



HEALTH, SAFETY & WORK-LIFE SERVICE CENTER
SAFETY AND ENVIRONMENTAL HEALTH DIVISION

Annual Mishap Analysis Report
Fiscal Year 2014



This report describes the frequency and characteristics of mishaps associated with shore based units, cutters, aviation/aviation support and boats. Off-duty mishaps, motor vehicle, and sports related injuries are also summarized and described.

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Introduction

I am pleased to release the second Annual CG Mishap Analysis Report. This report now includes a summary and analysis of aviation mishaps previously reported by CG 113. Since the first Annual HSWL SC Mishap Analysis Report there have been several changes to the Coast Guard's Safety Management System. A new Safety & Environmental Health (SEH) Manual has been released that provides enterprise wide policy and establishes the creation of specific Tactics, Techniques, and Procedures (TTP)s for each chapter. These TTPs will be developed by HSWL SC and published by FORCECOM. In addition, the Office of Safety and Environmental Health (CG- 113) has reorganized into two divisions to better align with the operational community and to consolidate SEH policy development and information sharing.



Along the lines of information sharing, the new SEH manual requires each CG District and CG Area to establish a Safety and Risk Management (SARM) council. The intent of these councils is to enhance the programs they serve by identifying, defining, and assessing problem areas, and by recommending corrective measures for policy where such discrepancies may exist. From these recommendations, new or revised policies and procedures can be developed to better serve individual, group, and organizational needs. I believe SARMs will be a powerful driver in providing innovative risk management solutions directly to the Risk Management Steering Committee (RMSC) headed by CG-113. The RMSC will act as a clearing house to address emerging, cross-directorate SEH issues.

Chapter 3 of the SEH Manual describes the roles and responsibilities for mishap response plans (MRPs) and mishap reporting. A regularly exercised MRP creates the necessary expectations and confidence to respond in the chaotic mishap environment. The key to preventing mishaps is identifying root causes through deliberate analysis. These analyses depend on units to collect information and protect the scene as part of their post-mishap response. Unfortunately, recent mishaps have highlighted lapses in pre-mishap planning, and reveal a lack of awareness of these requirements. Please refer to the [Mishap Response and Reporting TTP](#) which was promulgated in January 2015. This TTP publication provides steps for the commanding officer/officer in charge (CO/OIC) to develop, implement, exercise, and maintain a unit mishap response plan. This TTP applies to afloat, ashore, and all other non-aviation mishaps.

Despite being a mandated annual requirement, enterprise wide use of the [Unit Safety Assessment Tool](#) (USAT) remains low. Implementing USAT is a Commanding Officer's responsibility. As the Commandant said in his [Safety and Environmental Health Policy Statement](#): "Commitment to Excellence demands continuous identification and mitigation of hazards through deliberate risk assessment and sound on-scene judgment." The USAT is an online tool can be customized to specific unit needs, allowing units to document self-inspections and track deficiencies to completion. Moreover, it is a great resource to ensure a safety conscious culture at a command and empowers units to report hazards without fear of reprisal and documents unsafe conditions before mishaps occur.

While we cannot remove all risks from our operations, we must strive to reduce hazard exposure to acceptable levels. The core values of respect and devotion to duty start with taking care of ourselves and co-workers on and off-duty. This responsibility cannot be delegated and must not be compromised.

I am pleased to report fewer mishaps occurred in FY14. Cutter crews, small boat unit personnel, aviators and aviation support personnel, and shore based personnel reported a 10%, 25%, 12% and 6% reduction in mishaps, respectively. In fact, total mishaps for cutter crews and small boat personnel reached a ten year low in FY14. Beyond total mishap trends CG wide, this report has a focus on injuries, lost time, and general causal factors vice an attempt to characterize or analyze the nuisances of complex operational mishaps.

Key takeaways of this report are included at the beginning of each section. Communities should refer to their respective sections to review details and analysis. However, some crosscutting observations were noted

- *While there were more on duty mishaps, off-duty activities accounted for the majority of hospitalizations, lost work days and days restricted with sports being a major contributor. Commands must instill a safety culture that stresses the importance of safety in our daily activities, including the human element in risk mitigation and hazard avoidance when working at home, recreation, and participating in sports.*
- *Judgment was the most cited causal factors for all mishaps. Supervisors at all levels must conduct Operational Risk Management and/or Job Hazard Analysis to identify hazards and risks associated with operations and tasks and take appropriate actions to reduce or eliminate hazards.*
- *Laceration injuries and electric shock were prevalent across several communities. Analysis revealed personnel were not performing job hazard analysis, not following correct procedures, and were frequently using the wrong tools for the job.*
- *Slips trips and falls were identified as the leading type of mishaps. Inadequate lighting, wet and slippery surfaces, obstructed aisle and walkways, ladders, and unguarded openings, elevated work surfaces were listed as contributing factors. Unit Self Inspections utilizing USAT is one of the most effective ways to reduce these type of mishaps.*
- *The most often cited hazardous condition notifications are related to electrical system conditions, fire and life safety codes, and lack of designated/trained asbestos control coordinators.*



T. W. RINOSKI
Commanding Officer, USCG HSWL Service Center

Overview and Mishap Summary

Key Takeaways

- Total mishaps reached a 10 year low; cutter and small boat personnel reported the fewest mishaps in 10 years.
- Injuries declined in FY14 compared to the 10 year average, with the exception of aviation/aviation support injuries which was equal to the 10 year average.
- Mishap related property damage was significantly lower for cutters and aviation/aviation support compared to the 10 year average.

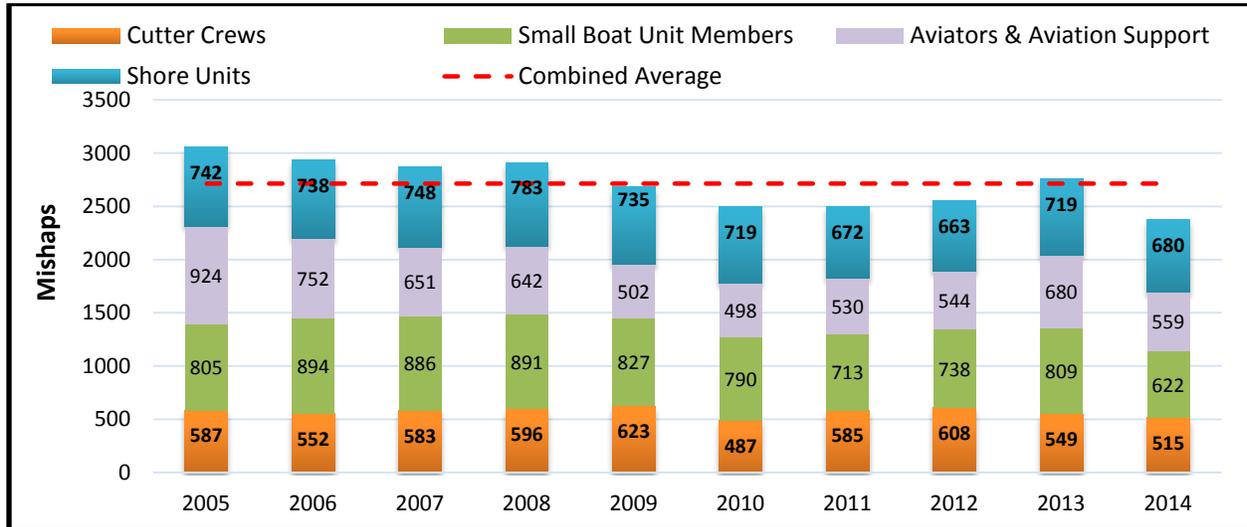


Figure 1.1: Mishaps Reported FY05-FY14. Note*: Small Boat Units includes STA, STA sm, MSSTs, PSUs, and ANTs. Aviation/Aviation support mishaps includes class E mishaps which are unique to aviation.

Table 1.1: FY14 Mishap Trends Compared to the FY05-FY14 Mishap Average.

	FY05-14 Average of Total Mishaps	Standard Deviation	FY14 Mishaps	FY14 vs 10 Year Average
Shore Units	720	36	680	↓ 6%
Small Boat Units	798	83	622	↓ 25%
Cutters	569	40	515	↓ 10%
Aviation	628	127	559	↓ 12%

Table 1.2: FY14 Mishaps Related Property Damage (millions) versus FY04-FY14 Trends.

	FY05-FY14 Average of Damage (millions)	Standard Deviation	FY14 Mishap Cost	FY14 vs 10yr Average
Shore Units	\$0.76	\$0.44	\$0.78	↑ 2%
Small Boat Units	\$1.25	\$0.33	\$1.12	↓ 10%
Cutters	\$3.49	\$0.99	\$1.63	↓ 67%
Aviation	\$28.41	\$41.59	\$7.58	↓ 115%

Note: yearly costs to calculate the average are not adjusted for inflation. Air Station includes aircraft and support infrastructure.

The reduction in mishaps shown in Figure 1.1 and Table 1.1 corresponded to a reduction in property damage with the exception of shore unit related property damage which remained flat at \$780,000 vice the 10 year average of \$760,000. Cutter property damage ranged from \$2.5 to \$5.1 million up until FY14, when it reached a 10 year low of \$1.6 million.

Injuries and Lost Time Case Rate Overview

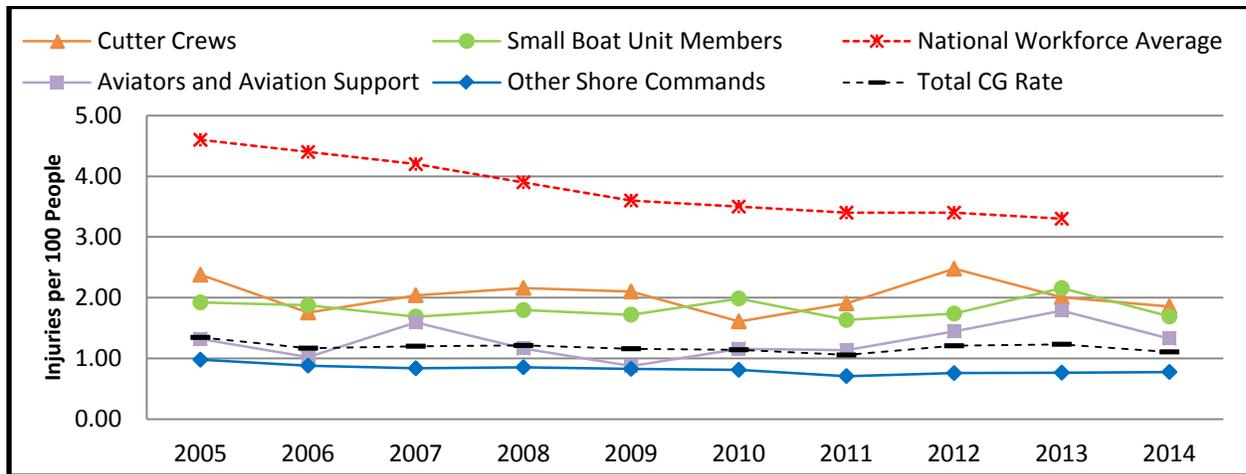


Figure 1.2: On Duty Coast Guard Injury Rates Compared to the National Occupational Injury Rate. Note: The national occupational value is from the Bureau of Labor and Statistics (BLS) report. On-duty cutter rates include in-port and underway injuries.

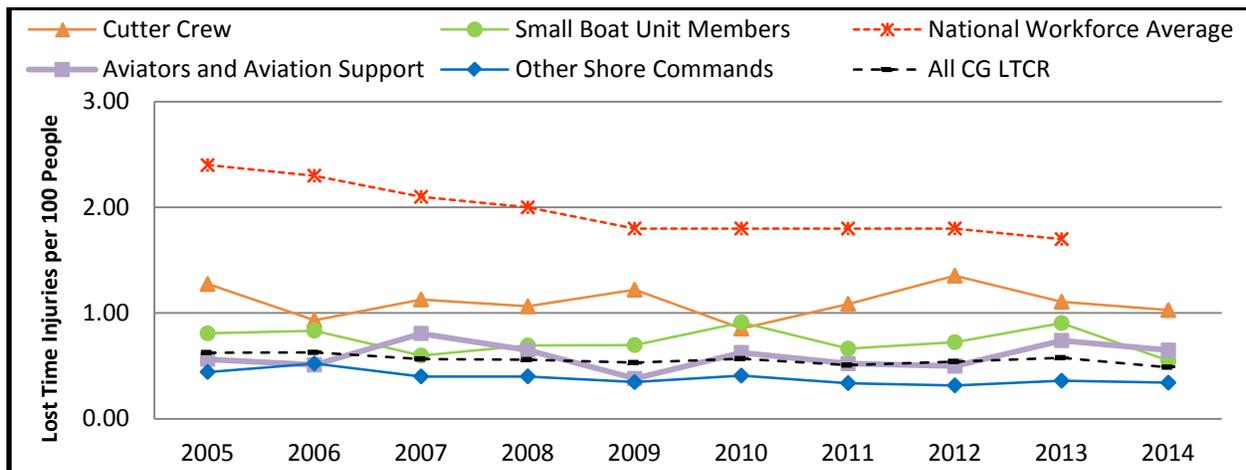


Figure 1.3: Coast Guard Lost Time Case Rates Compared to the National Rate. Note: The national occupational value is from the Bureau of Labor and Statistics (BLS) FY14 report.

