

The Coast Guard's Need for Experienced Marine Safety Personnel

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The Coast Guard's Need for Experienced Marine Safety Personnel

For at least four decades, Congress has been concerned about the Coast Guard's ability to maintain an adequate staff of experienced marine safety personnel to ensure that vessels meet federal safety standards. The 2015 sinking of the U.S.-flag cargo ship *El Faro* during a hurricane near the Bahamas with the loss of 33 lives renewed attention to the Coast Guard's persistent difficulty with hiring and training a marine safety workforce with technical knowledge of vessel construction and accident investigation, as the safety inspections of the vessel were found to have been inadequate. In the Hamm Alert Maritime Safety Act of 2018 (P.L. 115-265), Congress directed the Coast Guard to brief congressional committees of jurisdiction on its efforts to enhance its marine inspections staff. In the Frank LoBiondo Coast Guard Authorization Act of 2018 (P.L. 115-282), Congress requested a report from the Coast Guard detailing the courses and other training a marine inspector must complete to be considered qualified, including any courses that have been dropped from the training curriculum in recent years.

Congress's concern about the Coast Guard's inspection staff comes at a time when the agency's vessel inspection workload is increasing by about 50% because towing vessels have been added to its responsibilities. Additionally, Congress has been increasing the agency's role in fishing vessel safety. Adding to the Coast Guard's safety responsibilities is the construction of several liquefied natural gas (LNG) export terminals as well as the increasing use of LNG as ship fuel.

Vessel safety inspections are especially critical for the U.S.-flag fleet, like the *El Faro*, because a majority of it is much older than the 15 to 20 years of age at which ships in the foreign-flag worldwide oceangoing fleet are typically scrapped. Over half of the U.S.-flag commercial fleet is over 20 years old; the *El Faro* had been in service for 40 years. Vessels that transport cargo or passengers domestically (from one U.S. point to another U.S. point) must be built in the United States, as required by the Jones Act. The comparatively high cost of domestic ship construction encourages ship owners to keep Jones Act vessels in service well beyond their normal retirement age. In general, older vessels are believed to have a higher risk of structural defects and to require more intensive inspection.

Currently, the Coast Guard's marine inspection staff consists of 533 military and 138 civilian personnel, while its accident investigation staff consists of 120 military staff and 38 civilians. As a military organization, the Coast Guard frequently rotates its staff among various duty stations, so personnel may not develop the knowledge and experience required of a proficient marine inspector or investigator. A common perception inside the agency that marine safety is an area that retards promotion also may be thwarting efforts to boost this mission's workforce.

The Coast Guard recently has stated its intention to improve the quality of its inspection workforce and to make marine safety an attractive long-term career path by extending promotion potential. However, its recent statements are similar to statements made 10 years ago, when some Members of Congress advocated transferring the marine safety function to a civilian agency. It is unclear what the agency has accomplished over the last decade regarding its inspection workforce. Government audits dating to 1979 have been consistently critical of the proficiency level of Coast Guard inspectors and accident investigators. Reorganizing the marine safety function under a civilian agency, perhaps as an element of a larger reorganization of navigation functions in the federal government, might improve the quality of safety inspections and investigations, but other federal agencies with transportation-related safety inspection workforces have had similar issues with retaining experienced personnel.

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Introduction

The U.S. Coast Guard is the agency charged by law with overseeing the safety of vessels and maritime operations. For at least four decades, Congress has been concerned about the Coast Guard's ability to maintain an adequate staff of experienced marine safety personnel with technical knowledge of vessel construction and accident investigation. Recent incidents, particularly the 2015 sinking of the U.S.-flag cargo ship *El Faro* with the loss of 33 lives during a hurricane near the Bahamas, have revived questions about the Coast Guard's persistent difficulty with hiring and training a marine safety workforce. The safety inspections of the vessel were found to have been inadequate.¹

In the Hamm Alert Maritime Safety Act of 2018 (P.L. 115-265, §210), Congress directed the Coast Guard to brief congressional committees of jurisdiction² on its efforts to enhance its marine inspections staff, the staff responsible for ensuring that vessels are meeting safety standards. In the Frank LoBiondo Coast Guard Authorization Act of 2018 (P.L. 115-282, §501) Congress requested a report from the Coast Guard detailing the courses and other training a marine inspector must complete to be considered qualified, including any courses that have been dropped from the training curriculum in recent years.

This report examines the staffing challenges the Coast Guard faces in assuring marine safety at a time when its responsibilities in this area are increasing significantly. It also considers proposals to realign marine safety functions within the federal government.

The Marine Safety Mission

The Coast Guard engages in two distinct activities with respect to marine safety:

- **Vessel inspection.** The Coast Guard has a staff of 671 marine inspectors—533 military and 138 civilian—who are responsible for inspecting U.S.-registered passenger³ and cargo vessels, foreign-flag vessels calling at U.S. ports, mobile offshore drilling units, and towing vessels and barges carrying hazardous cargoes. Foreign-flag vessels are those registered in jurisdictions other than the United States.
- **Accident investigation.** The Coast Guard employs 158 accident investigators—120 military and 38 civilian—who conduct casualty investigations of U.S.- and foreign-flag vessels to detect and correct safety hazards, prepare investigation reports, analyze trends, and recommend enforcement action.⁴

¹ National Transportation Safety Board, "Sinking of U.S. Cargo Vessel *SS El Faro* Atlantic Ocean, Northeast of Acklins and Crooked Islands, Bahamas, October 1, 2015," Accident Report NTSB/MAR-17/01, Adopted December 12, 2017.

² The House Committee on Transportation and Infrastructure and the Senate Committee on Commerce, Science, and Transportation.

³ The *Conception*, a dive boat that caught fire off California while anchored overnight on September 2, 2019, killing 34 people on board, was a Coast Guard-inspected passenger vessel. The cause of the fire and other factors possibly contributing to the fatalities are being investigated. For further details, see Coast Guard news release, "Coast Guard Convenes Highest-Level Marine Casualty Investigation Into Loss of *Conception*," September 11, 2019; <https://content.govdelivery.com/accounts/USDHSCG/bulletins/25ea0d2>.

⁴ Staff numbers and description based on Coast Guard communication to CRS, August 27, 2019.

These two assignments fall under the Coast Guard's prevention policy workforce headed by the Assistant Commandant for Prevention Policy, a rear admiral.⁵ Reporting to the Assistant Commandant is the Director of Inspections and Compliance, a captain,⁶ who oversees the Office of Commercial Vessel Compliance and the Office of Investigations and Casualty Analysis, among other safety-related offices.

