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Booze, Pills, and Oil Spills: The Need to Tighten Regulation of the Shipping Industry

Briana W. Collier, Vermont Law School
**BOOZE, PILLS AND OIL SPILLS: THE NEED TO TIGHTEN REGULATION OF THE SHIPPING INDUSTRY**

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The MEGA BORG, aflame. In 1990, this tanker exploded during lightering, releasing millions of gallons of Angolan crude oil into the Gulf of Mexico. Over two million gallons burned, emitting as much carbon dioxide into the atmosphere as a 600,000-acre forest fire.

**ABSTRACT**

Statistics show that eighty percent of marine accidents are attributable to human error. While human error is not completely preventable, setting firm rules in a timely fashion and enforcing them can greatly reduce the probability of shipping accidents, and therefore, oil spills. Curbing human error is squarely within the purview of federal law and the Coast Guard’s delegated regulatory powers. This article suggests that the Coast Guard should take a page from the Federal Aviation Administration and tighten its regulations, especially those concerning drug and alcohol testing, mandatory work hour limits, and vessel traffic management. The Coast Guard should also work to create a culture of compliance by enforcing its regulations and imposing penalties.

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2 Lightering, or lighterage, is “the loading and unloading of goods between a ship and a smaller vessel, called a lighter, that is able to use a restricted port or dock.” BLACK’S LAW DICTIONARY 947 (8th ed. 2004). In this case, the deep draft oil tanker offloads to a smaller tank vessel, for the purpose of delivering the oil cargo into a port where the vessel’s draft exceeds the water depth.


4 Id. See also infra, p.11 (calculating the equivalent amount of gases burning crude oil releases compared to burning forest).

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INTRODUCTION

Two catastrophic oil spills of over one million gallons occurred in U.S. waters between March of 1989 and June of 1990. First, the EXXON VALDEZ oil tanker grounded on Bligh Reef in Prince William Sound, Alaska. This grounding ripped a gash in the hull, and the tanker hemorrhaged eleven million gallons of crude Alaskan slope oil into the Sound. The oil saturated and choked the sea, countless marine animals, and over 1,200 miles of nearby coastline.

Fourteen months later, the MEGA BORG tanker exploded while lightering in the Gulf of Mexico. The MEGA BORG released approximately four and a half million gallons of oil, two million of which burned on site.

Congress responded boldly to the EXXON VALDEZ and MEGA BORG oil spills, along with numerous other smaller spills that year, with the Oil Pollution Act of 1990 (OPA).

Looking back now almost twenty years later, this statute has largely succeeded in its goal of

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7 Id.


10 Guinasso, supra note 3. NOAA Incident News, supra note 8.

reducing the frequency of toxically harmful oil spills in U.S. waters.\textsuperscript{12} However, OPA has not yet reached its full potential. Spills do continue to occur in U.S. waters, and they occur for many of the same reasons that caused the EXXON VALDEZ and MEGA BORG spills. For example, in 2007 the COSCO BUSAN container ship allided\textsuperscript{13} with the San Francisco Bay Bridge. The same preventable human errors caused this spill as those causing the EXXON VALDEZ spill.\textsuperscript{14} While many of OPA’s regulations successfully deter unsafe shipping practices,\textsuperscript{15} the regulations aimed at human error are neither strict enough nor adequately enforced.

The oil that continues to spill from vessels at the hands of reckless pilots and captains packs the same destructive power today as it did in 1990. The Boston Harbor and the San Francisco Bay beaches and ecosystems are among the recent victims of this destruction.\textsuperscript{16} Shipping safety could be vastly improved if the United States Coast Guard (Coast Guard) tightened specific regulations on drug and alcohol policy, mandatory work hour limits, and vessel traffic monitoring. The Coast Guard should heed recommendations of the National Transportation Safety Board (NTSB) to ramp up regulation in these areas. This Note offers comparisons to the more successful Federal Aviation Administration (FAA) regulations, which may serve as a useful model in this endeavor.

Part I of this Note will introduce the vision and purpose of OPA, framed by the major catastrophic spills of the late 1980s and early 1990s. This part will advance that the conditions


\textsuperscript{13} An allision is a term of maritime law, meaning “the contact of a vessel with a stationary object, such as an anchored vessel or a pier.” BLACK’S LAW DICTIONARY 83 (8th ed. 2004).

\textsuperscript{14} Compare John Upton, Prisoners of the Cosco Busan, E. BAY EXPRESS, May 27, 2009 (describing the substance abuse, fatigue, and lack of vessel traffic monitoring that contributed to the COSCO BUSAN spill) with Timothy Egan, Elements of Tanker Disaster: Drinking, Fatigue, Complacency, N.Y. TIMES, May 22, 1989, at B7, (reporting on the alcohol abuse, fatigue, and inadequate vessel monitoring that led to the EXXON VALDEZ spill).

\textsuperscript{15} CRS 2008 REPORT, supra note 11, at 2.

\textsuperscript{16} See infra pp. 7, 9.
that led to those spills still exist, as evidenced by spills of similar incidents and caliber that have occurred in recent years. Part II summarizes the environmental impacts of these spills, demonstrating why these regulations need tightening. Part III of this Note explores the reasons behind the pervasive problems, namely that the agencies have failed to give OPA’s human error prevention provisions the teeth they need to work effectively. Part IV surveys the regulatory agencies’ approach to these pervasive problems and the regulations as they stand. Part V will discuss the most glaring areas where improvement is needed, using the FAA regulations as a model to potentially increase safety and decrease accident rates. Part VI concludes with suggestions for shaping a better regulatory scheme to prevent the human error that is so often the primary cause of oil spills.

I. OPA’S SUCCESSES AND FAILURES

The Oil Pollution Act of 1990 is an impressive statutory scheme that regulates oil transport to prevent oil spills.17 In many ways, OPA succeeds in accomplishing its goals. Arguably, it has been among the most effective of the environmental statutes in changing destructive industry behavior. However, some areas of OPA’s regulation are clearly looser and less effective than others. This Part describes some of the statute’s most winning successes and most glaring failures.

A. Background on OPA

Congress had been working on oil spill legislation before the EXXON VALDEZ and MEGA BORG spills, but the House and Senate could not agree on a passable bill.18 The Oil Pollution Prevention, Removal, Liability, and Compensation Act of 1989 was proposed to Congress in five unsuccessful versions prior to March of 1989, when the EXXON VALDEZ

18 Millard, supra note 2, at 340.
spill ravaged the Alaskan coastline.\textsuperscript{19} The sixth version, introduced just a week before the EXXON VALDEZ spill, addressed liability and compensation issues only.\textsuperscript{20} Congress had jointly referred this legislation to the House Merchant Marine and Fisheries Committee.\textsuperscript{21} It would provide the basis for the Act that would eventually pass as OPA.\textsuperscript{22} After the spills, hearings prompted Congress to add spill prevention and oil removal provisions, making the legislation more comprehensive.\textsuperscript{23}

The final version of the Act contained several key provisions designed to provoke a major overhaul of shipping practices. OPA required all new oil tankers and some other larger vessels to be constructed with double-hulls.\textsuperscript{24} It scheduled the gradual phase-out of the existing single-hulled vessels.\textsuperscript{25} The Act directed the implementation of a highly elevated liability scheme.\textsuperscript{26} It created an Oil Spill Liability Trust Fund to pay for immediate cleanup costs when the responsible party refused to pay or could not be identified.\textsuperscript{27} Finally, OPA required port facilities to keep more response equipment on hand, and to train more personnel to use it.\textsuperscript{28}

