that he would get the approval of the on-scene commander. If the on-scene commander's approval is not forthcoming, then we should just sit where we are and ballast down.

MR. WITTE: Let's assume you have Rodney Sambrook from the Salvage Association with you and Rodney says "I think it is going to come off." Would it change your opinion, or is the salvage master going to have the last say in this?

MR. ELLIS: Certainly not. One would be talking with the master of the vessel and it would depend on his experience. His experience for grounding is probably not particularly great. If there was a second opinion, I would be listening carefully and trying to form my own correct conclusion. I think the conclusion would be let's try to get her off and avoid the bigger spill.

MR. WITTE: Ken, you have heard what your surveyor said. You have a salvage master with one opinion. But it is going to be your decision. What do you have to say?

CAPTAIN FULLWOOD: I have listened to all the people and I would rely on my own experience as well. I would realize there is a risk that, when we try to back the ship off in this wind, which would be on the quarter, we will not have much control—no control really—in those first few minutes. It is a risk, but I would recommend that we take it. You say we shouldn't be worried about the legal aspects, but we are. I think we have adequate insurance, whether we pollute with 2,000 tons or 80,000 tons. The insurance is there and hopefully the people who get harmed would be fairly compensated. What we are really concerned about is criminal prosecution. I have been in this business all my life trying to do it right. I want to retire soon, and I don't want to go to jail.

JOHN DRISCOLL, SMIT INTERNATIONAL AMERICAS: May I interject? OPA 90 made provisions for the area committee? Could you appoint somebody, say, from the area committee?

MR. WITTE: We will get to that. In the meantime, Ken has a problem with his liability so he now says to Warren Dean, "What do I do here? I have a salvage master who says, "I don't think I want to take it off." My hull and machinery underwriter says he and his expert think it is a very distinct possibility. Captain Fiske says, "I don't know, I want to talk to my engineer." In the meantime, Ken says, "I think I want to try to take this thing off—I want to jettison—if the Coast Guard agrees." He wants your opinion.

MR. DEAN: At the outset I would have to say people all like to complain about lawyers not being able to make up their minds. I would have to say that we are dealing with a different statute here called Murphy's Law. You have to consider two things. If this is a foreign-flag operator without an office in the United States—

MR. WITTE: It is not. It is a major U.S. oil company.

MR. DEAN: It is a major U.S. oil company. I would like to point out one thing. If you are a foreign-flag operator without an office in the United States, your principal concern at that point becomes your criminal liability. You have a vessel in distress. You have crew that you have to remove. One thing you might want to consider is what is at stake. What is at stake is your financial responsibility, currently set at $14 million for the vessel and its cargo. Beyond that, you may be judgment-proof, as a practical matter, short of criminal liability. I know that people don't like this but we decided not to sign up for the treaties and these are the consequences that fall from being part of a purely domestic regime. The master may say, my concern is—

MR. WITTE: We don't want to hear what the master has to say. He is waiting for you to answer him. He is saying, "counselor, what do you want to do?"

MR. DEAN: I am saying one of the things the master should consider is notifying the Coast Guard and the on-scene coordinator and the local state coordinator. Without a direction to jettison the vessel, the master will take his crew off the vessel and the Coast Guard will have no choice but to federalize it, to order him to stay on the vessel. At that point the Coast Guard is in charge and he can do what the Coast Guard orders him to do. That will be the principal deterrent.

If you are a U.S. flag company, if you are a major oil company and you own and operate this vessel, there is a completely different chain of legal factors to consider. You have unlimited liability under state law, period; strict and unlimited liability under the law of North Carolina. You are going to be subject to that law. When you

are making these decisions, you are betting the entire corporation, with or without the coordination of the on-scene coordinator.

MR. WITTE: But doesn't he have unlimited liability whether he spills 80,000 tons or whether he spills 2,000 tons? What is the difference?

MR. DEAN: Unlimited liability for 80,000 tons in North Carolina is a completely different proposition from unlimited liability for 2,000 tons. You are betting the company with 80,000 tons.

MR. WITTE: So, what are you going to recommend to him?

MR. DEAN: You are betting the equity of the shareholders. I would say, in both cases, get all of your response resources and both contingency plans. I would seriously suggest that you bring a decision maker to the vessel that is indemnified to replace the captain to make the decision making, so that that person can make a decision free of personal liability. He can make the tough decisions that he has to make.

MR. WITTE: That is Captain Fullwood. He is not the master of the vessel. He is there on behalf of the owner.

MR. DEAN: That is fine. Captain Fullwood takes over the vessel under the indemnification agreement with this company. That is important. You do not want personal liability getting in the way of this decision. The second thing you would do is weigh his potential criminal liability for making a decision to jettison the vessel against the liability of betting the entire company and the equity of its shareholders. Furthermore, there is potential criminal liability if he spills the entire cargo of the vessel anyway. You have to advise him literally of the consequences on both sides. In this particular case I would recommend that he seriously consider jettisoning the vessel, in spite of the ambiguities under state law and in spite of the ambiguities under federal water pollution policy.

MR. WITTE: Okay, Ken, your counsel says you have to consider jettisoning. It might be a very good alternative, assuming you can get the captain of the port. But now Nina walks in. What do you say about this, Nina?

MS. SANKOVITCH: First, I have to say that we must be completely suspending reality, because no one would ever ask my organization what we have to say.

MR. WITTE: Take advantage of this special privilege, Nina.

MS. SANKOVITCH: If we accept this scenario (just as a footnote what was interesting about the panel discussion about the scenario is that, in reality, we will never have a scenario where we can take everything as the truth) we will not know if the hull is intact, if the vessel will definitely break up, if the hurricane is definitely coming. If we knew all those things for certain, the decision to jettison would be clear. But if I have a salvage master telling me that maybe it is not such a good idea—

MR. WITTE: You do. You have a salvage master saying it is not such a good idea. You have got Michael Ellis saying it is okay. You have Ken Fullwood saying "my lawyer says we ought to jettison because 2,000 tons, from either a liability standpoint or any other standpoint, makes more sense than 80,000 tons." Tell us your position.

MS. SANKOVITCH: I think what Mick Leitz had to say was a lot more persuasive. From the point of view of avoiding pollution absolutely, he says we can hang onto the bottom and we have a good chance of weathering this thing. I would say, let's go for that and not jettison.

MR. WITTE: Okay, Peter, now it's the state's chance. We are almost ready to decide and someone says, "wait, we have to look at the state. What is their position on this matter?"