Table 1.3: FY14 Injury Trends Compared to the FY05-FY14 Injury Trends.

	FY05-FY14 Average of Injuries	Standard Deviation	FY14 Injuries	FY14 vs 10 Year Average
Shore Units	332	31	305	↓ 9%
Small Boat Units	188	16	169	↓ 11%
Cutters	185	25	157	↓ 17%
Aviation	114	12	114	~ 0%

As seen in figure 1.2 and table 1.3 all communities had a reduction in injuries in FY14 with the exception of Aviation commands which remained about the same. Figure 1.3 shows that cutter crews had the highest lost time cases while small boat unit personnel reduced the lost work cases by half compared to FY13. What is striking is that cutter crew injuries consistently result in more lost time than injuries among the other groups. This lost time is a result of a higher frequency of injury and a higher degree of severity.

Cutter Mishaps

Key Takeaways

- *Maintenance and repair was associated with a large number of injuries, accounting for 42% of the cutter crew on-duty injuries in FY14.*
- *55% of operational mishaps were due to slips, trips, and falls.*

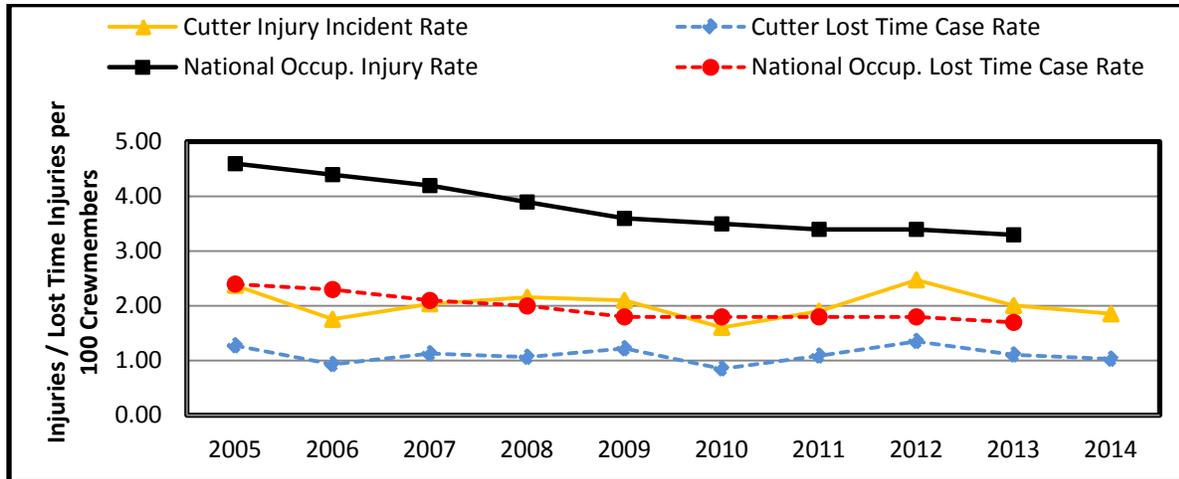


Figure 2.1: On-Duty Cutter Injury Incident and Lost Days Case Rates 2004-2014. Note: The on-duty cutter injury incident rate includes all members assigned to vessels 65ft or greater and combines underway and in-port incidents.

Table 2.1: FY14 Cutter Crew Mishaps Compared to the FY05-FY14 Mishaps Trends.

	FY05-FY14 Average	Standard Deviation	FY14	FY14 vs 10 Year Average
Inport Mishaps	414	34	367	↓ 12%
Inport Injuries	131	22	100	↓ 27%
Inport Lost Work Days	623	201	370	↓ 51%
UW Mishaps	155	20	148	↓ 4%
UW Injuries	54	8	57	↑ 6%
UW Lost Work Days	323	99	287	↓ 12%
Cost (millions)	\$3.49	\$0.99	\$1.63	↓ 67%

Cutter crew members are injured more often inport than underway. In FY14, there were 100 injuries inport and 57 underway. About 42% (67) of the 157 injuries occurred during maintenance and repair (M&R). One operational injury resulted in a death.

Lacerations/abrasions were the highest reported injury accounting for 31% (54) of the total cutter injuries. Twenty-three (43%) lacerations were caused by knives/razor blades, with a small portion due to power tools. The common factor for these injuries was opening boxes, or cutting objects such as line. Cuts to the head or extremities from knife edges on hatches or watertight doors accounted for 7 (13%) of the lacerations. These occurred while members were transiting through the watertight door/hatch and striking head or extremity on the knife edge causing injury.

Fractures were the second highest reported injury accounting for 29 (17%) of injuries. Of these, 8 (27%) were caused by a crewmember losing positive control of a door/hatch while transiting through resulting in the closure on the crewmembers extremity.

Cutter Injuries, Continued

Six (20%) resulted from crewmembers dropping objects onto their feet or hands. Slips/trips/falls accounted for 6 fractures (20%) with falls down ladder wells being the most common occurrence.

Concussions accounted for 9 (5%) of the mishaps but have the potential to be a long term effect for the individual. Causes of concussions included; contact with knife edges, falling objects/tools (5 cases), and falls down ladder wells.

There were 10 (5%) injuries related to strains: 4 of the injuries occurred while members were attempting to lift objects, 3 were from slips/trips/falls, and 3 took place during small boat operations. Strains to the lower back caused by lifting objects were most prevalent. The strains that resulted from slips/trips/falls are related to the crewmember not being aware and falling down ladders, and tripping over knife edges. Strains cutter based small boat operations were most commonly to the back and knee. These injuries are reportedly from the impact to the crewmember as the small boat falls from a swell/wave. There is a severe amount of pressure put onto the crewmembers body absorbing the impact of the swells/waves.

FY14 Cutter Injuries	
Lacerations	54
Fractures	29
Strains	10
Head Injury	9
Electric Shock	7
Exposure	6
Other (sprain/bruise/ unit sports related)	30

Electrical shock to members was reported 7 times accounting for 4% of injuries. Four (57%) of these were due to crewmembers touching exposed/bare wiring. The other 3 occurred during ATON missions while members were working aids and received electrical shock while conducting routine maintenance.

Cutter crews reported chemical exposure on 6 occasions. Crewmembers were involved in various maintenance procedures when the exposures occurred; for example: refueling cutter or aircraft, working on hydraulic equipment, mixing paints or cleaning solvents. Half of the exposures were to the eyes and could have been prevented if the crewmember was wearing proper PPE.

Types of Cutter Operational Mishaps.

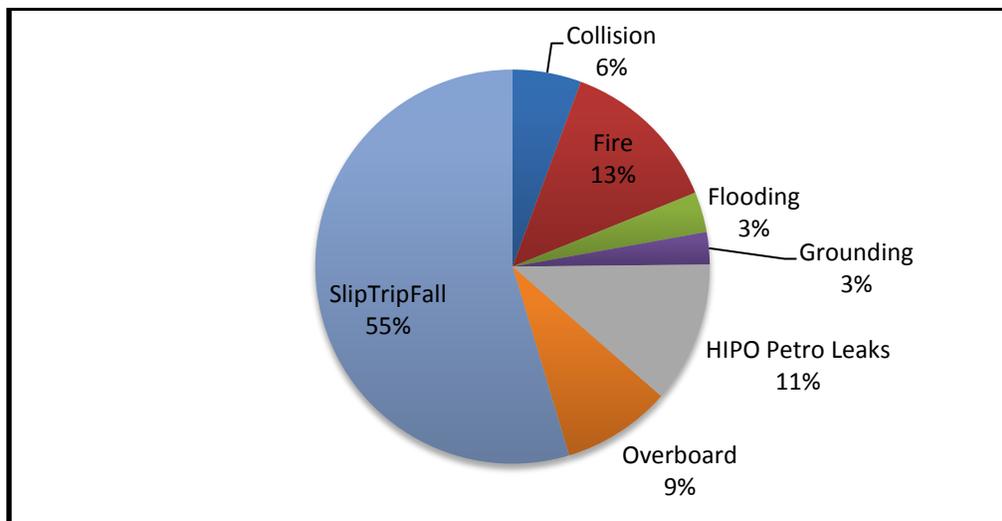


Figure 2.2: FY14 Cutter Operational Mishaps by Type. Note: Operational mishaps include underway mishaps only (steaming, anchoring, mooring, etc.).

Types of Cutter Operational Mishaps, continued.

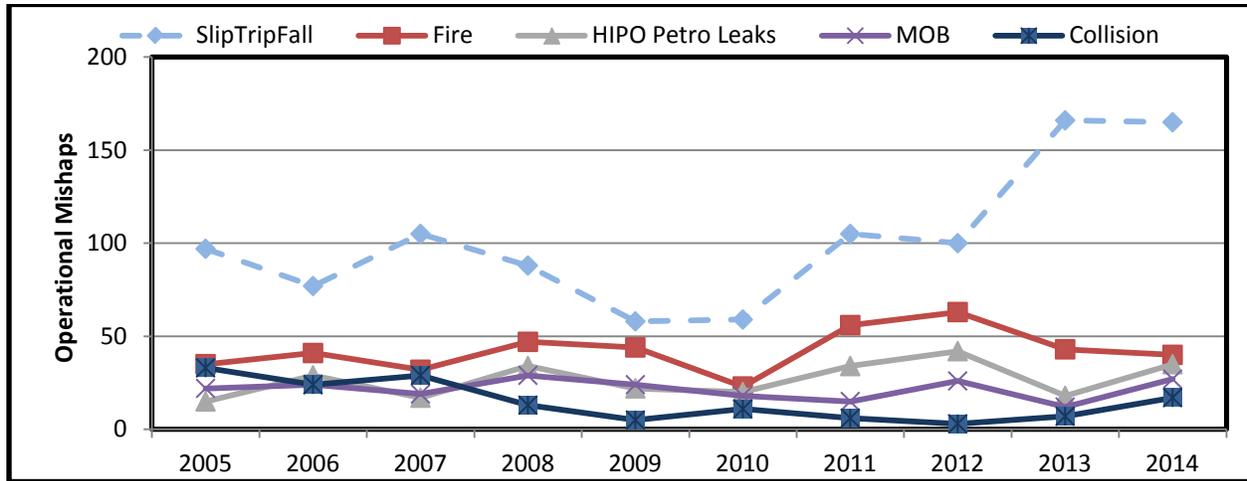


Figure 2.3: Top Cutter Mishaps by Type, FY05-FY14.

