



US COAST GUARD



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

Annual Mishap Analysis Report Fiscal Year 2013



This report describes the frequency and characteristics of mishaps associated with shore based units, cutters, and boats. Off-duty mishaps, motor vehicle, and sports related injuries are also summarized and described. Aviation flight mishaps are not included in this report.

Table of Contents

Introduction.....	1
Use of this Report for Risk Management	2
Chapter 1: Overview and Mishap Summary.....	4
Key Takeaways.....	4
What’s so important about mishap reporting and recordkeeping?	4
Mishap Rates.....	4
CG Wide Mishap Summary.....	5
Chapter 2: On-Duty Cutter Mishaps.....	8
Key Takeaways.....	8
Cutter Incident Rates.....	9
Underway Operational Mishaps by Mission.....	11
Nature of Cutter Operational Mishaps, FY04-FY13.	12
Cutter Operational Mishaps Causal Factor.....	13
Cutter Safety Assessment Analysis	14
Chapter 3: Boat Mishaps.....	15
Key Takeaways.....	15
Boat Operational Mishaps by Mission, FY04-FY13.	16
Nature of Boat Operational Mishaps, FY04-FY13.....	17
Boat Operational Mishap Causal Factors	19
Chapter 4: On-Duty Shore Mishaps.....	20
Key Takeaways.....	20
Shore Mishap Summary.....	20
Shore Incident Rates	22
Nature of Shore Mishaps, FY03-FY14.....	24
Shore Mishap Causal Factors.....	25
Deployable Special Forces.....	26
Marine Environmental Response and Marine Inspection.....	27
Fires.....	28
Shore Safety Assessment Analysis.	29
Chapter 5: Off-duty and Recreational Mishaps	30
Key Takeaways.....	30
Off-duty Injury Rates	30

Off-Duty Mishap Causal Factors	31
Sports and Recreational Related Injuries	32
Chapter 6: Motor Vehicle Mishaps.....	34
Key Takeaways	34
Class A Motor Vehicle Mishap Summary	34
Vehicle Mishap Trends	35
MV Mishap Causal Factors	37
Seasonal Concerns	38
Motorcycle Safety Training	39
Chapter 7: Environmental & Occupational Illness Mishaps.....	40
Key Takeaways	40
Background	40
Reporting Requirements	40
Health Risk Assessments	41
Discussion	41
Chapter 8: Safety Management System	43
Policy	43
Safety Risk Management	44
Safety Assurance.....	44
Safety Promotion	45
Chapter 9: Safety and Environmental Health Resources	46
Team Coordination Training (TCT)	46
Unit Self Assessment Tool (USAT)	47
Globally Harmonized Systems (GHS) Information and Training	47
CG Portal Resources	48
Safety and Environmental Health Points of Contact	49

Introduction

The analysis and sharing of risk information is critical in raising awareness and promoting discussions of safety concerns at all levels of the CG enterprise. Timely awareness of operational risk and high risk potential events provides necessary information to help prevent future loss due to mishaps.

This first annual report from the Service Center provides several measures to determine the current state of the CG's loss control efforts. Standardized frequency, severity, and loss workday rates have been normalized by using operational hours and numbers of personnel for major CG missions. This normalization process allows us to compare afloat, shore, and off-duty data. As this report matures, we'll be able to incorporate more detailed analysis on specific topics and comparisons in support of the field. As there are many ways to analyze the data, please contact the Service Center should you desire a more detailed analysis for your specific program, platform, or statistic.



Aviation specific data is excluded from this report but is contained in the “Aviation Safety Annual Report” published by CG-1131. We have however, included their section on the Safety Management System (SMS) because it has broad application to all Safety and Environmental Health programs. The expansion of today's CG operations and increased risk requires adapting SMS strategies to match these changing challenges.

It should come as no surprise that motor vehicles, especially motorcycle mishaps, top the list of fatalities. Each year more CG members are fatally injured in motor vehicle mishaps than in all operational and other off-duty mishaps combined. A large majority of these mishaps were due to either poor judgment or inexperience and therefore could have been prevented. Another key finding is that people are injured more frequently and with greater severity while off duty.

Human factors were identified as an element in approximately eighty percent of all mishaps. Obviously, efforts at all levels and all programs are necessary to address these causal conditions. Analyses and recommended control actions are contained in various sections of this report.

Key Takeaways – Leaders and unit commanders are strongly encourage to incorporate relevant takeaways to their program and audience when communicating and addressing field units.

Chapter One: Overview and Mishap Summary

- *The CG injury rates were lower than the national average over the 10 year period.*
- *More work days were lost from off-duty injuries for both cutter and shore personnel than on-duty.*

Chapter Two: On-Duty Cutter Mishaps

- *When on duty, cutter personnel are injured more often in-port than underway.*

Key Takeaways, Continued

- *Activity associated with large number of injuries was maintenance and repair. LE and waterways management missions had the greatest number of mishaps.*
- *For LE missions, PIW and launch and recoveries were the most reported type of mishaps; for WM, it was Aton operations.*
- *Human error (judgment) was cited the most often as the causal factor.*

Chapter Three: Boat Mishaps

- *Training was the most cited mission for small boat mishaps.*
- *Collision and grounding top the list of small boat mishaps.*
- *Most Aton mishaps occurred during small boat operations.*
- *Human error (judgment) was cited most often as the causal factor.*

Chapter Four: On-Duty Shore Mishaps

- *Shore mishap incidence rates are consistently lower than the national average.*
- *Most DSF injuries occur during general training, defensive tactics training, and vertical insertion training.*
- *Human error (judgment) was cited the most often as the causal factor.*

Chapter Five: Off-duty and Recreational Mishaps

- *Off duty personnel are injured more frequently than on duty.*
- *Sports and recreational activities are responsible for the majority of off duty injuries.*
- *There was a significant increase in calisthenics/workout injuries in 2013 compared to the 10 year average.*

Chapter Six: Motor Vehicle Mishaps

- *More active duty military were killed by off duty motor vehicles accidents than operational mishaps.*
- *Poor judgment, alcohol, speed and fatigue are the leading casual factors.*
- *Almost all personnel reporting a motor cycle mishap had received training, suggesting that intrusive leadership as well as training is needed to reduce MC mishaps.*

Chapter Seven: Environmental & Occupational Illness Mishaps

- *Mishaps are under reported.*
- *Many Commands are not aware of the reporting requirements.*
- *HSWL SC will focus on identifying and characterizing exposures in similar exposure groups – conducting enterprise wide Health Risk Assessments.*

Use of this Report for Risk Management

Many hazards on CG platforms and ashore work places can be eliminated or reduced through engineering, equipment /facility design, or policy and procedural changes. The remaining challenge to improve our mishap rates lies within the human element.

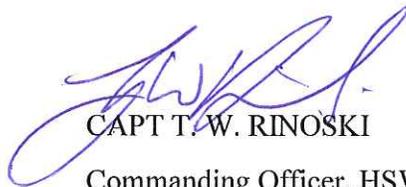
Use of this Report for Risk Management, continued

It is important that leadership instill a culture of safety at the unit level, through workplace safety inspections using the Unit Self Evaluation Tool (USAT), exceptional seamanship, solid crew resource management, and a sound working knowledge of Operational Risk Management (ORM).

The cutter and shore chapters of this report offer a snapshot of the recurrent discrepancies that our Safety Mobile Assistance Response Teams (SMART) found during their visits. These nuts-and-bolts details of unit safety programs highlight shortfalls in knowledge, training, experience and execution. Leadership, especially at the unit level, should do several important things:

- Set a high standard for procedural compliance,
- Personally supervise and empower supervision at the deck-plate level,
- Correct improper and risky behavior immediately, and
- Ensure that operations are appropriate, given the readiness level of the unit.

As always, any ideas and comments are valuable in improving the CG's Safety and Environmental Health Program. Please share them with your Command, Sector Safety Manager, detached Safety and Environmental Health Officer, or the Safety and Environmental Health Office at the Health, Safety, and Work-life Service Center. Points of contact are listed in chapter nine.



CAPT T. W. RINOSKI

Commanding Officer, HSWL Service Center

Chapter 1: Overview and Mishap Summary

Key Takeaways

- *The CG injury rates were lower than the national average over the 10 year period.*
- *More work days were lost from off-duty injuries for both cutter and shore personnel than on-duty.*

What's so important about mishap reporting and recordkeeping?

Mishap recordkeeping is a critical part of a safety management system for several reasons:

- Providing work-related injuries and illnesses information to the work force will increase awareness and help prevent future mishaps.
- Analyzing mishap information and identifying trends is critical for management to implement proactive controls.
- Analyzing timely mishap information for critical high potential hazards allows leadership to immediately broadcast the implementation of reactive controls.

Mishap Rates

Mishap rates include incident and severity rates which are an indication of how many incidents have occurred, or how severe they were. There are many items that should be used to measure performance, most of which are positive in nature; mishap rates tend to be viewed as an indication of something that is wrong with a safety system, rather than what is positive or right about the system. In spite of this, for many enterprises, mishap rates remain the primary indicator of safety performance measurement. This is because these rates are fairly easy to figure out, and can be easily compared between one command and another, and are used throughout industry.

OSHA has established specific mathematic calculations that enable any employer to report their total recordable incident rates (TRIR) and severity rates, so that they are comparable across any industry or group. Both provide recordable workplace mishap rates, normalized per 100 workers per year. This report uses the standard rate formula for personnel assigned to shore and modifies the rates to address cutter work hours. In addition, we have adopted an off-duty rate to compare off-duty injury rates to on-duty injury rates. These rates, when combined with statistical analysis of mishap characteristics, provide powerful insight into the nature and impact of incidents.

CG Wide Mishap Summary

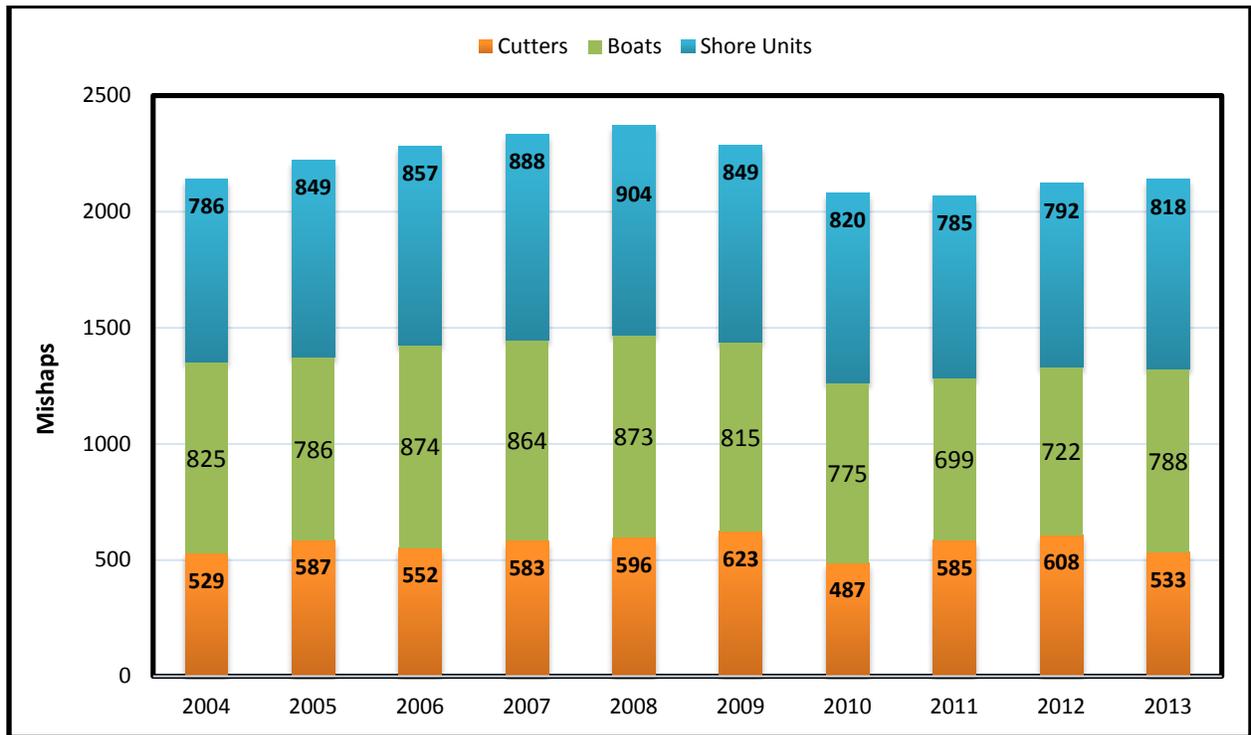


Figure 1.1: Mishaps FY04-FY13.