MR BONTADELLI: I think it gets down to weighing factors the same way we do for the use of dispersants. I have heard Mick and I have heard the other offsets. From the technical expert side, I am hearing about a three or four to one, the odds are in our favor that we can significantly reduce the damage by jettisoning, relative to a total break up.

Mick feels it could ride out the storm. At that point, the issue for me would be the environmental consequences. I have to consider Jerry's data on dispersion, the relative sand beach, as opposed to an almost guarantee with 80,000 tons hitting and wiping out significant amounts of marsh, the almost certain washover with the larger volume. Considering these factors, I would say, "go for it," [jettison] recognizing that we may have a state liability potential afterwards.

My advice is precisely that—advice. OPA 90 has made clear that the final call is federal. My advice would probably create a problem for our attorney general in terms of criminal prosecution. Therefore, I think the prosecutorial discretion would probably vest with those of us who have made the decision. I would recommend jettison compared to the relative risk. What still bothers me is I am not 100 percent sure about Mick's advice. But given the four to one count, I think I would take the chance.

MR. WITTE: Mark Miller, what are you going to do to protect the beach front on this hurricane. Can you do anything? Are you going to tell them, "forget about it, I can't help you"?

MR. MILLER: I am going to tell them, "forget about it, I can't help you for a while," because this is a coastal barrier beach. I am not going to put my people at risk to get to the beach area, which I am convinced will be in the process of being evacuated. We just had a great northeaster up on Long Island and Fire Island was wiped out. This would be a similar situation and I am not about to strand response personnel on this beach, given the storm surge we are facing. The oil is going to be in Pamlico Bay and I am going to stage people as close to the area that I expect it to impact as possible and hunker down. I am not going to have a place to put people because all the hotels are going to be booked up from people being evacuated. Wherever I can keep people put up—the nearest area would be about 50 miles—I would see if I could preposition them there until things subside.

My offshore vessels wouldn't be able to do anything. I am not about to get them underway. My nearest one would be Wilmington. I am going to have a problem with my own vessel and I am concerned about its weathering the storm, never mind the problem for this tanker. I have a problem worrying about my own situation for the offshore vessels. So, my best approach now is to marshall as many resources as I can for the beach assault and start to put in place statistical people, my operations department, communications, so that when the storm subsides, I can go to work.

MR. WITTE: But initially, you don't think you can do anything?

MR. MILLER: No, sir.

MR. WITTE: Okay. Finally, somebody says, "wait a minute, this oil coming ashore, it is a P&I problem." You have heard it all, Fred. What are you going to do about it. You represent the club. You are the deep pockets guy.

MR. BURGESS: Yes, I am going to be concerned about money.

MR. WITTE: Yes, 2,000 tons versus 80,000 tons.

MR. BURGESS: At the end of the day I am going to be paying some money. I want to do things that will avoid breaking the limitation of liability, so I want to cooperate as much as I can with the Coast Guard. As to whether or not they should jettison, while the decision is going to be made by professionals, I am going to push hard for the Coast Guard to direct. I am going to be sure that the response plans and all those sorts of things are energized. I am also going to be concerned about state action and will discuss the situation with some state representatives.

MR. WITTE: You have got the state's opinion, Fred. You also heard from the salvage master and from the ship owner.

MR. BURGESS: He already told me what I want to hear, and I want to see if I can verify that.

MR. WITTE: All right, you have done that. You have heard from Michael Ellis. What are you going to do?

MR. BURGESS: I am just going to pay the money at the end of the day. I am going to say, whatever the decision, if it is jettison, do it under direction of the Coast Guard.

MR. WITTE: All right, so on behalf of the club you are saying, it is pretty much hands off. You will pay the bill, the decision is not yours.

MR. BURGESS: Yes. But the other thing I would be concerned about is penalties. I probably want to get a public relations guy in there because a lot of what happens is PR and I would want to work closely with the vessel owner to get somebody to give our spin on this situation.

MR. WITTE: Okay, the captain is about ready to make his decision and he realizes we haven't asked the salvage engineer yet. Jack Kalro has been doing his calculations. What is your input on this casualty? Can it come off? What is your recommendation with regard to jettison?

MR. KALRO: Given the scenario, I would recommend that you jettison the cargo.

MR. WITTE: Okay, so we have a salvage engineer who is at variance with his salvage master. We have a ship owner who has consulted with his lawyer and his salvage association surveyor. They want to jettison. It seems to be turning out just about the way it might very well happen. Captain Jensen, it is time for you to make a decision. Perhaps you might give us some reasons for it.

CAPTAIN JENSEN: First, I would not be at this Regional Response Team meeting, I would instead be back in my office. I would be dealing with two people: the state OSC and the qualified individual, but I haven't heard from the qualified individual et. That is the key person I would want to deal with. It is a foreign vessel and that is the person the plan requires we deal with. Ken, I want your advice. What are you recommending to me?

CAPTAIN FULLWOOD: After weighing everything, I recommend that we jettison the cargo, 2,000 tons. But I am not the person to make the decision.

CAPTAIN JENSEN: The federal government is advocating a unified command. The three folks on the unified command are myself (the federal on-scene coordinator and all the forces he brings to bear), the state on-scene coordinator, and the qualified individual. Hopefully, we would be working in a quiet command center where we could ponder this grave situation and come up with a decision.

I was very fortunate to be a flower on the wall to this Regional Response Team meeting. It provided good additional information. I have a couple of observations. Regarding the term "federalized," every spill is federalized. We open the Oil Spill

Liability Trust Fund on every spill we hear about. So every spill is federalized. It is the degree of oversight, whether it is directed or just some monitoring oversight that takes place that may differ. In a potential spill of this nature, we would provide direct supervision. We would look to the qualified individual, however, to make as many decisions as possible. As long as the unified command triumverate agreed, we would go along with him.

In this case, after listening to all the divergent opinions, what I hear is that you would recommend jettisoning the cargo. I was very interested to hear that the state would back that decision. The only other folks that were not heard here are the natural resource trustees and I assume my scientific support coordinator, Jerry Galt, would canvas them to get their input. Jerry, what are you getting back from them? Do they support this decision?

DR. GALT: Again, the idea would be trying to control the threat we have and that would have to be discussed. There would be a lot of discussion back and forth.

CAPTAIN JENSEN: What is your gut feeling? What are you getting back from them?

DR. GALT: What I am getting back is that there are sensitive resources. The most sensitive ones are inside Pamlico Sound. The question is, are we threatening those resources in a serious way? There are two other things I didn't mention before. After the storm passes the winds will reverse, so there will be offshore winds that will help relax the pressure in the back marshes. The second thing is that every hurricane dumps two to four inches of rain. We are going to have a major freshet, which will be a coldwater flush for the sensitive areas. Both of those conditions are good. We can use them. If you are convinced that the larger spill could be averted by the smaller one, I would say go, jettison.