Also among the spill prevention provisions of OPA were requirements that the Coast Guard test those licensed to work on vessels for drug and alcohol abuse,\textsuperscript{29} an allowance for the second-in-command to take over if “the master or individual in charge of the vessel is under the influence of alcohol or a dangerous drug and is incapable of commanding the vessel,”\textsuperscript{30} a call for

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{19} H.R. 1465, 101st Cong. 1st Sess. (1989); Millard, \textit{supra} note 2, at 340, n.54.
\item \textsuperscript{20} Millard, \textit{supra} note 7, at 340, 346.
\item \textsuperscript{21} Id. at 346.
\item \textsuperscript{22} Id. at 346–348.
\item \textsuperscript{23} Id.
\item \textsuperscript{24} 46 U.S.C. § 3703a.
\item \textsuperscript{25} Id.
\item \textsuperscript{26} 33 U.S.C. §§ 2702–04; see H.R. 1465, 101st Cong. (1990) sec. 15 in OIL POLLUTION DESKBOOK, \textit{supra} note 10, at 487 (setting forth the original heightened liability limitations).
\item \textsuperscript{27} 26 U.S.C. § 9509.
\item \textsuperscript{28} 33 U.S.C. § 2735.
\item \textsuperscript{29} 46 U.S.C. § 7702(c)(2).
\item \textsuperscript{30} 46 U.S.C. § 8101(i).
\end{itemize}
\end{footnotesize}
a rulemaking to prescribe when a vessel’s auto-pilot control may be employed,\textsuperscript{31} and limits on working hours.\textsuperscript{32} These spill prevention provisions aimed to man the vessels with better-trained and more capable crews, in order to reduce the human error element of oil spills.\textsuperscript{33}

Congress passed the Oil Pollution Act on August 3, 1990 and President Bush signed the Act into law two weeks later.\textsuperscript{34} In the Congressional Record, one member declared, “[t]he primary goal of this legislation is to prevent oil spills from occurring in the future. We must make every effort to ensure that accidents like the Exxon Valdez and the Mega Borg do not happen again and that our waterways are free from the ravages of oil.”\textsuperscript{35}

In its original form, OPA sought to benefit the victims of oil spills and punish the perpetrators.\textsuperscript{36} It imposed liability for cleanup costs as well as injury to any natural resources, real or personal property, lost subsistence use of natural resources, lost revenues, lost profits and earning capacity, and lost public services, limited only by a high, per-tonnage liability ceiling.\textsuperscript{37} However, while OPA “eliminate[d] traditional liability limitations in instances of willful misconduct or gross negligence, it stop[ped] short of permitting punitive damages against a shipowner who engages in such conduct.”\textsuperscript{38} Thus, plaintiffs would have to look elsewhere in the law to pursue punitive damages against the party responsible for an oil spill.\textsuperscript{39}

\textsuperscript{31} 46 U.S.C. § 3703.
\textsuperscript{32} 46 U.S.C. § 8104(n).
\textsuperscript{33} WILLIAM H. RODGERS, JR., RODGERS’ ENVIRONMENTAL LAW § 4:37A (2009).
\textsuperscript{34} Millard, \textit{supra} note 7, at 368.
\textsuperscript{36} Southport Marine, LLC v. Gulf Oil Ltd., 234 F.3d 58, 66 (1st Cir. 2000).
\textsuperscript{38} Duff, \textit{supra} note 5, at 955, n.161 (citing 33 U.S.C. § 2704(c)(1) (1990)).
\textsuperscript{39} See Duff, \textit{supra} note 5, at 967 (describing how the Ninth Circuit based its punitive damages award in the Exxon Valdez v. Baker case on the Restatement (Second) of Torts standard for a principal’s punitive liability under common law).
B. Achievements of OPA

In general, OPA’s key provisions have greatly decreased the occurrence of oil spills in U.S. waters. Where total volume of oil spilled in the 1980s averaged five to six million gallons per year, that average dropped to between zero and two million gallons per year in the decade after OPA’s passage.\(^{40}\) The increased liability scheme that OPA put forward is likely a “central driver” of the decline of oil spills.\(^{41}\) Moreover, data collected in 2009 shows that approximately 80 percent of the world’s supertanker fleet is now double-hulled.\(^{42}\) The remaining single-hulled tankers are soon to be retired. Here, OPA is working effectively, in concert with similar international standards to phase-out single-hulled vessels.\(^{43}\) The double-hulls indisputably add to the safety of the vessels, lessening the risk of spill casualties. Coast Guard testimony to Congress reported that of fifteen double-hulled tanker accidents between 1990 and 1999, none resulted in any spilled oil, even in an accident where the hull gash measured 96 feet long, three to five feet wide, and five to seven feet deep.\(^{44}\)

C. Failures of OPA: Human Error Not Curbed

Yet amid this success, OPA has not displayed the ability to curb the human error that causes spills. For instance, a more recent, post-OPA spill involving the POSAVINA oil tanker in 2000 shares characteristics with the pre-OPA MEGA BORG spill. The MEGA BORG spill in 1990 occurred when the oil tanker’s pump room exploded while the crew was offloading its oil

\(^{40}\) CRS 2008 REPORT, supra note 11, at 3.

\(^{41}\) Id.


\(^{43}\) Kim, supra note 41, at 851.

\(^{44}\) Double Hull Requirements for Tank Vessels: Hearing Before the H. Subcomm. on Coast Guard and Maritime Trans., 106th Cong. 24 (1999) (statement of Bob North, Rear Admiral in the U.S. Coast Guard) [hereinafter North Statement].
cargo to a smaller vessel in the Gulf of Mexico.\textsuperscript{45} The explosion started a fire that spread from the pump room to the engine room.\textsuperscript{46} The smaller vessel intentionally broke away from the MEGA BORG to avoid the fire.\textsuperscript{47} Burning oil then flowed freely over the MEGA BORG’s aft port side.\textsuperscript{48} Consequently, over four million gallons of Angolan crude oil spilled into the Gulf.\textsuperscript{49} An estimated two million gallons burned into the atmosphere before the Coast Guard was able to extinguish the flames, some seven days later.\textsuperscript{50}

In the POSAVINA spill, a tug was assisting the POSAVINA to undock from an East Boston terminal when the tug collided with the POSAVINA and punctured its hull.\textsuperscript{51} The POSAVINA released 60,000 gallons of fuel oil into the Boston Harbor.\textsuperscript{52} The cleanup involved skimmers and vacuum trucks. Responders were able to recover 89 percent of the oil, with the good fortune of quick response, calm weather and slow moving currents.\textsuperscript{53} However, the Posavina spill did oil a substantial stretch of shoreline, including a salt marsh.\textsuperscript{54} Human error in normal, multiple-boat operations caused both the MEGA BORG and the POSAVINA spills.