Figure 2.3 shows that over a 10 year time frame ‘slips, trips, and falls’ account for the majority of reported mishaps. Slips, trips, & falls had a 70% increase between FY12 and FY13. Fire was the next most common type of mishap. To see a comprehensive report on fires aboard Coast Guard cutters, please see the Causative Factors of Afloat Fires, on the Afloat Branch CGPORTAL page:

https://cgportal2.uscg.mil/units/hswlsc/SafeEvHealth/SitePages/Afloat_Branch.aspx

Cutter Operational Mishap Causal Factors

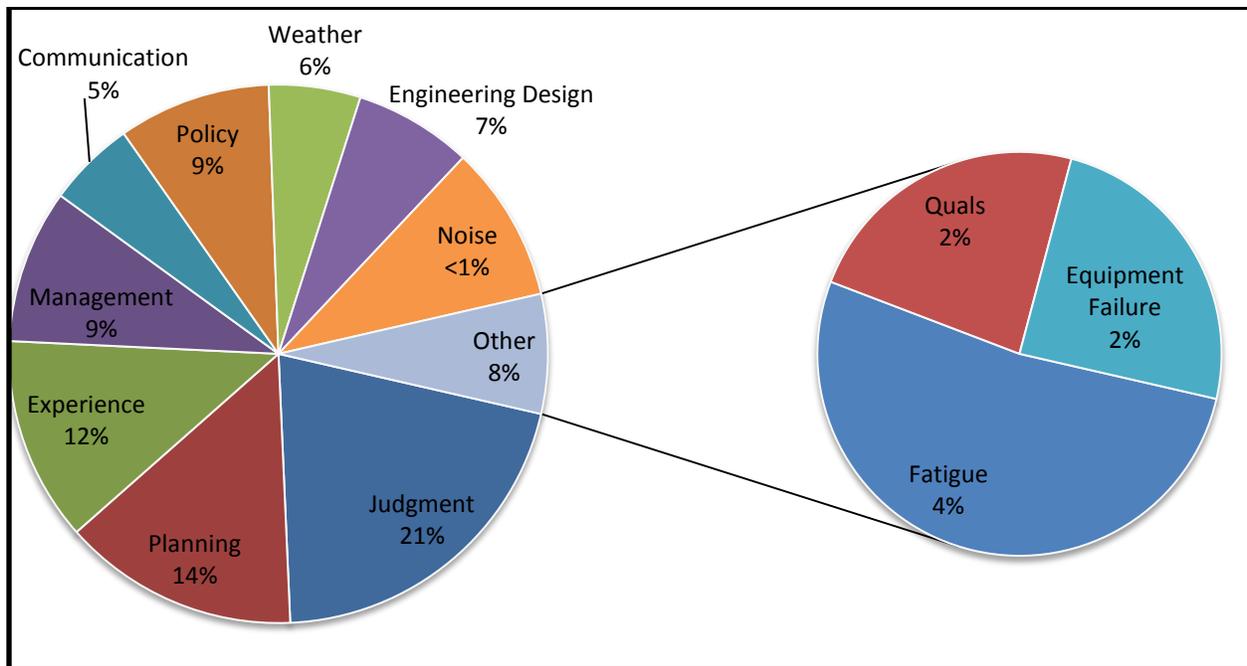


Figure 2.4: FY14 Cutter Mishap Causal Factors Displayed *Note: This include all mishaps at work (underway and in port)

Cutter Operational Mishaps Causal Factors, continued

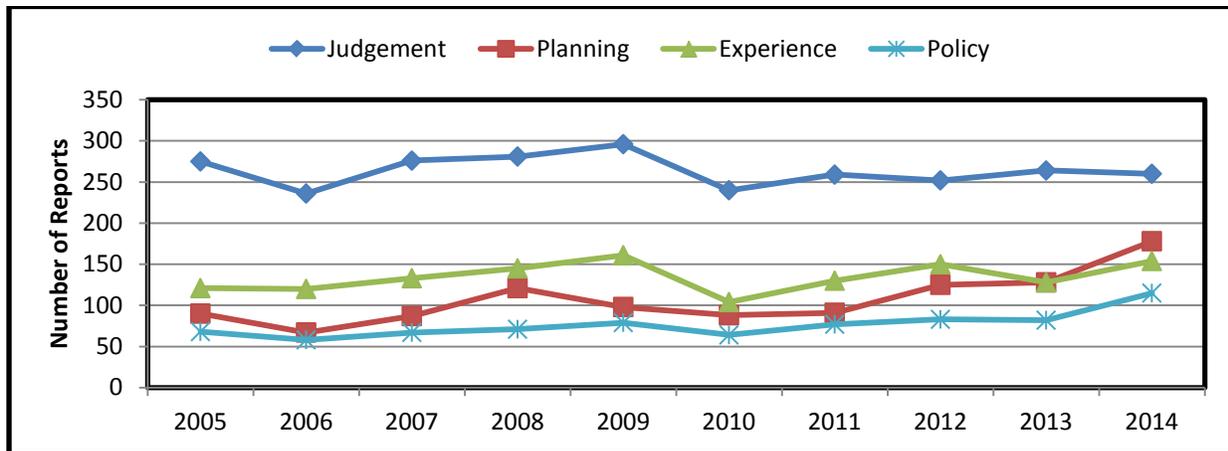


Figure 2.5. Top Four Causal Factors FY04-FY14.

Judgment is consistently the leading causal factor reported in operational cutter mishaps. Judgment, experience, and planning are personal factors. Operational risk management can be applied to identify these latent unsafe decisions before they manifest into mishaps.

Cutter Safety Assessment Analysis

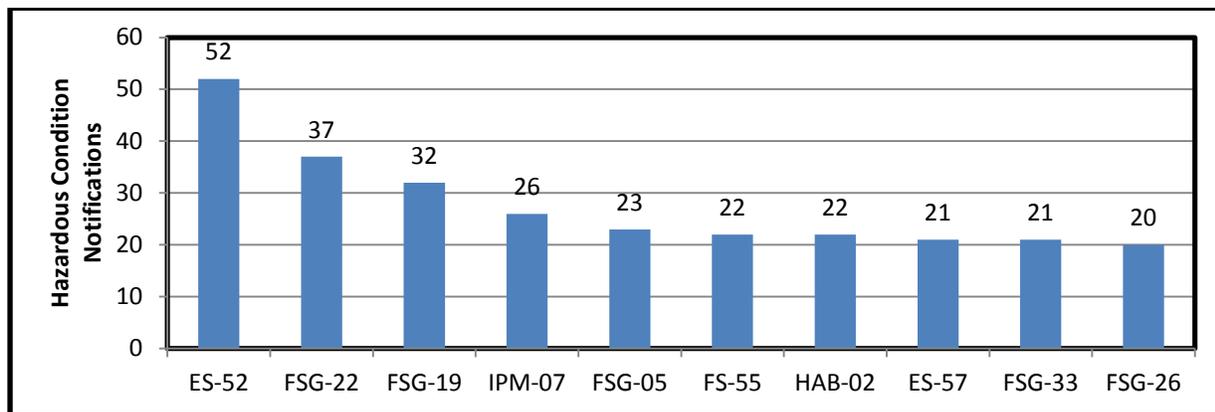


Figure 2.6: Top Ten Hazardous Conditions Notifications (HCNs) Recorded During FY14 Cutter Safety Assessments. Note: This includes discrepancies found during ship sanitation inspections (de-rats).

This figure summarizes the top cutter SEH deficiencies, excluding administrative and training items, identified during FY14 SMART visits. Electrical discrepancies were cited as the top issue.

- ES-52 Electrical hazards
- FSG-22 Food not protected from contamination
- FSG-19 Food service cleanliness
- IPM-07 Lack of rat guards
- FSG-05 Food Service personnel refresher training
- FS-55 Fire Safety compressed gas bottle storage
- HAB-02 Food stored in none messing areas
- ES-57 surge suppressors mounted incorrectly
- FSG-33 Food service utensil cleanliness
- FSG-26 Food service equipment design, construction INW NSF sanitary standards

Boat Mishaps

Key Takeaways

- In FY14, most small boat injuries occurred at the pier; the most frequent injury was lacerations due to hand tools, eight injuries resulted from slips/falls during dock-side boat checks.
- Half of the 10 electric shocks that occurred in FY14 were caused by working on energized equipment.

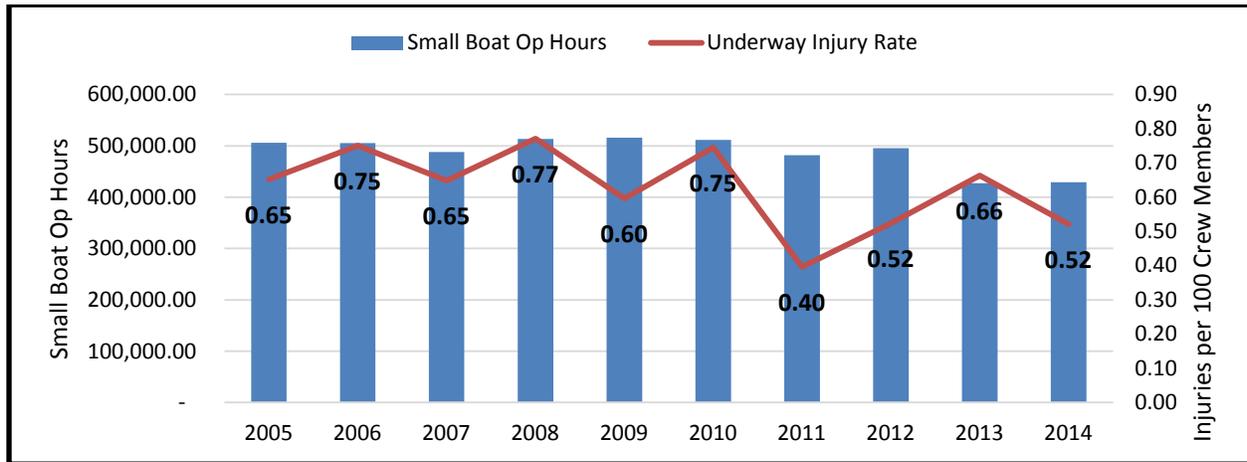


Figure 3.1: Boat Underway Injury Rates, FY05-FY14

Table 3.1. Small Boat Unit Mishap Summary.

	FY05-FY14 Average	Standard Deviation	FY14	FY14 vs 10 Year Average
Mishaps	797	83	622	↓ 24%
Injuries	188	16	169	↓ 10%
Underway Injuries	53	10	42	↓ 23%
Lost Time Cases	76	12	55	↓ 32%
Lost Days	552	122	460	↓ 18%
Property Cost (Millions)	\$1.25	\$0.33	\$1.12	↓ 10%

Small Boat Units (SBUs) which are comprised of Stations, ANTs, MSSTs and MSRTs reported 169 injuries in FY14, 55 of those on-duty injuries were motor vehicle related. Lacerations were the most frequently injury, accounting for 21% (24) of the total SBU injuries. Most of those lacerations (54%) were inflicted by cutting instruments (i.e. knives or razor blades); most commonly while opening packages, cutting line, or preparing food. Cuts to the head or extremities from knife edges on hatches or doors accounted for 18% of the injuries. Most of these occurred while members were transiting through the boat, while in 2 cases a hatch cover closed on members while entering a space. These lacerations can be prevented by 1) using snips or safety blades when appropriate, and 2) keeping a hand free when transiting through a vessel to prevent contact with knife edges.

Slips/Trips/Falls was the second most frequent cause of injury, related to 19% (22) of injuries in FY14. Thirty-six percent (8) of falls were a caused by frozen slippery surfaces, 3 resulted in bone fractures. Another eight fall injuries occurred during routine morning boat checks while the member was boarding the vessel from the pier. Overall, most sprains and bruises were related to slips, trips, and falls.

Lacerations	24
Sprains	20
Bruises	17
Fractures	11
Electric Shock	10
Strains	8
Concussions	8
Burn	2
Other	14

Small Boat Crew Injuries, continued

In total, fractures accounted for 9% (11) of injuries. Only 4 of those happened while underway, reportedly caused from wake or unexpected vessel movement. These injuries commonly resulted in broken ankles and or wrist. In one of the cases a high speed maneuver was being demonstrated to new crewmembers and one of the members was ejected from their seat slamming into the console, resulting in a fractured shoulder; it was determined the crewmember was not using the installed seatbelt.

In FY14 there were 10 electrical shock injuries reported. Half of those were due to work on energized equipment. None of these resulted in serious injury but were easily avoidable by ensuring the equipment is de-energized and/or following lock out tag out procedures prior to starting work. Two other mishaps involved members working with electrical equipment while standing in water or working with wet hands and uniform. Concussions accounted for 7% (8) of the injuries. As reported with lacerations, half of these concussions involved a knife edge or a falling hatch door. Law enforcement training and the member being struck in the head while their attention was diverted were other causes.

There were three injuries related to TANB traling in FY14. In each of these mishaps a crewmember was on the trailer ladder when they slipped, fell, or were struck in the head by a wrench handle. These three injuries happened at different commands but all involve parking the TANB trailer and are completely preventable.

Types of Boat Operational Mishaps

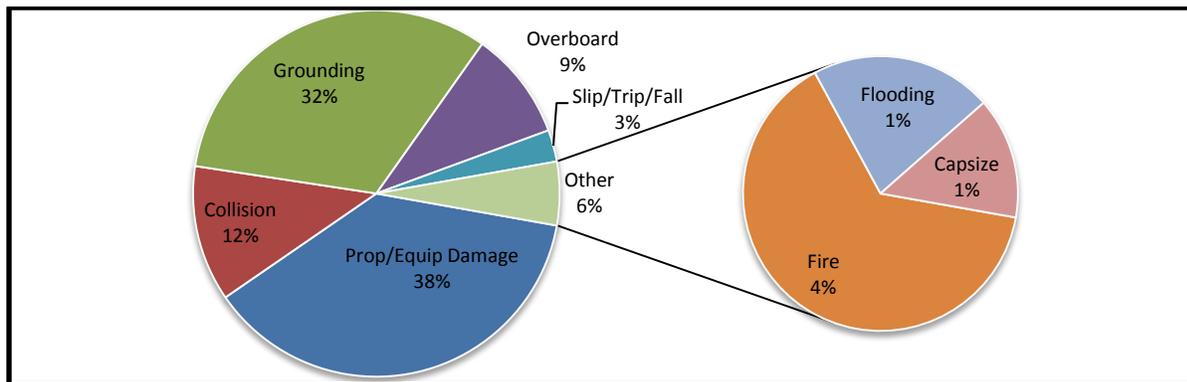


Figure 3.2: FY14 Shore Based Boat Mishaps by Type. Note: Operational mishaps includes underway mishaps only (steaming, anchoring, mooring, etc.).