MR. DEAN: As the owner's lawyer, I have to ask what piece of paper are you going to issue? Are you going to say, "I direct," "I agree," "I monitor," "I am aware"? What are you going to say?

CAPTAIN JENSEN: First of all, you are not in the room, so I haven't heard what you are saying yet.

MR. DEAN: Well, I need to have a piece of paper some time.

CAPTAIN JENSEN: I am still making the decision and going through my thought process. The decision we desire to make is consensus on whether or not to go for a jettison of cargo. I would be prepared as the federal on-scene coordinator to advocate that position on behalf of the three parties in the room. This is a very controversial issue. In my paper I talked about the Intervention Convention. It is similar in that we are taking a drastic measure and it gives me the provision to go to the Commandant for approval.

MR. DEAN: I will take an order under the Intervention Convention.

CAPTAIN JENSEN: Then I would go to my boss, the district commander, and the Commandant via Admiral Henn and recommend that we jettison 2,000 tons. I would urge that time is of the essence and a decision is needed within several hours. I would ask that we direct that jettison take place. I am not taking the full burden on my shoulders, but realistically I would not do that anyway. I would go to the Commandant and ask for this authority.

MR. DEAN: I think we would take comfort in an order directing us to do that.

CAPTAIN JENSEN: In this situation, I realistically doubt we would get an answer in sufficient time to accomplish the jettison. I would need to determine a time when I should get the crew off the vessel for their own safety. Certainly the safety of

the vessel crew and Coast Guard crew and salvage master is paramount. We would make sure we had a Coast Guard helicopter that could get people off before the helicopters were moved out of Elizabeth City and sent inland for their own protection. There would not be much time to accomplish the jettison before the helicopter evaluation order was given so the jettison order would have to e made very quickly.

MR. WITTE: Having finished the jettison exercise, what is particularly interesting is that most of us, when we arrived at this symposium thought that there was no possibility that a decision to jettison could be rendered under existing law. But it was just accomplished.

MR. DRISCOLL: I have to take exception. I don't think it was accomplished.

MR. WITTE: He recommends jettison.

MR. DRISCOLL: He recommends jettison but then he steps back and goes to the commandant and says he doubts he will get an answer back in time.

MR. WITTE: We don't have the commandant here. I am quite surprised we got as far as we got.

CAPTAIN JENSEN: Let me clarify that. I did not mean to say that just the Commandant would delay this process. I am saying this entire process, up to the Commandant making his decision and issuing the order might take that time.

MR. DRISCOLL: What bothers me about this whole scenario is that we have gone to all this trouble and dragged it out and everybody has looked at it. We finally came to a consensus and then we can't get the answer in time.

CAPTAIN JENSEN: I don't know that we can't.

DISCUSSION: QUESTIONS AND COMMENTS ON THE DECISION-MAKING EXERCISE

JOHN WITTE: The last issue remaining is whether there is good reason to recommend a legislative or regulatory solution to simplify the process of deciding to jettison.

CHAIRMAN PAULSEN: Before we continue, I would like to thank the panel and all the participants. This was a real drama, I thought. It was excellent. I was interested, absorbed. I had no idea how it was going to come out. There is a question. Would you state who you are, please?

DAVID USHER, SPILL CONTROL ASSOCIATION OF AMERICA: I would like to commend my colleagues today. You have taken a very good step, a bold step. Beyond that, we look at legislation.

FRED BURGESS, LE BOEUF, LAMB, LEIBY, AND MACRAE: We talked here today about some situations where it is advisable to jettison and we just went through one here. What we find in many of the oil spills is driven by public opinion. What needs to be done is to come up with some vehicle to educate. The education has to go to state and federal people, but it has to go broader than that—it has to educate the public at large. There needs to be some organization which isn't perceived to be biased. I know the National Research Council will put out a book, but maybe something more could be done, something that says "these are the concerns" and "these are the possibilities."

CHAIRMAN PAULSEN: We all have a lot to think about as a result of today, but there has been thought given to this before today. There has been an exchange of correspondence between George Waddell, who is here, and Hilliard Lubin of Maine, who is not here. George has asked to have the floor for a few minutes.

GEORGE WADDELL, HANCOCK, ROTHERT & BUNSHOFT: Thank you, Mr. Chairman. When I came to this meeting, I assumed the problem was going to be whether jettisoning under the present legal regime would ever be a viable alternative, and, if it is, who could make it. Hilly Lubin, who advises ship owners and operators on training and instruction of their masters, sent me the text of what he proposes to put in instructions to masters for his owners in some sort of bridge instructions or underway manual.

I am going to read it and comment on it. (Let me preface this reading by saying, I am of the old school, having been in the admiralty practice more than 40 years. Very little has been said about the role of the ship master. We have been talking about a high level of technology, but the master's role has only been touched on occasionally. I am uncertain what the master's role is when there is an OSC appointed. But I know when there is none appointed, he is the final decider.) The language is:

> In any case where human life is in peril, or whether the vessel or cargo is threatened with damage or loss, or where there is a danger of pollution, the master is to take all proper precautions immediately, without hesitation, for the safety of all on board, the vessel, or its cargo. One of the possible actions is jettisoning the cargo. Jettisoning is the last resort to be considered, but it is to be considered. In order to jettison cargo by order given by the master—the order to jettison cargo is to be given by the master when, in his ship's considered judgment, it is the only way to reasonably ensure that less cargo will be lost than not to jettison, and endanger the ship, all of its cargo, and possibly lives. Before action to jettison is taken, appropriate calculations are made so as to minimize intentional pollution.

Those are the instructions he recommends to masters. He is giving the master a certain discretion. The question is, what master will have the courage to jettison if he does not get instruction or advice from the OSC? I suggest that no master will have the courage to make that decision, even though he receives Mr. Hilliard's instructions. I don't know how that is to be corrected, but I suggest, as others have suggested today, that it probably can only be done by something in writing, possibly legislation. I rather hurriedly drafted up the following, which I would like this group to consider:

> The federal on-scene coordinator, if there be. one, or if there be none, any person in actual charge of a vessel which constitutes a substantial threat of a discharge of oil or hazardous substances, may cause jettison of such oil or hazardous substance, if he believes, reasonably and in good faith, that such jettison will prevent a discharge of greater amounts, or more serious consequences than the jetrison itself.

I follow that up with even more dangerous and controversial language:

> And any such jettison shall not constitute a basis for civil or criminal liability on the part of the person ordering or causing it.