The prevention policy workforce is especially critical for the commercial U.S.-flag fleet because a majority of this fleet is much older than the 15 to 20 years of age at which ships in the worldwide oceangoing fleet are typically scrapped. About 60% of the 217 ships in the dry-cargo U.S.-flag commercial fleet and 53% of U.S.-flag offshore supply vessels (which service oil rigs) are older than 20 years;⁷ the *El Faro* had been in service for 40 years. Some 72% of the 1,497 vessels in the U.S.-flag passenger and ferry fleet are over 20 years old. In general, older vessels require more frequent inspection; the National Transportation Safety Board (NTSB) raised questions about the quality of the Coast Guard's inspections in its investigation of the *El Faro* sinking, after which the Coast Guard revoked the safety certificate for another vessel of the same design and similar age, forcing its removal from service.

Generally, inspections of vessels carrying passengers or hazardous cargo, and inspections of older vessels, are more frequent than inspections of general-cargo vessels and newer vessels. Vessels transporting cargo or passengers domestically (from one U.S. point to another U.S. point) must be U.S.-built, as required by the Jones Act.⁸ The cost of U.S.-built vessels, particularly deep-draft ships, can be multiples of world prices, which may retard vessel replacement. U.S.-flag vessels on international voyages need not be U.S.-built, and this fleet is younger than the Jones Act fleet.

Congress's request for information about the Coast Guard's inspection staff comes at a time when the number of vessels requiring inspection is increasing by about 50% because towing vessels have been added to the list. Congress has been increasing the agency's role in fishing vessel safety as well, putting additional demands on the safety workforce. Adding to the Coast Guard's safety responsibilities is the construction of several liquefied natural gas (LNG) export terminals, whose siting, operations, and security are partly or entirely under Coast Guard jurisdiction, as well as the increasing use of LNG as ship fuel.⁹

Workforce Qualifications, Training, and Pay Scales

According to the Coast Guard, the marine inspector workforce consists of commissioned officers, chief warrant officers (CWOs), and civilians.¹⁰ Officer marine inspectors enter the workforce through a variety of accession sources, including Officer Candidate School, the Direct Commission Officer program for U.S. Maritime Academy graduates, and the Coast Guard Academy. CWOs are divided into two specialties: Marine Safety Specialty Deck and Marine

⁵ United States Coast Guard Organization Chart; <https://www.uscg.mil/Units/Organization/#dco>.

⁶ United States Coast Guard Inspections and Compliance; <https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Inspections-Compliance-CG-5PC/>.

⁷ Army Corps of Engineers, *Waterborne Transportation Lines of the United States*, October 2018, Table 4, p. 63. Data as of December 31, 2017, self-propelled vessels only (does not include barges and tugs).

⁸ Section 27 of the Merchant Marine Act of 1920. For details, see CRS Report R45725, *Shipping Under the Jones Act: Legislative and Regulatory Background*, by John Frittelli.

⁹ 33 C.F.R. §127. For background on LNG as ship fuel, see CRS Report R45488, *LNG as a Maritime Fuel: Prospects and Policy*, by Paul W. Parfomak et al.

¹⁰ Based on Coast Guard communication to CRS, August 27, 2019.

Safety Specialty Engineer. Those who meet the eligibility requirements to compete for CWO are selected through an accession panel.

An emphasis is placed on past maritime and inspection experience when hiring civilian marine inspectors. Additionally, the Coast Guard hires and trains civilians who are inexperienced in inspections to become marine inspectors through its civilian marine inspector apprenticeship program. The normal entry is a marine inspector apprenticeship tour at a larger port (referred to as a feeder port). A feeder port is located near a unit that is better prepared and equipped to train inspectors.

The civilian inspectors generally remain at a single location for their entire careers to provide continuity. Most officers complete one to three tours as a field-level marine inspector or marine investigator and do not rotate between tours ashore and afloat. Officers rotate approximately every three years and may be promoted to leadership positions in the marine safety organization. CWOs remain marine inspectors or marine investigators until retirement. On average, a CWO serving as a marine inspector works in this capacity for approximately 8.7 years.¹¹ Inspector pay scales range from CWO2 to CWO4 (approximately \$90,000 to \$124,000); officers (O-1 to O-5, approximately \$64,000 to \$152,000).¹² Civilian marine inspectors are typically classified at GS-12 (\$64,000 to \$84,000).

The investigator workforce also comprises commissioned officers, CWOs, and civilians. It has the same path for entry as marine inspection. Many marine investigators have prior experience as inspectors, giving them familiarity with commercial shipping operations and regulations. However, this is not true in all cases, and some marine investigators become familiar with marine inspections through on-the-job training. The typical pay scale for investigators is CWO3 to CWO4 (approximately \$106,000 to \$124,000) and O-2 to O-4 (approximately \$83,000 to \$130,000).

The Coast Guard has recognized the training of the inspection staff as an important concern. As Rear Admiral John Nadeau, then the Coast Guard's Assistant Commandant for Prevention Policy, testified at a January 2018 hearing about the *El Faro* casualty:

[T]his is not strictly a capacity problem. There are elements to training. If you just gave me another 1,000 marine inspectors, it wouldn't solve this problem. This problem involves training. This problem involves getting the right information. This problem involves getting the right policy and procedures in place....

Entry-level marine inspections is not what I am talking about. I need to have a small corps—it is not a lot—a small corps of people that can get out and are highly trained and proficient and stay focused on this area until we get it right.¹³

In a March 2019 hearing, Rear Admiral Nadeau testified that the agency was improving the quality of its safety inspection workforce:

¹¹ Coast Guard communication to CRS, August 27, 2019.

¹² Average Regular Military Compensation, Department of Defense, Selected Military Compensation Tables, January 1, 2019, B3; <https://militarypay.defense.gov/Portals/3/Documents/Reports/GreenBook%202019.pdf?ver=2019-01-16-132128-617>.

¹³ Oral testimony of Rear Admiral John Nadeau, Coast Guard, House Subcommittee on Coast Guard and Maritime Transportation, Examination of Reports on the *El Faro* Marine Casualty and Coast Guard's Electronic Health Records, January 30, 2018.

[T]he Coast Guard has prioritized marine inspector training, established new staff dedicated to performing third party oversight, increased opportunities for maritime graduates to join the Coast Guard, and prioritized the hiring of civilian marine inspectors....