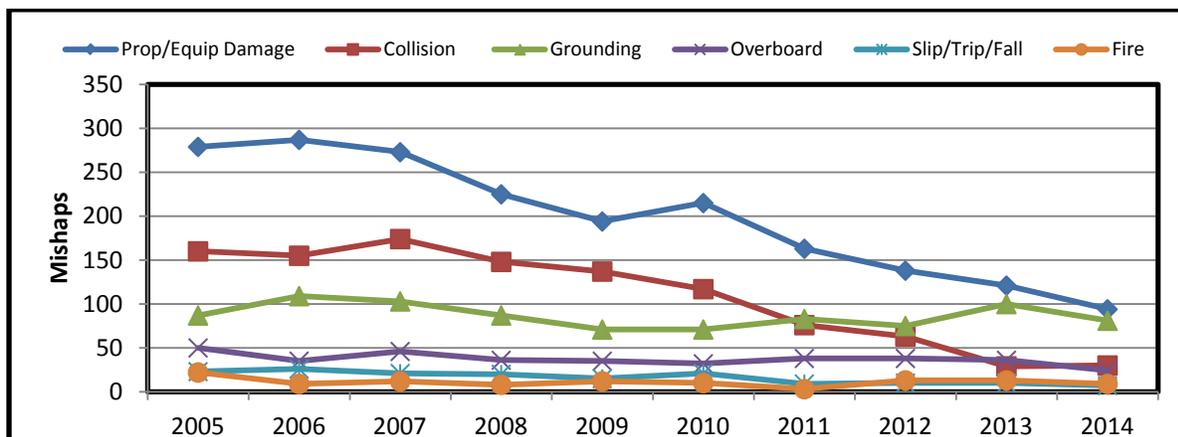


Figure 3.3 Top Boat Mishaps by Type FY05-FY14. Note: Operational mishaps includes underway mishaps only (steaming, anchoring, mooring, etc.).

Types of Boat Operational Mishaps, continued

Since 2007, there has been a significant decrease in collisions and reports of property damage. With regards to property damage: Close quarter maneuvering accounts for the majority of property damage in which trailering was involved. A majority of trailering related damage involved moving a boat into or out of a structure with low overhead or partially opened overhead door. The causes ranged from no spotter, poor placement, too few spotters for the situation, spotter inattention, and poor communication between spotter and driver. The most severe mishaps involved either a convoying operation or trailer/hitch disengagement.

Boat Operational Mishap Causal Factors

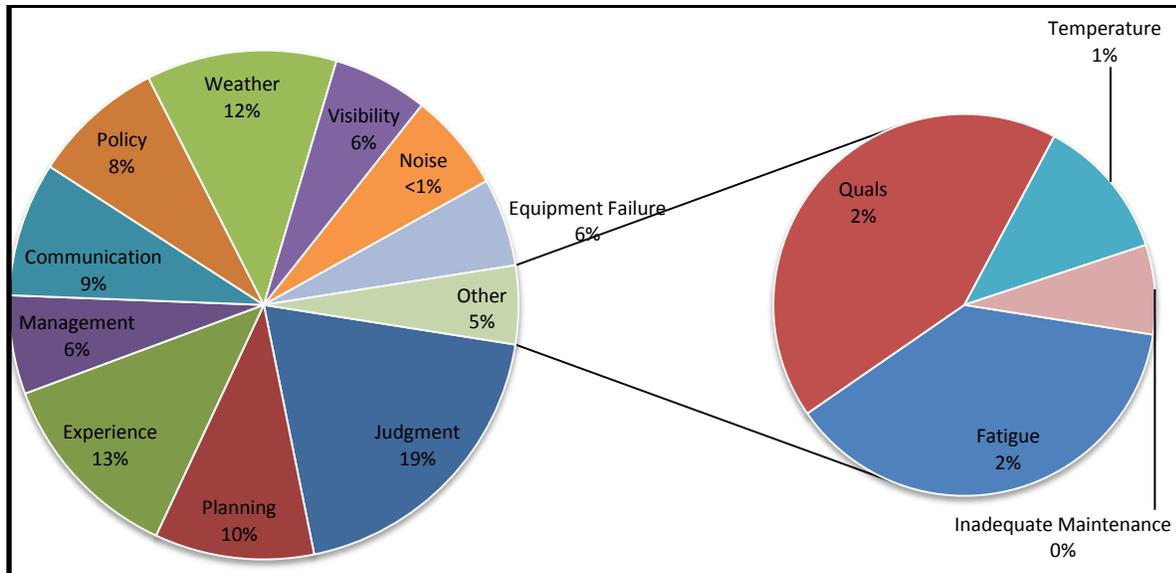


Figure 3.4: FY14 Boat Operational Mishap Causal Factors.

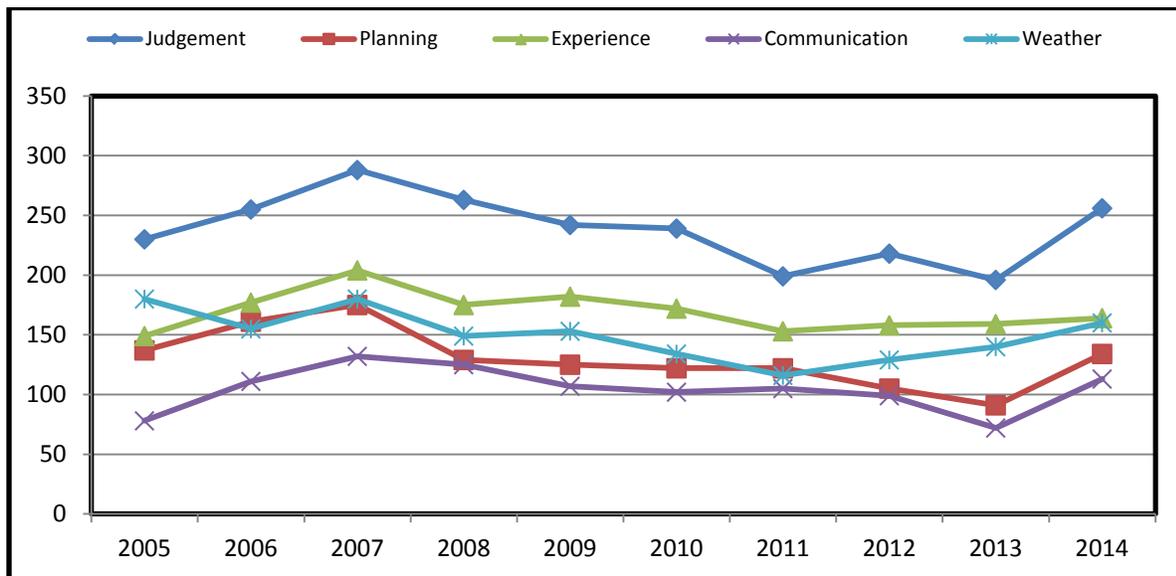


Figure 3.5: Top Five Causal Factors FY04-FY13.

Four of the top five causal factors fall under the personal factors category shown in Table 3.2. Similar to the operational cutter causal factors, judgment is consistently the leading causal factor in operational boat mishaps.

Aviation Safety Summary

Key Takeaways

- *In FY14, there were 107 fewer aviation mishaps than FY13, a 20% reduction.*
- *Lacerations accounted for one third of aviation maintenance personnel injuries.*

The information submitted in this consolidated HSWL report provides a basic summary of aviation fleet safety performance during fiscal year 2014. A more comprehensive [FY14 aviation safety report](#) was delivered to all aviation unit Commanding Officers and Flight Safety Officers (FSOs) on 23 December 2014; FSOs can quickly access the full report and other useful safety information on the [FSO PORTAL](#).

This report presents aviation mishap statistics from FY2014 along with some historical data for comparative purposes. The full report includes other relevant mishap statistics, trend analyses and mishap summaries. The selected summaries benchmark the U.S. Army's aviation safety publication *Flight Fax* by presenting a brief but sanitized summary of mishap reports that underscore valuable lessons learned for application throughout the entire aviation fleet and in each airframe community.

Overall Aviation Mishap Totals

During Fiscal Year 2014, the Coast Guard (CG) aviation fleet logged over 109,000 flight hours with no Class A or B mishaps, 24 Class C mishaps, 383 Class D mishaps, and 51 Class E mishaps. A summary of aviation mishaps is provided in the next section, differentiated by number and rate, class, operational mode, and airframe in the next section. We experienced a slight decrease in reported mishaps in FY14, fairly equally distributed across mishap class (C, D, and E) and OPMODE (flight, flight-related, and ground). A summary of all aviation mishaps by class and cost is provided in the tables below. Additional summaries are included in the airframe-specific sections of this report and in the comprehensive [FY14 aviation safety report](#) on the [FSO PORTAL](#).

Table 7.1: Aviation Mishap Count by Class – FY14 (FY13)

	Class A	Class B	Class C	Class D	Class E	Trend since FY13	% change fm FY13	Flt hr delta since FY13
Rotary-wing	0 (0)	0 (1)	14 (32)	303 (341)	25 (38)	-70	-17%	+3%
Fixed-wing	0 (0)	0 (0)	10 (5)	68 (114)	26 (22)	-37	-26%	-3%
Auxiliary	0 (0)	0 (0)	0 (0)	7* (3)	0 (0)	+4	+233%	TBD
Non Asset-Specific	0 (0)	0 (0)	0 (0)	5 (14)	0 (0)	-9	-64%	NA
Total	0 (0)	0 (1)	24 (37)	383 (472)	51 (60)	-112	-20%	+1%

*Two CG Auxiliary mishaps in FY14 were deemed total loss events by the NTSB. Currently, each of these is being categorized according to preliminary damage cost estimates (in this case, Class D flight mishaps).

Table 7.2: Aviation Mishap Costs in \$ by OPMODE (FY14)

	Class A	Class B	Class C	Class D	Class E	Total
Flight Mishaps	0	0	1,694,959	1,322,682	3,639,903	6,697,544
Flt-Rel Mishaps*	0	0	0	4,750	1,836	6,586
Avn Ground Mishaps**	0	0	478,061	247,406	875,567	1,601,033
All	0	0	2,173,020	1,574,838	4,517,305	8,305,162

* Flt-Rel Mishaps: Mishaps or other near-miss events that DO NOT result in CG aircraft damage.
 ** Avn Ground Mishaps: Mishaps involving damage to CG aircraft or aviation equipment, or where death, injury, or occupational illness occurred and no intent for flight existed (e.g., towing, maintenance, run-ups, etc.).

Aircraft Repair/Facility Related Injuries

The most prevalent injury related to aircraft logistical support was lacerations, accounting for 21 (33%) of 62 injuries. Lacerations were inflicted most commonly on the hand or forearm with a blade while trimming/scraping material (5), or unpacking equipment/removing zip ties (4).

Strains accounted for 11 (17%) of injuries. Strains were mostly lower back injuries due to lifting (5), and shoulder injuries (3) which resulted from replacing helicopter cable hoist or reaching into the overhead of a helicopter cabin. Lower back and shoulder injuries account for a significant amount of lost days, for instance one lower back strain resulted in 60 lost days.

In total, slips accounted for 4 injuries, falls for 3, and trips 4. These mostly resulted in sprains or bruises, although one fall from an aircraft resulted in a head injury. The remaining bruises were caused by impact from tools or dropped equipment.

Two work related fractures were reported; a hand was closed in a hangar door and a C-130 brake was dropped during removal. Two head injuries were caused by members striking their heads on the aircraft during maintenance. The electric shock was due to a broken grounding wire on a C-130 and the burn was due to a hot pitot tube (anti-ice switch left on after shut-down).