That language is not engraved in metal. I just drafted it a short time ago. But I think it may have a kernel of a possibility that will help resolve the issue that has troubled us all day long, especially in situations where there is no time to get the on-scene coordinator on the job and no time to go through the complex procedures that have been outlined today. The ship is on the reef and the captain has to make a decision now. If he makes it reasonably and in good faith, I think he should be protected. I suggest that something along these lines might do the trick.

Whether that could be put into the National Contingency Plan or whether it be considered a statute, I don't know. But I believe it should be considered and it will direct attention to what I consider the most critical issue that this body has to face—whether anyone will have the courage to make the decision to jettison in a proper case. Thank you very much.

CHAIRMAN PAULSEN: Your suggestion, George, is that this language be a statute or that OPA 90 be amended to have some clause like that.

MR. WADDELL: You have asked too hard a question, Gordon. I am not well informed on legislation. My impression is that it would be the best thing in the world to put that in the United States Code, under those sections that constitute OPA or some other appropriate place. If that is not practical, consideration should be given to having it introduced into the National Contingency Plan. I am not politically astute enough to know how one goes about doing that.

PARTICIPANT (UNIDENTIFIED): With all due respect, I could not agree to that kind of language. A master who runs a ship aground probably has a flaw in some decision making. In the middle of all this, we are going to ask him to make the decision to jettison or not jettison? I think we are asking a lot of an individual who has some difficulty. We spend lots of time trying to decide what makes good decision makers, and I would be afraid that there are some people who sail as masters who

would jettison, contrary to all advice not to. Therefore, as a ship owner, employer of people who go to sea, I would not support such a proposition.

CHAIRMAN PAULSEN: We have another divergence of opinion. Nina?

NINA SANKOVITCH, NATURAL RESOURCES DEFENSE COUNCIL: The question is, do we need a legislative fix to this problem? I think we don't need it because the National Contingency Plan can be used now to address the decision-making process that has to be gone through to make a jettison decision. There is no need for legislation. OPA gives the authority to develop guidelines for responding to a spill, and that can include jettisoning.

We have to be very careful about not discouraging improvements in lightering and other salvage activities by giving too easy a way toward jettison. We also don't want to create the perception that, if you have a grounding, don't worry about it, you can jettison and get off. We are not going to have fewer groundings that way—we may end up with more.

In addition, liability under OPA cannot be altered. That would be supported by any environmentalist unless you wanted to open up OPA and make it unlimited liability. Finally, the real issue that has come out today is that salvage capability is the problem, not whether a scenario where you may have to jettison is going to happen once every 100 years. Discussing jettison can work as a red herring, whether intentionally or not, to divert attention away from the real issue, which is salvage capability in this country. That is something I know the committee is going to be addressing, but everyone at this symposium should think about that also.

WILLIAM GRAY, SKAARUP TANKERS, INC.: I hope this question that has been posed is one that your committee will make a rather explicit recommendation about. I would like to introduce the factor that not all groundings happen because of mistakes of masters. This was one scenario that we heard today. I feel very strongly that we have, since the days of the sailing ship, little by little by little, cut the responsibility right out of the master of the ship, but he or she is the person on the scene who, when they can't get all the fine advice we have in this room, may have to make a decision very quickly. If we haven't employed the right person to do that and are not prepared to give them that power, we should get somebody else. We do need to make a change legislatively in OPA which will, in some way, not make the decision that person is likely to make be one to keep themselves out of jail. I don't want to go to jail either, but they should be motivated to do what, in their judgment, they believe to be the right thing. As I understand it, that is the guts of the Intervention Convention, that it reserves to governments the right to do nearly anything they can justify to the court of public opinion or the rest of the world. Why do governments reserve that right for themselves, but not grant it to industry?

This brings up another question. Peter Bontadelli said it may be a couple of years yet before we get the national plan and area plans to address these questions. Yet ship owners have to make those decisions under OPA 90's contingency planning requirements. In the meantime, between now and then they are subject to the law. Why don't the governments get their act in gear before they decide that industry is going to be hung for what they did wrong, when they may not have done something wrong in the first place? I hope your committee will take some of those thoughts into consideration.

ANDREAS UGLAND, INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKER OWNERS: I represent one of the people from abroad. I was one of the people listening to this discussion who was glad that the decision at the end of the

scenario was to jettison. I think that was a good decision. The reason is because we mustn't forget admiralty law. I am not a lawyer, but admiralty law—hundreds of years of customs of how to behave at sea—applies to everybody in this room. Whatever happens, you should act as if you are not insured. If I were an owner and I was denied the opportunity to jettison and I lost a $100 million ship and a $50 million cargo, I think somebody should be sued for that. So, whatever the aspect is, don't let us forget the admiralty law.

KLAAS REINIGERT, INTERNATIONAL SALVAGE UNION, SMIT INTERNATIONAL: In a normal career of a captain or a master of a ship, he will be in those circumstances, let's say, once in his lifetime or maybe never. So, for him it is very hard to make that judgment. What I would like to ask is, what is the role of the salvage master? I have been involved in 60 tanker casualties. Jettison was not at all relevant in any of those cases. This means that after 60 tanker casualties, I have some experience where very quickly I can judge jettison is necessary or not required. I am asking you all, what is the role of the salvage master here in the United States, especially when you have the Lloyd's Open Form, not a contract incentive by the salvors but by the insurance industry. Under contract on the Lloyd's Open Form, we prevented a spill south of Galveston three years ago, because there was a ship owner who made a very quick decision and a salvage master in control from the very beginning. That is why there was hardly any pollution. I see that the role of the salvage master is totally underestimated here.

MARK COHEN, ROYSTON, RAYZOR, VICKERY & WILLIAMS: In light of what I understand to be the future plans of the committee, I recommend that the attempt to create a jettison option be created through a regulatory exercise as opposed to an attempt to create a new piece of legislation. That is a specific suggestion and I will put my partners and my money where my mouth is. If you want us to try to draft the appropriate regulation, we will try to do that and give it to the committee.

CHAIRMAN PAULSEN: Thank you very much. The committee would be glad to hear from all of you as to any suggestions you have. I think Nina's comment that OPA 90 is here to stay is pretty much the consensus. We have to learn to live with it, but maybe some of its provisions have to be interpreted a little bit differently than they have been.

MR. DRISCOLL: To follow-up on the role of the salvor, it is to keep the oil in the ship and that is prevention. I am asking that, if anything comes out of this, allow the salvor some specific responder immunity so there is no question about it.