The Coast Guard is actively developing a comprehensive training architecture for our marine inspectors. This architecture will provide cohesive strategy, policy, and performance support to ensure that Coast Guard marine inspectors are trained consistently from the basic to the advanced level in a manner that keeps pace with industry, technology, and related regulatory changes.¹⁴

Managing Marine Safety

The Coast Guard repeatedly has made statements in recent decades laying out its plans to improve the quality of its inspection workforce. Often, these pronouncements have been in response to heightened congressional scrutiny of the agency's marine inspection program in the aftermath of a major marine casualty in which investigators found that subpar vessel inspections played a contributing role. This cycle was described by a retired Coast Guard senior official in 2015:

[T]he Marine Safety program is a low profile mission within the Coast Guard's multi-mission portfolio. That is true until a confluence of factors markedly raises its visibility and causes great introspection. The program's purpose is to keep bad things from happening. Non-events are virtually impossible to measure. Marine Safety is normally not a major budget item of interest to the Service. The Coast Guard, especially in what has generally been a declining resource environment, will always have many pressing and competing budget needs. And if a major incident occurs, Congress is willing to throw the Service a lifesaver in the form of significant dollars.¹⁵

As employees of a military organization, Coast Guard personnel typically change mission assignments and/or locations every two or three years, so they do not develop the knowledge and experience required of a proficient marine inspector or investigator. As noted, the scope of the vessel types the Coast Guard inspects ranges from small passenger boats to oceangoing ships to mobile offshore drilling rigs. Geographic reassignments can change the category of vessels an individual inspector must evaluate. Vessel technology can be complex and is constantly changing, and the safety regulations are voluminous and technical. An internal Coast Guard study in 2012 revealed that "41% of marine inspectors were not confident interacting with maritime industry personnel concerning marine inspection issues."¹⁶ Even if personnel rotate back into marine inspection after a different assignment, they need time to regain proficiency. The Coast Guard recognizes the difficulty of building marine inspection and investigation proficiency among uniformed officers who rotate assignments frequently. Consequently, each Commandant's initiative or plan to revamp marine inspections has stated a goal of boosting the civilian inspector and investigator workforce and creating more attractive long-term career paths by extending promotion potential.

¹⁴ Testimony of Rear Admiral John Nadeau, Coast Guard, House Subcommittee on Coast Guard and Maritime Transportation, "U.S. Maritime Shipbuilding Industries," March 6, 2019, p. 2 of written testimony.

¹⁵ Fred L. Ames, "The Drive to Improve Performance in the Federal Government: A Longitudinal Case Study of Managing For Results," Ph.D. dissertation, George Mason University, 2015, p. 100.

¹⁶ Joshua Buck, "Strategies to Improve Marine Inspection Performance in the U.S. Coast Guard," Ph.D. Dissertation, Walden University, April 2016, p. 75. The author was a Coast Guard marine inspector from 2005 to 2011 and audited marine inspection units from 2011 to 2015.

However, a perception inside the agency that marine safety is an area that retards promotion could be thwarting efforts to boost the inspection workforce. This is asserted in a study by a career Coast Guard official who spent his last several years working in human resources for the agency:¹⁷

[T]he Coast Guard's internal manpower management processes are considered to be at odds with the need to build and maintain a competent marine safety officer corps ... The perception for decades is that it is difficult for marine safety officers to succeed in the Coast Guard's military officer promotion system. The Service endeavors to manage individual officer specialties, such as marine safety, while at the same time operate an "up or out" promotion system that is mandated by law.... officers who follow a marine safety career path consider themselves disadvantaged as they become more senior and face stiffer competition for promotion.... Currently, the perception of disadvantage continues.

World War II Gives Coast Guard New Role

The Coast Guard's challenges with marine inspection and investigation date to a government reorganization in preparation for World War II. A 1942 executive order transferred the civilian Bureau of Marine Inspection and Navigation (BMIN) from the Department of Commerce to the Coast Guard for the duration of the war and for six months after hostilities ended.¹⁸ After the war ended, President Truman proposed keeping the marine inspection function under the Coast Guard rather than transferring it back to the Department of Commerce.¹⁹

Proponents of this approach contended that the Coast Guard had performed the mission adequately during the U.S. involvement in the war and that synergies existed with other Coast Guard missions such as maritime search and rescue. Furthermore, they asserted, there was no need to create additional overhead and administrative expenses by establishing a separate bureau. The maritime industry argued against keeping marine inspections under the Coast Guard. A witness representing the American Petroleum Institute testified in 1947 that under the BMIN, almost all of the inspectors had been former merchant marine officers with 10 to 20 years of experience aboard ships who had practical knowledge of vessel safety vulnerabilities.²⁰

The permanent assignment of marine inspections to the Coast Guard was part of a much larger government reorganization plan advanced by the Truman Administration that was to go into effect unless both Houses passed a concurrent resolution of disapproval within a specified period. The House adopted such a resolution, but the Senate did not.²¹ Consequently, President Truman's plan became effective in 1946.

In subsequent years, the Coast Guard's role remained a point of contention. In 1947, a representative of a ship captains' union testified that²²

¹⁷ Fred L. Ames, "The Drive to Improve Performance in the Federal Government: A Longitudinal Case Study of Managing For Results," pp. 124-125.

¹⁸ Executive Order 9083, February 28, 1942 (7 *Federal Register* 1609).

¹⁹ Reorganization Plan No. 3 of 1946 (60 Stat. 1097). E.O. 9666, December 28, 1945 (11 *Federal Register* 7875).

²⁰ Testimony of James E. Moss, American Petroleum Institute, Senate Committee on the Judiciary, *President's Plan for Reorganization of Executive Departments*, June 14, 15, 18, 19, 20, 21, 25, 26, and 27, 1946; pp. 199-211.

²¹ H.Con.Res. 154 (79th Congress) and S.Con.Res. 66 (79th Congress).

²² Testimony of Capt. William C. Ash, Master, Mates, and Pilots of America, House Committee on Merchant Marine and Fisheries, Subcommittee on Coast Guard, Coast and Geodetic Survey, and Public Health Service, *To Integrate Personnel of Bureau of Marine Inspection and Navigation and Bureau of Customs Into Regular Coast Guard*, June 4 and 5, 1947; pp. 43 and 45.

under the old regime, the men in the Bureau of Marine Inspection were the wearers of the purple cloth. Before men could become assistant local inspector and go up to the grade of local inspector and supervising inspector, and so forth, they had to be either a master mariner [ship captain], or a chief engineer ... with the result that the most mature, and most sensible and most experienced and most intelligent of our profession got into the service.

It was very seldom that you found a local inspector under 35 years of age.... They were of mature judgement and they were one of the most respected organizations in the entire marine industry.

The concern that the Coast Guard would be unable to replace the experience of the ex-BMIN inspectors as they retired persisted over the decades. In 1979, the General Accounting Office (GAO, known since 2004 as the Government Accountability Office) conducted an audit of the Coast Guard's marine inspection program after a series of tanker accidents in or near U.S. waters during the winter of 1976-1977 resulted in losses of life and property and environmental damage.²³ Under the heading "Trained and Experienced Personnel Needed," the GAO report raised questions about the training of marine inspectors:²⁴

Most of the inspectors in the three districts included in our review have had at least one tour of sea duty on Coast Guard cutters. Considering this sea experience, along with the on-the-job and formal training, it would seem that most inspectors would be highly qualified. However, we found that relatively few field unit inspectors could be considered as qualified hull or boiler inspectors. This has occurred because the Coast Guard has not established uniform criteria or procedures to determine whether inspectors are actually qualified and has not scheduled needed vessel inspection training in a timely manner. In addition, the rotation policy caused by the lack of a specialized job classification or career ladder contributes to the difficulty in achieving and maintaining expertise in marine inspection.