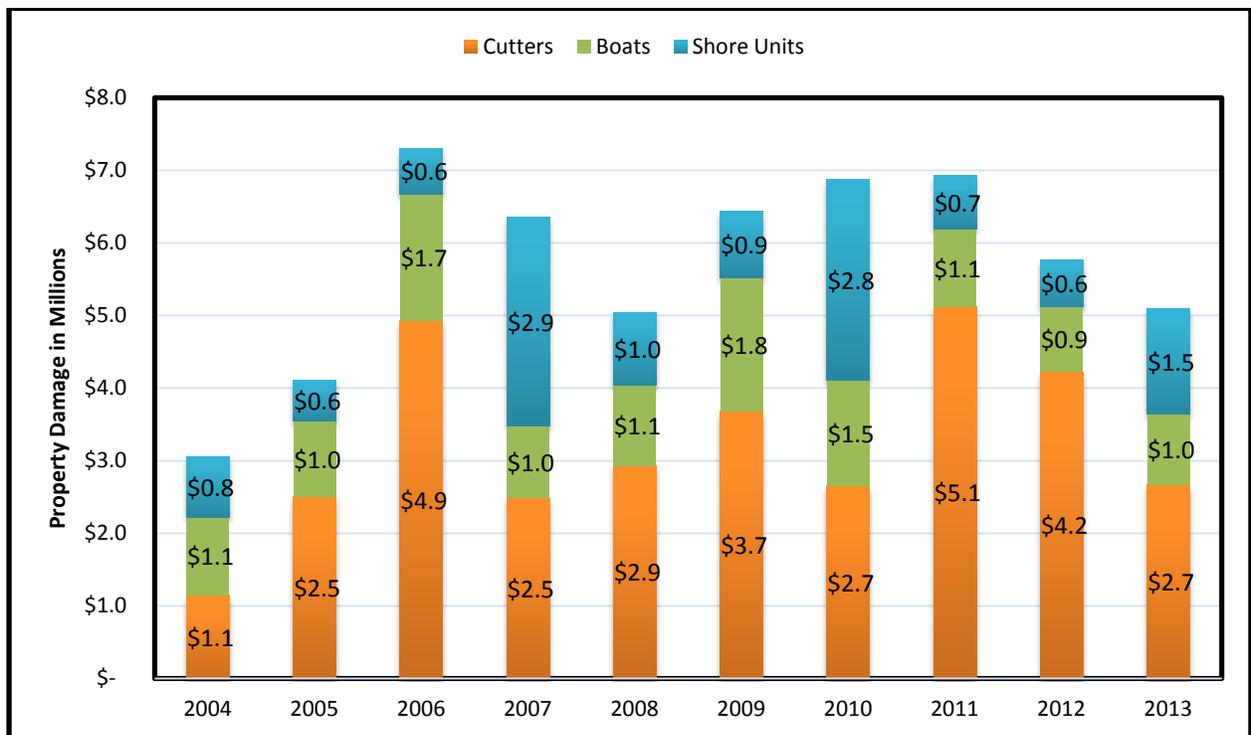


Figure 1.2: Mishap Related Property Damage. Note: yearly costs are not adjusted for inflation.

CG Wide Mishap Summary, continued

Table 1.1: Mishaps by Class, FY04-FY13.

Mishap	Average	FY13 Mishaps	FY13 vs 10 Yr
Class A Total	9.8	9	-8%
Shore Units	5.2	6	15%
Boat Units	2.5	1	-60%
Cutters	2.1	2	-5%
Class B Total	11	6	-45%
Shore Units	3.3	0	-100%
Boat Units	3.2	3	-6%
Cutters	4.8	3	-38%
Class C Total	1,045	1,106	6%
Shore Units	431	460	7%
Boat Units	336	377	12%
Cutters	279	269	-3%
Class D Total	1,144	1,061	-7%
Shore Units	399	384	-4%
Boat Units	407	407	0%
Cutters	284	271	-5%
Total Mishap	2,210	2182	-1%

Table 1.2: Shore and Cutter Mishap Related Property Damage (millions), FY04-FY13.

Property Cost	Average	FY13 Mishap Cost	FY13 vs 10yr
Shore Units	\$1.25	\$1.45	17%
Boat Units	\$1.22	\$0.97	-20%
Cutters	\$3.24	\$2.67	-17%
Total	\$5.70	\$5.09	-11%

Note: yearly costs are not adjusted for inflation.

Total mishaps reported in FY13 are slightly below the 10-yr mishap average (Table 1 & Figure 1.1). The total mishap related property cost (non-inflation adjusted) for FY13 was \$5.1 million, which is 11% below the 10-year property cost average of \$5.7 million (Table I). Mishap related property cost averaged about \$1.25 million for shore, \$1.22 million for boats, and \$3.2 million for cutters. Over the past 10 years, total property cost varied greatly. Cutter related property cost varied the most at \$1.18 million, followed by shore at \$830,000, and boats at \$320,000. The cost for Afloat does not include dry-dock and towing fees etc.

CG Wide Mishap Summary, continued

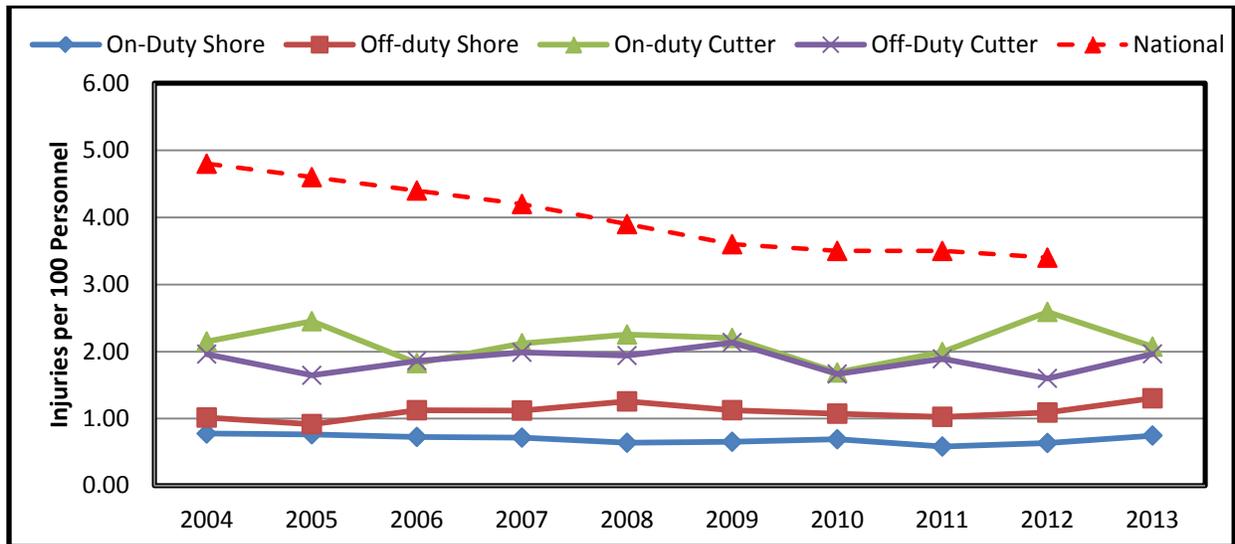


Figure 1.3: Coast Guard Injury Rates Compared to the National Rate.

Note: The national occupational value is from the Bureau of Labor and Statistics (BLS) FY13 report. The off-duty shore rate is adjusted to exclude civilian employees. Shore rates include boat units.

The off-duty shore rate does not account for civil service personnel. As depicted in Figure 1.3 shore personnel are more frequently injured off-duty than at work. On-duty cutter rates include in-port and underway injuries.

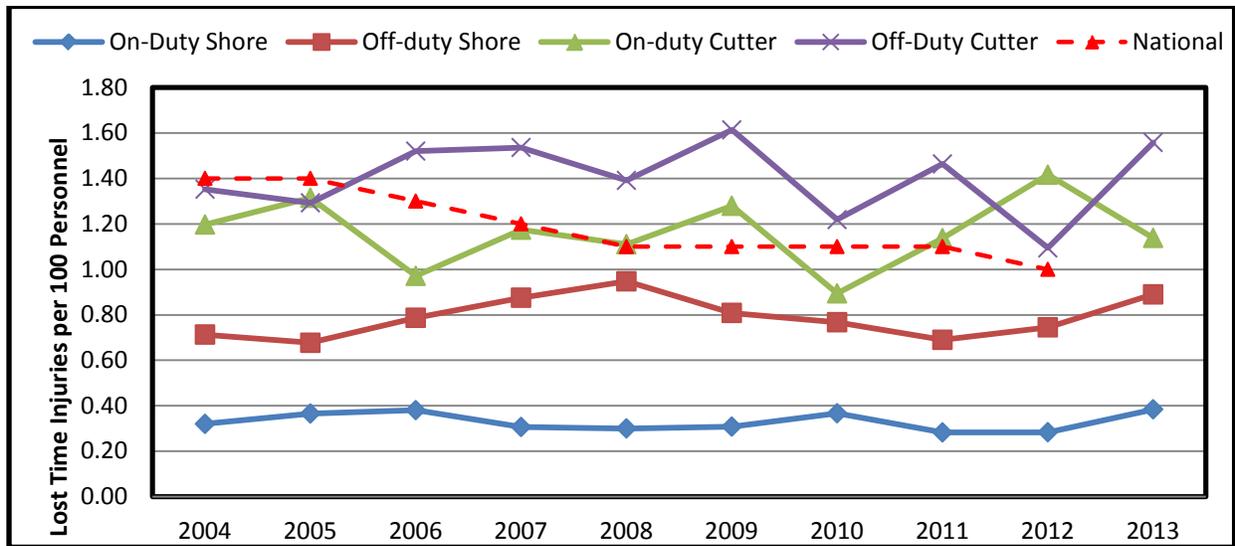


Figure 1.4: Coast Guard Lost Time Case Rates Compared to the National Rate.

Note: The national occupational value is from the Bureau of Labor and Statistics (BLS) FY13 report. The off-duty shore rate is adjusted to exclude civilian employees. Shore rates include boat units.

More work days were lost from off-duty injuries for both cutter and shore personnel (Figure 1.4) than on-duty. Historically, there has been on average a two to one ratio of off duty vs. on duty mishaps and lost work days.

Chapter 2: On-Duty Cutter Mishaps

Key Takeaways

- *When on duty, cutter personnel are injured more often in-port than underway.*
- *Activity associated with large number of injuries was maintenance and repair. LE and waterways management missions had the greatest number of mishaps.*
- *For LE missions, PIW and launch and recoveries were the most reported type of mishaps; for WM, it was Aton operations.*
- *Human error (judgment) was cited the most often as the causal factor.*

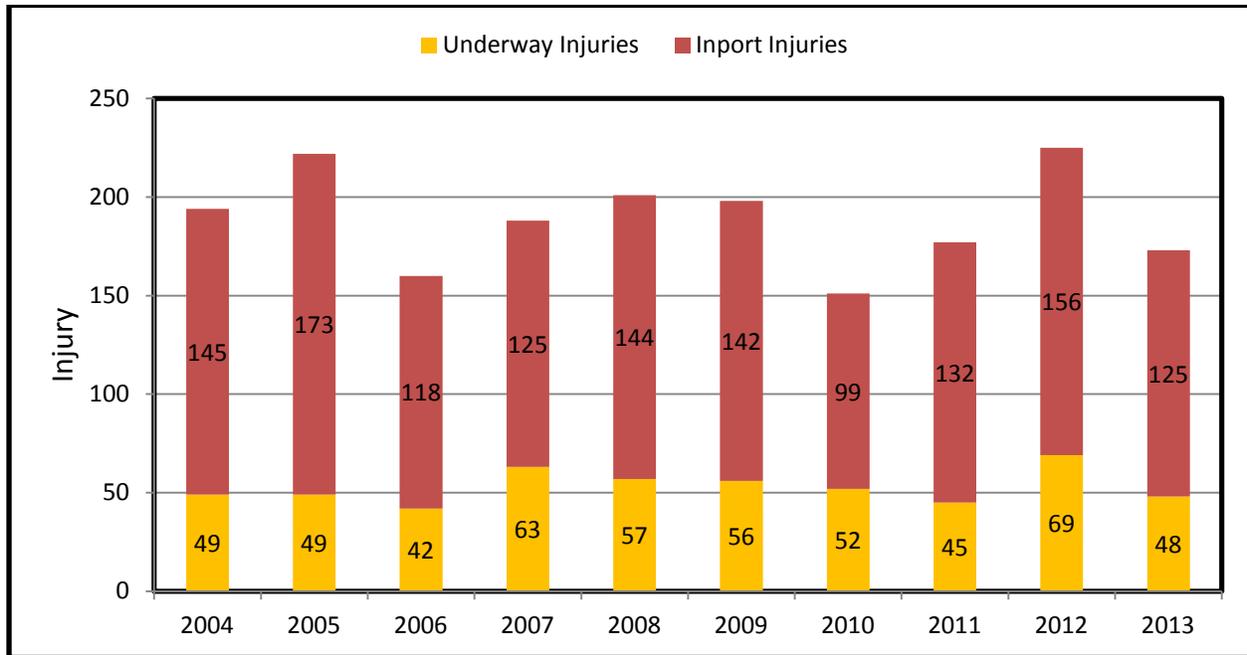


Figure 2.1: Cutter Crew Mishaps Categorized as Injuries Underway and Injuries Inport.

As depicted in Figure 2.1, cutter crew members receive more injuries inport than underway. Analysis indicates the activity associated with a large number of injuries is maintenance and repair. As a result, we see an increase in injuries such as; falling down ladders, electric shock, tool injuries, lifting injuries, falling through open hatches, and eye injuries when cutters are inport. Also, underway operations tend to be set to a more rigid daily routine and crew members are more attentive. In contrast, dockside maintenance may require unfamiliar procedures or altered job task. This data supports the need for increased focus/emphasis on safety briefs during dockside repair and maintenance periods.

Cutter Incident Rates

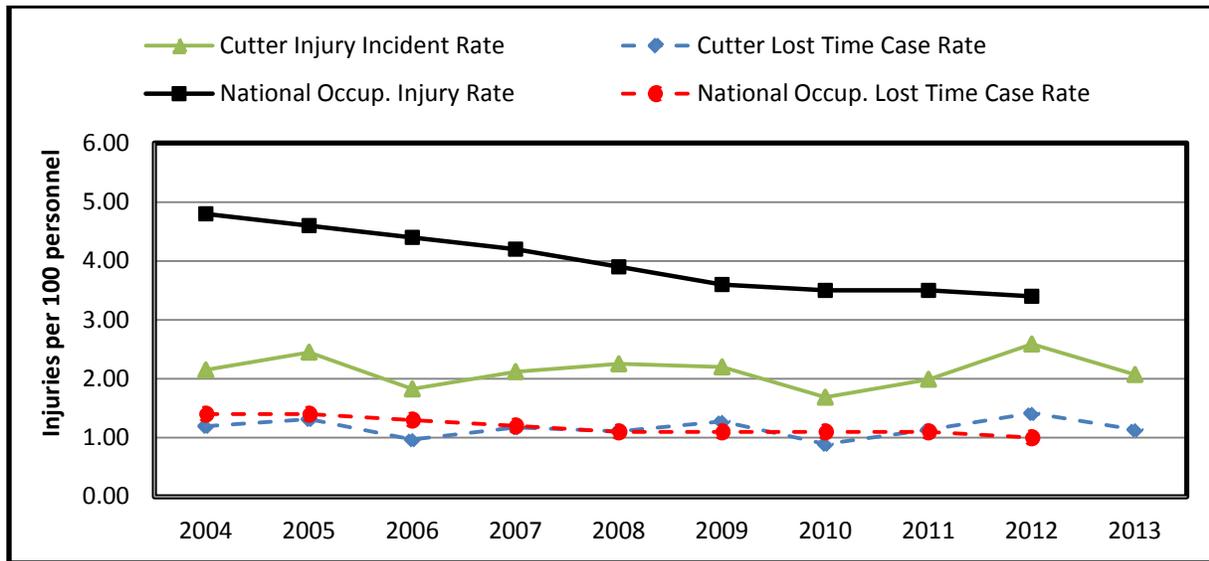


Figure 2.2: On-Duty Cutter Injury Incident and Lost Days Case Rates 2004-2013. Note: The CG cutter rates are based on a 64 hr work week whereas the Bureau of Labor Statistics (BLS) are based on a 40 hr work week.