MR. BURGESS: I think Mark Cohen's suggestion that any fix be done through the regulatory mode, is a good suggestion. In two of the papers submitted, we pointed out that 1321 and B-3 allow the President to decide when and where releases of certain quantities at certain times and locations the President may determine not to be harmful. It seems to me that if you put that together—that is a regulatory fix. If you were to do that and tie it in with changes to the National Contingency Plan that would put the President, the Coast Guard, into the position of being able to direct. Perhaps it might take care of some of the concern that people raised about my presentation this morning. It would provide one additional piece of ammunition to say, I think that it can be directed and that, under those circumstances, the salvor would not be liable.

WARREN DEAN, DYER, ELLIS, JOSEPH AND MILLS: I want to make one final point. We talked about the east coast in connection with the scenario. The state liability laws in the east apply to the discharger or the vessel owner/operator. On the west coast of the United States, state liability laws also impose strict and unlimited

liability on the cargo owner. When you talk about the decision-making process and who ought to be in a position to make a decision on jettisoning—whether it be the master of the vessel or the person in charge of salving, or some other individual—one thing has changed. One reason the decision-making processes are more complicated and why we may not want to vest this authority in masters any longer, is that they are playing with other people's money in a way that they have never played before because state laws may impose unlimited liability on the cargo owner for the decision of the master. That is something we didn't focus on in the scenario discussion because it was an east coast spill. But on the west coast, that is something you will want to consider carefully.

WILLIAM PECK, OFFICE OF U.S. NAVY SUPERVISOR OF SALVAGE: Mr. Chairman, I agree completely that some express provision needs to be incorporated, probably in regulation because I think statutory amendment at this point is too difficult for a number of reasons. I urge the committee to work toward a strong, unequivocal statement, including definite language. I ask it for this reason. Last July, I sent two paragraphs to the Coast Guard for their consideration, a specific provision to be incorporated in the National Contingency Plan. I offered it as a draft, as a starting point of discussion. I have heard absolutely nothing from the Coast Guard since July 17th and I have followed up a couple of times since. I think it is important that if this is truly the course we want to take, that it be clear, strong, and unequivocal, or we won't get any action at all.

CHAIRMAN PAULSEN: If we can't get it by your writing a letter, we wouldn't get it by my writing a letter. So how do we get it?

MR. PECK: If it was the product of the Marine Board, a policy recommendation.

PHILIP BERNS, U.S. DEPARTMENT OF JUSTICE: I seem to get lost here. Is somebody saying that by a regulation we can provide some sort of protection or coverage? Then obviously that means the statute itself allows that, because there is no regulation that is going to amend the statute if the statute doesn't give you the protection. Obviously when the existing statute provides such protection, the regulation is only clarifying it.

If there were an amendment or regulation, assuming that otherwise your regulation is viable and legal, are you going to allow that there is a coverage that the mere calling of a person a salvor is going to give that person total immunity. Is it going to be a negligent salvor who would or would not be liable, or do you have to have willful misconduct? Is it going to be a strict liability. I think Hilly Lubin's recommendation is deficient. He is missing the point that pollution has jumped from the bottom of the list ahead of cargo. Hilly's instructions are, you look at life (which we all say comes first), then cargo, then maybe pollution. But it comes out to be life, pollution, and cargo. Again, if you are going to make any sort of change, you have to consider the level of liability.

CHAIRMAN PAULSEN: Phil, you asked whether there was any space in OPA 90 for a regulation such as the type we are talking about. Do you think there is?

MR. BERNS: My present approach—again, it is unofficial—is that if somebody has received the Coast Guard's sanctions to go ahead and spill, and with the particular state involved joining in, there is not going to be an action against them. Obviously, if the ship is aground and is going to have to be jettisoned, is everyone going to get out? No. Who put that ship aground? Originally the captain. Now somebody is

saying maybe the captain should also decide since he put it aground, he should tell you how to get it off, including jettison. That is not going to happen.

Who is the party that is protected? Most people here are thinking solely in terms of salvors, that they should be protected. I agree. But suppose those salvors are negligent. Should they be liable? Suppose those salvors create a worse position. Should they be liable? The statute now allows for consideration that you are not liable as long as you act in accordance with the rest of the National Contingency Plan, instructions of the RRT, the OSC, and so on.

MR. WITTE: As a salvor, I have no difficulty with accepting liability for negligence. We carry insurance just like everyone else and the clubs have decided that they will continue to write salvors' liability as long as it is reasonable. We should be held to no lower nor higher a standard than anyone else in business. Keep in mind that we take considerable risk every time we go out there, and the decision-making process in salvage is considerably different than dealing with non-moving objects.

Regarding the writing of a regulation, there is no reason that it couldn't work as in spill response, that a regulation could be written so that the majority view of the regional response group or recommendation of the on-scene commander holds.

MR. BERNS: I am not even sure you need that. As Pete pointed out, the statute presently provides for a coordinated decision, with the state agreeing. If salvage is a preventive tool and if OPA 90 is going to be in force and is going to mean something, it is very difficult to understand why the regulations didn't include salvage and firefighting. Perhaps the only reason they didn't is that the salvage community was not vocal with regard to its participation. Whatever the reason, I can't understand why the Coast Guard has been very specific in certain areas and why it should be such a difficult proposition to write into the regulations something with regard to salvage, something with regard to firefighting, and something with regard to jettison. I don't think it is a major problem because I think it is already in the Act.

MR. WITTE: There is nothing in the regulations that were written by the United States Coast Guard that emphasizes salvage, firefighting, or even lightering, not to mention jettison. There are reams and reams of paper on spill response, but we all know that once it gets out of the vessel, it is a disaster, no matter what happens after that.

MR. BERNS: Frankly, I think this is the lesser of your problems. I agree that whenever you become specific, you are going to risk leaving something by not mentioning it. The more specific you get, the more dangerous it is. Right now, I don't think you run any real risk with the federal government. But if the state has some sort of statute or authority, police power or whatever, and can impose a liability for the same act, you are not going to be doing it by amending OPA 90 unless there is a preemption—and you know this is not going to happen.

That may be your bigger problem, because I don't see the federal government exercising this type of pressure. It could happen, but I don't think it will. What your question has always been is, how is the state going to react to this? As it presently stands, the federal government does not preempt.

MR. WITTE: That is something the salvage community, as well as the spill response community, has to deal with. Whether they like it or not, there will not be preemption and everything is going to be on a case-by-case basis, depending on the state you are in.