The report noted that the Coast Guard Merchant Marine Safety Manual in effect at the time stated as a customarily accepted fact that it takes three years of experience to become a qualified marine inspector, adding that "every 2 to 3 years the Coast Guard rotates its staff among various duty stations such as search and rescue, buoy tenders, and high- and medium-endurance cutters," and that "about the time personnel become proficient in one area, such as vessel inspection, they are transferred and assigned to another job." The GAO found that "few field inspectors had previous inspection duty or consecutive assignments at marine inspection offices" and the Coast Guard had been "unable to keep experienced and trained staff in the vessel inspection area."²⁵ Some of the Coast Guard field officers interviewed by the GAO commented that inspectors needed to have additional expertise to gain the respect of the maritime industry, and that most inspectors were not knowledgeable enough to provide industry with a precise interpretation of marine rules and regulations.²⁶

In response to the 1979 GAO report, the Coast Guard stated that while it would consider establishing an inspection specialty career classification for both officers and enlisted personnel and extend its inspection assignment tour, its existing job classification system was better suited to the multimission nature of the agency.²⁷

²³ Including the tanker *Argo Merchant* that spilled over 7 million gallons of oil off Nantucket Island, MA, in December 1976, plus 14 more tanker accidents in or near U.S. waters over the following 10 weeks.

²⁴ GAO, *How Effective Is The Coast Guard In Carrying Out Its Commercial Vessel Safety Responsibilities?* CED-79-54, May 25, 1979, p. 10.

²⁵ *Ibid.*, p. 13.

²⁶ *Ibid.*, p. 16.

²⁷ *Ibid.*, p. 18.

The 1980s

In October 1980, the U.S.-flag ship *Poet*, carrying a load of corn to Egypt, disappeared with no trace somewhere in the Atlantic. Its disappearance was believed to have coincided with a period of heavy weather; the structural integrity of the 36-year-old ship was suspected as a possible cause. The Coast Guard's Marine Board of Investigation found that the Coast Guard inspector conducting most of the ship's inspections during the year prior to the voyage had no previous experience inspecting commercial vessels, which heightened the Marine Board's concern that structural defects may have gone undetected.²⁸

In February 1983, the *Marine Electric*, a 40-year-old Jones Act ship carrying coal from Norfolk, VA, to Massachusetts, sank in heavy weather, killing 31 crew members. Investigators concluded that the probable cause of the sinking was the poor condition of the cargo hatches and deck plating, which allowed waves to flood the hull. The Coast Guard's Marine Board of Investigation stated that the ship's Coast Guard inspectors²⁹

lacked the experience to conduct safety examinations of a vessel the size, service, and configuration of the *Marine Electric*. The incompleteness of these inspections as to the dictates of regulations and policy was attributed to the lack of training and experience on the part of the Coast Guard inspectors.... the inexperience of the inspectors who went aboard the *Marine Electric*, and their failure to recognize the safety hazard imposed by the deteriorated, weakened and non-tight hatch covers, raises doubts about the capabilities of the Coast Guard inspectors to enforce the laws and regulations in a satisfactory manner.

At a 1983 congressional hearing examining the marine casualty, a representative of a ship engineers' union noted that "Coast Guard officers with 12 weeks experience behind a desk are dealing with officers of the merchant marine who have spent 20 years at sea," and that "an inspector can't condemn a dangerous ship if he doesn't know what a dangerous ship is." This representative further stated that "while multi-mission flexibility and frequent rotation may be an optimal way to fulfill the Coast Guard's military readiness mission, it is a serious and even fatal distraction from the regulation of commercial industry."³⁰ The witness urged Congress to transfer ship inspection responsibilities to an agency of civilian career professionals, similar to the Bureau of Marine Inspection and Navigation that existed before World War II. Some committee Members appeared receptive to this idea.

The witness also raised the issue of whether the more fundamental problem was the age of the U.S. fleet.³¹

The problem of course is old ships. This means dangerous ships ... The *Poet* and the *Marine Electric* are trying to tell us something: If a ship isn't retired when it gets old, it will retire itself ... Although 40% of the U.S. fleet is at least 20 years old, 75% of the dozen

²⁸ U.S. Coast Guard Marine Board of Investigation, *SS Poet: Disappearance In The Atlantic Ocean After Departure From Cape Henlopen, Delaware on 24 October 1980 With Loss of Life*, Report No. USCG 16732/11486, April 12, 1982.

²⁹ U.S. Coast Guard Marine Board of Investigation, *SS Marine Electric, O.N. 245675, Capsizing and Sinking in the Atlantic Ocean on 12 February 1983 with Multiple Loss of Life*, Report No. 16732/0001 HQS 83, July 25, 1984, pp. 116 and 121.

³⁰ Testimony from the National Marine Engineers' Beneficial Association, House Committee on Merchant Marine and Fisheries, Subcommittee on Coast Guard and Navigation, *Marine Safety Program*, July 19, 27, August 2, September 29, 1983, pp. 250-252.

³¹ Testimony from the National Marine Engineers' Beneficial Association, House Committee on Merchant Marine and Fisheries, Subcommittee on Coast Guard and Navigation, *Marine Safety Program*, July 19, 27, August 2, September 29, 1983, pp. 250-253.

worst U.S. marine tragedies in the past two decades struck these ships aged 20 or older. Twenty is the rounded number when industry experts say a ship should be junked.

In conclusion, any analysis of the plight of maritime safety is misleading if it does not identify old ships as the core of the problem. The only way to uproot this evil is to mandate an aggressive attack by a dedicated and seasoned staff of professional inspectors—a team that the Coast Guard could never field unless it ended its fundamental multi-missioned military structure.

In 1985, following up on its 1979 audit, the GAO reported that the Coast Guard had recently completed a two-year project to develop a new marine safety training and qualification program.³² One change was establishment of uniform standardized on-the-job training and on-the-job qualification requirements. Another change was selection of three “training ports” where new inspectors would go for 18 months of intensive training before their initial assignment. The GAO stated that it was too early to assess whether these changes had addressed the qualification problems identified in its 1979 report.

On March 24, 1989, the U.S.-flag tanker *Exxon Valdez* grounded on Bligh Reef after departing Valdez, AK, spilling about 11 million gallons of oil. The actions of the ship captain, who was found to be impaired by alcohol, and who had turned over operation of the vessel to a third mate before reaching open waters, was the focus of the marine casualty investigation. In response to the *Exxon Valdez* incident, among other things, Congress increased funding for Coast Guard safety personnel. According to one Coast Guard senior official, the “War on Drugs” in the mid-1980s had shifted resources from the agency’s safety mission to its drug interdiction mission.³³

The 1990s

In the 1990s, the quality of Coast Guard inspections came under scrutiny again as the result of two fatal passenger vessel incidents. On December 5, 1993, the wooden vessel *El Toro II*, a fishing charter party vessel built in 1961 and carrying 23 people, began sinking in the Chesapeake Bay when water seeped through the hull’s planks. There were three fatalities. The Coast Guard’s Marine Board of Investigation found that the Coast Guard inspector’s knowledge of wooden boat structure was lacking, and that inspection staff were not cognizant of previous inspection reports that would have prompted concern about the vessel’s seaworthiness, given the owner’s poor track record in making needed repairs to the 32-year-old vessel.