FY14 Aviation Support Injuries	
Lacerations	21
Strains	11
Sprains	7
Bruises	7
Exposures	5
Eye Irritation	2
Fractures	2
Syncope	2
Head Injuries	3
Heat Stress	1
Electric Shock	1
Burn	1

MH-60 Mishap Summary

There are 42 total MH-60s in the Coast Guard air fleet, with 35 in operational use, most of which have undergone the MH-60T conversion since 2008. MH-60s flew 23,791 flight hours in FY14 with 63 reported mishap events: 30 flight, 20 flight-related, and 13 ground mishaps respectively; details are provided in the table and figure below and the [FY14 aviation safety report](#)

Table 7.3: MH-60 Mishaps by Class

	Class A	Class B	Class C	Class D	Class E	Total
FY14	0	0	2	55	6	63
3-yr avg	0	0	7.3	52	5.7	65.0
5-yr avg	0.4	0	5.6	46	5.8	57.4

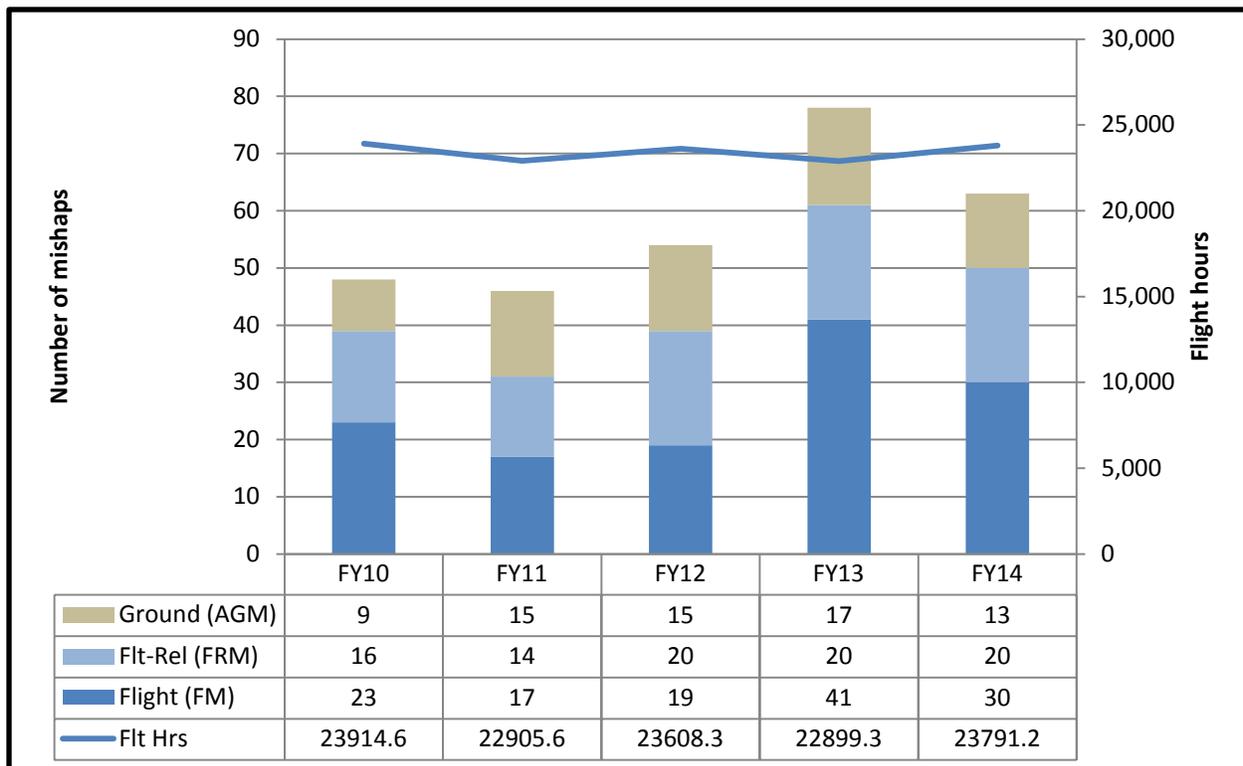


Figure 7.1: MH-60 Mishaps by OPMODE (FY 2010-2014)

MH-65 Mishap Summary

The CG fleet of MH-65 Dolphins is approaching the completion of a transition to MH-65D model aircraft which began in 2009. The MH-65's are employed at 17 Air Stations and remain the CG's primary aircraft used aboard cutters during deployments. MH-65s flew 51,799 flight hours in FY14 with 279 reported mishap events: 140 flight, 99 flight-related, and 40 (aviation) ground mishaps respectively; details are provided in the table and figure below and the [FY14 aviation safety report](#).

Table 7.4: MH-65 Mishaps by Class

	Class A	Class B	Class C	Class D	Class E	Total
FY14	0	0	12	248	19	279
3-yr avg	0.7	0.3	14.7	253.7	25.0	293.4
5-yr avg	0.8	0.6	15.8	234.2	25.4	275.4

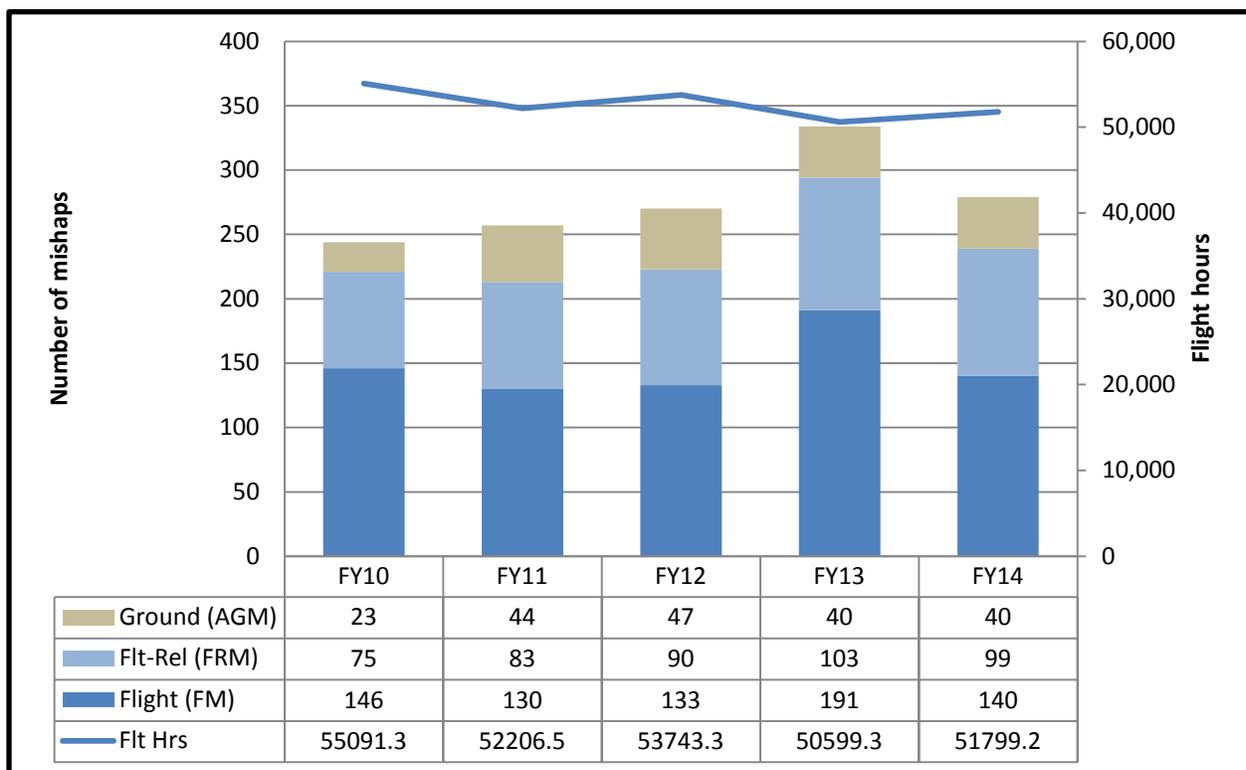


Figure 7.2: MH-65 Mishaps by OPMODE (FY 2010-2014)

HC-130 Mishap Summary

First entering CG service in 1958, the fleet of 30 HC-130s Hercules (24 HC-130H, 3 HC-130J) support a variety of missions from five air stations. HC-130s (J/H combined) flew 18,053 flight hours in FY14 with 64 reported mishap events: 37 flight, 18 flight-related, and nine (aviation) ground mishaps respectively; details are provided in the table and figure below and the [FY14 aviation safety report](#).

Table 7.5: HC-130 Mishaps by Class

	Class A	Class B	Class C	Class D	Class E	Total
FY14	0	0	6	34	24	64
3-yr avg	0	0	3.7	39.3	17	60.0
5-yr avg	0.2	0	4.4	42.8	19	66.4

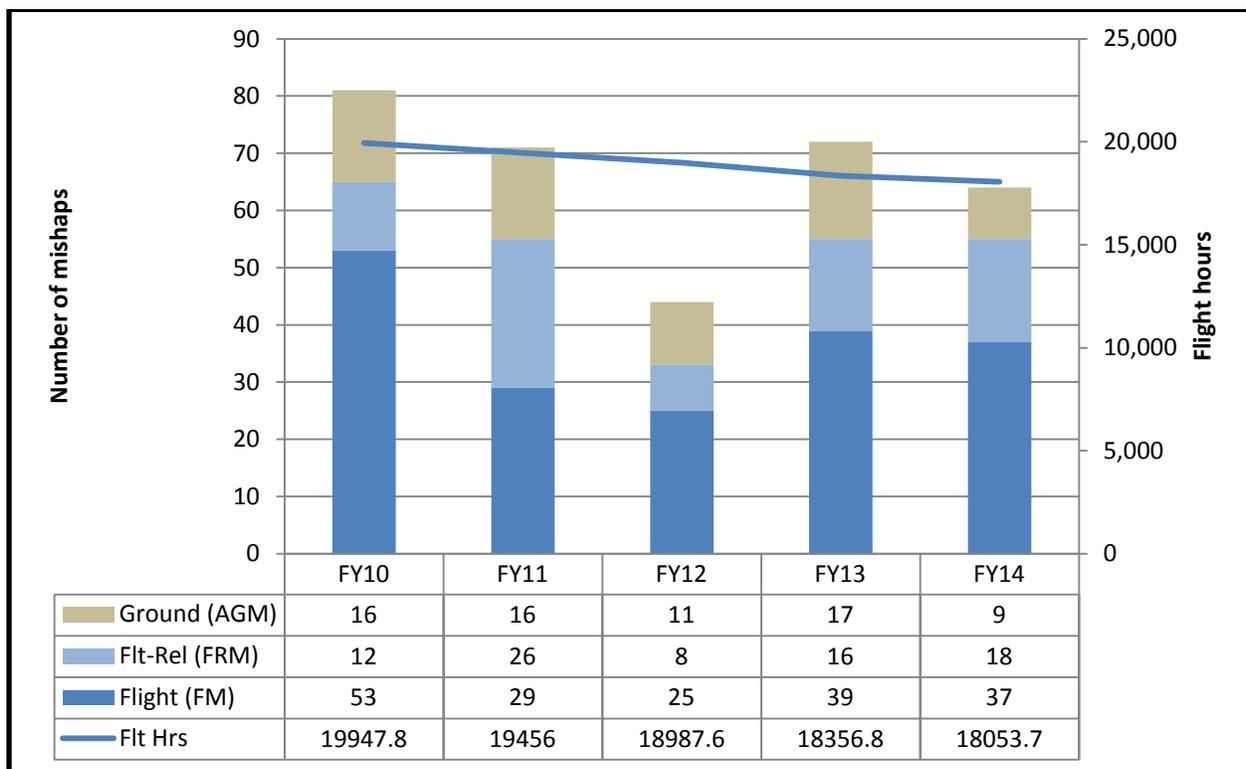


Figure 7.3: HC-130 Mishaps by OPMODE (FY 2010-2014)

HC-144A Mishap Summary

The HC-144A Ocean Sentry was introduced to the CG fleet in 2007 to replace the HU-25 Falcon. HC-144s flew 12,572 flight hours in FY14 with 35 reported mishap events: 16 flight, eight flight-related, and 11 (aviation) ground mishaps respectively; details are provided in the table and figure below and the [FY14 aviation safety report](#).