The on-duty cutter injury incident rate includes all members assigned to vessels 65ft or greater and combines underway and in-port incidents. The number of injuries and lost work days resulting from injuries remained relatively consistent over the past 10 years. Although cutter crewmembers were injured less frequently at work than the national average, they tend to incur the same amount of lost work day cases.

Table 2.1: Cutter Injury Incident and Lost Days Case Rate Descriptions

Rate	Description	Formula	Notes
On-Duty Cutter IIR	Rate of injury incidents per 100 cutter personnel (combined in-port and underway)	$\frac{\# \text{ of injury cases } \times 320,000}{\# \text{ of personnel } \times 3,200 \text{ hrs}}$	Based on 64 hr average work week (combined inport and underway)
Lost Time Case Rate	The number of cases that contained lost work days per 100 employees.	$\frac{\# \text{ lost time cases } \times 320,000}{\# \text{ of personnel } \times 3,200 \text{ Hrs}}$	Based on 64 hr average work week (combined inport and underway)

* IIR is the Injury/Illness rate. This includes illness, injury resulting in medical care beyond first aid (including death), lost of consciousness, and injuries that result in light or limited duty and restricted work. The 64 hour average work week is a rough estimate to adjust for longer work hours during cutter ops and includes both underway and inport combined work hours (V. Andreone HSWL SC, 2014).

Cutter Incident Rates, continued

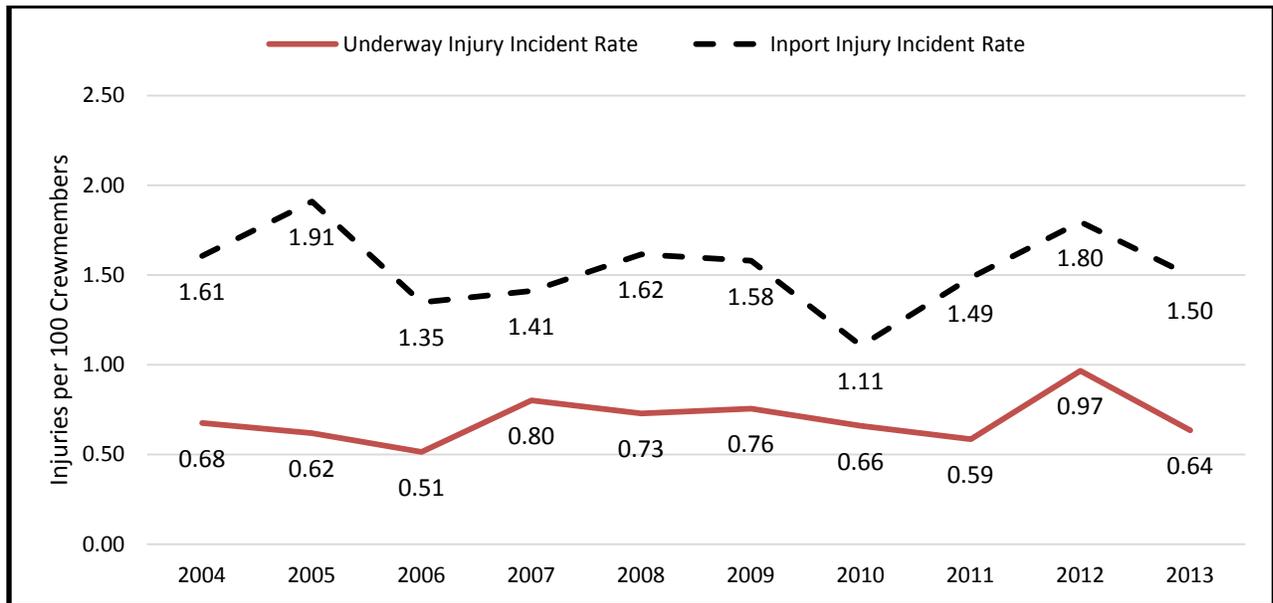


Figure 2.3: On-Duty Cutter Underway Injury Rate vs. On-Duty Inport Injury Rate FY04-FY13.

Figure 2.3 shows the underway injury incident rate. It is useful because it provides operational commanders and product line managers a way to compare their cutter injury rates to the Coast Guard wide trend. In the formula below, the number of personnel includes the total billet count for the population in question (i.e. all CG afloat, or all LANT Afloat, all WMEC etc.).

Table 2.2 Underway Cutter Injury Incident Rate Descriptions

Underway cutter IIR	The rate of injuries per 100 people underway	$\frac{\# \text{ of } UW \text{ injuries } \times Op \text{ hrs}}{\# \text{ of personnel } \times Op \text{ hrs}} \times 100$	Accounts for all of each members time underway regardless of on/off watch.
Inport cutter IIR	The rate of injuries per 100 crewmembers inport	$\frac{\# \text{ of injury cases } \times 160,000}{\# \text{ of personnel } \times 1,600 \text{ hrs}}$	Accounts for estimated average time a crewmember works in port.

Underway Operational Mishaps by Mission

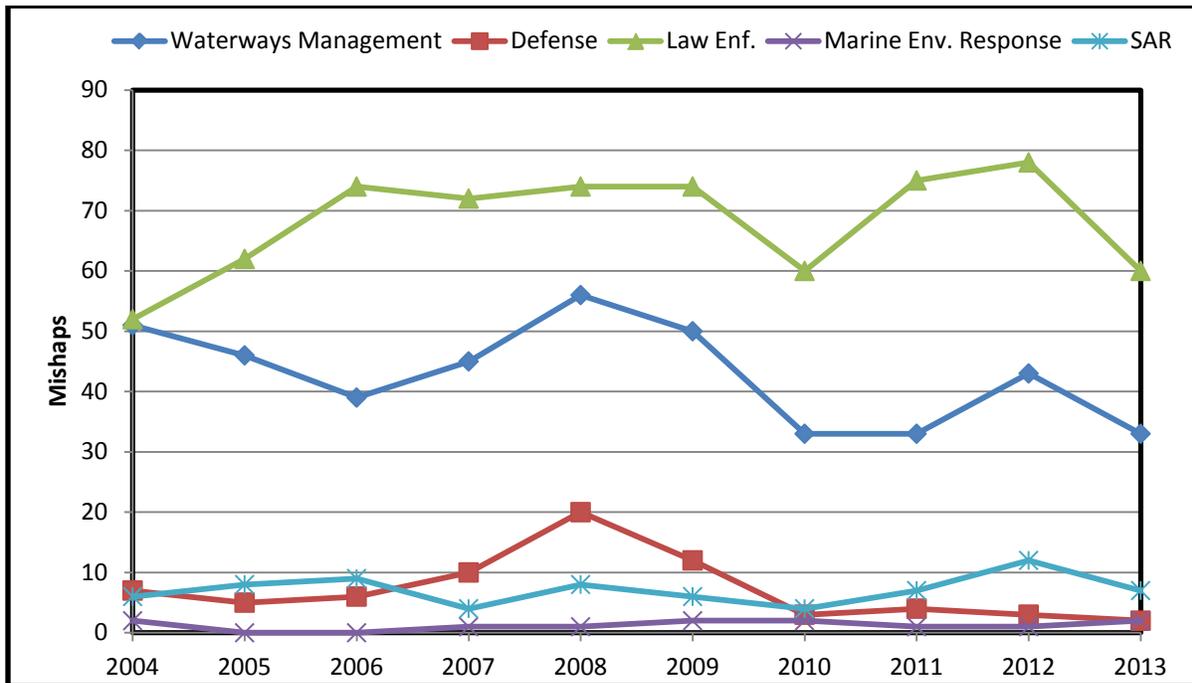


Figure 2.4: Underway Mishaps by Mission, 2004-2013.

Figure 2.4 shows that law enforcement operations experienced the greatest number of mission related mishaps over the 10-year period. Persons in the water (PIW), both falling and ejection, account for about 20% of all LE mishaps. Another 20% of the LE related mishaps, not counting PIWs, result from launching and recovery of cutter small boats. About half of the launch and recovery mishaps resulted in injuries.

Waterways management operations, including ATON and ice breaking, resulted in the second highest mission related mishaps. The majority of these mishaps were injuries resulting from slips, trips, falls, using tools or operating machinery.

Insufficient training, poor judgment, not following proper procedures and adverse weather conditions are common causal factors. Increased adherence to risk management principles and broad application of the team coordination training program will greatly reduce these mishaps and improve overall situational awareness. A periodic safety stand-down is an excellent way to re-emphasize the use of these programs and include these procedures in all that we do.

Nature of Cutter Operational Mishaps, FY04-FY13.

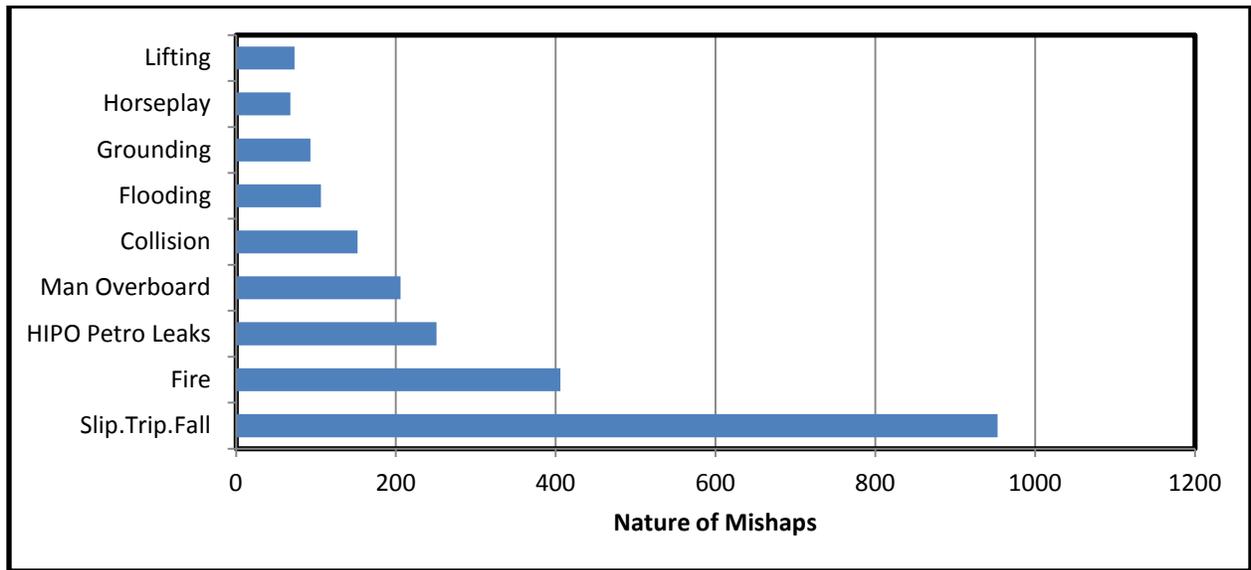


Figure 2.5: Cumulative FY04-FY13 Nature of Cutter Operational Mishaps. Note: Natures are not mutually exclusive.

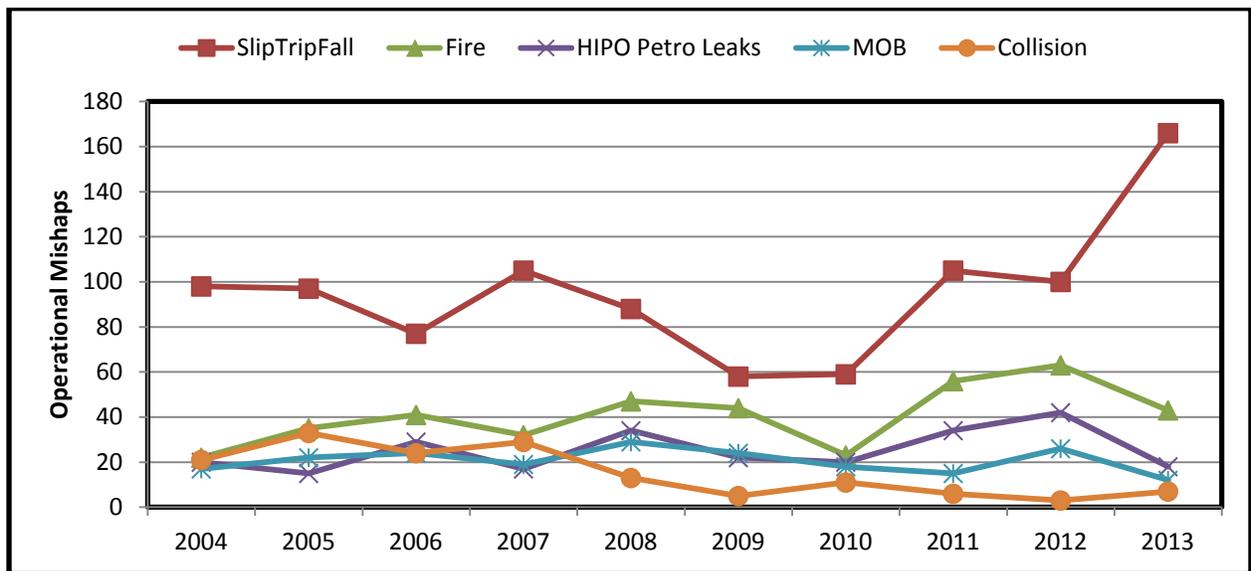


Figure 2.6: Top 5 Cutter Nature of Mishaps.