MR. BURGESS: It seems to me that you have to look at what the Supreme Court said in *Arco v. Ray*, the supremacy principles, and OPA Section 1018, which deals with the non-preemption clause. I think it is a defensible argument that, in those situations where the President directs, the salvor is entitled to immunity.

CHAIRMAN PAULSEN: Fred, you would say in those situations "I think we are really talking about legislation before there is such a situation," so that when a disaster occurs, we don't have this period of uncertainty?

MR. BURGESS: Yes. The question is, would it be better if there were legislation? Many people would say yes but, as Phil pointed out, you have got to be careful in drafting the legislation. It may be better to have some legislation that made the point more clearly. It probably is going to be difficult to get such legislation now, so perhaps we should look at the cards we have and see if there something already there that will effect the purposes that the Congress wanted. They wanted somebody to look at the big picture and take action; they wanted the federal government to direct that action; and they wanted them to prevent or mitigate a threat. If the federal government says to the salvor, "do it," but the state says, "if you do it, I am going to put you in jail," they are working at cross purposes to what Congress intended. If that is the case, then Ray says that the state statute can't interfere. I have cited it a few times but I feel very strongly about it when you put it all together. I think there is a basis.

And what does the B-3 do? The B-3 merely provides the opportunity for the President to be able to say that under certain circumstances, such a discharge is not harmful. If it is not harmful, then it is not a violation.

CHAIRMAN PAULSEN: Can you say that before it happens?

MR. BURGESS: He is supposed to do it by regulation, and all he can do is put out some general parameters. I am not saying that everybody should go out and jettison oil. I think it is an unusual circumstance, but if the advice of knowledgeable people is that it ought to be done (bear in mind the area committees bring together the disparate views—local and state), you shouldn't have a regime that would make the salvor say no.

CHRIS KENDE, HOLTZMAN, WISE & SHEPHERD: An interest that hasn't been mentioned is the cargo interests. Under a lot of state statutes, cargo is directly and strictly liable. There needs to be some consideration for having cargo input and possibly some thinking about what charter parties should say in this kind of situation. In Alaska and California, if there is a jettison, the cargo interests would be strictly liable for those interests, as would the owner/operator. So, they clearly need to be involved. Particularly with independent tanker owners, the likelihood is that the cargo interests, where it is an independent foreign-owned vessel, may have a lot more resources, a lot more ability to provide intelligent input than the independent tanker owner would.

DAVID WOOD, MARINE TRANSPORT MANAGEMENT, INC.: I have two quick points. First, I am not sure what all the anguish is from the salvor side with respect to this particular scenario. Under the facts as given, the question is whether to discharge 2,000 tons of oil. It seems to me it is pretty much a no brainer. You are not betting the company by discharging 2,000 tons of oil; you are betting the company if you don't discharge the 2,000 tons of oil. From the salvors' perspective, if they discharge 2,000 tons of oil and it does not succeed in refloating the vessel, then the vessel stays where it is, it ballasts down, and under the facts given in the scenario, it is likely that the vessel will break up or there will be a large spill. Therefore the 2,000 tons that were discharged aren't really going to matter. If discharging 2,000 tons does

refloat the vessel, then there is a 2,000-ton discharge, but you saved the ship and everyone should be happy.

The second point is that there is so much concern about whether or not to discharge the 2,000 tons because nobody wants to be seen, in this day and age, as a party who deliberately discharged 2,000 tons of oil into the environment, whether or not it is the right thing to do. I have heard a lot of talk about how it is a legal issue, but it is really a political issue. The main concern this group should address is the comment that the federal government, the on-scene coordinator, may not authorize, agree, advocate—whatever term you want to use—the jettison of the oil. Even in this scenario, that becomes a political issue. Until the political climate changes in this country, this discussion is academic because it will never be agreed by the Coast Guard and no ship owner is going to go against what the Coast Guard is recommending in any given spill.

MR. WITTE: What happens if you take 2,000 tons off, the ship puts through the hurricane, the ship doesn't come off, and the 2,000 tons go on the beach. The ship comes through the hurricane. The ship is sound. Is there no potentially liability for the salvor.

MR. WOOD: That would be the worst case scenario for the salvor. That would be the worst case scenario. But again, given the facts of the scenario, if you don't discharge the 2,000 tons, you are facing a larger spill in the breakup of the ship. Therefore, in this scenario, you ought to go ahead and do it.

WILLIAM SEARLE, MACKINNON SEARLE CONSORTIUM LTD.: In response to the last speaker, that is not the worst case scenario, that is the every case scenario. Any salvor will tell you, that is the first thing he thinks of when a ship is grounded, blow in the tanks. It is bound to happen in every serious stranding. Let me tell you how this all started and I will come back to that bit of technology. This all started in about 1968 or 1969, when the Federal Water Pollution Control Act (FWPCA) was being changed. It was sent around to government departments and came to me as U.S. Navy Supervisor of Salvage. Dick McCarthy, who used to work for Phil Berns and then was the head of the Navy Admiralty Section in SHAG flagged this particular item as dangerous because there was great concern in the salvage community about the possibility of getting sued—becoming liable for anything related to pollution in the day-to-day operation of ship and salvage work. Any ship that punched a hole in the bottom and grounded could have a pollution liability. We flagged this and mentioned jettison as a possibility. These comments critiquing the FWPCA were completely pigeonholed in the Pentagon, and there were no comments made to Congress.

We had a lot of liaison with the British. The *Torrey Canyon* was the first major case in which oil was jettisoned. It was aground for several days before the abortive action took place that caused the engine room to blow up and killed the salvage master. The big controversy in the Ministry of Defense was that the Navy supervisor of salvage didn't want them to bottom the ship and the government and the Air Force wanted to bomb it. As you know, that's what they did. The engine room blew up and they lost some machinery—most of the air blowers that pump the air system, and the whole thing went to hell in a hand basket. The Navy supervisor of salvage had wanted to proceed with the normal classical salvage work. They had a barge coming. They had a salvage ship alongside, and they were proceeding according to the book. Whether the ship would have succeeded in getting off the rocks or not, we will never know, but it was an *in extremis* situation. It wasn't a loss situation for several days. So much for that in the sense that the politics and public reaction were rampant.

That nobody learned a lesson from the bombing of the *Torrey Canyon* was demonstrated by the fact that they bombed the *Amoco Cadiz* and turned it into a mess. There wasn't anything else that happened to the *Amoco Cadiz* anyway, but there was no sense in bombing it. I said that it is an every case condition. By that I mean that when using air to lighten a ship, the salvage master and the salvage engineer want to test each tank individually to see how long it takes to get them down and to ascertain how much buoyancy they are getting out of the tank, how much of a bubble they have got in there.