Table 7.6: HC-144 Mishaps by Class

	Class A	Class B	Class C	Class D	Class E	Total
FY14	0	0	4	29	2	35
3-yr avg	0	0	2.3	33.7	6.3	42.3
5-yr avg	0	0	1.8	23.8	4.6	30.2

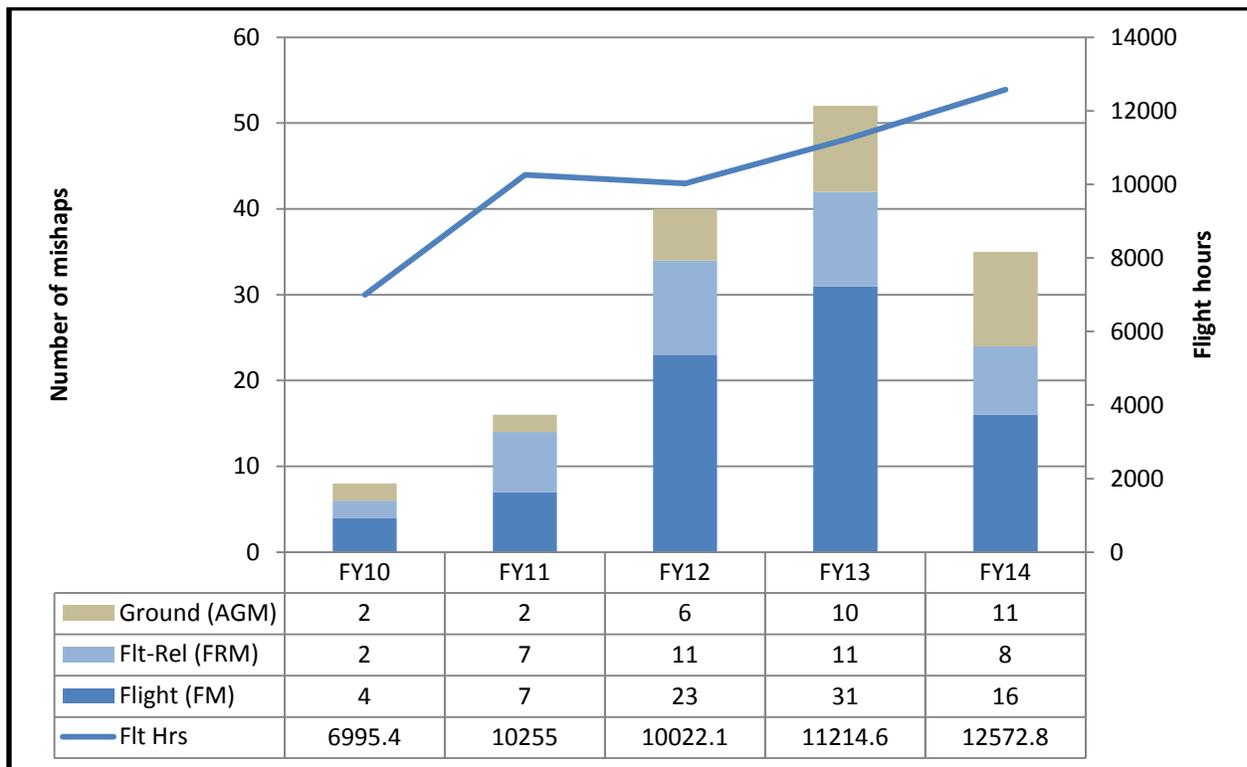


Figure 7.4: HC-144 Mishaps by OPMODE (FY 2010-2014)

Shore Mishaps

Key Takeaways

- *Strains were the most commonly reported occupational injury; the most frequent was lower back related.*
- *The most often sited hazardous condition notifications are related to electrical system conditions, lack of fire fighting system maintenance, and lack of designated/trained asbestos control coordinators.*

Shore Mishap Summary

Unless otherwise noted, shore facilities include Bases, TRACENS, Boat Maintenance Facilities and Shops, Major Industrial Units, DSF Units, Non-Industrial Units and CG occupied office spaces.

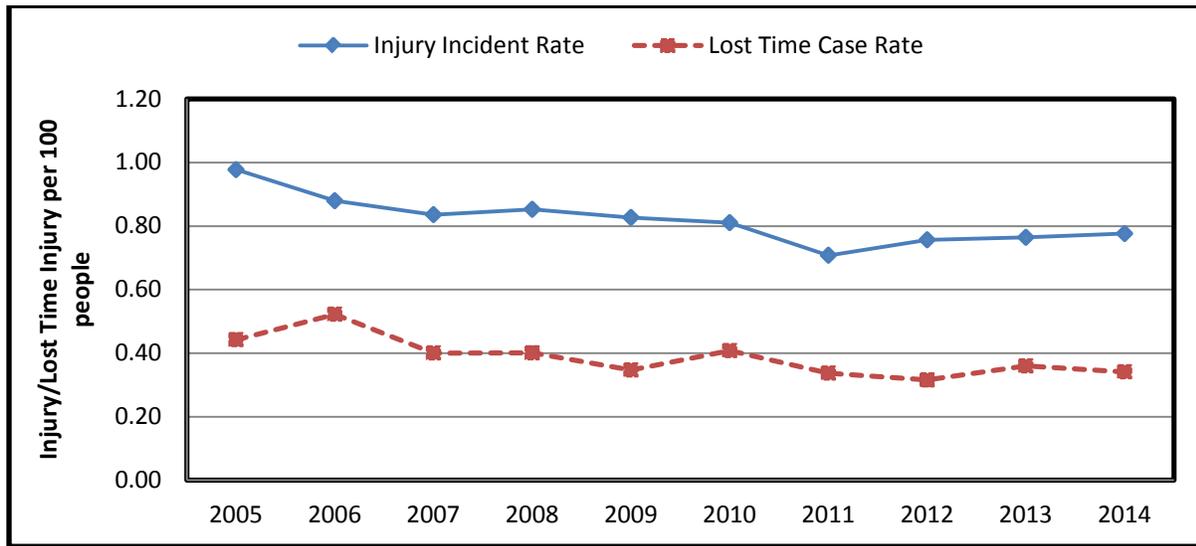


Figure 5.1: Shore Personnel Injury and Lost Time Case Rates

Table 5.1: Shore Injuries, Mishaps, and Property Cost 10 Year Average vs. FY14.

	FY05-FY14 Average	Standard Deviation	FY14	FY14 vs 10 Year Average	
Total Mishaps	720	36	680	↓	6%
Injuries	332	31	305	↓	9%
Lost Time Cases	248	31	204	↓	19%
Lost Days	1278	408	899	↓	35%
Property Cost (millions)	\$0.76	\$0.44	\$0.78	↑	2%

. Note: yearly costs are not adjusted for inflation. This cost does not include property cost associated with Small Boat Units (STA, MSST, ANT, PSUs).

Over the past ten years total shore mishap averaged 720 with a standard deviation of 36 mishaps. Shore reported mishaps decreased 6% or 40 mishaps in FY14 compared to the 10-year average. Injuries decreased by 9% or 27 injuries. While mishap related property damage increased by \$20,000 compared to the average.

Shore Injuries

Strains were the most commonly reported occupational injury, accounting for 19% (27) of non-vehicle related injuries. Lifting accounted for 9 lower back injuries and 2 knee injuries. A majority of those lifting injuries were preventable because they involved awkward positions or weight that was too much for one person to lift safely (i.e. 80lbs, 200 lbs, a 47 propeller). Slips on wet or icy surfaces resulted in two shoulder muscle injuries and two back injuries. Five shoulder injuries resulted from applying force to a tool or object.

Lacerations accounted for 17% (22) of injuries. Six of those were cuts from a knife or razor blade, three were associated with food prep. Another six cuts were due to handling sharp equipment or parts, such as sheet metal. Four lacerations were due to stationary tools such as table saws, metal presses, or a band saw. Several were preventable: 1) snips or safety blade should be used instead of a blade to remove cable ties or packaging, 2) gloves should be worn when handling jagged material or clearing off stationary tools (removing metal slivers, etc.).

FY14 Shore Injuries	
Strains	27
Lacerations	22
Fractures	16
Sprains	14
Bruises	10
Head Injuries	9
Electric Shock	6
Syncope	2
Eye Irritation	5
Exposures	3
Heat Stress	1
Burn	1

There were 16 fractures in FY2014; use of force training, namely “red-man suit” type training, accounted for two instances of fractured fingers and one instance of broken ribs; 4 fractures resulted from wet or icy surfaces; 2 fall related fractures included one fall from a loading dock and one member falling down stairs with their hand in their pocket. Three fractures involved members crushing their fingers with a dropped object (2) or a security gate (1).

Bruises were the result of wet/icy surface slips (5) or crushing injuries from tools or dropping items (4). Of the 6 electric shocks, 3 were due to the same piece of equipment; a shore tie shocked three different people because the equipment was not tagged out.

Types of Shore Mishaps

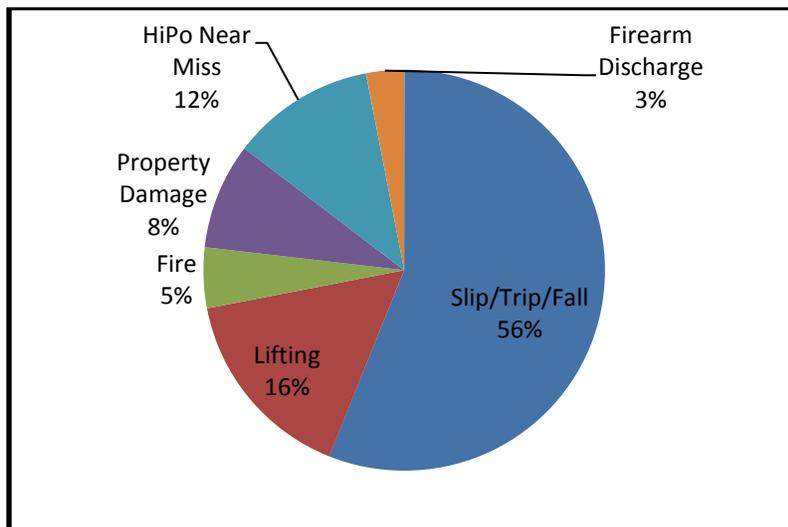


Figure 5.2. FY14 Shore Mishaps by Type.

From FY05 to FY14, “slips, trips, and falls” is clearly identified as the leading mishap type. Lightings, wet and slippery surfaces, moving surfaces, blocked and obstructed aisle and walkways, ladders, unguarded openings, and elevated work surfaces, are all contributing factors. Rushing, inattention, and distractions also contribute to falls.

Shore Mishap Causal Factors

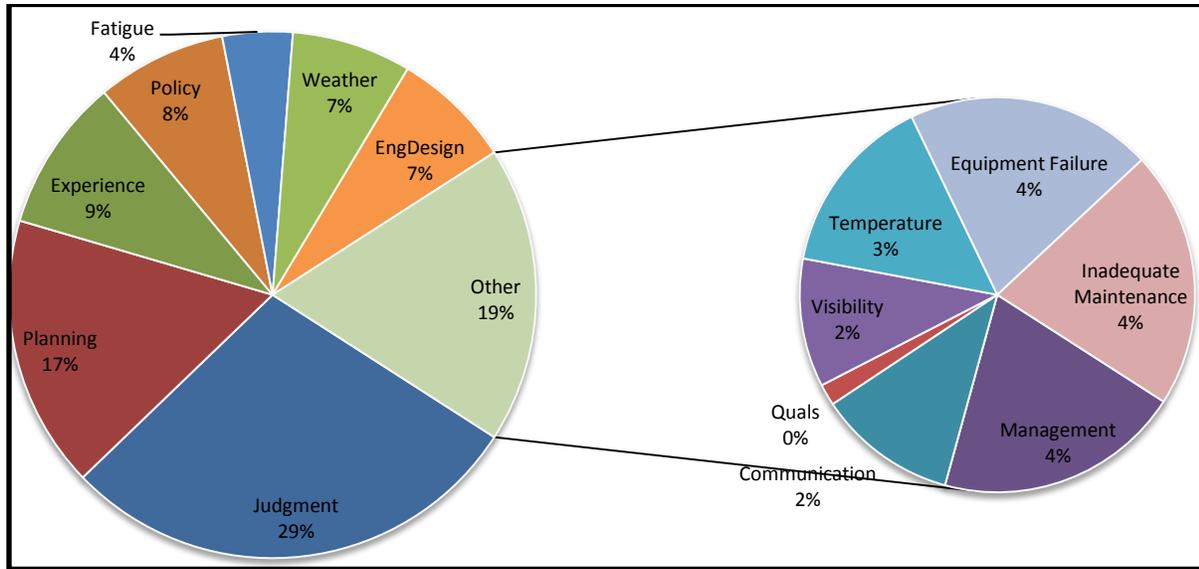


Figure 5.3: On Duty Shore Mishap Causal Factors Reported in FY2014. Note: Mishaps may have multiple causes identified, as many mishap are a chain of failures as opposed to one “root cause”.

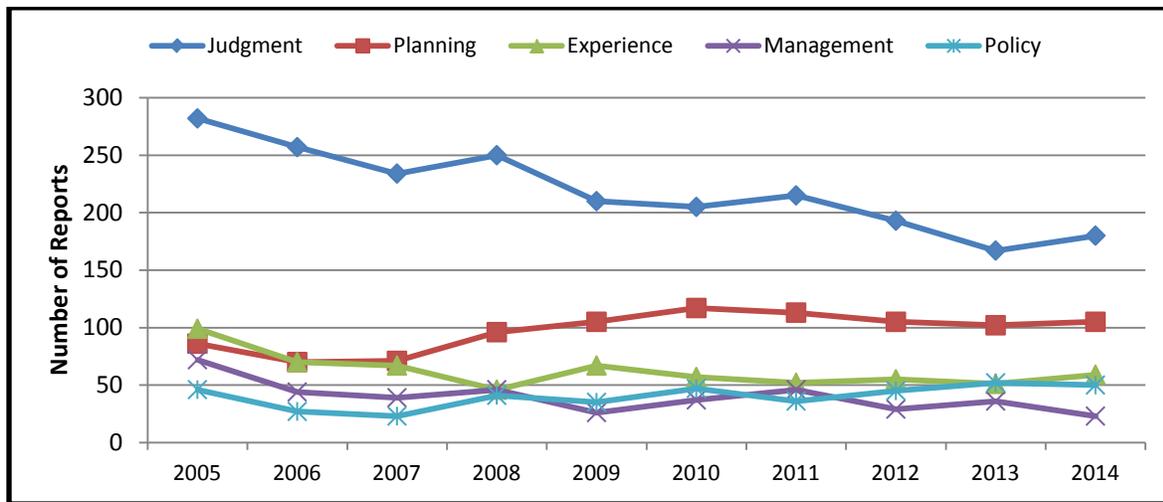


Figure 5.4: Top Five Major Causal Factors, FY05-FY14.