Figure 2.6 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 nature 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 Mishaps Causal Factor

Table 2.3: Cutter Mishap Causal Factor Trends.

Causal Factor	FY04-FY13 Average	FY13	FY13 vs 10 year Average
Personal Factors (Total)	751.70	795	6%
Judgment	129.20	128	-1%
Experience	12.40	12	-3%
Planning	264.30	264	0%
Policy	48.50	51	5%
Management	71.50	82	15%
Fatigue	99.70	128	28%
Communications	68.30	77	13%
Qualification	47.40	44	-7%
Alcohol	10.40	9	-13%
Equipment Factors (Total)	155.20	183	18%
Equipment Failure	63.00	86	37%
Engineering Design	92.20	97	5%
Environmental Factors (Total)	131.00	114	-13%
Weather	78.40	71	-9%
Visibility/Lighting	5.90	2	-66%
Temperature	33.10	33	0%
Noise	13.60	8	-41%

*Note: This include all mishaps at work (underway and in port)

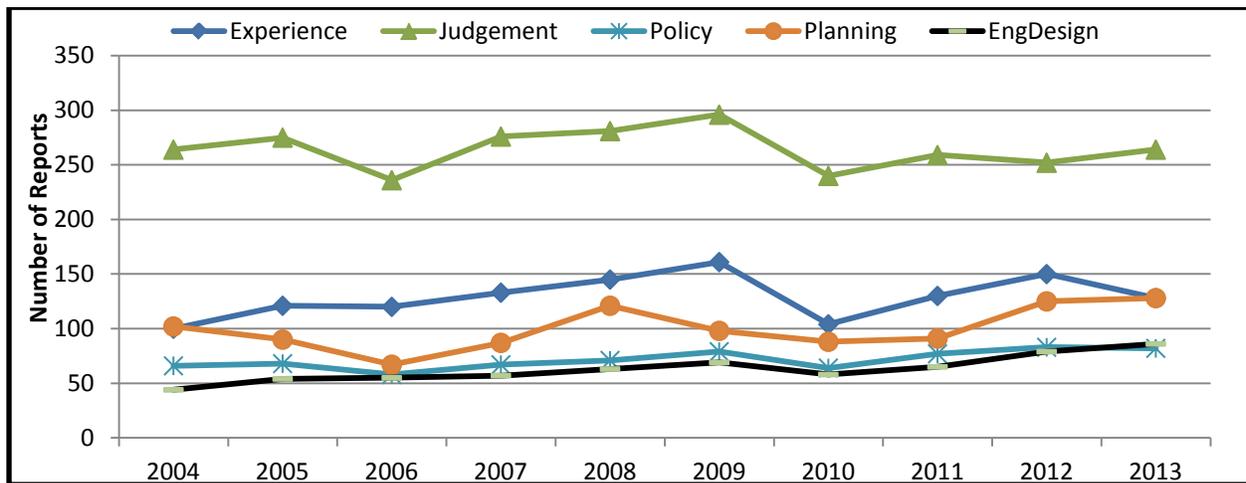


Figure 2.7. Top Five Causal Factors FY04-FY13.

Causal factors of operational mishaps on cutters have been stable in each category over the last 10 years (Table 2.3). As seen in Figure 2.7, four of the top five causal factors fall within the personal factors category. Judgment is consistently the leading causal factor in operational cutter mishaps with experience, planning, policy and engineering design rounding out the remaining top five. To reduce the number of mishaps by addressing the most significant causal factor will require the revitalization of ORM methods and training/crew experience.

Cutter Safety Assessment Analysis

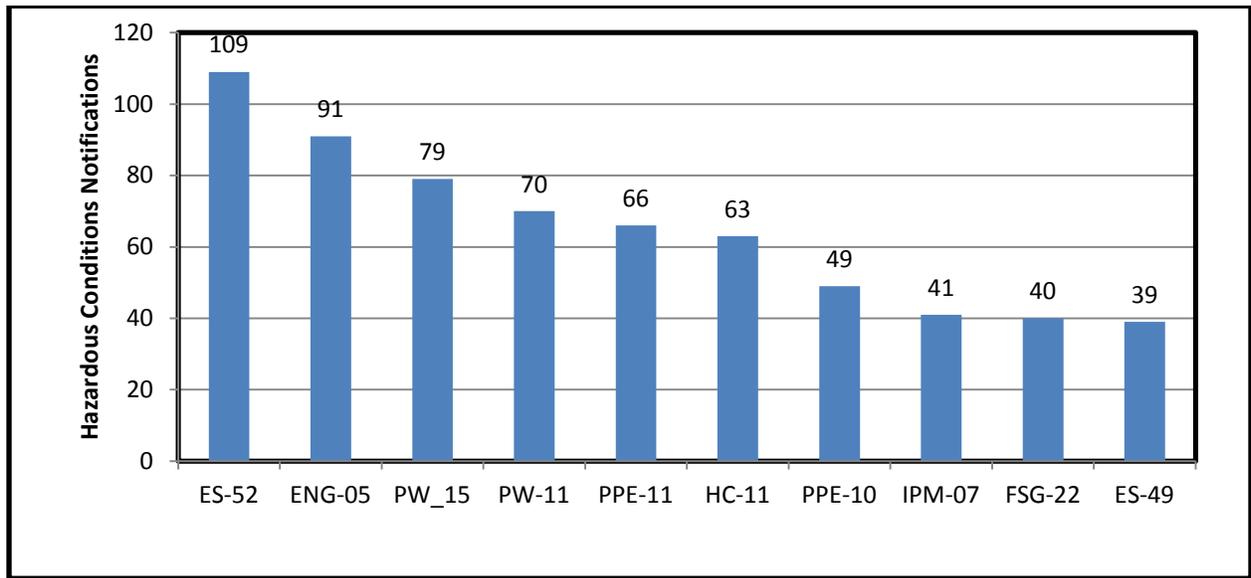


Figure 2.8: Top Ten Cutter Hazardous Conditions Notifications (HCNs) Recorded During Safety Assessments.

This figure summarizes the top cutter SEH deficiencies, excluding administrative and training items, identified during FY10-FY13 SMART visits. Electrical discrepancies were cited as the top issue. The Afloat Branch anticipates an increase in electrical safety deficiencies as the Safety Specialists focus attention on the new Lock-Out Tags Plus requirements.

- ES-52 Electrical hazards
- ENG-05 Shaft guarding.
- PW-15 Lack of back flow preventers
- PW-11 Chlorine level in potable water
- PPE-11 Eyewash station maintenance.
- HC-11 Secondary Labeling of hazardous materials
- PPE-10 Eyewash stations weekly activation of plumbed equipment
- IPM-07 Lack of rat guards
- FSG-22 Food not protected from contamination
- ES-49 Lack of shorting probe in electronics space

Chapter 3: Boat Mishaps

Key Takeaways

- *Training was the most cited mission for small boat mishaps.*
- *Collision and grounding top the list of small boat mishaps.*
- *Most AtoN mishaps occurred during small boat operations.*
- *Human error (judgment) was cited most often as the causal factor.*

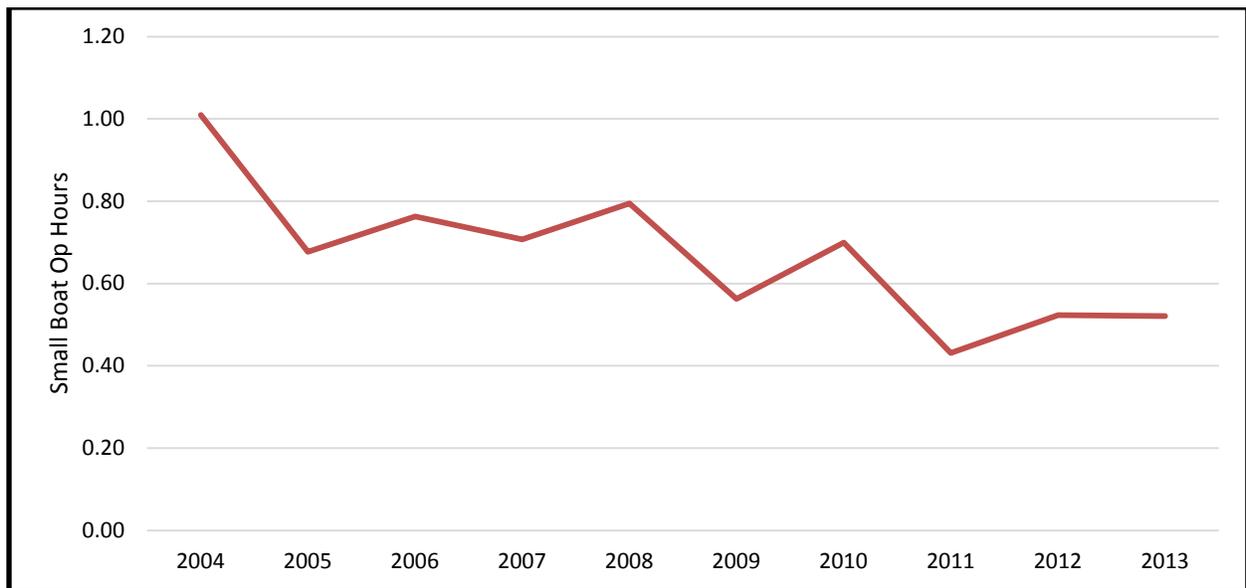


Figure 3.1: Boat Underway Injury Rate.

This small boat injury rate is normalized to include cutters boats in addition to boat stations, aids to navigation teams, MSSTs, PSUs and other units that conduct boat operations. The underway boat injury rate decreased by about half between FY04 (1.01) and FY13 (.52).

Table 3.1 Underway Boat Injury Incident Rate Descriptions

Underway boat IIR	The rate of injuries per 100 people underway	$\frac{\# \text{ of UW injuries } \times \text{ Op hrs}}{\# \text{ of personnel } \times \text{ Op hrs}} \times 100$	Accounts for all of each members time underway regardless of on/off watch.
----------------------	---	--	--

Boat Operational Mishaps by Mission, FY04-FY13.

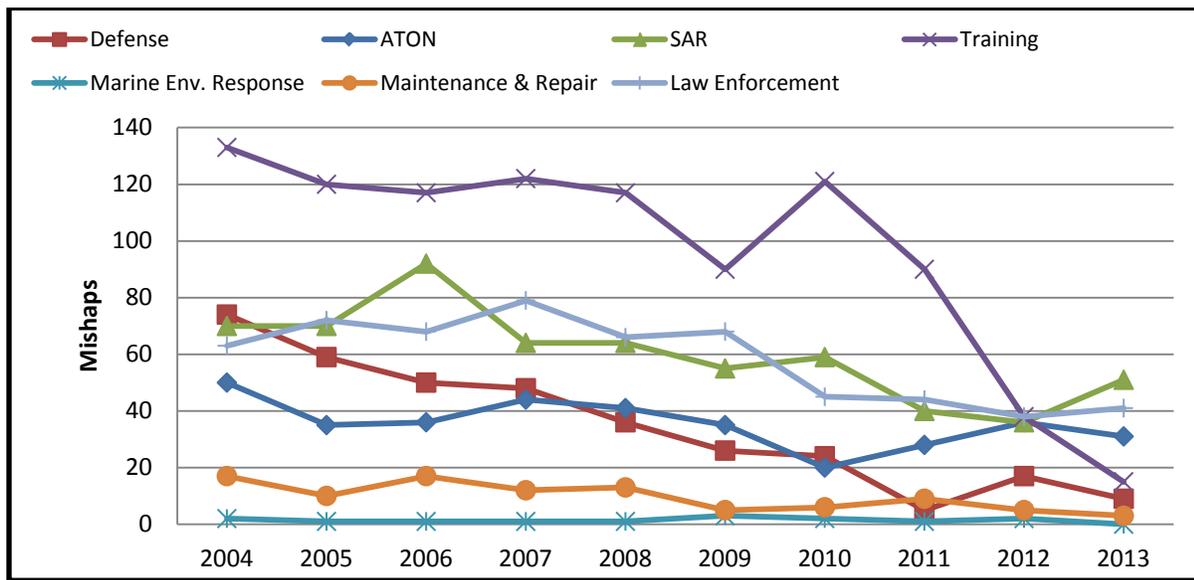


Figure 3.2: Boat Operational Mishaps by Major Missions.

Waterways Management includes Aids to Navigation. Defense includes Port Safety and Security as well as general Defense Operations. Law Enforcement includes Enforcement of Laws and Treaties (ELT), and Marine Inspections. Training includes training for any operation or mission. All mission trend lines are either stable or decreasing, with training showing the most notable decrease since 2010.

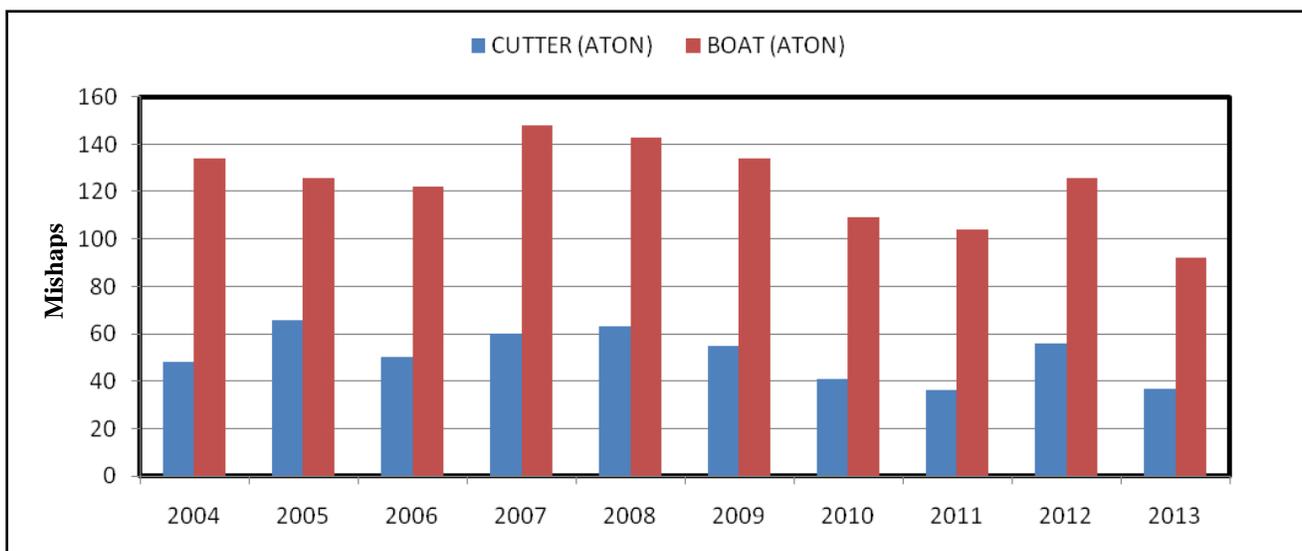


Figure 3.3: ATON Related Mishaps for Cutters and Boats. *Note: Cutter boats are excluded from the ‘cutter’ category and included in the ‘boat’ category.