The salvage officer, the salvage engineer would determine how much buoyancy they needed, how many inches without a draft she is. Those inches would relate to the tons for each immersion, which is a good measure of how much barging capacity you need or how much blowing capacity you need to get the ship up. For 350,000- and 400,000-ton tankers the tons for each inch of immersion is about 550, that order of magnitude. That means you have got to take 500-tons of oil off to change the draft one inch. One inch isn't going to do much good. The only hope you have for salvaging these kinds of ships is to blow them. The name of the game is to know each instrument in the orchestra that the salvage officer is directing, know what the total buoyancy capacity of each tank is that you are blowing and pumping, and orchestrate them all in connection with the tide, the currents, and the weather.

But each time the salvage people blow down a tank, you are going to have a little pollution. What we worry about is inhibiting the normal, everyday, nonheroic, nongigantic nature of the problem, but just in our simple bag of tricks of blowing tanks, you are going to get some bubbles of oil and maybe 2,000 tons, if you have got big tanks, such as on the *Amoco Cadiz*, and much more on the *Exxon Valdez*.

That is my vision of the problem. We erred in using the term jettison when we tried to explain this weakness in the bill. Since then, we have talked about jettisoning. If, as the representative from the London Salvage Association said in his paper, the jettison business goes back to Biblical times or before, I submit that jettisoning was done by the ship's force itself. I submit or suggest that the lawyers and the historians look at the history of jettisoning and see if salvors jettison. I question whether salvors jettison. Salvors blow tanks, salvors pump tanks, move weights around and shift cargo. But I don't think we call them cargo operations. I don't think we need to call it jettison. If the law prohibits jettisoning, what we are talking about is simply routine mechanics, routine procedures, that were in our bag of tricks all the time. I have taken the position lately that we ought to be talking about heroic measures, jettisoning—big jettisoning—being one of them. There are other heroic measures. If you use a simile to the emergency room at the hospital on Friday or Saturday night and the motorcycle boys are coming in on stretchers. The emergency room has the authority to give IVs to people. If you need heroic measures, they may have to strip down a vein or perform a tracheotomy. That is what we are talking about here, not the routine, everyday procedure of blowing a tank.

CHAIRMAN PAULSEN: It has been a wonderful day. I thank everyone who participated, people who asked questions, people who answered questions, people who arranged this session. The committee is going to meet and will keep in mind the things that have been discussed here.

APPENDIX A:

SYMPOSIUM PARTICIPANTS SYMPOSIUM PARTICIPANTS

SYMPOSIUM ON THE PURPOSEFUL JETTISON OF CARGO WASHINGTON, D.C., FEBRUARY 23, 1993

Members Of Committee On Marine Salvage Issues

GORDON W. PAULSEN, *Chairman*, Healy & Bailie

PETER F. BONTADELLI, Office of Oil Spill Prevention & Response, California Department of Fish and Game

J. HUNTLY BOYD, JR., Booz-Allen, Hamilton, Inc.

KENNETH J. FULLWOOD, Maritime Relations and Environmental Affairs, Safety and Nautical Services, Mobil Shipping and Transportation Company

RICHARD F. LEE, Skidaway Institute of Oceanography

J.H. (Mick) LEITZ, J.H. Leitz & Associates, Inc.

NINA SANKOVITCH, Natural Resources Defense Council

ROGER E. VAN DUZER, Marine Operations, Shell Marine Department, Shell Oil Company

JOHN A. WITTE, Donjon Marine Co., Inc.

Not in attendance:

JOHN H. ROBINSON, Gulf Program Office, Office of the Chief Scientist, National Oceanic and Atmospheric Administration

Liaisons To Committee

JERRY ASPLAND, Marine Board and Arco Marine, Inc.

KEN KEANE, Marine Environmental Protection Division, Office of Marine Safety, Security and Environmental Protection, United States Coast Guard, Washington, D.C.

WILLIAM PECK, Salvage and Diving, Naval Sea Systems Command, U.S. Navy, Arlington, Virginia

Speakers

Philip Berns, Department of Justice

Fred Burgess, Le Boeuf, Lamb, Leiby, and Macrae

Laurie Crick, Dyer, Ellis, Joseph & Mills

Warren Dean, Dyer, Ellis, Joseph & Mills

John J. Driscoll, Smit Americas, Inc.

Michael Ellis, Salvage Association, London

Rainer Engelhardt, Marine Spill Response Corporation

Richard P. Fiske, U.S. Navy Naval Sea Systems Command Office of Salvage and Diving

Roger Gale, BP North America

Jerry Galt, National Oceanic and Atmospheric Administration

A.E. Henn, U.S. Coast Guard

Donald S. Jensen, U.S. Coast Guard National Strike Force Coordination Center

Jack Kalro, Diversified Technologies
Robert H. Nicholas, Jr., Exxon Company, U.S.A.
V. Lee Okarma Rees, Graham & Dunn
Anne Rothe, National Wildlife Federation

Participants

Thomas Allegretti, American Waterways Operators
Tim M. Beaver, Global Diving and Salvage
Alan Becker, PCCI
Jim Bladh, U.S. Navy Naval Sea Systems Command Office of Salvage and Diving
Alex Blanton, Dyer, Ellis, Joseph & Mills
Liz Sigel Bouchard, Vessel Operations and Maritime Initiatives, Transportation Institution,
Carolann Bowen, Office of Coastal Protection, Florida Department of Natural Resources
Alan Breed, Marine Spill Response Corporation
Richard H. Brown, Kirlin, Campbell, Meadows & Keating
Robert T. Bush, Universe Tankships, Inc.
Edward G. Cawthon, Turecamo of Savannah, Inc.
Barry E. Chambers, Clean America, Inc.
William Chubb, U.S. Coast Guard
Kevin Cohen, Dyer, Ellis, Joseph & Mills
Mark Cohen, Royston, Rayzor, Vickery & Williiams, L.L.P.
Patricia A. Collins, U.S. Coast Guard National Pollution Funds Center
Sean T. Connaughton, Haight, Gardner, Poor & Havens
Philip Cooney, American Petroleum Institute
John D. Costello, Marine Spill Response Corporation
Joseph J. Cox, American Institute of Merchant Shipping
Lee R. Crockett, Committee on Merchant Marine and Fisheries Staff, U.S. House of Representatives
Thomas F. Daly, McCarter & English, Esquires
Andrew W. D'Angelo, MacKinnon Searle Consortium Ltd.
Graham H. Deere, The Salvage Association
Rita J. Diehl, Council on Ocean Law
Michael Donohoe, U.S. Coast Guard Environmental Protection Division
J. Stephen Dorrler, Marine Spill Response Corporation
Ron Duckhorn, Crowley Marine Services
William Eichbaum, Marine Board and World Wildlife Fund
Glenn Epler, U.S. Coast Guard
Gary Faber, Crowley Marine Services
Richard B. Fairbanks, Titan Maritime Industries, Inc.
Bruce Fernie, Fleet Management, Texaco Marine Services, Inc.
Richard Fredricks, Marine Spill Response Corporation
William O. Gray, Skaarup Oil Corporation
David Hall
Paul Hankins, U.S. Navy Naval Sea Systems Command Office of Salvage and Diving
Robert E. Hartzel, Ellsworth Salvage, Inc.
John R. Henley, MacKinnon Searle Consortium Ltd.
David V. Hutchinson Department of Justice
Marcus J. Johnson, Consultant
Eugene M. Kelly, Amoco Transport Company