The second incident occurred on a lake near Hot Springs, AR, in May 1999. The *Miss Majestic*, an amphibious “duckboat” built during World War II to transport troops and supplies, which had since been converted into a tour boat, began taking on water and sank in less than 30 seconds, drowning 13 of its 20 passengers.³⁴ The Coast Guard’s Marine Board of Investigation found that the Coast Guard inspector had not noticed that a critical part was missing from the rear shaft that was the main source of the leak. It determined that the inspector lacked awareness of the importance of this vessel’s design components. The board also found that the local Coast Guard office was not keeping adequate inspection records, which would have shown that the vessel’s owner had not installed safety equipment that previous inspectors had called for.

³² GAO, *Management Improvement Could Enhance Enforcement of Coast Guard Marine Safety Programs*, RCED-85-59, August 15, 1985.

³³ Fred L. Ames, “The Drive to Improve Performance in the Federal Government: A Longitudinal Case Study of Managing For Results,” p. 91.

³⁴ For details, see CRS Insight IN10932, “*Duck Boat*” Accident Highlights Gap in Regulation, by Bill Canis.

The NTSB concluded that the Coast Guard's inspections of the vessel were "inadequate and cursory" and that the "lack of Coast Guard guidance and training for the inspection of [this vessel design] contributed to the inadequate inspections of the *Miss Majestic*."³⁵ Moreover, the NTSB found that Coast Guard inspectors over the preceding five years had missed deficiencies with the vessel that might have been obvious even to an untrained observer, such as pinholes in the hull of the vessel caused by corrosion and an improper repair using a rubber patch to conceal a large, wasted area of the hull.

These marine casualties in the 1990s prompted the Coast Guard and Congress to examine the marine safety mission of the agency once again. In December 1995, the Coast Guard conducted an internal study of its accident investigation activity. One of the recommendations of the internal report was "To improve the overall quality of the information derived from investigations, an investigations career path should be developed. This would enable the Coast Guard to raise the overall level of expertise in investigations."³⁶ In 1996, the GAO reviewed whether the Coast Guard had fully utilized additional funding Congress provided the agency in the early 1990s to add 875 positions to its Marine Safety Program.³⁷ At a 1997 congressional hearing, a representative of the passenger vessel industry noted that vessel inspection "responsibilities fill hundreds of pages of regulations and thousands of pages of referenced consensus standards and rules."³⁸ The industry representative was "concerned that the problems in the commercial vessel safety program will grow because of a resulting lack of training and experience on the part of many Coast Guard inspectors."³⁹

The 2000s

Following the terrorist attacks of September 11, 2001, Congress greatly increased the Coast Guard's resources directed toward maritime security matters. The maritime industry's reaction to the Coast Guard's new security responsibilities came to light at a 2007 congressional hearing. Some industry witnesses at the hearing contended that since the Coast Guard had been transferred from the Department of Transportation to the newly created Department of Homeland Security (DHS) in 2002, the agency was more focused on security matters than on safety. One industry witness asserted that the industry's relationship with Coast Guard inspectors had changed from being partners with a mutual interest in safety to being viewed as a security risk.⁴⁰

The purpose of the 2007 hearing was to examine a proposal by the chairman of the House Transportation and Infrastructure Committee to transfer the Coast Guard's marine safety inspection function to a civilian agency—in other words, to undo the World War II-era reorganization.⁴¹ The chairman argued that "What we need is what we have in the [Federal

³⁵ NTSB, "Sinking of the Amphibious Passenger Vessel *Miss Majestic*, Lake Hamilton, Near Hot Springs, Arkansas, May 1, 1999," NTSB/MAR-02/01, adopted April 2, 2002.

³⁶ U.S. Coast Guard, "Report of the Quality Action Team on Marine Safety Investigations," December 1995; as quoted in House Committee on Transportation and Infrastructure, "Summary of Subject Matter" for "Hearing on Challenges Facing the Coast Guard's Marine Safety Program," July 27, 2007, p. 7.

³⁷ GAO, "Coast Guard's Marine Safety Program Staffing," RCED-96-162R, June 11, 1996.

³⁸ Testimony of the Passenger Vessel Association, House Committee on Transportation and Infrastructure, Subcommittee on Coast Guard and Maritime Transportation, *Commercial Vessel Safety*, May 14, 1997, p. 183.

³⁹ *Ibid.*, p. 182.

⁴⁰ *Ibid.*, Statement of Thomas A. Allegritti, American Waterways Operators.

⁴¹ House Committee on Transportation and Infrastructure, Subcommittee on Coast Guard and Maritime Transportation, Hearing on Challenges Facing the Coast Guard's Marine Safety Program, August 2, 2007.

Aviation Administration], skilled personnel who have years of seasoning, who aren't shifted year after year from one post to another with only three years on staff."⁴²

At the hearing, a witness representing ship captains described how marine inspection was performed in other countries:⁴³

In foreign countries outside the United States, you go to the Netherlands or Germany or Norway, that is a civilian force that comes on. They are all retired masters or chief engineers, and they become the inspection service for that country. When they go aboard a ship, they are interfacing with chief engineers and masters that have a shared experience. There is a great deal of respect for the inspectors, and the inspectors have a great deal of respect for the officers on the ship. It is an effective system. You have expertise. You have competence, and you have motivation. They obviously love the maritime industry because that is their choice. It is not something they have been assigned to as part of their tour of duty and attaining a generalized background in the Coast Guard. I think that is the way to go.

When a fellow retires after a career at sea and he is 45, 50 years old, he might not be looking for a future career advancement as Coast Guard officer. You make him a civilian inspector, and he would fill the same role that they fill in Germany and most maritime countries. Most maritime countries do not have a uniform Coast Guard acting as the maritime inspection service. They use maritime professionals from the industry to fill that role.

When they send a petty officer down to represent the United States' interest in enforcing international conventions on foreign flag ships as a port state control officer, the foreign masters, the Germans and the British, take offense that the Coast Guard hasn't sent an officer down or a civilian personnel with a maritime background.

At the hearing, the Commandant of the Coast Guard explained the dilemma facing the agency regarding its inspection staff:⁴⁴

Here is the quandary we are faced with. Sooner or later, as you get promoted in the Coast Guard, you become a commanding officer. If you get selected for flag, you become a district commander and maybe even a Commandant. When you get to there, you become a general. You are representing the entire organization.