This figure shows that most ATON related mishaps do not occur on the deck of a buoy tender, but during boat ATON operations.

Nature of Boat Operational Mishaps, FY04-FY13.

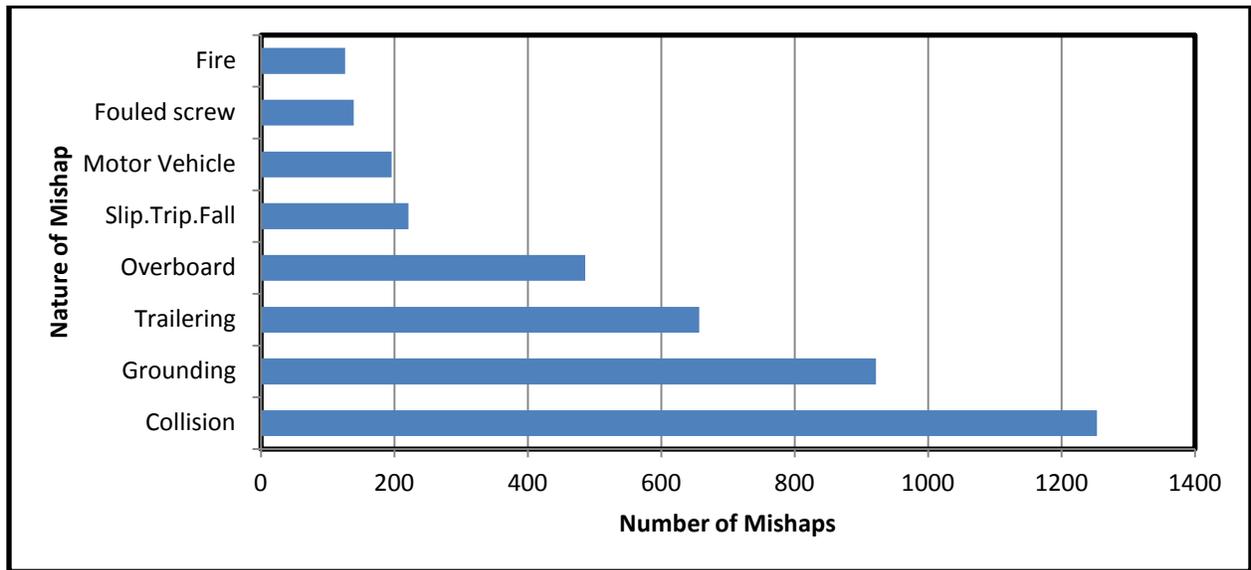


Figure 3.4: The Ten Year Cumulative Leading Operational Mishap Types for Boats.

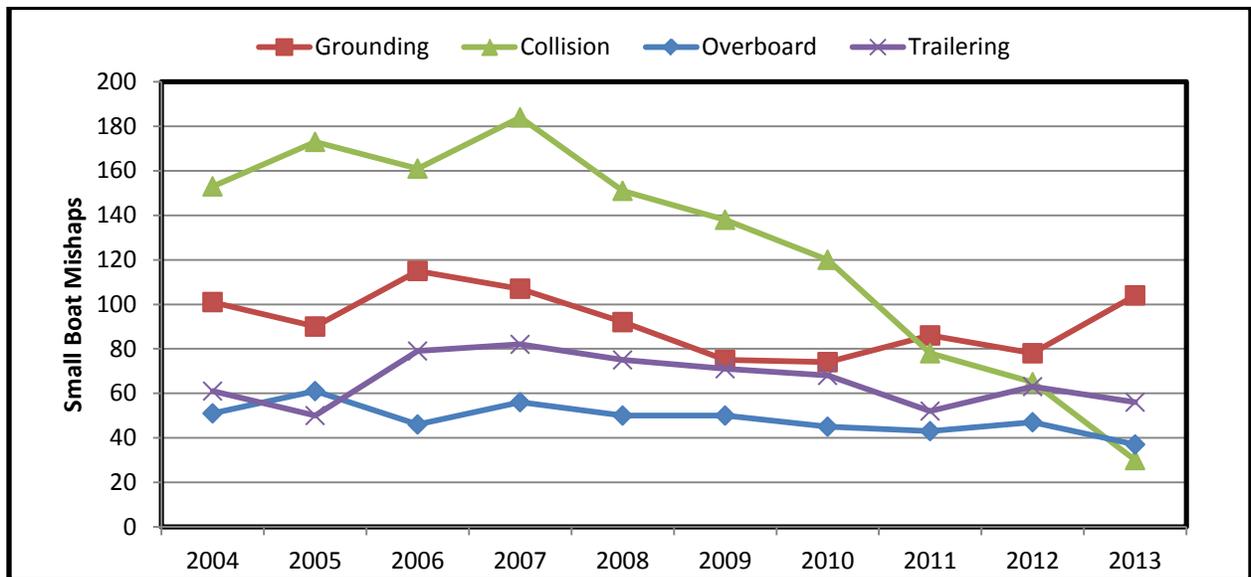


Figure 3.5: The Four Major Boat Mishaps FY04-FY13.

Over the past ten years the majority of boat mishaps are collisions or groundings. Since 2007, there has been a significant decrease in collisions. At present collisions are trending well below the 10 year trend line for both grounding and man overboard.

Nature of Boat Operational Mishaps, FY04-FY13, continued

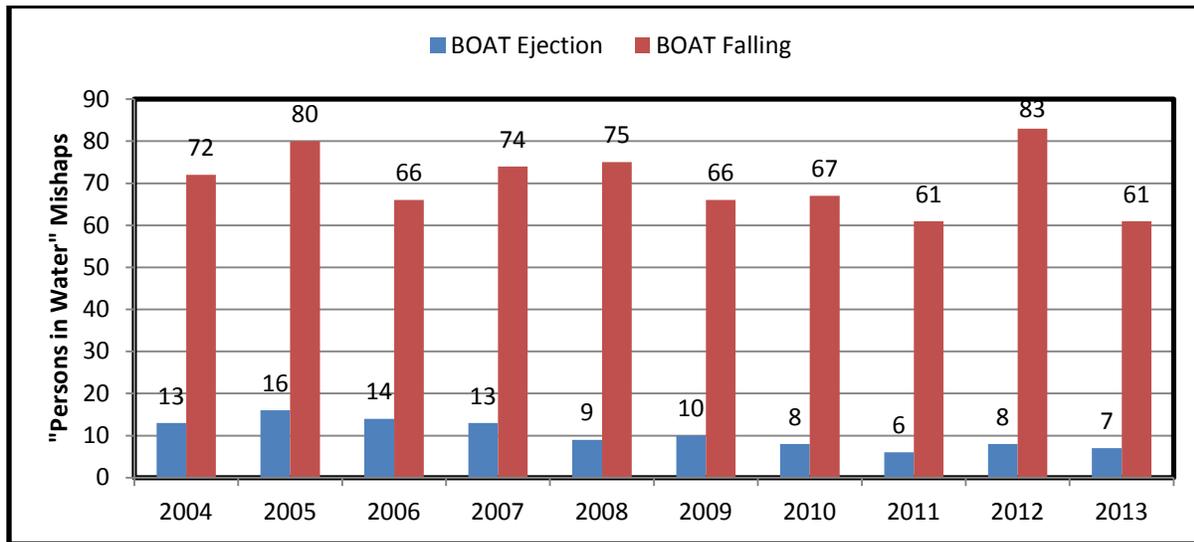


Figure 3.6: Comparison of the Nature of Person in Water Mishaps.

The number of PIW mishaps has remained relatively stable for both ejection and falling.

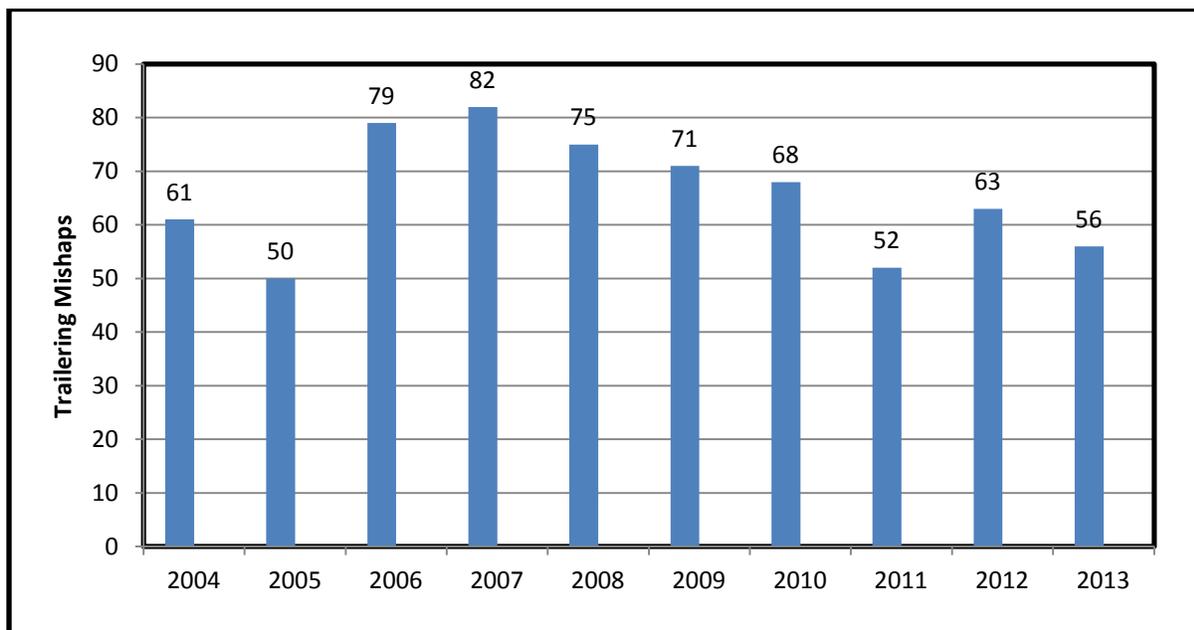


Figure 3.7: Total Trailinging Mishaps: FY04 – FY13.

Close quarter maneuvering accounts for the majority of trailinging mishaps. Analysis of trailinging mishaps shows that a majority 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

Table 3.2: Boat Operational Mishap Causal Factor Frequency FY04-FY13 .

Causal Factor	FY04-FY13 Average	FY13	FY13 vs 10 year Average
Personal Factors	836.60	679	-19%
Judgment	169.50	159	-6%
Experience	25.60	26	2%
Planning	239.10	196	-18%
Communications	23.70	22	-7%
Management	70.70	58	-18%
Policy	133.80	91	-32%
Qualification	71.60	55	-23%
Fatigue	102.60	72	-30%
Equipment Factors	114.90	117	2%
Engineering Design	54.10	59	9%
Equipment Failure	7.60	5	-34%
Inadequate Maintenance	53.20	53	0%
Environmental Factors	229.80	202	-12%
Weather	148.70	140	-6%
Noise	5.60	5	-11%
Visibility/Lighting	70.00	50	-29%
Temperature	5.50	7	27%

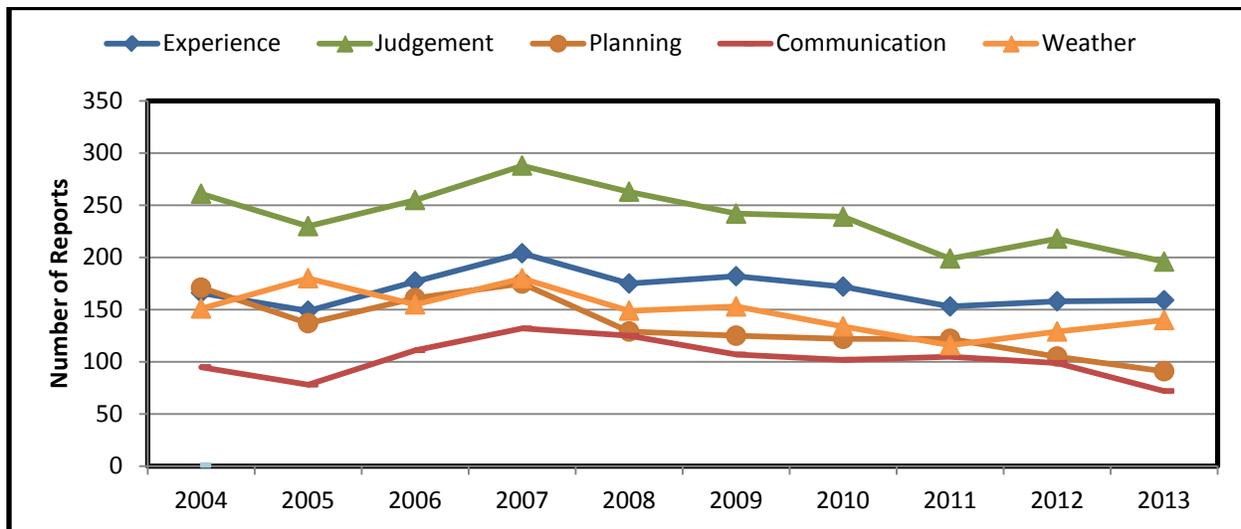


Figure 3.8: Top Five Causal Factors FY04-FY13.