Similarities of human error are even more glaring and alarming between the EXXON VALDEZ spill of 1989 and the COSCO BUSAN spill of 2007. In particular, the human error that caused these spills seems very preventable, where the errors of multiple-boat operations may

\textsuperscript{46}Id.
\textsuperscript{47}Id.
\textsuperscript{48}Id.
\textsuperscript{49}Id. (The U.S. measures 42 gallons to a barrel of oil. Thus, 100,000 barrels = 4.2 million gallons of oil.)
\textsuperscript{50}\textsc{Nat’l Oceanic and Atmospheric Admin.}, \textsc{Oil Spill Case Histories 1967 – 1999; Summaries of Significant U.S. and International Spills 120–122} (1992).
\textsuperscript{52}Id.
\textsuperscript{54}Id.
be less so. As mentioned above, the EXXON VALDEZ allided with the Bligh Reef in 1989.\footnote{See supra note 12.}
The captain, Joe Hazelwood, had consumed a large quantity of whiskey within four hours of the tanker’s departure from the port of Valdez.\footnote{DAVID LEBEDOFF, CLEANING UP: THE STORY BEHIND THE BIGGEST LEGAL BONANZA OF OUR TIME 6–13 (The Free Press 1997).} This was a clear violation of both U.S. Coast Guard regulations and Exxon’s company policy.\footnote{Id. at 6.} Moreover, Hazelwood had a history of alcohol abuse, of which Exxon was well aware.\footnote{Millard, supra note 7, at 342, n.64 (citing Richard Behar, Joe’s Bad Trip, TIME, Jul. 24, 1989, at 42–47).} He hit a car and left the scene in New York in 1984, which led to an arrest and a drunk driving conviction.\footnote{Richard Behar, Joe’s Bad Trip, TIME, July 24, 1989, at 42–47.} His Exxon supervisor urged Hazelwood to get help before he “got into trouble.”\footnote{Id.} He entered a rehabilitation program in 1985, and attended Alcoholics Anonymous meetings regularly until 1988.\footnote{Id.} But police caught him driving drunk again in September of 1988. New York convicted Hazelwood a second time and revoked his driver’s license.\footnote{Id.} Hazelwood faced no repercussions at work, however, other than Exxon’s claim to have sent supervisors pay him bi-monthly visits to “monitor” his behavior.\footnote{Id.} Thus, in 1989 the captain steered the oil tanker into the reef during a time in which he could not legally drive a vehicle in his home state.\footnote{Id.}

To add to the already elevated risk of allowing an alcoholic captain with a drunk-driving record to steer an oil tanker through ice fields and around reefs, the EXXON VALDEZ crew had been working twelve to fourteen hour days leading up to the crash, and showed signs of fatigue.\footnote{Duff, supra note 5, at 958; Timothy Egan, Elements of Tanker Disaster: Drinking, Fatigue, Complacency, N.Y. TIMES, May 22, 1989, at B7.} The crew had been cut back in 1986 from twenty-four members to twenty, a reduction...
common throughout the merchant marine fleet and approved by the Coast Guard. The second mate, who should have been on the bridge of the tanker, was “exhausted and asleep.” Thus, when Hazelwood went below deck, allegedly to do paperwork in his cabin, he left an under-qualified third mate in charge. Hazelwood had set the tanker on a course for the reef to avoid ice. He ordered the third mate to steer the vessel back into the normal shipping lane at a certain navigation point. It was the third mate who gave the steering commands immediately prior to the allision.

The third mate did not call for the turn until the lookout warned the tanker was on the wrong side of a flashing buoy marker. He then called for the turn back into the lane, to the helmsman, who was also under-qualified for his position. The vessel did not respond to the helmsman’s turn. Now frantic, the crew did not report this to the Coast Guard. And then it was too late; the tanker grounded and lodged on top of the reef, gushing oil.

In a finale of failure to prevent the spill, the Coast Guard watchmen tracking the tanker on radar were not adequately attending to the post when the accident occurred. The crew member on duty had “left his seat to go get some coffee. No one was watching the screen.”

The EXXON VALDEZ spilled eleven million gallons of oil into the Prince William Sound. Lax policy on continuing to employ relapsed alcoholics, short-staffing crews so that

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66 Millard, supra note 7, at 342, n.62.
67 Id.
68 Behar, supra note 58.
69 LEBEDOFF, supra note 55, at 14.
70 Id.
71 Id.
72 Id.; see supra note 12 for a definition of “allision.”
73 Id.
74 Id. at 15.
75 Id.
76 Id.
77 Behar, supra note 58.
members must work long hours, and inadequate radar monitoring and communication were among the primary preventable human errors of the EXXON VALDEZ spill.

Very similar human errors caused the COSCO BUSAN spill. The 900-foot container ship left the Port of Oakland in November 2007 in a heavy fog only to allide with the San Francisco Bay Bridge before reaching the Pacific Ocean. The vessel’s pilot, John Cota, a man whose job consisted solely of steering vessels in and out of the San Francisco Bay, was not drunk but was likely on a mixture of prescription medications that would have impaired his ability to perform his job. Cota had recently filled prescriptions for ailments such as sleep apnea, narcolepsy, migraines, kidney stones, and depression, and he was preparing for dental implant surgery. The prescriptions included the painkiller Vicodin, the sedative Valium, the stimulant Provigil, and the anti-psychotic Compazine. Cota, like Hazelwood, had a history of substance abuse. Described as a “brusque, unhealthy man with a hot temper, an alcohol problem, and a history of driving under the influence,” Cota had apparently already been involved in thirteen shipping accidents, and blamed for nine of them, by the time of the accident in 2007. He was convicted of driving under the influence in 1971 and 1998. The Coast Guard did temporarily revoke his pilot’s license for this latter transgression, but returned it to him within six weeks.

In addition to Hazelwood and Cota sharing similar histories of substance abuse and revoked licenses, Cota’s worked a schedule that made him highly susceptible to fatigue while on the job, like the EXXON VALDEZ crew experienced. Cota had worked seven consecutive days

78 NATIONAL TRANSPORTATION SAFETY BOARD, ALLISION OF HONG KONG • REGISTERED CONTAINERSHIP M/V COSCO BUSAN WITH THE DELTA TOWER OF THE SAN FRANCISCO–OAKLAND BAY BRIDGE, SAN FRANCISCO, CALIFORNIA, NTSB/MAR-09/01, 1 (2009) [hereinafter 2009 NTSB REPORT].
79 Id. at 104.
80 Id. at 43–44.
81 Id. Cota’s medical history also includes back pain, abdominal pain, glaucoma, chronic esophagitis, and acute pancreatitis. Id.
82 Upton, Prisoners of the Cosco Busan, supra note 13.
83 2009 NTSB REPORT, supra note 77, at 52.
84 Id.
prior to the spill, with sign-in times widely varying from mid-day to the middle of the night. Moreover, just as the Coast Guard watchmen missed the opportunity to alert the EXXON VALDEZ crew of the on-coming reef, the watchmen following the COSCO BUSAN did not adequately communicate the vessel’s dangerous position and course in the minutes leading up to its allision with the Bay Bridge. The Cosco Busan spilled 58,000 gallons of fuel oil into the San Francisco Bay.

II. IMPACT - THE ENVIRONMENT LOSES

Oil spills cause damage to ocean and coastal ecosystems that ranges from temporary destruction to irreparable loss. The MEGA BORG spill caused the least immediate damage of the four spills mentioned above, as it occurred 60 miles from shore on a day of calm seas. The spill benefited from quick response. The Coast Guard dispatched two cutter ships within an hour of the first explosion. Most of the released oil burned at the site rather than washing ashore. However, the spill was not innocuous. Oil is toxic and capable of polluting mediums other than land. In the case of the MEGA BORG spill, the air absorbed most of the oil’s toxicity.