We have an issue of needing specialists, subject matter experts, but at some point we need to generalize these folks and give them other experiences if they are going to be promotable and move up to become executives in the organization. In corporate America, for example, if you are a vice president, everybody needs to understand corporate finance.

What we have developed inside the Coast Guard is the notion of what we call a broadened specialist. What we need to look at is maintaining the subject matter expertise that is critical to mission execution and then how we can broaden these people at a later date and still make them promotable. They want to be able to move up in the organization as well.

At the 2007 hearing, the Commandant urged the ex-chairman of the Transportation and Infrastructure Committee to defer his proposal until the Coast Guard had a chance to rectify the

⁴² Ibid., p. 33.

⁴³ Testimony of George Quick, International Organization of Masters, Mates and Pilots, House Committee on Transportation and Infrastructure, Subcommittee on Coast Guard and Maritime Transportation, Hearing on Challenges Facing the Coast Guard's Marine Safety Program, August 2, 2007; pp. 46 and 49.

⁴⁴ Testimony of Admiral Thad Allen, House Committee on Transportation and Infrastructure, Subcommittee on Coast Guard and Maritime Transportation, Hearing on Challenges Facing the Coast Guard's Marine Safety Program, August 2, 2007.

problem, which the chairman agreed to do. The Commandant outlined the actions he was taking to improve the inspection workforce:⁴⁵

In the last year, I have directed significant changes and improvements in the training and qualifications of our inspectors to keep pace with the technological advancements and growth in maritime industry. We have made changes to our warrant officer selection system to bring more talented and experienced enlisted personnel into the maritime safety specialty.

We have learned valuable lessons from joint military and civilian staffing of our sector command centers and our vessel traffic services. These are areas where we used to have Coast Guard personnel only staffing. We now have brought civilian personnel in to provide continuity, corporate memory and way to bridge during the transfer season, so we get the best of training for our people in uniform by maintaining continuity of services.

I am committed to the establishment of more civilian positions in the marine inspection field. We need people with critical job skills. We need to maintain continuity while providing our military members access to this type of experience. We must leverage and expand this dual staffing model. Getting the inspection program right in terms of training, qualifications and staffing is my highest maritime safety priority.

The Commandant also argued that marine safety and security were two sides of the same coin; they were not mutually exclusive missions but synergistic to the Coast Guard's other maritime missions.⁴⁶

The Commandant's first step was an internal study of the issue by a retired Commandant. This internal study acknowledged that the agency's practice of regularly rotating staff geographically or by activity, as military organizations typically do, hindered its ability to develop a cadre of staff with sufficient technical expertise in marine safety.⁴⁷ The report noted the following:⁴⁸ "If the inspector is constantly referring to the regulations when conducting an inspection, the customer doesn't have much confidence in the quality of the Coast Guard inspection. I understand that the Coast Guard has sent unqualified personnel or marginally qualified personnel to conduct inspections and investigations."

The report also stated that "the DHS has no responsibility for transportation safety so getting them to embrace the Marine Safety program could be a heavy lift."⁴⁹

In response to this problem, the agency revamped its safety program⁵⁰ and Congress appropriated additional funds specifically for safety personnel. The FY2009 Coast Guard budget request noted that "the Coast Guard is encountering serious stakeholder concern about our capacity to conduct marine inspections, investigations, and rulemaking."⁵¹ Under the revamped safety program, the

⁴⁵ Testimony of Admiral Thad Allen, House Committee on Transportation and Infrastructure, Subcommittee on Coast Guard and Maritime Transportation, Hearing on Challenges Facing the Coast Guard's Marine Safety Program, August 2, 2007.

⁴⁶ DHS, "Marine Safety and Security—Two Sides of the Same Coin," *Leadership Journal*, November 5, 2007.

⁴⁷ Vice Admiral James C. Card (retired), "Coast Guard Marine Safety Analysis: An Independent Assessment and Suggestions for Improvement," November 16, 2007.

⁴⁸ *Ibid.*, p. 15.

⁴⁹ *Ibid.*, p. 14.

⁵⁰ U.S. Coast Guard, "Enhancing the Coast Guard's Marine Safety Program," September 25, 2007. See also *Coast Guard Proceedings*, Summer 2008, pp. 20-28, available at <http://www.uscg.mil/proceedings>, and *Marine Safety Performance Plan, FY 2009-FY2014*, November 2008; https://www.nts.gov/news/events/Documents/2010_Fishing_Vessel_Safety_FRM-17-USCG-MSPP-2008.pdf.

⁵¹ Coast Guard FY2009 Budget Justification, p. CG-SC-5.

Coast Guard created additional civilian safety positions, converted military positions into civilian ones, and developed a long-term career path for civilian safety inspectors and investigators.

A 2008 audit by the DHS Inspector General (IG) confirmed that Coast Guard stated that the problems identified with respect to its safety program workforce also existed among vessel accident investigators.⁵² The IG found that accident investigations were hindered by unqualified personnel and recommended hiring more civilians for this activity. The IG also found that the Coast Guard had lowered the qualification standard for accident investigators in August 2007 by removing the requirement that an investigator have experience as a hull or machinery and small passenger vessel inspector. Since vessel casualties commonly involve structural deficiencies in the hull or loss of propulsion, this experience is considered important for an accident investigator. The IG noted that in the United Kingdom, Australia, and Canada, accident investigators are required to be former ship captains or chief engineers with several years of experience.

The IG report noted issues with rotating assignments and promotion potential in the marine safety area:

A tour in the Prevention Directorate could mean yearly rotations across specialty areas, such as waterways management and drug and alcohol testing. Given the lack of a career path and the unpredictable nature of investigation assignments, potential Coast Guard candidates also may not want to become investigators. Hull and Machinery Inspectors told us that promotion to the position of marine casualty investigator would not advance their careers.

Additionally, according to Coast Guard personnel, tour of duty rotations hinder investigators in acquiring the experience needed for career development. The agency's uniformed investigators generally are not in their positions for more than a single, three-year tour of duty in the same location. The forced rotations preclude the investigators from acquiring the extensive knowledge of local waterways and industries that experienced casualty investigators have told us is needed to be an effective investigator.

In contrast, civilian marine casualty investigators are not subject to the three year tour of duty rotation standard. Over time, they can gain a greater knowledge of specialties such as local waterways and industries or experience in enforcing maritime regulations to enhance their qualifications. Of the 22 marine casualty investigators that we reviewed, one was a civilian.⁵³

A 2009 study by the Homeland Security Institute, a federally funded research center established by Congress in the Homeland Security Act of 2002 (§312) to assist DHS in addressing policy issues, reiterated the same theme regarding frequent rotations of uniformed staff hindering proficiency in marine inspection and investigation. The study's recommendations were to increase tour lengths as well as require back-to-back tours in these areas and to rely more on civilians for these functions.⁵⁴ The study found that the Coast Guard's workforce database was not able to indicate years of service or level of expertise for marine safety personnel. The study found that the Coast Guard had no central office responsible for overall management of the marine safety workforce and therefore there were no agency-wide specific standards for determining qualifications in this area. Lacking documentation, the study's authors relied heavily

⁵² DHS IG, "United States Coast Guard's Management of the Marine Casualty Investigations Program," OIG-08-51, May 2008.