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. Weather is among the leading causal factors associated with small boat mishaps. Mitigation by causal factors will require a direct application of the ORM Program.

Chapter 4: On-Duty Shore Mishaps

Key Takeaways

- *Shore mishap incidence rates are consistently lower than the national average.*
- *Most DSF injuries occur during general training, defensive tactics training, and vertical insertion training.*
- *Human error (judgment) was cited the most often as the causal factor.*

Shore Mishap Summary

The shore mishaps analyzed in this chapter are categorized as either on-duty related injury/illness, or property damage. Shore facilities include Bases, TRACENS, Stations, Boat Maintenance Facilities and Shops, Major Industrial Units, ATON Units, Non-Industrial Units and CG occupied office spaces.

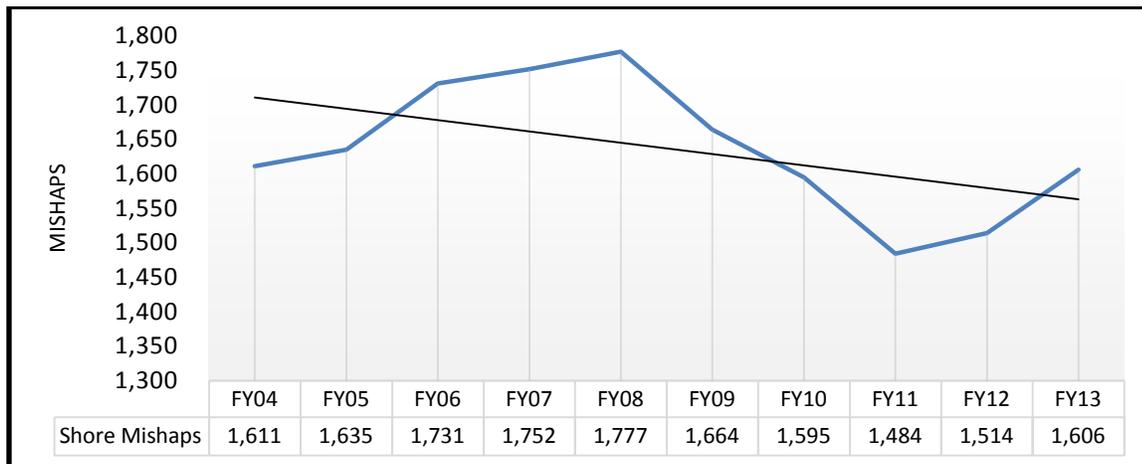


Figure 4.1: Shore Mishap Trends FY04-FY13.

Figure 4.1 indicates a downward trend over the last 10 years; however an upward trend of 8% has occurred since FY11.

Shore Mishap Summary, continued



Figure 4.2: Shore Mishap Related Property Cost. Note: yearly costs are not adjusted for inflation.

Figure 4.2 and Table 4.1 shows property cost in FY13 decreased 2% (\$40,000) compared to the 10-year average cost (not adjusted for inflation). The large variation about the mean property loss is attributed to large cost events like fires.

Table 4.1: Shore Injuries, Mishaps, and Property Cost 10 Year Average vs. FY13.

	Shore Injuries	Shore Mishaps	Shore Property Cost
FY04-FY13 Average	329	1,637	\$ 2,463,290
Standard Deviation	21	92	\$ 872,806
FY13	354	1,606	\$ 2,424,522
FY13 vs. 10-Year	8%	-2%	-2%

Over the past ten years shore mishaps averaged 1,637 with a standard deviation of 92 mishaps. Shore reported mishaps have had a slight decrease of 2% (31 mishaps) in FY13 compared to the 10-year average; however, injuries have increased 8% (25 injuries) in FY13.

Shore Incident Rates

The Shore Injury/Illness Rate (IIR) and Lost Time Case Rate (LTCR) for CG military personnel and CG civilian personnel are calculated utilizing the formula in Table 4.2.

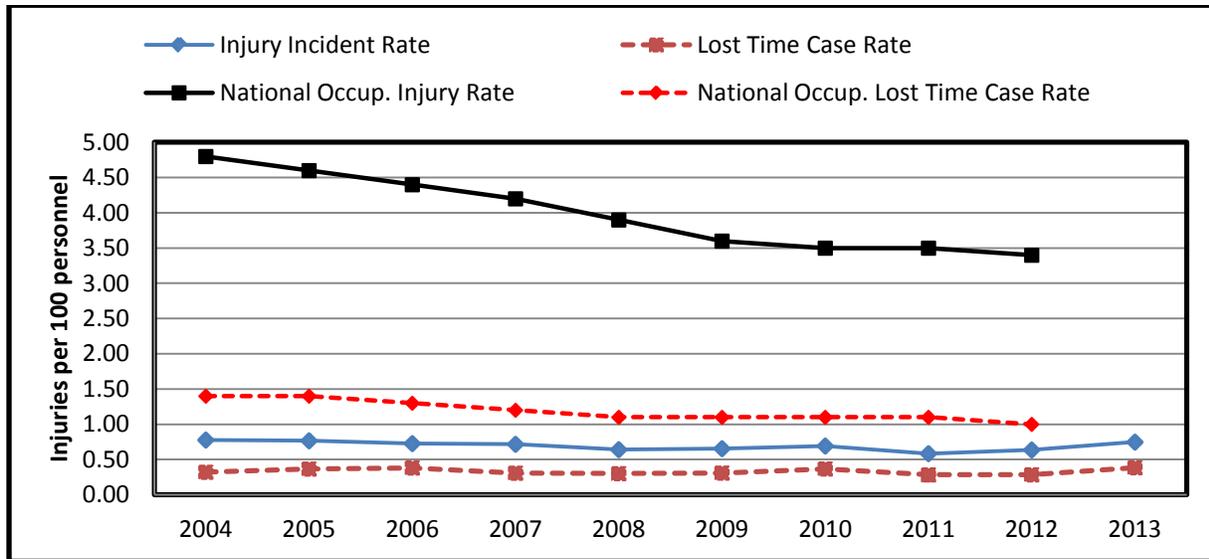


Figure 4.3: Shore Personnel Incident Rates 2004-2013.

Figure 4.3 shows the BLS (Bureau of Labor Statistics) general industry injury and lost time case rates are consistently higher than the CG rates. In FY12 the national occupation injury rate (3.4) was 5.3 times higher than the CG injury rate (.64). In the same year, the national lost time case rate (1) was 3.6 times higher than the CG lost time rate (.28).

Table 4.2: Shore injury incident rate description.

Metric	Definition	Calculation	Notes
Shore IIR*	The rate of injury and illness cases per 100 personnel.	$\frac{\# \text{ of injuries} \times 200,000}{\# \text{ of personnel} \times 2,000 \text{ hrs}} \times 100$	Hours are based on a 40 hr work week for 50 weeks (2,000). Reduce the hrs to 500 for quarterly reports.
Lost Time Case Rate	The number of cases that contained lost work days per 100 employees.	$\frac{\# \text{ lost time cases} \times 200,000}{\# \text{ of personnel} \times 2000 \text{ Hrs}}$	

* IIR is the Injury/Illness rate. This includes illness, injury resulting in medical care beyond first aid (including death), loss of consciousness, and injuries that result in light or limited duty and restricted work.

Shore Incident Rates, Continued

Analysis of the civilian and military industrial mishaps shows a majority of injuries and illnesses fall within these categories:

- Strains and Sprains - lifting related, trips/slips
- Cuts and bruises - hand and power tools
- Irritation - involving one or both eyes
- Burns - welding, steam and chemical burn
- Fractured bones - fall from heights
- Occupational illness - dermatitis, inhalation, hearing loss

There were a total of 116 shore-based electrical shock mishaps between FY04 and FY13. A majority of these electrical mishaps occurred in industrial settings and were related to maintenance, equipment failure, and lack of lock out tag out (LOTO) procedures. Causal factors included failure to secure disconnected/exposed wires, failure to communicate changes in hardware, and carelessness. Equipment failure causal factors included corrosion of electrical outlets and breakers.

To mitigate risk in the industrial setting several practices are recommended. Incorporating Operational Risk Management (ORM) and Job Hazard Analysis (JHA) into pre-job planning are the most effective methods of mishap prevention. Managers should conduct Personnel Protective Equipment (PPE) Hazard Assessment at least annually, and enforce the proper use, storage, and maintenance of PPE. They should also conduct regular safety walk-around inspections of work spaces and operations, paying particular attention to housekeeping issues and safe work practices.

Nature of Shore Mishaps, FY03-FY14.

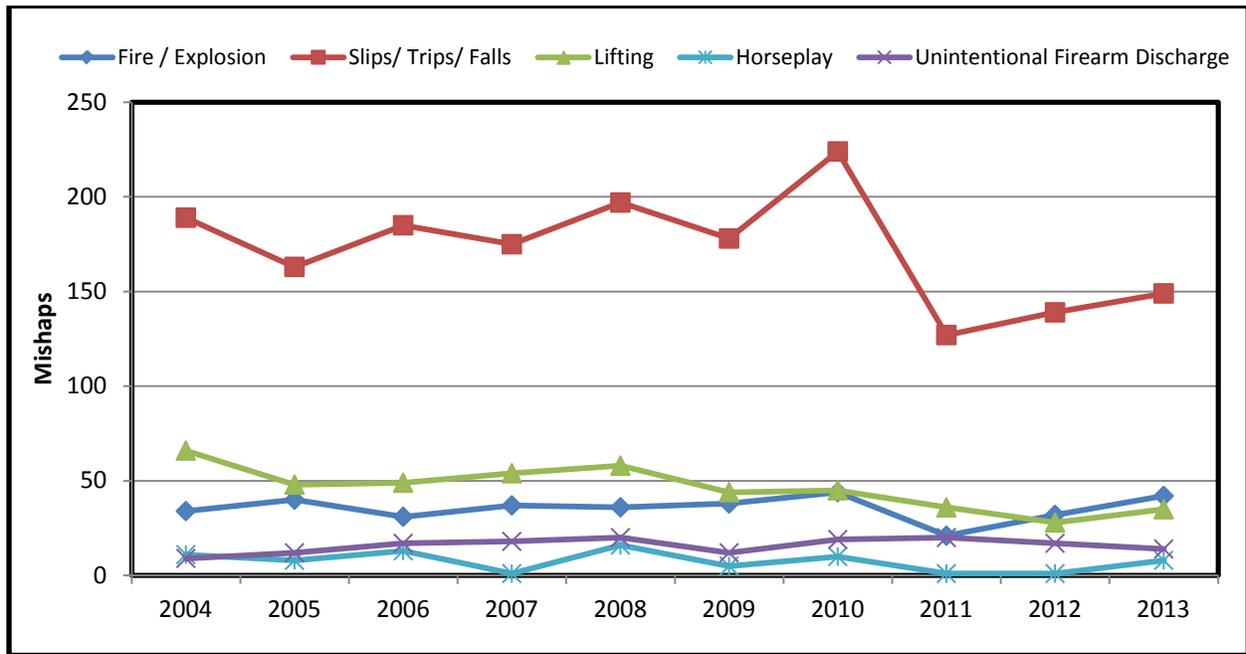


Figure 4.4: Top Five Types of Shore Mishaps.

From FY04 to FY13, “slips, trips, and falls” is clearly identified as the leading mishap type. Lighting, 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.

From FY04 to FY13, lifting mishaps are consistently the second leading category. Lifting mishap analysis shows that members either exceed their personal abilities, or proper lifting techniques were not utilized to accomplish the task. Fire mishaps are discussed later in this chapter.

Shore Mishap Causal Factors

Table 4.3: Mishap Causal Factors.

Shore Mishap Causal Factors	FY04-FY13 Average	FY13	FY13 vs 10 year Average
<i>Personal Factors</i>	1696.30	1572	-7%
Judgment	616.20	561	-9%
Planning	295.40	263	-11%
Experience	277.20	273	-2%
Communications	133.80	115	-14%
Management	133.70	121	-9%
Policy	124.80	135	8%
Fatigue	76.00	69	-9%
Qualification	34.30	35	2%
Alcohol	4.00	4	0%
Drugs	0.90	0	-100%
<i>Equipment Factors</i>	227.40	250	10%
Equipment Failure	197.50	109	-45%
Engineering Design	103.90	117	13%
Inadequate Maintenance	28.60	24	-16%
<i>Environmental Factors</i>	325.20	302	-7%
Weather	188.40	178	-6%
Visibility/Lighting	99.20	88	-11%
Temperature	27.30	25	-8%
Noise	10.30	11	7%

Note: On-Duty, Non-Motor Vehicle, Non-Sports Mishaps.

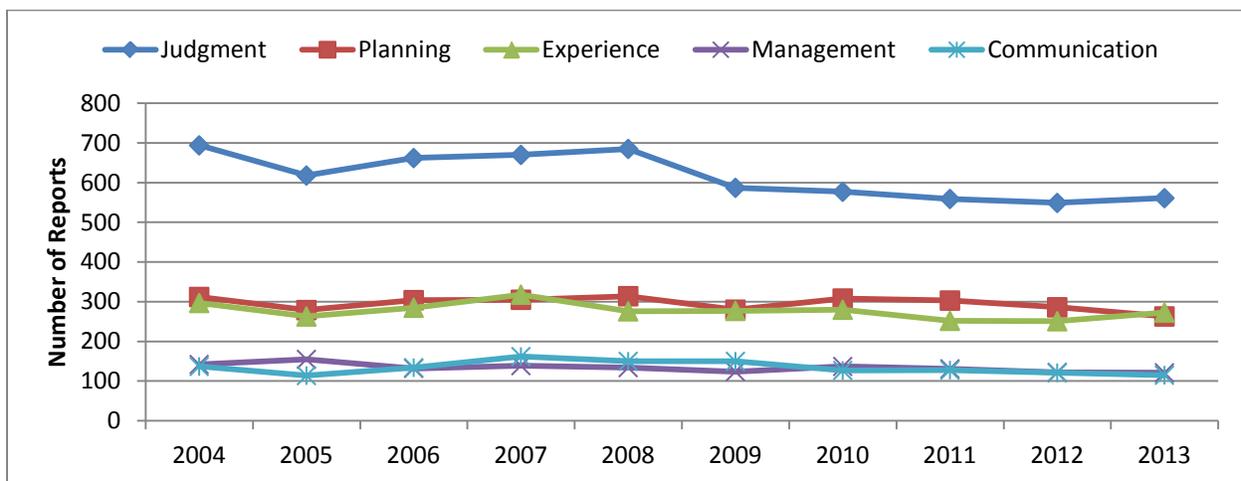


Figure 4.5: Top Five Major Causal Factors, FY04-FY13.