Christopher Kende, Holtzmann, Wise & Shepard
David M. Kennedy, NOAA Hazardous Materials
Response and Assessment Division Richard Knee, U.S. Coast Guard
John Koster, Healy and Baillie
Miles Kulukundis, INTERTANKO, United Kingdom P&I Club, Salvage Working Group
J. T. Leigh, Marine Spill Response Corporation
Marilyn Leland, RCAC
Malcolm MacKinnon, MacKinnon Searle Consortium Ltd.
Charles S. Maclin, Gallagher Marine Systems, Inc.
Gerald A. Malia, Kirlin, Campbell, Meadows & Keating
Henry Marcus, Massachusetts Institute of Technology
Bruce B. McCloskey, MacKinnon Searle Consortium Ltd.
James McDonald, Marine Spill Response Corporation
Jack McGrath, Marine Spill Response Corporation
William Merlin, Marine Spill Response Corporation
Trygve A. Meyer, INTERTANKO
Mark Miller, National Response Corporation
W. I. Milwee, Milwee Associates, Inc.
Jim Morgan, Arco Marine
Barry Ray Ogilby, Marine Spill Response Corporation
Skip Onstad, Marine Spill Response Corporation
Hans Kristian Øvstaas, The Bergesen [DY] Group
Paul Preus, MacKinnon Searle Consortium Ltd.
Albert A. Propsma, Smit Americas, Inc.
Klaas J. Reinigert, International Salvage Union and SMIT TAK B.V.
Kent Roberts, Schwabe, Williamson and Wyatt
Richard Roth, Crowley Marine Services
John R. Sambrook, The Salvage Association, Ltd.
Andrew Santos, Cook Inlet RCAC
W. F. Searle, MacKinnon Searle Consortium Ltd. (retired)
David J. Sharpe, National Law Center, George Washington University
Sidney H. Shaw, MacKinnon Searle Consortium Ltd.
Mike Sowby, Office of Oil Spill Prevention and Response, California Department of Fish and Game
Malcolm L. Spaulding, University of Rhode Island Department of Ocean Engineering
Rosemary Stein, Exxon Shipping Co.
James Stillwaggon, MacKinnon Searle Consortium Ltd.
John L. Sullivan, Smit Americas, Inc.
Robert L. Sullivan, American Petroleum Institute
R. K. Thurman, MacKinnon Searle Consortium Ltd.
Gene Toffoli, Office of Oil Spill Prevention and Response, California Department of Fish and Game
Andreas K. L. Ugland, INTERTANKO
David Usher, Spill Control Association of America
George L. Waddell, Hancock, Rothert & Bunshoft
John Waldron, Marine Spill Response Corporation
Sidney A. Wallace, Dyer, Ellis Joseph & Mills
Ritner E. Walling, Ellsworth Salvage, Inc.
William Webster, University of California at Berkeley and Commission on Engineering

and Technical Systems
Russell Weil, Kirlin, Campbell, Meadows and Keating
Edson Whitaker, MacKinnon Searle Consortium Ltd.
David L. Wood, Health, Safety and Environmental Protection Department, Marine Transport Lines, Inc.
Frank Wood, U.S. Coast Guard Office of Marine Safety, Security and Environmental Protection
John M. Woods, Thacher, Profitt and Wood

STAFF

CHARLES A. BOOKMAN, Director
RICHARD WILLIS, Consultant
ANDREA JARVELA, Consultant
AURORE BLECK, Administrative Assistant

APPENDIX B:

SYMPOSIUM AGENDA

SYMPOSIUM ON THE PURPOSEFUL JETTISON OF CARGO WASHINGTON, D.C., FEBRUARY 23, 1993

Meeting Location:

Lecture Room National Academy of Sciences
2101 Constitution Avenue
Washington, D.C.
8:30 A.M
1.0 Welcome, Symposium Objectives and Organization; Video Presentation Gordon Paulsen, Chairman
Welcome from the U.S. Coast Guard, RADM A.E. Henn, U.S. Coast Guard
Welcome from the U.S. Navy Supervisor of Salvage, Captain Richard Fiske, U.S. Navy
9:00 A.M.
2.0 Significance of Jettisoning, Michael Ellis, Salvage Association, London
9:30 A.M.
3.0 Purposeful Jettison of Cargo: Decision Framework, Kenneth Fullwood, Mobil Shipping Company
10:00 A.M.
4.0 Legal Status of Jettisoning
4.1 Presentation of Legal Issues, Warren Dean and Laurie Crick, Dyer, Ellis, Joseph & Mills
4.2 Invited Discussants, Philip Berns, Department of Justice; Fred Burgess, Le Boeuf, Lamb, Leiby, and Macrae; Robert Nicholas, Exxon Shipping Company; V. Lee Okarma Rees, Graham & Dunn
1130 A.M.
5.0 Importance of Spill Size on the Environmental Effects of a Spill Incident, Rainer Engelhardt, Marine Spill Response Corporation
12:15 P.M. Lunch
1:00 P.M.
6.0 Oil Spill Trajectory Modeling, Jerry Gait, NOAA
1:45 P.M.
7.0 Panel Discussion
Peter Bontadelli, California Department of Fish and Game

John Driscoll, Smit International Americas Inc.
Roger Gale, BP North America
Donald S. Jensen, U.S. Coast Guard National Strike Force Coordination Center
Jack Kalro, Diversified Technologies
Anne Rothe, National Wildlife Federation
7.1 Information Needed to Support a Defensible Decision to Jettison Cargo
3:15 P.M.
7.2 Decision Making: By Whom and How?
4:30 P.M.
8.0 Plenary Discussion and Closing Comments
6:30 P.M. Reception