⁵³ DHS IG, "United States Coast Guard's Management of the Marine Casualty Investigations Program," OIG-08-51, May 2008, p. 11.

⁵⁴ Homeland Security Institute, *Independent Evaluation of United States Coast Guard Prevention Programs—Marine Safety and Marine Environmental Protection*, Final Report, April 25, 2009.

on interviews with hundreds of Coast Guard personnel and private industry to gather data on the marine safety workforce.

Recent Developments

On April 20, 2010, the mobile offshore drilling unit *Deepwater Horizon*, 45 miles off the coast of Louisiana, experienced a catastrophic blowout, causing a major explosion and fire, and resulting in its sinking. There were 11 deaths and an oil spill estimated at approximately 206 million gallons, the largest in U.S. history. The Department of the Interior's Minerals Management Service had responsibility for inspection of the drilling apparatus that was the cause of the explosion, but the Coast Guard was responsible for the safety inspection of the rig above water that has commonality with vessels in general (firefighting and lifesaving equipment, evacuation procedures, electrical systems). The ensuing investigation revealed that Coast Guard regulations of offshore structures dated to 1978 and had not been updated as rigs moved farther and farther offshore. For instance, in places where they are not attached to the seabed because of the tremendous depth, these rigs use dynamic positioning systems (propeller systems) to remain in place, but at the time of the accident the Coast Guard had not developed regulations for checking the safety aspects of these critical systems.⁵⁵

In response to the *Deepwater Horizon* marine casualty, Congress required the Coast Guard to take several initiatives to improve the quality of its marine inspection workforce in the Coast Guard Authorization Act of 2010 (P.L. 111-281). Under the subtitle "Workforce Expertise" (§§521-526), these initiatives included improving career path management, adding apprenticeships to the program, measuring workforce quality and quantity, adding a marine industry training program and a marine safety curriculum at the Coast Guard Academy, and preparing a report on recruiting and retaining civilian marine inspectors and investigators.

A June 2011 audit by the DHS IG of vessel inspections in the offshore oil and gas industry (involving rigs and vessels that support operation of the rigs) found a positive result for the marine inspection program in this sector. The IG found that 99% of those inspections had been performed by Coast Guard inspectors who had been fully qualified.⁵⁶ However, the IG found that the Coast Guard's guidance on how to inspect these vessels and how to record the results of these inspections was deficient.

A May 2013 audit by the DHS Inspector General found that the agency's efforts had not improved its marine accident reporting system, due to familiar issues surrounding the qualifications and rotation of the personnel:

The USCG [United States Coast Guard] does not have adequate processes to investigate, take corrective actions, and enforce Federal regulations related to the reporting of marine accidents. These conditions exist because the USCG has not developed and retained sufficient personnel, established a complete process with dedicated resources to address corrective actions, and provided adequate training to personnel on enforcement of marine accident reporting. As a result, the USCG may be delayed in identifying the causes of accidents; initiating corrective actions; and providing the findings and lessons learned to mariners, the public, and other government entities. These conditions may also delay the development of new standards, which could prevent future accidents.

⁵⁵ Testimony of Admiral Thad Allen, USCG retired, Senate Committee on Energy and Natural Resources, Oil and Gas Development, May 17, 2011.

⁵⁶ DHS IG, "U.S. Coast Guard's Marine Safety Program—Offshore Vessel Inspections," OIG-11-86, June 2011.

[T]he Director of Prevention Policy [the marine safety program] provides personnel with career management guidance that suggests they should leave this specialty to improve their promotion potential, because of the USCG's emphasis on personnel attaining a wide variety of experience. Personnel indicated that both investigations and inspections suffer from investing time and money into training people only to have them leave the specialty.⁵⁷

The IG found that at the 11 sites it visited, two-thirds of accident inspectors and investigators did not meet the Coast Guard's own qualification standards. The IG stated that the shortage of qualified personnel would be further compounded by the new towing vessel safety regime, which would expand the inspection workload by about 50% (or an additional 5,700 vessels to inspect).⁵⁸

In January 2015, the new Commandant, Paul Zukunft, indicated that human resource competencies would be one of his key focus areas. He referred to the need to grow "subject matter experts" for the marine safety workforce and overhaul the generalist-driven military personnel system in favor of a specialist workforce. Commandant Zukunft called for increasing proficiency through more specialization in both the officer and enlisted corps and to extend the time between job rotations. He noted the complexity of systems aboard vessels and new developments in using LNG as fuel, stating that the Coast Guard needed to know these technologies in order to lead the industry on safety rather than having to learn them from industry.⁵⁹

In February 2015, Commandant Zukunft stated his priorities regarding the marine safety mission:

I have directed the Vice Commandant to undertake a service-wide effort to revitalize our marine safety enterprise with particular focus on marine inspection and our regulatory framework.... We will increase the proficiency of our marine safety workforce, and we will continue to train new marine inspectors—adding to the more than 500 that have entered our workforce since 2008.... We will review our civilian career management process to eliminate barriers and improve upward mobility.⁶⁰

As noted above, the October 2015 sinking of the *El Faro* has renewed focus on the Coast Guard's marine inspection workforce, but, as in the past, the age of ships in the U.S.-flag fleet has been raised as a corollary safety issue. Regarding the *El Faro*, the Coast Guard testified in 2018:

We looked a little further beyond this particular incident, caused us to look at other vessels in the fleet and did cause us concern about their condition.... And the findings indicate that it is not unique to the *El Faro*. We have other ships out there that are in substandard condition.... You know, some of our fleet—our fleet is almost three times older than the average fleet sailing around the world today. Just like your old car, those are the ones likely to breakdown. Those are the (inaudible) one—the ones that are more difficult to maintain and may not start when I go out, turn the key.⁶¹

⁵⁷ DHS, Office of Inspector General, "Marine Accident Reporting, Investigations, and Enforcement in the U.S. Coast Guard," OIG-13-92, May 2013, pp. 1 and 3; http://www.oig.dhs.gov/assets/Mgmt/2013/OIG_13-92_May13.pdf.

⁵⁸ At an October 2011 meeting with the towing vessel industry to discuss the multiyear effort to promulgate new inspection regulations, towing operators complained about having to rehash the same issues with a "revolving door" of Coast Guard officials in charge of the rulemaking project. October 26, 2011 New Orleans Public Meeting on Inspection of Towing Vessels Notice of Proposed Rulemaking; <http://www.regulations.gov/#!documentDetail;D=USCG-2006-24412-0095>.