Mishaps are the end result of a chain of failures or conditions preceding the mishap event. It is evident from the mishaps submitted that a single causal factor is rarely to blame. Judgment is consistently the most cited causal factor for both military and civilian mishaps. However, additional important causal factors include; planning, experience, management, and communication.

Deployable Special Forces

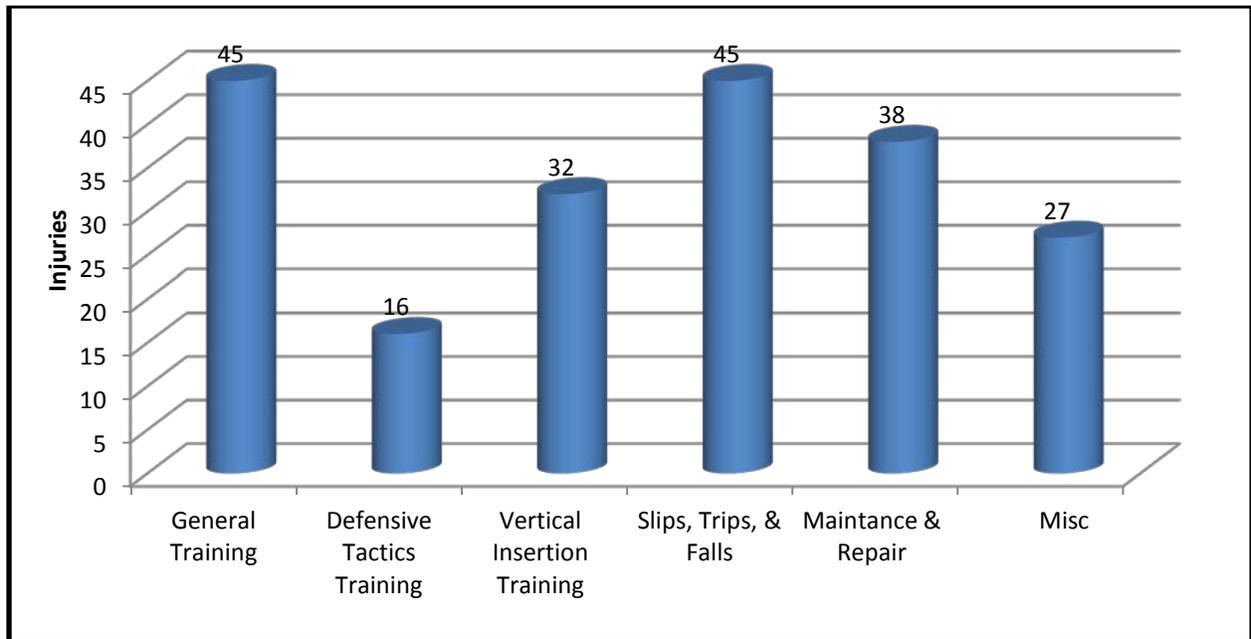


Figure 4.6: Deployable Special Forces (DSF) Injury Types FY07 – FY13.

Note: Includes prior Deployable Operations Group (DOG) units which were established July 2007.

Figure 4.6 depicts the operations where injuries have occurred at DSF units (including DOG units) from 2007 through 2013. There are four areas of concern: training, ‘slips, trips, and falls’, general maintenance work, and miscellaneous. Training mishaps occurred in three areas; physical fitness, defensive tactics, and vertical insertion. During the seven year period, a large number of the mishaps were related to physical fitness, which is a category of general training. Defensive tactics training mishaps include hand to hand tactics, role playing, vessel boarding practice, shooting range mishaps, and falls during training. The vertical insertion training mishaps involved towers of various heights and resulted in sprains and broken bones. Of the 45 ‘slips, trips, and falls’ mishaps, nine were operational related. Tasks associated with miscellaneous mishaps include; diving, driving, trailering, pyrotechnic discharge, and dog bites.

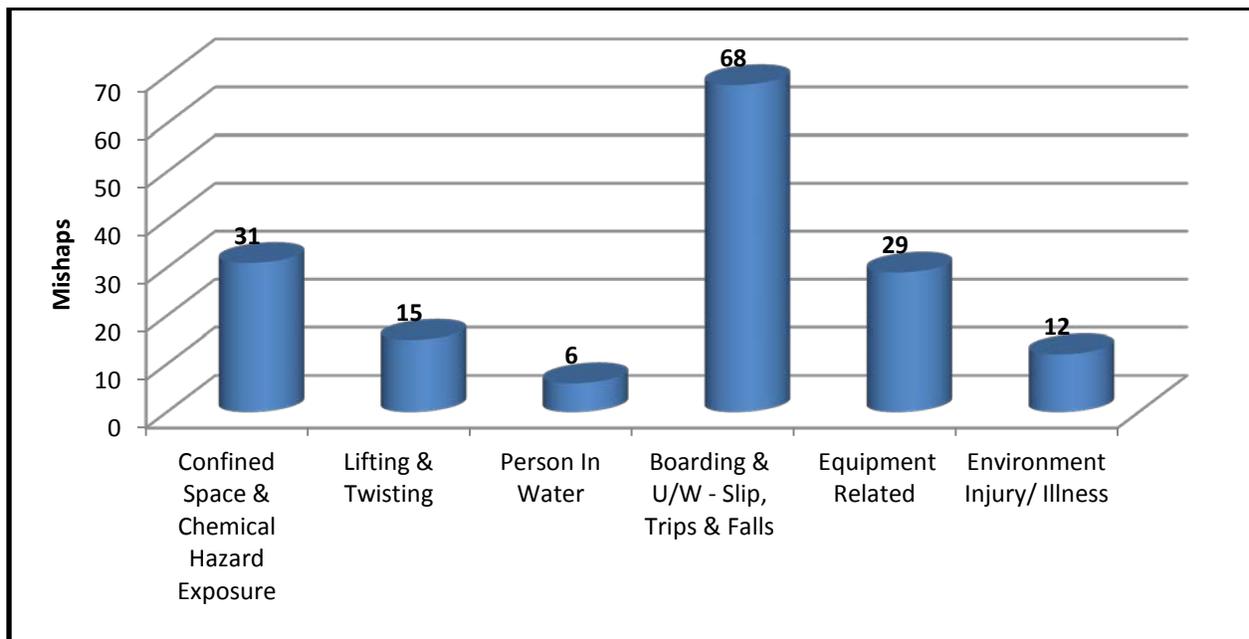
Marine Environmental Response and Marine Inspection

Figure 4.7: Marine Inspection & Environmental Response Mishaps - FY04 - FY13.

Figure 4.7 shows that marine environmental response and marine inspections account for 161 mishaps over the ten year period. Sixteen mishaps were classified as HIPOs and twelve of these were related to confined space problems and chemical exposures. These incidents have been decreasing due in part to updated policy, greater availability of oxygen and flammability gas detection equipment, and enforcement of policy. Falls are of significant concern. Most falls are from ladders and deteriorated rungs located on inspected vessels; several falls during boardings resulted in marine inspectors in the water. Falls through open hatches were routinely caused by insufficient lighting.

Chemical exposures occurred during inspections of commercial vessels, at shore petrochemical facilities, during container inspections, and in confined spaces. Analysis of the acute chemical exposure mishaps show that some of the mishaps were reported solely because of equipment alarms (e.g. 5-gas meters), but resulted in no acute illness.

Fires

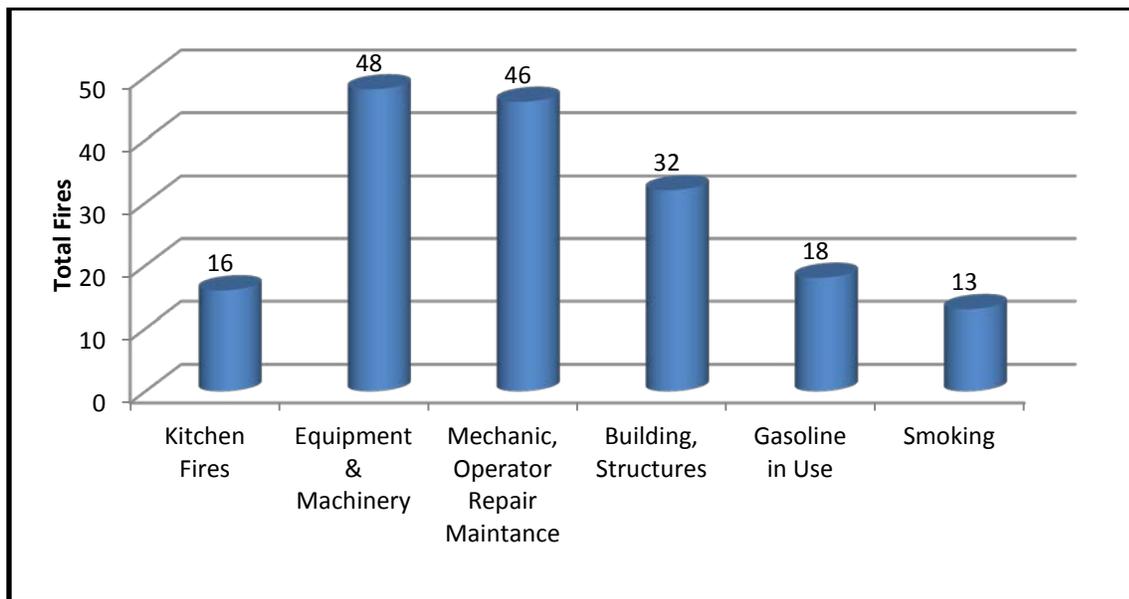


Figure 4.8: Shore Based Fires by Operation from FY04-FY13

Figure 4.8 categorizes the shore facility fires that have occurred over the past ten years. Equipment and machinery failure, damaged cables, improper wiring and lack of scheduled maintenance were the major contributing factors. Electrical and fire protection maintenance were among the top ten hazardous conditions notifications identified during SMART visits (Figure 4.9). Examples of building/structure fires were boiler issues, furnace mechanical issues, building lighting and electrical system deficiencies. Smoking, cooking, and improper use of gasoline accounted for 47 fire mishaps at shore facilities.

Properly following maintenance procedures during hot work evolutions, general safe work practices, good housekeeping, proper hazardous material storage and disposal methods would eliminate a significant number of CG fires.

Shore Safety Assessment Analysis.

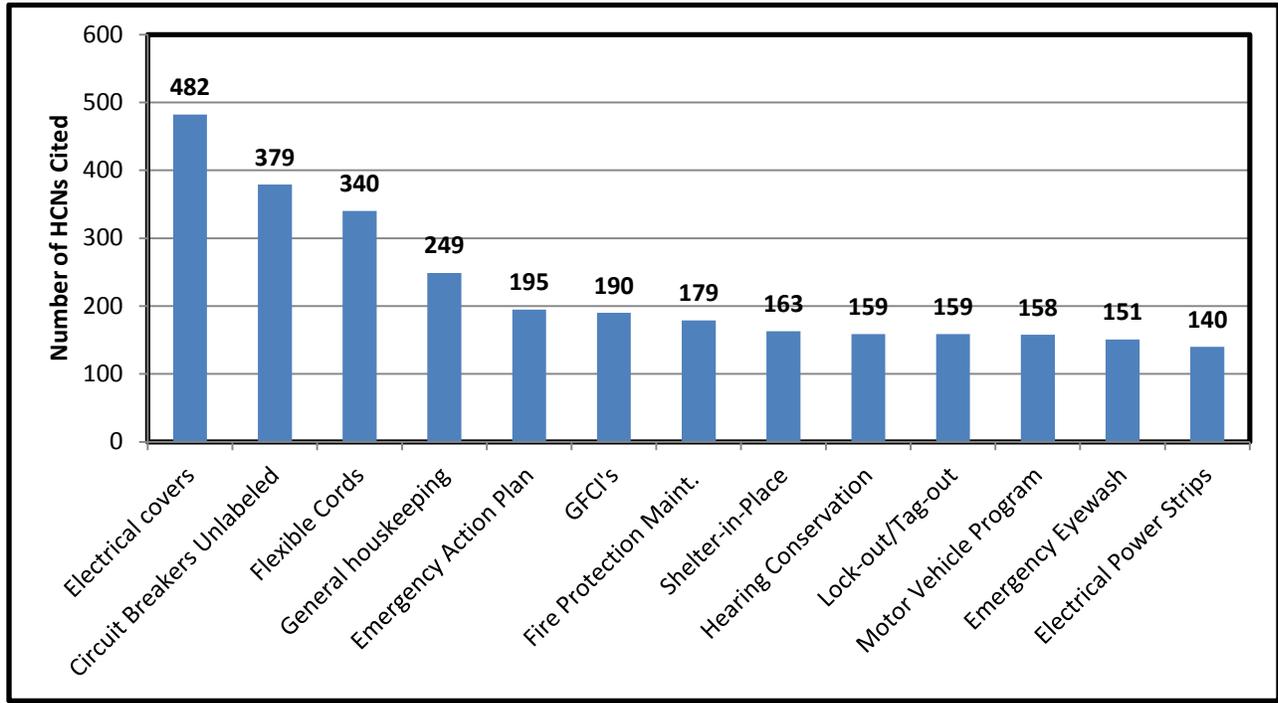


Figure 4.9: Top Cited Shore Based HCN's from SMART Visits, FY04-FY13.