Deployable Special Forces

Due to the nature of the high risk evolutions performed in this community, continuous training operations, and the physical demands placed on the operators, our mishap prevention efforts call for nonstop emphasis both on and off duty.

There were a total of 135 mishaps in the DSF community in FY14: 67% occurred on duty. In the DSF community, 54% off all on duty mishaps occurred during training. The specific training areas of concern are; physical fitness, defense tactics, and vertical insertion/hook and climb, shooting range mishaps, coxswain AOR familiarization and obstacle courses. These activities accounted for 44% of training mishaps. Physical fitness accounted for 36%, and defense tactics accounted for 13% of the training mishaps. Vertical insertion and hook/climb contributed 7% to all training related mishaps.

Two areas of concern in the off-duty environment were sports and motorcycle mishaps. Sports mishaps accounted for 49% of all off duty injuries, while motorcycle mishaps accounted for 20 % including one fatality.

Each mishap impacted our ability to some degree to support specialized mission capabilities and deployment readiness. FY14 mishaps resulted in DSF members being hospitalized a total of 35 days, losing 424 days of duty time and restricted their normal duty for a total of 1,657 days. Property damage mishaps resulted in \$45,434 in repairs or replacement.

For more information on DSF specific mishaps contact Mr. Yance Childs, the DSF Safety Specialist, at 757-628-4421.

Marine Environmental Response and Marine Inspection

In FY14 there were fourteen mishaps related to Marine Inspections and Marine Environmental Response efforts, four involved chemical exposures, and four involved falls by CG inspectors. Over the past 10 year the CG averaged 3 (range 1 to 5) chemical exposures and 6 (range 4 to 9) fall mishaps. While this is a low number of mishaps they have high potential for more severe consequences.

In the most severe case of exposure two inspectors were conducting a Port State Control (PSC) exam while the tank vessel was concurrently lightering crude oil to a second vessel. Team and Chief Officer were exposed to a cargo vapor plume, including hydrogen sulfide (about 5-6 ppm) while on deck. Prior to mooring and commencing cargo operations the mooring master maneuvered the vessels to create a cross deck wind to move any vapors escaping the mast vent riser away from the vessels.

Vessel examinations during construction or extensive alterations, particularly those by Marine Inspectors on barges are inherently dangerous. The need for the inspector to climb to inspect areas that are not accessible increases the hazard of the job. A Marine Inspector conducting a routine internal structural exam on a commercial barge was approximately eight feet above the void bottom on a side shell angle when he/she slipped and fell, landing feet first, causing severe injury to the spine.

Units should review local policies and procedures to ensure proper safeguards are present during marine inspection activities of this nature.

Shore Safety Assessment Analysis.

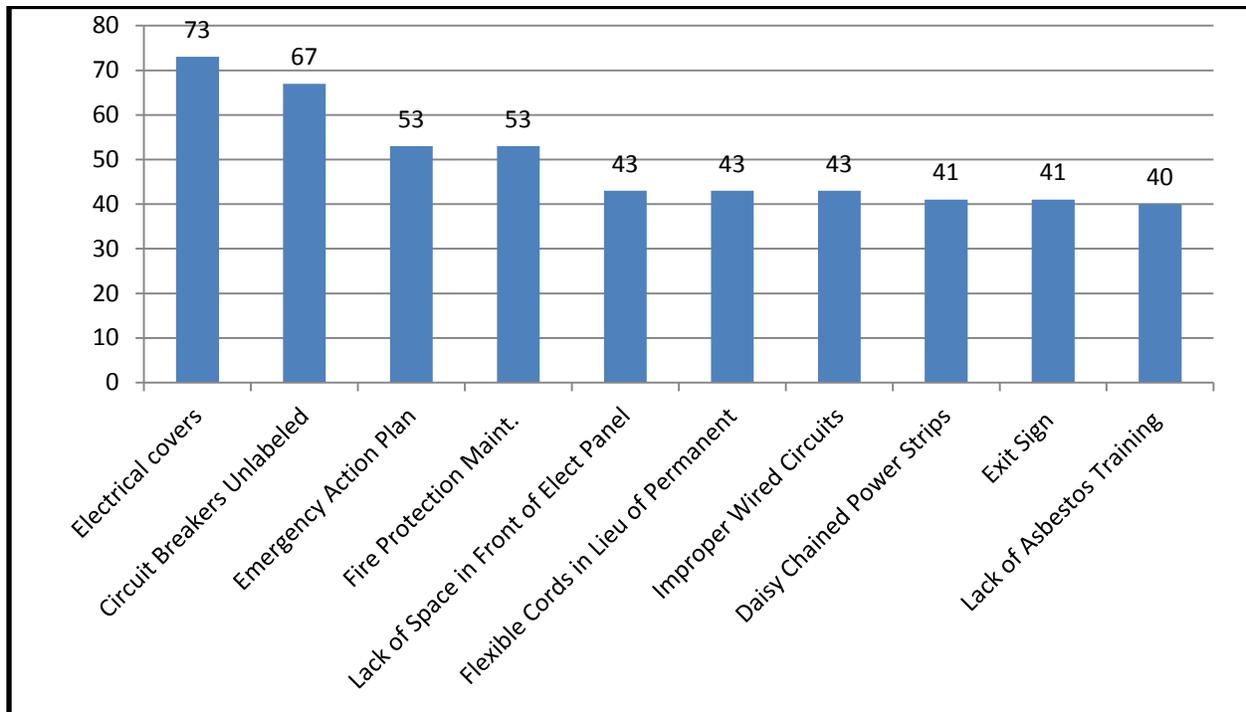


Figure 5.5: Top Cited Shore Based HCN’s from FY14 SMART Visits.

Figure 5.5 summarizes the top shore based SEH deficiencies identified during FY14 SMART visits. Electrical discrepancies are cited as the top issues encompassing wiring, power strips, extension cords, exposed electrical parts, missing GFCI’s, lack of panel clearance, and unlabeled circuit breakers.

Fire and Life safety issues included lack of emergency action plans, lack of general fire protection system maintenance, and lack of exit signs.

Another common issue is the lack of asbestos training or asbestos management plan familiarization for units known or presumed to have asbestos containing materials. Units are encouraged to access the [Asbestos Management Plan Tactics, Techniques, and Procedures](#) (CGTTP 4-11.1). This TTP, published in May 2014, provides guidance on developing, implementing, and maintaining an asbestos management plan (AMP) for the Asbestos Program Manager (APM). This TTP publication also provides basic guidance and direction to control asbestos in the workplace. Intended users are United States Coast Guard (USCG) personnel and employees with the potential for asbestos exposure.

Off-duty and Recreational Mishaps

Key Takeaways

- *Off-duty sports/fitness activities accounted for 277 injuries in FY14, while 67 sports injuries where on-duty (command fitness activity).*
- *Basketball injuries accounted for 271 lost work days and 1,008 restricted days.*

Off-duty injury and lost time case rates are useful for tracking trends that result in decreased readiness. While there were more on duty mishaps as a whole, off-duty activities accounted for the majority of the hospitalizations, lost workdays and days restricted. Our goal is to eliminate unsafe acts, reduce mishaps and eliminate risky behavior—anything less is unacceptable.

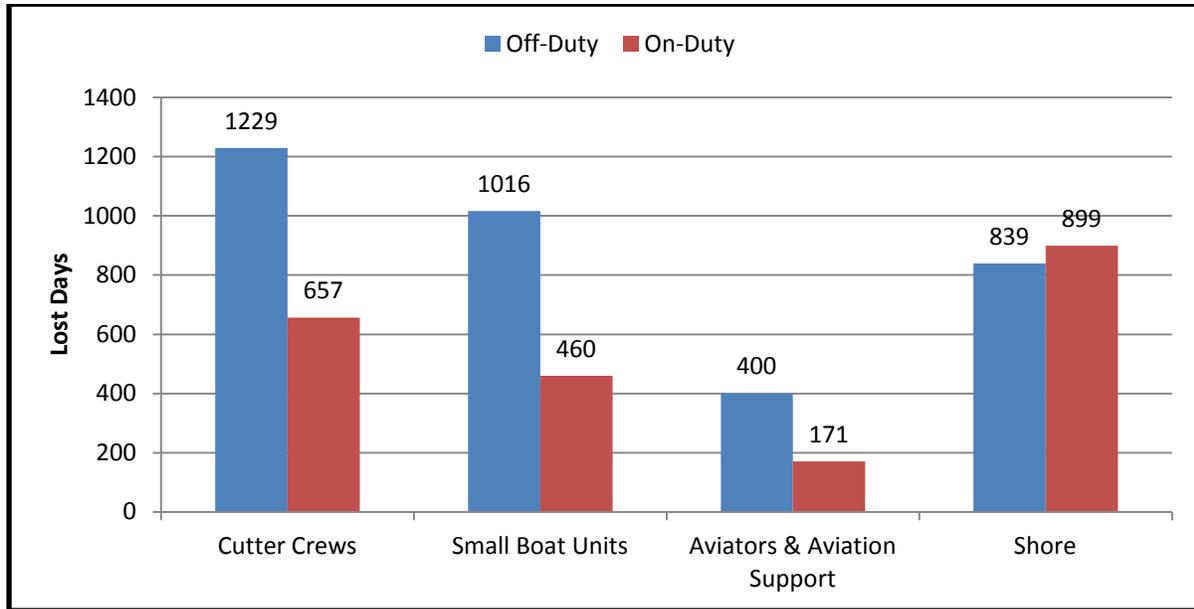


Figure 6.1: FY14 Days Lost Due to Injury.

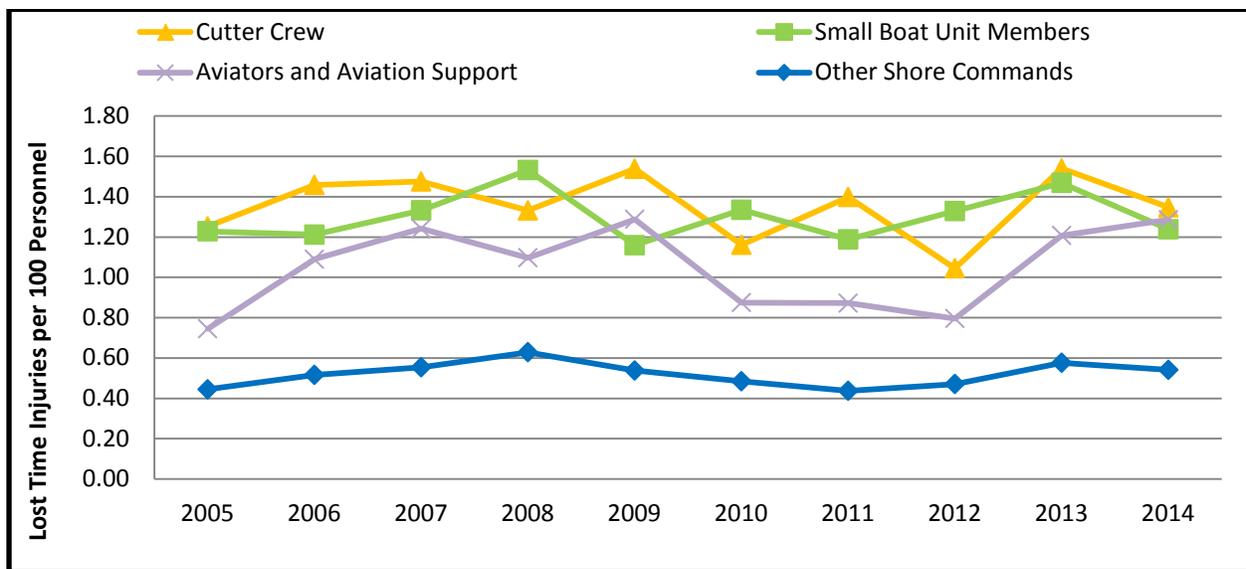


Figure 6.2: Off-Duty Injury Incident Rates for Cutter and Shore Personnel. Note: The off-duty rates do not include civilian employees. These rates are normalized to exclude civilian members.