⁵⁹ Center for Strategic and International Studies, "A Conversation with Admiral Paul Zukunft," January 16, 2015; <https://www.csis.org/events/americas-coast-guard-21st-century>.

⁶⁰ Speech by Admiral Paul Zukunft, "The State of the U.S. Coast Guard 2015"; <https://www.uscg.mil/Portals/0/seniorleadership/speeches/SOTCGA15.pdf>.

⁶¹ Testimony of Assistant Commandant Nadeau, Prevention Policy, Coast Guard, House Committee on Transportation

Considerations in Realigning Marine Safety Functions

As the above history indicates, the measure most often proposed to increase the competence of marine safety personnel is to shift this mission to a civilian workforce in a civilian subagency, either under the Coast Guard or somewhere else in the executive branch with complementary maritime functions. While such a shift could have the advantages stated, one cannot necessarily expect it, in and of itself, to solve the issue completely. Civilian agencies with inspection workforces covering technically demanding industries also have had difficulty retaining experienced staff. For instance, the Federal Aviation Administration has been criticized for increasing its reliance on private-sector inspectors paid by industry rather than enhancing its in-house inspection workforce.⁶² The rationale for this reliance on private-industry inspectors is that the pace of technological development in aviation has overwhelmed the capability of government inspectors.

Similarly, the Department of Transportation's Pipeline and Hazardous Materials Safety Administration, which regulates pipeline safety, has found that experienced inspectors are often hired away as safety compliance officers by pipeline companies.⁶³ The Department of the Interior has voiced much the same concern with respect to the offshore oil rig inspection workforce of the Bureau of Safety and Environmental Enforcement.⁶⁴ Even under a civilian agency, vessel inspectors would be subject to recruitment by private industry, as experienced inspectors are sought by ship owners, banks that finance ships, and insurers, all of which want to ensure ships are built to, and are being maintained to, safety standards. Inspectors are employed by private ship classification societies for this purpose.⁶⁵

Another consideration with respect to realigning the government's marine safety function is the benefit of housing maritime-related missions in a single agency. As commandants have argued, there are synergies among these missions. For example, the knowledge of and familiarity with vessels and crews that safety inspectors gain via their interactions with them provide risk intelligence relevant to the agency's security mission. Personnel involved in the often perilous mission of search and rescue directly benefit from a competent and effective safety inspection workforce that can reduce the number of such missions. The vessel safety inspection function has synergies with vessel environmental inspections related to oil pollution, ballast water, and emissions. The marine safety function is also complimentary to the Coast Guard's responsibility for deploying and maintaining channel marker buoys and lights and breaking ice in winter. Fisheries enforcement has synergies with fishing safety and security missions. All of these

and Infrastructure, Subcommittee on Coast Guard and Maritime Transportation, Hearing on the *El Faro* Marine Casualty and Coast Guard's Electronic Health Records, January 30, 2018.

⁶² For details, see CRS In Focus IF11145, *Delegation of Federal Aviation Administration Certification Authorities to Aviation Manufacturers*, by Bart Elias.

⁶³ Department of Transportation, Office of Inspector General (DOT IG), "PHMSA Has Improved Its Workforce Management but Planning, Hiring, and Retention Challenges Remain," Report No. ST2018010, November 21, 2017. See also CRS Report R44201, *DOT's Federal Pipeline Safety Program: Background and Key Issues for Congress*, by Paul W. Parfomak.

⁶⁴ Bureau of Safety and Environmental Enforcement, FY2017 Budget Justifications, p. 27; <https://www.bsee.gov/sites/bsee.gov/files/budget-justifications/budget/bsee-fy-2017-budget.pdf>.

⁶⁵ Classification societies are engaged by ship owners and insurers to ensure that vessels are constructed and maintained according to design requirements. CRS Report R44566, *The Coast Guard's Role in Safeguarding Maritime Transportation: Selected Issues*, by John Frittelli.

missions require special knowledge for operating on the water, and most require a fleet to do so. Thus, there are both human resource and capital equipment synergies among these missions.

Notwithstanding these factors, one can also rationalize dismantling parts of the Coast Guard and reorganizing them under other agencies. The Coast Guard has a close relationship with the Navy, even in peacetime. In 1982, Members of Congress sponsored bills to transfer the agency to the Navy or the Department of Defense (H.R. 4996, H.R. 5567). These proposals were partly in response to the Reagan Administration's proposal to drastically reduce the size of the Coast Guard, replace the commandant with a civilian administrator, and transfer the Coast Guard's aids to navigation mission to the Army Corps of Engineers. During the partial government shutdown in January 2019, when Coast Guard personnel were the only military personnel not paid, calls for shifting the Coast Guard to the Navy or Department of Defense were renewed.⁶⁶ While some supporters hope that transferring the Coast Guard to the military might boost the agency's budget, others have argued that the Coast Guard's nondefense-related missions would suffer, as these missions are not a priority for the military. It would appear that such a transfer might not assist the Coast Guard in addressing the issue of rotating staff in the marine safety program.

In addition to realigning marine safety functions, Congress has discussed rearranging navigation-related functions in the federal government more broadly. Some Members of Congress, dissatisfied with the Army Corps of Engineers' performance in the provision of navigation channel infrastructure, have proposed transferring that function to the Department of Transportation.⁶⁷ The Trump Administration also has proposed this transfer as part of a larger reorganization plan involving multiple agencies.⁶⁸ Congress has requested a National Academy of Sciences study related to this idea.⁶⁹ If such a transfer were to occur, navigation infrastructure functions could be combined with a marine safety inspection and accident investigation within the Department of Transportation. This combination of safety and infrastructure provision parallels the primary missions of the department with respect to other transportation modes. However, Congress has shown reluctance to eliminate any of the Coast Guard's missions. Both in 1967, when the Department of Transportation was created and the Coast Guard was transferred there from the Department of the Treasury, and in 2003 after the Department of Homeland Security was created,⁷⁰ and the agency was transferred there from the Department of Transportation, the Coast Guard was transferred as a distinct entity.

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⁶⁶ U.S. Naval Institute, "Shift the Coast Guard to DOD," February 2017.

⁶⁷ House Committee on Transportation and Infrastructure, *Examining the Administration's Infrastructure Proposal*, March 6, 2018, p. 11.

⁶⁸ Executive Office of the President of the United States, *Delivering Government Solutions in the 21st Century: Reform Plan and Reorganization Recommendations*, June 2018; <https://www.whitehouse.gov/wp-content/uploads/2018/06/Government-Reform-and-Reorg-Plan.pdf>.

⁶⁹ America's Water Infrastructure Act of 2018 (P.L. 115-270, §1102).

⁷⁰ Homeland Security Act of 2002, P.L. 107-296, §888.

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