The Coast Guard employed several response techniques to the oil spilled from the MEGA BORG. First, because the explosion caused the spilling oil to catch fire, much of the total quantity burned into the atmosphere. Burning oil where it is spilled is a method responders sometimes employ at spills called in situ burning. However, in situ burning can have dangerous

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85 Id. at 43.
86 Upton, Prisoners of the Cosco Busan, supra note 13.
88 Nat’l Oceanic and Atmospheric Admin., Incident News: M/V Megaborg, supra note 44.
89 Id.
90 Id.
92 NOAA OIL SPILL CASE HISTORIES, supra note 49, at 120.
effects on human and environmental health and is rarely employed to the exclusion of other methods. Thus, responders quelled the fire at the MEGA BORG when it was controllable. After the responders extinguished the fire, they employed skimmers to vacuum up the taffy-like residue from the burn and other accessible surface oil. Next, airplanes applied chemical dispersants to separate the emulsified oil slick into smaller oil droplets. Dispersants make the oil accessible to natural bacteria the ocean contains that will feed on the droplets. In addition, once a slick is dispersed it is much less likely to coat large areas of shoreline habitat, or the feathers and fur of bird and mammals. And finally, the Coast Guard released a newly developed bioremediation agent onto the slick. Bioremediation is a technology in which scientists synthetically cultivate oil-eating bacteria in a laboratory that is similar to the ocean’s naturally occurring bacteria, that is then applied to a spill site.

A. Impacts of Burning Oil

Over two million gallons of the MEGA BORG’s oil burned, which converted the viscous liquid oil to carbon-laden smoke plumes. In situ burning is employed as a technique in ice fields and salt marshes, where no better options are available. However, responders generally

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96 NOAA OIL SPILL CASE HISTORIES, supra note 49, at 120.
97 Id.
98 Id.
100 Id. (follow “Why”).
101 NOAA OIL SPILL CASE HISTORIES, supra note 52, at 121.
avoid relying on the *in situ* burning method exclusively because the gases released contain particulate matter that can travel long distances and seriously impact human health.\textsuperscript{105} Thus, government agencies have created response policies and guidelines “to limit in-situ burning to condition[s] that will not risk the general population.”\textsuperscript{106}

Even when burns are far enough offshore that they do not put the general population at risk, the smoke from an *in situ* burn impacts the environment, although much differently than a spill where liquid oil hits the shoreline. The air bears the brunt of an *in situ* burn’s pollution, and later, the water. Every 1,000 barrels of oil that burn releases as much carbon dioxide into the atmosphere as 10 acres of forest fire.\textsuperscript{107} As one barrel equals 42 gallons of oil, the MEGA BORG’s two and a half million gallons emitted the same amount of carbon as nearly 600,000 acres of burning forest. That is equivalent to 900 square miles, about the size of Rhode Island.

Carbon dioxide is the leading greenhouse gas and cause of global warming.\textsuperscript{108} Reducing, and not adding, carbon emissions into the Earth’s atmosphere has become more and more critical as the overall concentration of carbon dioxide in the atmosphere has increased. Many scientists refer to current levels of greenhouse gases in the atmosphere as very near or at a “tipping-point.”\textsuperscript{109} A “tipping point” refers to the point at which the levels of greenhouse gases are beyond the amount the atmosphere can absorb and filter by short-term natural processes.\textsuperscript{110} Once

\begin{footnotes}
\footnote{105}{Id. at 1, 3.}
\footnote{106}{Id. at 3.}
\footnote{107}{Marc Hodges & Tom Coolbaugh, Oil Spill Response: Summary of In-Situ Burn Practitioners Workshop, December 2008, Fresh Water Symposium, St. Louis 21 (2009).}
\footnote{110}{Hansen, *supra* note 108, at 7–9.}
\end{footnotes}
this point is crossed, irreversible changes in the Earth’s weather patterns will be set in motion and those changes will happen quickly.\textsuperscript{111}

Heavy oil fuel emissions into the atmosphere at sea may also contribute alarmingly deleterious impacts on the water and marine life. In general, the more carbon dioxide is dispersed into the atmosphere, the more of it cycles into the ocean.\textsuperscript{112} Recent carbon dioxide overload in the oceans had led to ocean acidification.\textsuperscript{113} More locally, nitrogen deposition from the burning of fossil fuels contributes to a related condition known as hypoxia, or oxygen deprivation.\textsuperscript{114} Hypoxia chokes out fish and marine life that rely on oxygen to survive, causing dead zones in the water.\textsuperscript{115} Thus far, hypoxia has mainly been attributed to nitrogen and phosphorus running off from agricultural areas where farms use lots of fertilizers.\textsuperscript{116} However, scientists also point to fallout from the burning of fossil fuels as a secondary cause.\textsuperscript{117} The bleaching and death of coral reefs worldwide is attributable to hypoxia, warming water temperatures, and ocean acidification.\textsuperscript{118}

\begin{itemize}
\item \textsuperscript{111} Id.
\item \textsuperscript{112} \textit{Ocean Acidification: Another Undesired Side Effect of Fossil Fuel-burning}, SCI DAILY, May 24, 2008, available at \url{http://www.sciencedaily.com/releases/2008/05/080521105251.htm}.
\item \textsuperscript{113} Jeremy B. C. Jackson, \textit{Ecological extinction and evolution in the brave new ocean}, 105 PROC. NAT’L ACAD. SCI. 11458, 11461–62 (2008).
\item \textsuperscript{115} Id.
\item \textsuperscript{116} Jackson, supra note 111, at 11461; Perlman, supra note 112, at A1.
\item \textsuperscript{117} Perlman, supra note 112, at A1.
\item \textsuperscript{118} Jackson, supra note 111, at 11461-62.
\end{itemize}
B. Impacts when the Oil Meets the Shore

When the oil coats the shoreline, the damage is more immediately palpable. In the POSAVINA spill, a strip of shoreline along the Chelsea Creek and a small salt marsh suffered injury. The oiled shoreline areas were mostly man-made rip-rap walls and deteriorated bulkheads. Surveys of the Chelsea Creek and Boston Harbor indicated that all together only five acres of fringing wetland, beach shoreline, and manmade shoreline were oiled. Some soft-shelled clams, snails, and fiddler crabs were observed in the spill area. Heavy oiling was noted on gastropod shells, blue mussels and ribbed mussels. However, because the spill occurred in

119 Hodges & Coolbaugh, supra note 106, at 7.
120 Id. at 7, 15, 21.
123 Id.
124 Id.
125 Id.
an urban, highly-developed area, marine life exposure to oil from the POSAVINA spill was minimal.126

In an example of more shoreline damage, the COSCO BUSAN spill caused closures at more than 50 beaches, coastal access points and piers around the San Francisco Bay. The spill oiled 50 miles of rocky intertidal coastline, 41 miles of sandy beach coastline, seven miles of salt marsh, and 200 acres of eelgrass habitat.127 Responders collected 2,125 dead oiled birds, mostly Brandt’s Cormorants, Surf Scoters, Western Grebes, Eared Grebes, and Greater Scaups.128 Bird casualties after the COSCO BUSAN spill included birds of 57 different species.129 Three of those species that experienced casualties are listed as threatened or endangered.130 Responders also collected 1,084 live oiled birds, 421 of which were rehabilitated and released.131 Seven mammals died due to oiling and responders observed at least 223 more that were oiled.132 Those calculating damage to natural resources estimate that many more birds and mammals actually die from a spill than are collected on or near the site. The California Department of Fish and Game describes the Natural Resource Damage Assessment (NRDA) process as follows:

To estimate total mortality, the trustees conducted field studies to examine how long bird carcasses persist on the beach, how difficult it is to find them, and how many are deposited naturally. The number of birds estimated killed [in this study] . . . is approximately 2.3 times higher than the number collected live and dead.133

126 Id.
128 John Upton, Birds death toll continues to climb following oil spill, S.F. EXAMINER, Nov. 26, 2007, available at http://www.sfexaminer.com/local/birds_death_toll_continues_climb_following_oil_spill2007-11-2611_00_00.html?c=y. Birds die as a result of oil spills because oil-coated feathers do not hold in heat and the birds freeze, or because the birds ingest the oil and die from its toxicity. Id.
129 Id.
130 Id. The Brown Pelican, the Marbled Murrelet, and the Snowy Plover are threatened or endangered species. Id.
131 2008 Trustee NRDA Report.
132 Id.; 2009 NTSB REPORT, supra note 77, at 26.
Thus, the California Department of Fish and Game estimates that over 6,500 birds died as a result of the Cosco Busan oil spill.\footnote{John Upton, Cosco Busan’s impact still not entirely clear, S.F. EXAMINER, Jul. 17, 2008, available at http://www.sfexaminer.com/local/cosco_busans_impact_still_not_entirely_clear2008-07-17T19_31_03.html.}

In addition, fishermen attested that baitfish virtually disappeared in the San Francisco Bay in the year following the spill.\footnote{Id.} Anchovies, grunion and herring were all missing from their spawning areas, which had been oiled in the spill.\footnote{Id.} State and federal damage assessment reports stated that herring eggs in San Francisco Bay had been observed to be badly malformed, to the extent that their survival was unlikely.\footnote{Id.}

Yet, neither the POSAVINA nor the COSCO BUSAN spill holds a candle to the ocean and coastal damage the Prince William Sound experienced after the EXXON VALDEZ spill. Herring were impacted in the EXXON VALDEZ spill as well.\footnote{Dr. Stanley D. Rice, Persistence, Toxicity, and Long-term Environmental Impacts of the Exxon Valdez Oil Spill, 7 U. St. Thomas L.J. (forthcoming 2010) (manuscript at 16, on file with authors).} But there the species number plummeted so drastically in 1993 that the herring fisheries across the Sound were all forced to close.\footnote{Id.} Herring numbers are “still too low to sustain a commercial fishery.”\footnote{Id.} Worse, herring is a keystone species upon which many shorebirds and marine mammals depend, so many other species felt the repercussions of the herring decline.\footnote{Id.} Estimates of shorebird mortalities approximate 400,000.\footnote{Exxon Valdez Oil Spill Trustee Council, Marine Bird and Sea Otter Population Abundance of PWS: Trends Following EVOS, http://www.evostc.state.ak.us/Projects/ProjectInfo.cfm?project_id=826 (last visited Mar. 15, 2010).} Damage assessors estimate that 4,000 sea otters died because of the spill.\footnote{Id.} Pregnant and newly mothered sea otters in the Sound who foraged in the oiled intertidal
zone experienced high mortality. 144 Cubs died along with the mothers when they could not find their own food. 145 An entire pod of carnivorous orca whales became extinct after inhaling oil fumes on the surface waters and ingesting prey with high toxicity from the spill. 146

The EXXON VALDEZ spill had grave effects on the people of Prince William Sound as well. Thousands of fishermen were put out of work when fish numbers declined. 147 Canneries were afraid to buy fish from the Sound for the heightened risk of toxicity, and fishing permits became too expensive to buy without normal income. 148 Entire communities unraveled. Alcoholism and spousal abuse spiked. 149 The mayor of Valdez committed suicide. 150 Devastation abounded. The Prince William Sound still has not fully recovered from that spill twenty years ago. In fact, for the lost species like the herring and the orca, the damage was irreparable. 151

Thus, as the descriptions above demonstrate, oil spills have enormous potential to destroy. Not just the environment stands to lose from tanker spills. Families, local communities, tourism, and fishing industries can all fall apart because of a large-scale spill. With stakes so high, our regulatory agencies should keep working to shape the law to prevent spills to the greatest extent possible.

III. REASONS FOR LINGERING PROBLEMS

The recent COSCO BUSAN oil spill in San Francisco Bay created a big mess. However, it also highlighted weaknesses in OPA’s regulations. Thus, COSCO BUSAN presents us now

145 Id.
146 Id.
148 Dr. J. Steven Picou, Professor of Sociology at Univ. of South Ala., Address at the University of St. Thomas Law Journal Symposium: Litigation and the Psychosocial Impacts of the Exxon Valdez Oil Spill, Oct. 1, 2009.
149 Id.
150 Tizon, supra note 146.
151 Rice, supra note 137, at 6, 16–17.
with an opportunity to fix what is broken. The weak provisions in spill prevention law clearly lead to human error that causes spills. Below these provisions are explored in greater detail.

A. *Soft Regulations*

After the EXXON VALDEZ spill, the chairman of the Alaska Oil Spill Commission, appointed by Congress to examine the spill and recommend prevention strategies, stated “[t]he one thing that really surprised me was how completely the entire regulatory system collapsed in the 1980’s.”\(^{152}\) The commission described the Coast Guard as having an “‘an unduly friendly relationship with industry,’ which led to lax enforcement of basic rules of vessel traffic and tanker safety.”\(^{153}\) The commission also stated in its report that the Coast Guard had “failed the American people in providing oversight of the country’s oil transportation system.” In the commission’s search for an explanation, the members “attributed much of the lax regulation to a national mood during the Reagan Presidency. ‘Safety does not do well in a laissez-faire environment,’ they wrote.”\(^{154}\) Here, the commission identifies what remains the key problem. To prevent oil spills, strong rules must be written, and enforced.

B. *Health and Substance Abuse Screening not Good Enough*

The Coast Guard does not seem to be properly screening licensed mariners for health issues. Additionally, evidence persists that the Coast Guard still shows reluctance to bring any real repercussions upon substance abusers that amount to more than a slap on the wrist.\(^{155}\) As a prime example, COSCO BUSAN pilot, John Cota, was still employed and piloting huge cargo vessels despite horrible health and multiple DUI convictions.\(^{156}\)

\(^{153}\) *Id.*  
\(^{154}\) *Id.*  
\(^{155}\) 2009 NTSB REPORT, *supra* note 77, at 52.  
\(^{156}\) *Id.*
Cota steered the Hong-Kong flagged COSCO BUSAN into the Bay Bridge in 2007. After 26 years of piloting experience, he set the vessel on a course at a break-neck speed of ten-knots through dense fog with almost zero visibility. Normally, thick fog means staying at port. It certainly does not sensically lead to speeding. Cota also felt the need to ask the Chinese shipmaster what the red triangles on the ship’s electronic map meant. The symbols have indicated buoys or obstructions since the olden days when seamen used only paper navigation charts. In their investigation of the accident, the NTSB found that Cota’s many medications likely impaired his performance, as “higher-level cognitive effort and perceptual skill were precisely those capabilities that would have been degraded.”