Table 6.1: Summary of Off-Duty Injuries, Lost Time Cases, and Lost Days. Note: Off-Duty only accounts for military personnel.

Off-Duty	FY05-FY14 Average	Standard Deviation	FY14	FY14 vs 10 Year Average	
Cutter Injuries	163	15	153	↓	6%
Cutter Lost Time Cases	124	14	114	↓	8%
Cutter Lost Days	1779	396	1229	↓	37%
SBU Injuries	178	21	167	↓	6%
SBU Lost Time Cases	116	12	106	↓	9%
SBU Lost Days	1304	210	1016	↓	25%
Aviation/Av Support Injuries	60	9	67	↑	11%
Aviation/Av Support Lost Time Cases	42	8	44	↑	4%
Aviation/Av Support Lost Days	452	209	400	↓	12%
Shore Injuries	232	24	241	↑	4%
Shore Lost Time Cases	178	21	184	↑	4%
Shore Lost Days	1217	431	839	↓	37%

Unfortunately, sports are the highest contributor to off-duty mishaps. Many injuries are severe with significant lost work days which ultimately impact the readiness of the unit. For instance, basketball accounted for 271 lost work days and 1,008 restricted days. Over the past 10 years, injuries attributed to on-duty sports activities ranged from about 50 to 95 per year, while off-duty sports related injuries ranged from 220 to 340 per a year. In FY14 there were 67 on-duty sports injuries and 277 off-duty sports injuries.

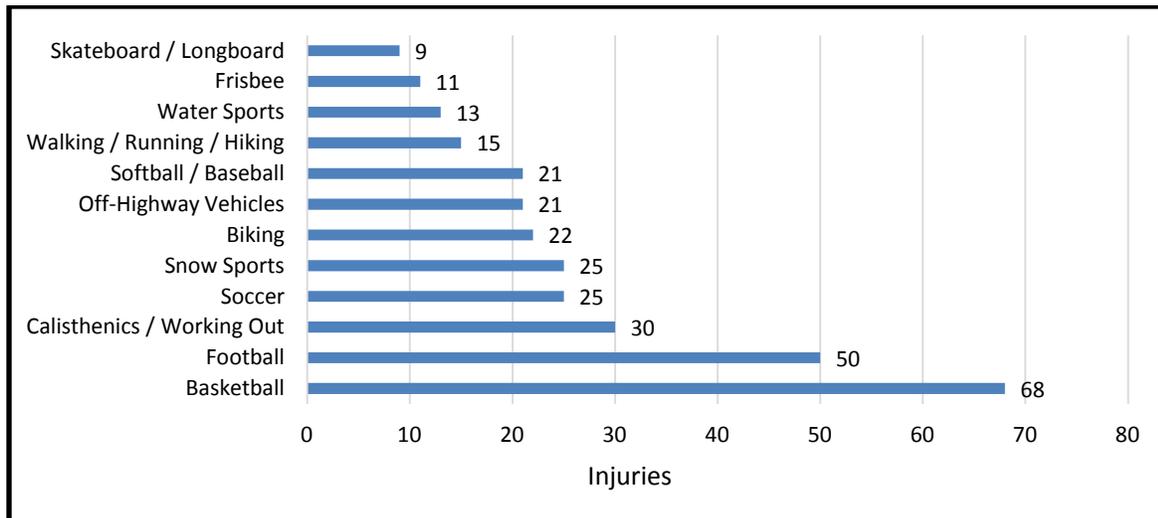


Figure 5.4: Top Twelve Sports or Fitness Activities Implicated in FY 2014 Injury Mishaps.

Analysis of the basketball injuries indicated that ankle injuries are the leading type of injury and basketball injuries are highest during the winter months.

Snowboarding is the leading cause of snow sports injuries, accounting for 15 out of 25 injuries in FY14; helmets were worn in most instances and these injuries were mainly wrist and shoulder related. Off-highway vehicle (dirt bikes and ATVs) injuries declined significantly over the last five years as compared to the previous five years.

As with afloat and shore on-duty mishaps, personal factors are the leading causal classification for off-duty injuries. This emphasizes the importance of the human element in risk mitigation and hazard avoidance.

Motor Vehicle Mishaps

Key Takeaways

- *About 50% of motor vehicle mishaps over the last 10 years involved motorcycles.*
- *In FY14, all five members involved in a fatal motorcycle mishaps had received at least the minimum required training.*

Class A Motor Vehicle Mishap Summary

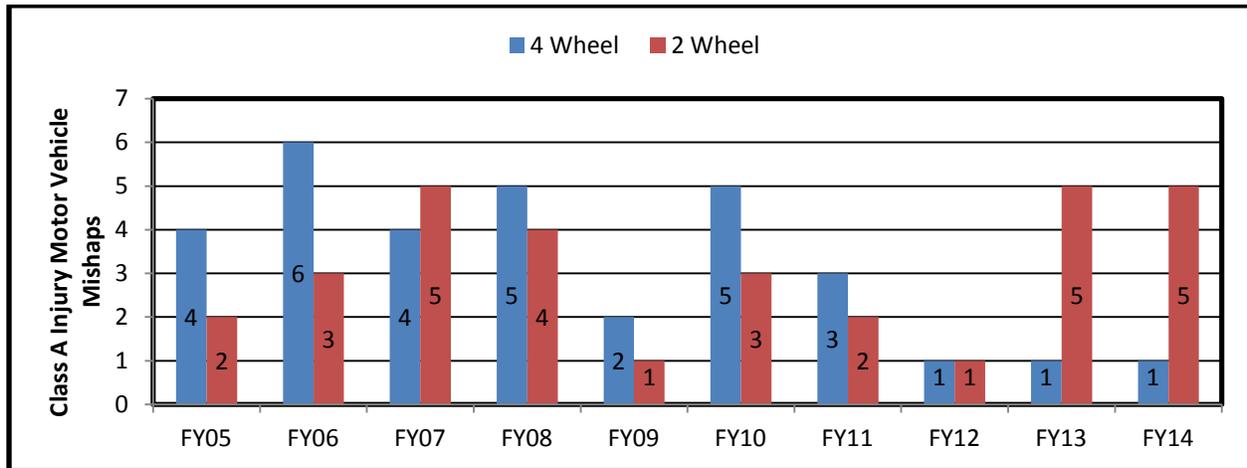


Figure 6.1: Class A Motor Vehicle Fatality Mishaps: Passenger Vehicles and Motorcycles

Off-duty motor vehicle mishaps are consistently the leading cause of CG fatalities each year. Six members were lost to fatal vehicular crashes in FY14; five were riding motorcycles, one was driving a car. All were male, ages ranging 22 to 50, and though the same number of members were killed in FY14 as in FY13, the causal factors were very different.

Five members involved in fatal crashes in FY14 were either hit by another vehicle or caused to crash due to another driver’s actions. One motorcyclist chose to speed and ride without a helmet, decisions which proved fatal after losing control of his bike. All motorcyclists had received at least the minimum required motorcycle safety training. The Coast Guard provides support in obtaining either local Coast Guard or DoD training or reimburses the member for commercial training.

Poor judgment and inexperience remain causal factors for many motor vehicle related mishaps. A review of Class C injury mishaps finds that some members narrowly escaped serious injury through conscientious use of seatbelts and other personal protective equipment; others were just very lucky.

Our fatal and disabling motor vehicle mishaps increasingly involve motorcycles. They account for almost 50% of all off-duty CG motor vehicle fatalities the past 10 years, and 83% in just the last two years.

The latest National Highway Traffic Safety Administration (NHTSA) published data found that, “per mile travelled, motorcyclists were more than 26 times more likely than passenger car occupants to die in a traffic crash.” The most straightforward risk management strategy to significantly increase the chances of surviving a motor vehicle crash is to drive a modern car or truck, wear seatbelts all the time and drive responsibly. For the complete report visit: <http://www-nrd.nhtsa.dot.gov/Pubs/812035.pdf>.

Safety and Environmental Health Resources

CG Portal Resources

The HSWL Service Center Safety and Environmental Division portal page contains all current information, safety alerts, safety newsletters, training resources, safety checklists for afloat and shore units, and links to other agencies. The portal page offers centralized access to all our safety applications: e-MisReps, HCMS, OMSEP, USAT, and the video lending library.

<https://cgportal2.uscg.mil/units/hswlsc/SafeEvHealth/SitePages/Home.aspx>

Mishap Response Plan (MRP) Resources

Roles and responsibilities for pre-mishap planning and mishap response are found in the Safety and Environmental Health Manual, M5100.47A, Chap 3. USCG units need actionable procedures to initiate an effective mishap response and allow further analysis and evidence collection. A unit mishap response plan (MRP) provides the unit a checklist to guide them through the mishap response and reporting procedure. CGTTP 1-03.2 provides steps for the commanding officer/officer in charge (CO/OIC) to develop, implement, exercise, and maintain a unit mishap response plan. This TTP applies to afloat, ashore, and ground mishaps.

https://cgportal2.uscg.mil/communities/hp/HPCenter/Pubs/CGTTP_1-03%202_Mishap_Response%20and%20Reporting.pdf

CG Aviation Safety Portal Resources

Additional aviation safety information is available for review on the Flight Safety Officer (FSO) Portal site. There are several links to resources commonly used by CG FSOs. Some examples include: e-AVIATRS user guide and Appendices, unit best practices, FSO Standardization Course content, FSO contact map, flight data animations, sanitized mishap files, safety survey results, etc. FSOs can access the site by typing keywords “Flight Safety” in any Portal search field or by clicking on the link below.

<https://cgportal2.uscg.mil/search/Pages/results.aspx?k=Flight%20Safety>

CG Public Internet Safety Resources

Occasionally, safety information must be accessed from outside the CG Portal firewall. To support open access requirements, selected safety resources are available to the public or detached duty CG personnel that cannot connect to the CG Portal. Quick access to publicly accessible safety resources is available at the link provided below:

<http://www.uscg.mil/safety>

When CG Portal access is not available, mishap response personnel can access key mishap reporting and analysis guidance at the link provided below:

<http://www.uscg.mil/safety/marg.asp>

Safety and Environmental Health Points of Contact

USCG Health, Safety and Work-Life Service Center (HSWL SC)
 Safety and Environmental Health Division (se)
 300 E. Main Street, Suite 1000
 Norfolk, VA 23510-9109

Safety Environment Health Division Staff

Main Number	(757) 628-4392
Division Chief: Mr. Vincent Andreone, CSP	(757) 628-4392 / (757) 641-2469 Cell
Division Deputy: CAPT Harry Rhambarose	(757) 628-4426 / (757) 647-1007 Cell
Safety & Occupational Health Assistant: Ms. Mary Ferguson	(757) 628-4392
Afloat Support Branch Chief: CWO4 Andrea Currie	(757) 628-4409 / (757) 646-4108 Cell
Environmental Health Branch Chief: LCDR Harold Hurst	(757) 628-4403 / (757) 615-2132 Cell
Information Management Branch Chief: Ms. Teresa Lane	(757) 628-4422
Shore Safety Branch Chief: Mr. John Kummers	(757) 628-4423 / (757) 646-4055 Cell
Field Operations Branch Chief: CDR Michael Boley	(757) 628-4403/ (757) 544-6176Cell
Field Ops Branch Deputy: LT Joe Johnson	(757) 628-4410 / (757) 615-2133 Cell
Aviation Safety (CG-1131): CDR Frank Flood	(202) 475-5147
DSF Safety Specialist: Mr. Yance Childs	(757) 628-4421

Detached Offices

D1 Boston	LCDR Meredith Gillman (617) 223-3202 / (757) 641-2097 Cell
D5 Portsmouth	LCDR Patrick Wallace (757) 483-8496 / (757) 647-6426 Cell
D7 Miami	LT Ben Tuxhorn (305) 953-2370 / (757) 647-6399 Cell
D8 New Orleans	LT Jacob Hopper (504) 253-4731 / (757) 615-2139 Cell
D8WR St. Louis	LT Bonnie Shaner (314) 269-2467 / (757) 635-7052 Cell
D9 Cleveland	LT Don Hoeschele (216) 902-6395 / (757) 650-2172 Cell
D11 North (Alameda)	LCDR Thida Buttke (510) 437-3672 / (510) 290-5472 Cell
D11 South (San Pedro)	LCDR Matt Dooris (310) 521-6021 / (424) 225-0690 Cell
D13 Seattle	LT Aaron Riutta (206) 217-6341 / (206) 310-0093 Cell
D14 Honolulu	LT Melvin Torres (808) 842-2996 / (808) 366-4280 Cell
D17 Kodiak	CAPT Melburn Dayton (907) 487-5757 Ext. 2138 / (907) 654-4091 Cell
D17 Ketchikan	LT Ray Carter (907) 228-0317 / (907) 617-0442 Cell