The details of Cota’s medical history make one wonder why his doctor would clear him for duty. The doctor was primary care physician, with no experience in occupational medicine. He was one of four physicians the San Francisco pilot commission retain to examine pilots. In investigations following the spill, the doctor admitted that he was not familiar with Seafarers Health Improvement Program (SHIP) guidelines, developed by the pilot commission with the support of the U.S. Maritime Administration in 1985. Nor was he familiar with the Coast Guard’s own guidelines on medical evaluations. The doctor also told investigators “he did not know how to consider diagnoses of sleep apnea and alcohol dependence when determining a pilot’s fitness for duty.” The physician said he “very pointedly warned” Cota that he could not serve as a pilot within 24 hours of using the medications modafinil, propoxyphene, or

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157 Upton, Prisoners of the Cosco Busan, supra note 13.
158 Id.
159 Id.
160 Id. (citing 2009 NTSB REPORT).
161 2009 NTSB REPORT, supra note 77, at 53.
162 Id.
165 2009 NTSB REPORT, supra note 77, at 54.
lorazepam. He then billed Cota “fit for duty” and flagged no medical issues on his file. After the NTSB held public hearings on the COSCO BUSAN accident, the pilot commission suspended Cota’s physician from medically evaluating pilots.

Neither Cota’s doctors nor the Coast Guard seemed to take Cota’s history of substance abuse seriously either. Cota was convicted of driving under the influence once in 1971 and again in 1999. Cota’s pilot’s license was suspended for less than two months after the second DUI conviction. The memorandum in Cota’s Coast Guard file states that Cota:

…had taken great efforts to shorten his assessment period such as regular AA attendance, completion of a rehab program, steady employment, and letters of reference as outlined in Title 46 C.F.R. 10.201(j). . . It was agreed that the time period between November 21, 1999, and January 04, 2000, would serve as a suspension period of his license for his DUI conviction on February 05, 1999.

Accompanying this memorandum is an e-mail from the Coast Guard’s National Maritime Center (NMC) “Medical Waivers” staff on November 30, 1999, stating that “[a] waiver is granted for [Cota’s] condition. Please include a waiver statement on his license when it is issued.” The NTSB investigation of the COSCO BUSAN accident found that “the Coast Guard, which had the ultimate responsibility for determining the pilot’s medical qualification for retaining his merchant mariner’s license, should not have allowed the pilot to continue his duties because the pilot was not medically fit.”

Since the COSCO BUSAN spill, the Coast Guard has issued new guidelines to help practitioners determine whether mariners are fit for duty. These guidelines offer more specific

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166 Id.
167 Id. at 52-53.
168 Id. at 54.
169 Id. at 52.
170 Id.
171 Id.
172 Id.
173 Id. at 121.
information on which medical conditions warrant further review, recommended data to evaluate those conditions, and they provide a list of medications that will be subject to further medical review. This effort by the Coast Guard to better educate the physicians examining their mariners is encouraging. However, the guidelines are not considered law and cannot be enforced. Thus, the problem remains that, like in the situation of John Cota’s doctor, nothing ensures the doctors will read and follow the guidelines.

C. Work Schedules Still Lead to Fatigue

The work schedule of pilots in the San Francisco Bar Pilots Association is one week on and one week off duty.\textsuperscript{175} Pilots are on-call to work at any time of day during their on-duty week, regardless of the time they worked the previous day.\textsuperscript{176} Cota had a mixed schedule in the days leading up to the accident. He had a 9:00 p.m. sign-in on October 31st, a 3:00 a.m. sign-in on November 2nd, a 4:00 p.m. sign-in on November 3rd, a 3:30 a.m. sign-in on November 5th, a 6:30 a.m. sign-in on November 6th, and a 5:00 a.m. sign-in on November 7th, the day of the accident.\textsuperscript{177} The NTSB report notes that “[a] schedule that alternates daytime work with nighttime work in the same week is detrimental to optimum performance in that it is difficult for someone to compensate for the sleep deprivation that has resulted from working at a time when one is typically sleeping.”\textsuperscript{178}

Furthermore, studies show a direct correlation between fatigue and human error.\textsuperscript{179} It is troubling that pilots of vessels carrying toxic chemicals have work schedules that are conducive to fatigue. This will inevitably inhibit ability to perform the job.

D. Inadequately Trained Officers Monitoring Vessels

\textsuperscript{175} 2009 NTSB REPORT, supra note 77, at 99.
\textsuperscript{176} Id.
\textsuperscript{177} Id.
\textsuperscript{178} Id.
\textsuperscript{179} Duff, supra note 5, at 959 n.27.
The Ports and Waterways Safety Act of 1972 authorized the Coast Guard to operate vessel traffic service (VTS) in congested ports.\textsuperscript{180} VTS is radio communication between the Coast Guard and vessels, usually paired with radar surveillance, that provides active monitoring and the opportunity for the Coast Guard to offer navigational advice in confined and busy waterways.\textsuperscript{181} VTS San Francisco manages traffic in the San Francisco Bay, operating out of the Vessel Traffic Center on Yerba Buena Island.\textsuperscript{182}

VTS operators may exert four levels of control over vessel movements. They can "monitor, inform, recommend, and direct."\textsuperscript{183} The issue in the COSCO BUSAN accident was that the VTS operator only monitored and informed, but did not recommend or direct. The operator became concerned about the position of the COSCO BUSAN three minutes before the allision.\textsuperscript{184} The operator radioed the pilot, informing him that the radar "showed the vessel on a 'heading' of 235° and asking if he still intended to use the Delta–Echo span channel to pass under the bridge."\textsuperscript{185} The pilot responded that he was bringing the ship around and that he still intended to use the Delta-Echo span channel.\textsuperscript{186} "No further communication occurred between VTS personnel and the pilot on board the Cosco Busan before the vessel’s allision with the bridge support tower."\textsuperscript{187}

The NTSB report states that "[a]t the direct level of control, a VTS operator who has determined that a certain vessel action is ‘necessary to enhance navigation and vessel safety and protect the environment’ may direct that a ship’s master or pilot take specific actions to mitigate
Moreover, the operator has the authority to control vessels’ times of entry, movement through, or departure from a VTS area in times of restricted visibility. The VTS operator monitoring the COSCO BUSAN did not take these actions. Instead, the operator followed the vessel’s progress on the radar, received a call minutes later that Cota had allided with the bridge.

E. Soft Penalties for Higher-ups When the Oil Spills Because of Human Error

OPA imposes high liability on ship owner and operators for damage an oil spill causes, capped by per-tonnage liability limits. However, OPA imposes limitless liability in cases of gross negligence and willful misconduct. It also provides a right of action for criminal penalties through the Clean Water Act’s provision for illegal discharges. The COSCO BUSAN operator, Fleet Management Ltd., pleaded guilty to negligence and paid a $10 million criminal fine under OPA. The pilot, John Cota, also pleaded guilty to negligence and received a ten-month prison sentence. He is the first bar pilot to be jailed for negligence.

While OPA imposes liability and makes criminal penalties available, OPA is silent on the recovery of punitive damages. In the private party litigation against Exxon for the damage to the fishing communities in and around Prince William Sound resulting from the EXXON VALDEZ spill, the parties sought punitive damages under the Clean Water Act and common law

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188 Id. at 70.
189 Id. (citing 33 CFR 161.11(b)).
190 Id. at 68.
196 Id.
tort claims, not under OPA. Many debate whether OPA’s penalty configurations are harsh enough to adequately deter lax company policies.

IV. LAW AND REGULATIONS

OPA attempted to address some of these human error issues. However, in most of these areas, namely health screening, work hour limitations, vessel monitoring, and penalties for non-compliance, the OPA statute and its regulations fall short. To achieve compliance and prevent oil spills, the Coast Guard should strengthen the regulations in these areas.

A. Working Hour Limitations

An existing 1983 provision in the Shipping Title was already in place to direct the Coast Guard to “prescribe regulations for the . . . personnel qualifications, and manning of vessels . . . that may be necessary for increased protection of the marine environment.” In 1990, OPA added operational and personnel controls. One such control was OPA’s provision that “[o]n a tanker, a licensed individual or seaman may not be permitted to work more than 15 hours in any 24-hour period, or more than 36 hours in any 72-hour period, except in an emergency or a drill.” This provision stands the same today.

However, the provision does not adequately address the problem of crew fatigue. The EXXON VALDEZ spill investigations and reports found the EXXON crew to be “exhausted

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198 Duff, supra note 5, at 956.
201 Rodgers, supra note 32, at 9.
from working twelve to fourteen hour days.” Furthermore, the COSCO BUSAN spill investigation found that the pilot was fatigued, not from working in excess of fifteen-hour days, but from working a string of short shifts that varied greatly in the time of day or night, disrupting his sleep patterns. What is more, the other provisions under the shipping title limit the hours of every other type of shipping worker to a greater extent, even when those workers’ ships stand to cause less damage in accidents. For instance, licensed seamen on oceangoing vessels under 100 gross tons may not work more than nine out of twenty-four hours when in port, or more than twelve of twenty-four hours at sea. In another example, workers on merchant vessels over 100 gross tons are limited to eight hour shifts per day.

The Coast Guard regulations add little to the U.S. Code’s shipping title provisions on manning vessels. One section sets out exceptions to the working hour limitations in the code, if crew members are needed for maneuvering at berth or mooring, performing safety measures, or responding to an emergency or drill. Another section addresses the ratification of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) requirement that workers on vessels “shall receive a minimum of 10 hours of rest in any 24-hour period.” Moreover, the hours of rest “may be divided into no more than two periods, of which one must be at least 6 hours in length.” Thus, international standards are stricter than our own national standards, allowing only fourteen working hours per day, where U.S. law allows fifteen.

B. Drug and Alcohol Testing

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203 Millard, supra note 7, at 342.
204 2009 NTSB REPORT, supra note 77, at 99.
207 46 U.S.C. § 8104(d).
208 46 C.F.R. § 15.710.
209 46 C.F.R. § 15.1111(a).
210 46 C.F.R. § 15.1111(b).
OPA strengthened drug and alcohol testing requirements, obligating mariner license applicants to “make available any information about drunk driving from the National Drivers Registry and about prior criminal records.”\textsuperscript{211} OPA also requires “drug and alcohol testing” and “periodic license renewals, retesting of licensees for drug and alcohol abuse, and rechecking for criminal records and drunk driving convictions.”\textsuperscript{212} The Coast Guard chemical testing regulations require marine employers to test employees for marijuana, cocaine, opiates, pcp, and amphetamines.\textsuperscript{213} Employers must conduct pre-employment testing, periodic testing annually or upon license renewal, and random testing of 50 percent of the covered crewmembers each year.\textsuperscript{214} In addition, employers must ensure that any employee directly involved in a serious marine incident is chemically tested for dangerous drugs and alcohol.\textsuperscript{215} Those who fail to implement, conduct, or comply with this regulation may face civil penalties of $5,000 per violation, or per day in violation.\textsuperscript{216}

COSCO BUSAN pilot, John Cota, first went to sea in 1966.\textsuperscript{217} He joined the San Francisco Bar Pilots Association in 1981.\textsuperscript{218} It is unclear whether he was tested for drugs or alcohol dependency upon employment. The San Francisco Bar Pilots Association recorded randomly drug-testing Cota only twice, in 2002, and 2006.\textsuperscript{219} He was tested in 2007 after the COSCO BUSAN spill incident.\textsuperscript{220} Each of these tests came back with negative results.\textsuperscript{221}

Reviewing the Association’s testing practices, the NTSB study on the COSCO BUSAN

\textsuperscript{212} Id.
\textsuperscript{215} 46 C.F.R. § 16.240.
\textsuperscript{216} 46 U.S.C. § 16.115.
\textsuperscript{217} 2009 NTSB REPORT, supra note 77, at 42.
\textsuperscript{218} Id.
\textsuperscript{219} Id. at 57.
\textsuperscript{220} Id.
\textsuperscript{221} Id.
spill indicates that the Association “had, in 1992 and again in 1994, requested a Coast Guard review of the association’s drug-testing program to determine whether the program was in compliance with Federal regulations.”²²² The Coast Guard did not respond.²²³ The agency conducted its first audit of the San Francisco program after the COSCO BUSAN spill in 2007.²²⁴ It then found the program not in compliance in five areas: General Program Review, Pre-Employment Testing, Random Testing, Employee Assistance Program, and Management Information System.²²⁵

Thus, the Association’s ineffective drug-testing program went unnoticed for more than ten years, despite its efforts to solicit Coast Guard review. Stronger oversight and penalties for non-compliance are needed to ensure that individual programs and employers are testing properly.

C. Training the Watch – Vessel Traffic Service Systems

OPA did not require any broad review of vessel traffic management on a national level. The Act only directed the installation of additional surveillance equipment in the Port of Valdez, in Alaska.²²⁶ It also required extra training for Valdez personnel.²²⁷ However, OPA did call for the Coast Guard to report to Congress on the desirability of controlling tank vessel movement via a vessel traffic service system (VTS).²²⁸ This system was set up for major ports, but the Coast Guard did not impose any uniform standards.²²⁹

²²² Id. at 58.
²²³ Id.
²²⁴ Id.
²²⁵ Id.
²²⁶ 33 U.S.C. § 2734(1).
²²⁷ Id.
After the COSCO BUSAN incident in 2007, the Coast Guard finally turned its attention to formulating “VTS National Standard Operating Procedures” (VTS NSOP), “designed to standardize operations, personnel training and certification, unit operation evaluation, and policy implementation at all [vessel traffic centers] operated by the Coast Guard.” The VTS NSOP was released in August of 2009.

V. A BETTER WAY AT THE FAA?

Both the Federal Aviation Administration (FAA) and Coast Guard safety regulations work in tandem with Department of Transportation requirements. However, the FAA regulations go further to prevent human error. Part of the FAA’s recipe for success is strict enforcement and imposition of penalties, which deter offenders. Thus, the FAA provides an example of a stronger, better-enforced regulatory scheme for reducing accidents. The Coast Guard should look toward the FAA’s regulations on drug and alcohol testing, mandatory work hour limits, and air traffic monitoring to provide examples.

A. Drug and Alcohol Testing

The FAA prohibits alcohol use eight hours prior to performance of flight crewmember duties, flight attendant duties, and air traffic controller duties. Other FAA regulations include that “employers must notify the FAA about any safety-sensitive employee who is required to hold an airman medical certificate…who has a positive drug test result, an alcohol test result of

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230 2009 NTSB REPORT, supra note 77, at 77–78.
231 See U.S. COAST GUARD, VESSEL TRAFFIC SERVICES NATIONAL STANDARD OPERATING PROCEDURES MANUAL (VTS NSOP) 1 (2009) (noting that date signed was August 18, 2009).
232 Drug and Alcohol Testing Program, 14 C.F.R. § 120.5 (West 2009); Chemical Testing, 46 C.F.R. § 16.113 (West 2010); Procedures for Transportation Workplace Drug and Alcohol Testing Programs, 49 C.F.R. § 40 (West 2010).
0.04 or greater, or who has refused to submit to testing.\textsuperscript{234} Furthermore, an employer cannot permit an employee who is required to perform a safety-sensitive function to resume duty until the FAA Federal Air Surgeon and the employer have issued the employee a new medical certificate.\textsuperscript{235} This is meant to ensure that the employee meets the return to duty requirements of FAA regulations.\textsuperscript{236}

In contrast, the Coast Guard prohibits alcohol use only up to four hours prior to duty.\textsuperscript{237} The Coast Guard requires reporting of all post-incident tests and other positive drug test results for all mariners who hold a license, certificate of registry or merchant mariner’s document.\textsuperscript{238} However, absent positive drug test results, companies are not required to report alcohol abuse to the Coast Guard.\textsuperscript{239}

\textbf{B. Mandatory Work Hour Limits}

The FAA imposes work hour limits for both airline crews and pilots. Pilots may log only up to eight hours of flight time during a 24-hour period for domestic flights.\textsuperscript{240} The airline may not assign a pilot to work a flight without ensuring the pilot has had at least eight hours of continuous rest in a 24-hour period.\textsuperscript{241} Airlines may set rules stricter than the FAA regulations.\textsuperscript{242} For international flights, airlines may employ more than the standard two-pilot cockpit crew.\textsuperscript{243}

\textsuperscript{234} Id. at 6. See Fed. Aviation Admin., Pilot Medical Certificate Questions and Answers, available at http://www.faa.gov/licenses_certificates/medical_certification/faq/response4/ (explaining the three classes airmen, or pilots, are grouped into for medical certificate purposes).
\textsuperscript{235} Id. (referencing Procedures for Transportation Workplace Drug and Alcohol Testing Programs 49 C.F.R. § 40.25(b)(5)).
\textsuperscript{236} Id.
\textsuperscript{237} Id.
\textsuperscript{238} Id.
\textsuperscript{239} Id.
They “must establish rest periods and provide adequate sleeping facilities outside of the cockpit for in-flight rest.”\textsuperscript{244} The FAA also recommends that airlines include fatigue training as part of their crew training programs.\textsuperscript{245}

The Coast Guard work hour limits of fifteen hours per day are much looser than the FAA eight-hour limits. The NTSB criticizes the Coast Guard work hour limits as too lax to prevent fatigue.\textsuperscript{246} The Safety Board has recommended that the U.S. Coast Guard reset their working hour limits for mariners based on fatigue research to reduce the accidents and incidents caused by human fatigue.\textsuperscript{247} The NTSB has this need flagged as a “most wanted Transportation Safety Improvement” with a big red “unacceptable response” signal on its website.\textsuperscript{248}

C. Air Traffic Monitoring

Air traffic control systems are comprehensive and tightly managed. The control tower affirmatively directs all aircraft movement in and out of airports, giving arrival and departures clearances, granting permission to taxi from the gate to the runway, and monitoring aircrafts regionally while in flight.\textsuperscript{249} Air traffic controllers maintain radio and radar contact with each aircraft throughout its flight as well as when it approaches or leaves the runway area; the controllers at airports with towers also maintain visual contact for take-off and landing.\textsuperscript{250}

In contrast, the Coast Guard VTS systems provide navigation assistance service only at the request of the vessel operator.\textsuperscript{251} While the agency is revamping its VTS operator training to

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\item \textsuperscript{244} Id.
\item \textsuperscript{245} Id.
\item \textsuperscript{247} Id.
\item \textsuperscript{250} Id.
\item \textsuperscript{251} U.S. COAST GUARD, VESSEL TRAFFIC SERVICES NATIONAL STANDARD OPERATING PROCEDURES MANUAL (VTS NSOP) 1 (2009).
\end{itemize}
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teach the operators to be more assertive in their radio communication with vessels,\textsuperscript{252} instituting affirmative traffic control is a safer approach. The Coast Guard should consider modeling congested port traffic management after the FAA air traffic control system.

\textit{D. Stronger Penalties}

Besides more government regulation, the other side of the prevention coin is corporate responsibility. Companies should enforce their own strict policies on drug and alcohol consumption. They should also limit working hours to minimize fatigue. Lastly, companies should equip their vessels with technologically advanced radar systems. But companies often need incentives to act responsibly. Government can provide incentives in the front end by rewarding those in full compliance. It can also provide disincentives for non-compliance with heavy penalties.

In 1997, when civil litigants pursued punitive damages in the class action lawsuit after the EXXON VALDEZ spill, Exxon was “the 26th largest financial entity of any kind in the world, including countries. The deepest pockets in the history of litigation.”\textsuperscript{253} The jury in the Alaska district court trial originally decided on a $5 billion dollar punitive damages award, after considering the corporation’s annual profits and Exxon executives’ haste to cut costs at the expense of safety.\textsuperscript{254} The Ninth Circuit cut the award down to $2.5 billion, and then the Supreme Court diminished it further to $500 million.\textsuperscript{255} Because the district court had ordered Exxon to place the original $5 billion award in escrow, Exxon successfully dragged out the litigation long

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\item \textsuperscript{252} \textit{Id.}
\item \textsuperscript{253} LEJEDOFF, \textit{supra} note 55, at 103.
\item \textsuperscript{254} Exxon v. Baker, 128 S.Ct 2605, 2614 (2008).
\item \textsuperscript{255} \textit{Id.} at 2611, 2634.
\end{itemize}
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enough that the damage award will have almost paid for itself from the money merely collecting interest for fifteen years.\textsuperscript{256}

Punishing corporations for bad behavior is contentious. However, Exxon is currently a final hold-out shipper, who continued to transported oil in single-hulled vessels twenty years later, after all that destruction.\textsuperscript{257} As of March 2009, the corporation still choose to take the heightened risk of a catastrophic spill, even after the cleanup pay-out from the EXXON VALDEZ spill totaled over $9 billion all together, even while most other oil corporations are already using double-hulled tankers.\textsuperscript{258} This suggests that perhaps punitive damages are necessary to push the stubborn closer to safe practices.

\textit{E. Action on the Floor}

Senator Maria Cantwell introduced legislation to strengthen oil spill prevention in 2007 and 2009.\textsuperscript{259} Her Oil Pollution Prevention and Response Act of 2007 proposed to direct the Coast Guard to examine the most frequent sources of human error resulting in spills or “near miss” incidents.\textsuperscript{260} The Coast Guard would then use its findings to take appropriate action to reduce the risk of oil spilled because of human error.\textsuperscript{261} This bill was referred to the Committee on

\textsuperscript{256} David Lebedoff, Attorney and Author, Address at the University of St. Thomas Law Journal Symposium: \textit{In re Exxon Valdez} and related matters, Oct. 1, 2009 (Lebedoff reported that after the jury announced the punitive award at the district court trial, an Exxon lawyer commented to the plaintiffs attorney “you’ll have grandchildren before you’ll see any of that money.”)


\textsuperscript{258} Id.


\textsuperscript{261} Id.
Commerce, Science, and Transportation in July of 2007. Cantwell reintroduced the legislation in March of 2009, and it was again referred to committee.

VI. CONCLUSION

Statistics show that 80 percent of marine accidents are attributable to human error. While human error is not completely preventable, setting firm rules in a timely fashion and enforcing them can greatly reduce the probability of shipping accidents, and therefore, oil spills. Curbing human error is squarely within the purview of federal law and the Coast Guard’s delegated regulatory powers. The Coast Guard should take a page from the FAA and tighten its regulations, especially those concerning drug and alcohol testing, mandatory work hour limits, and vessel traffic management. The Coast Guard should also work to create a culture of compliance by enforcing its regulations and imposing penalties.