Note: GFCI is Ground Fault Circuit Interrupter device, which is required to be installed outdoors and in the vicinity of water sources to prevent electric shock.

Figure 4.9 summarizes the top shore based SEH deficiencies identified during FY04-FY13 SMART visits. Electrical discrepancies are cited as the top issues encompassing wiring, power strips, extension cords, exposed electrical parts, missing GFCI's, and the lack of a lock out / tag out program.

Chapter 5: Off-duty and Recreational Mishaps

Key Takeaways

- *Off duty personnel are injured more frequently than on duty.*
- *Sports and recreational activities are responsible for the majority of off duty injuries.*
- *There was a significant increase in calisthenics/workout injuries in 2013 compared to the 10 year average.*

Off-duty injury and lost time case rates are useful for tracking trends that result in decreased readiness. As mentioned in Chapter 1 (Figure 1.4) military personnel are more frequently injured off-duty than at work. In addition, off-duty mishaps resulted in more lost work days than on-duty mishaps.

Off-duty Injury Rates

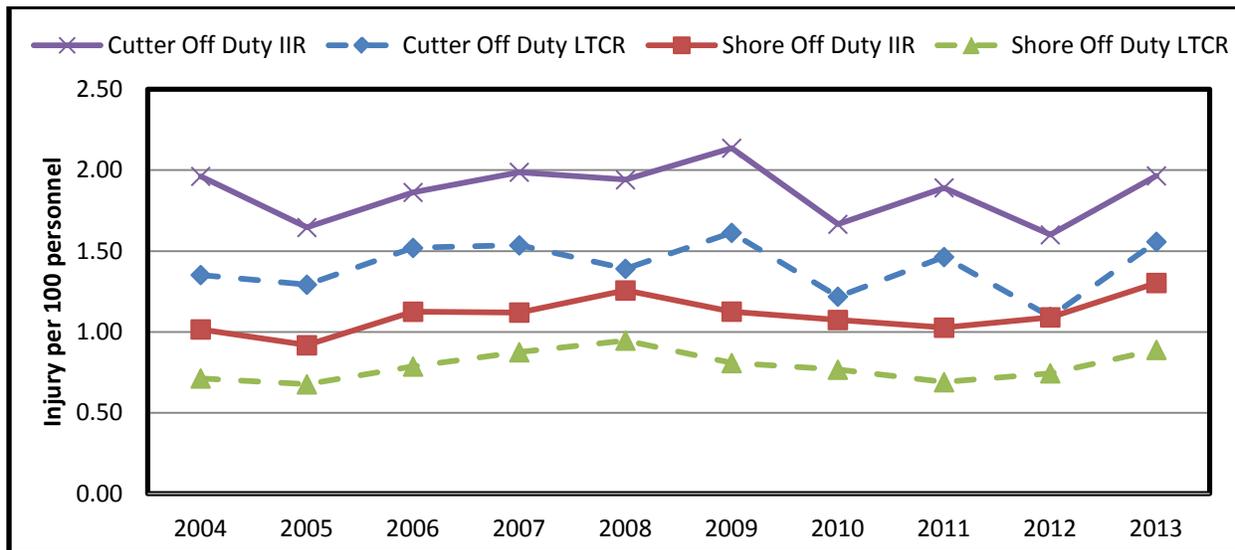


Figure 5.1: Off-Duty Injury Incident Rates for Cutter and Shore Personnel. Note: The off-duty shore rates do not include civilian employees.

As depicted in Figure 5.1, over the 10 year period, off-duty cutter crewmembers were injured more frequently and with greater severity compared to shore personnel. In fact, off-duty cutter personnel had a lost time case rate twice that of shore personnel.

Table 5.1: Off-Duty Injury Incident Rate Descriptions

Metric	Definition	Calculation	Notes
Off-Duty Shore Injury Incident Rate (IIR)	The rate of injury incidents per 100 off-duty <i>military</i> personnel.	$\frac{\# \text{ of injuries} \times 376,000}{\# \text{ of personnel} \times 3,760 \text{ hrs}} \times 100$	Hours are based on time away from work minus sleep.
Off-Duty Shore Lost Time Case Rate	The number of cases that contained lost work days per 100 shore military personnel.	$\frac{\# \text{ lost time cases} \times 376,000}{\# \text{ of personnel} \times 3,760 \text{ Hrs}}$	Hours are based on time away from work minus sleep.
Off-Duty Cutter Injury Incident Rate (IIR)	The rate of injury incidents per 100 cutter crew members	$\frac{\# \text{ of injuries} \times 256,000}{\# \text{ of personnel} \times 2,560 \text{ hrs}} \times 100$	Where 2,560 hrs per year is time after average 64 hr work week and 8 hrs of sleep.
Off-Duty Cutter Lost Time Case Rate (LTCR)	The number of cases that contained lost work days per 100 cutter crew members.	$\frac{\# \text{ lot time cases} \times 256,000}{\# \text{ of personnel} \times 2,560 \text{ Hrs}}$	Where 2,560 hrs per year is time after average 64 hr work week and 8 hrs of rest.

Off-Duty Mishap Causal Factors

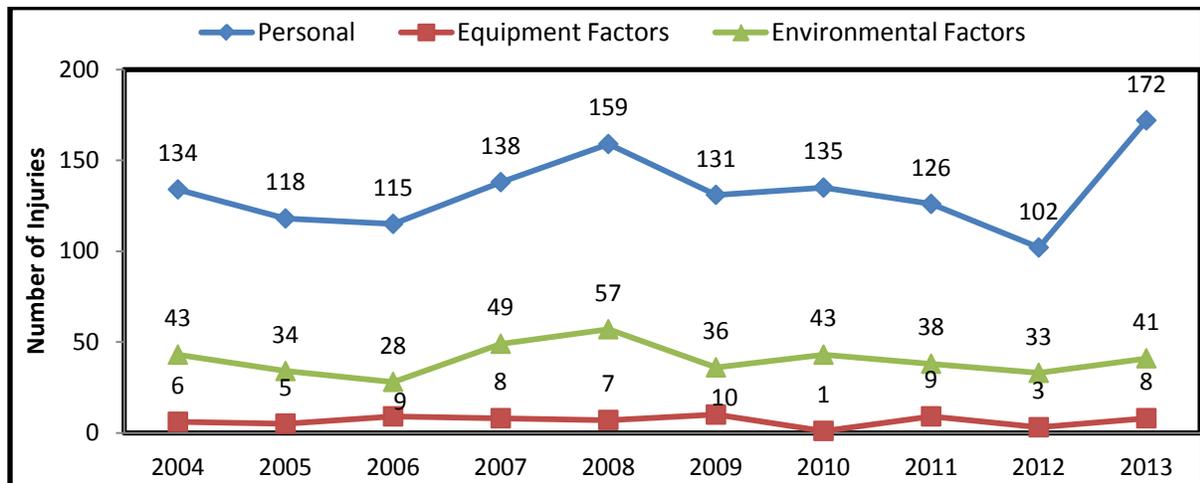


Figure 5.2: Causal Factors Classifications Reported 2004-2013 for Off-Duty Injuries.

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

Sports and Recreational Related Injuries

Sports and recreation serves two purposes for our members; relaxation and physical fitness. Unfortunately, sports also are the highest contributor to off-duty mishaps. Many off-duty injuries are severe with significant lost work days which ultimately impact the readiness of the unit.

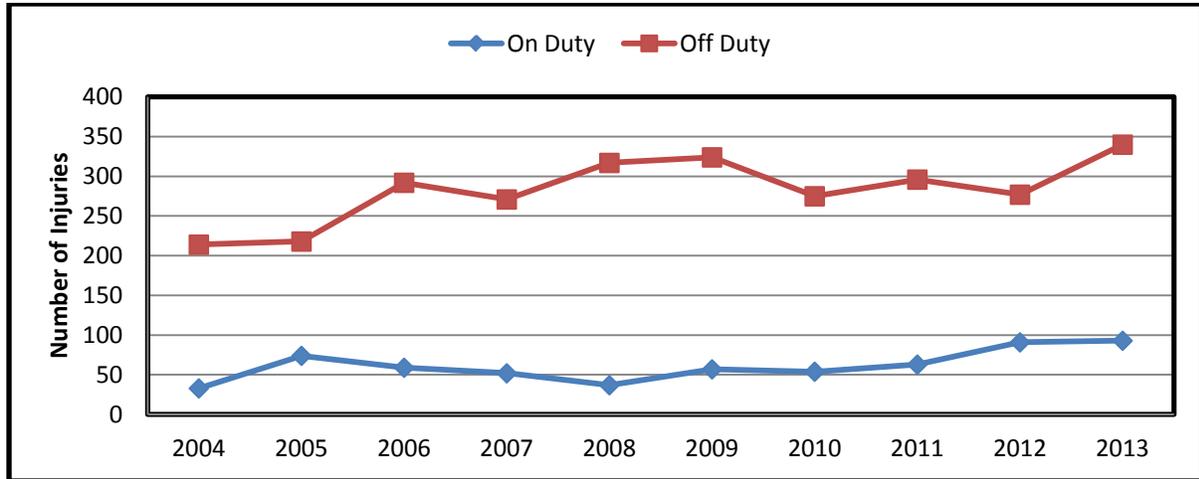


Figure 5.3: Total On-duty and Off-duty Sport Injuries, FY04-FY13.

Off-duty sports related injuries are significantly higher than on-duty (Figure 5.3). Over the 10 year period, both on and off-duty sport injuries increased slightly, reaching the highest in FY13.

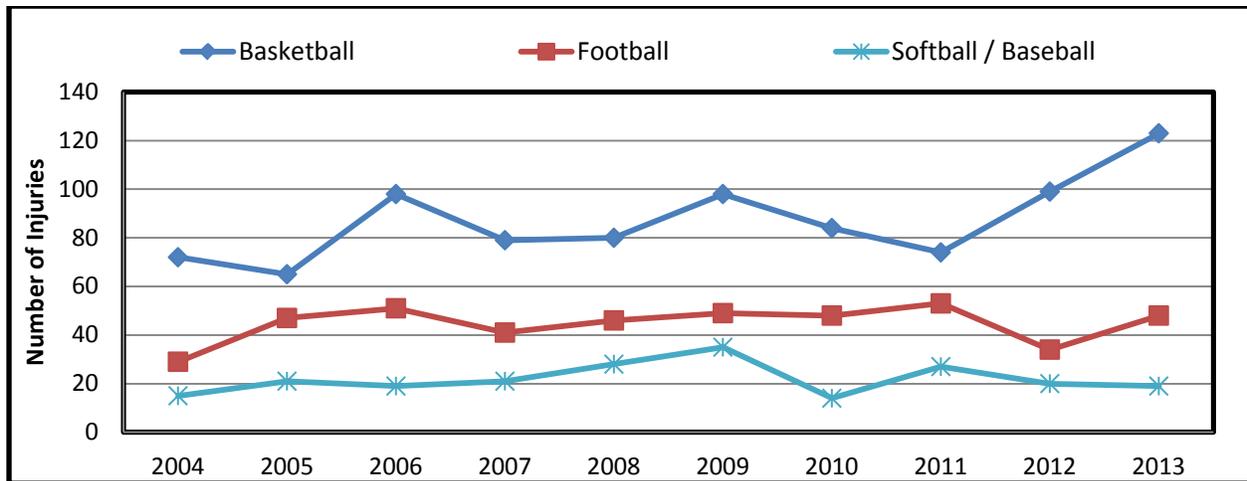


Figure 5.4: Top Three Team Sports Involved in Injury Mishaps.

Figure 5.4 shows that the team sports with the highest injuries were basketball, football, and softball. When compared to all sports and recreational related activity, basketball is consistently the largest contributor to injuries. Analysis of the basketball injuries indicated that ankle injuries are the leading type of injury and basketball injuries are highest during the winter months.

Sports and Recreational Related Injuries, continued

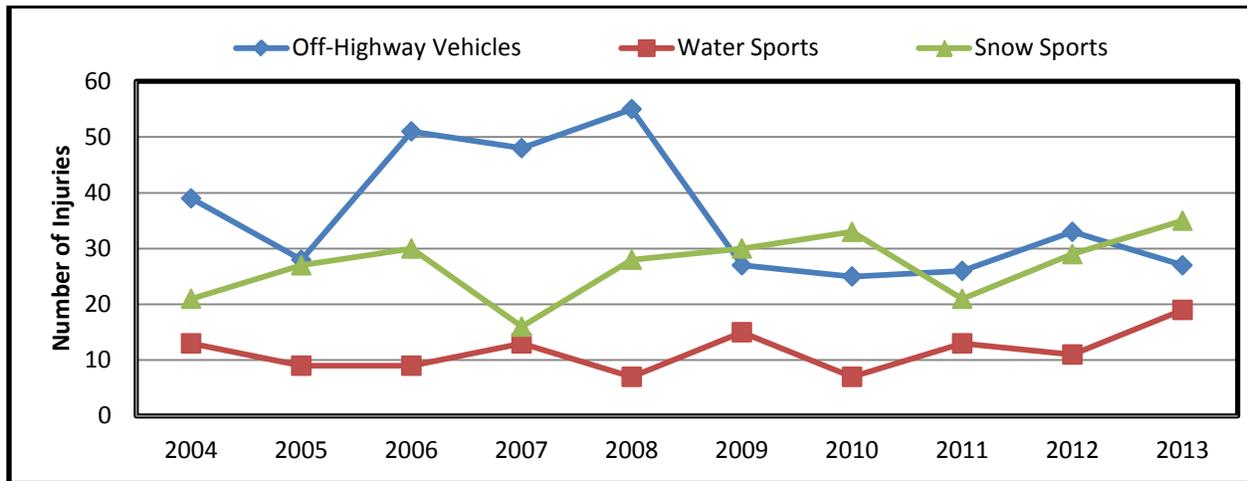


Figure 5.5: Top Three Individual Sports Involved in Injury Mishaps.

Recently, we have seen increasing numbers of snow sport mishaps and decreasing numbers of off-highway injuries. Snowboarding is the leading cause of snow sports injuries, accounting for 25 out of 35 injuries in FY13; 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.

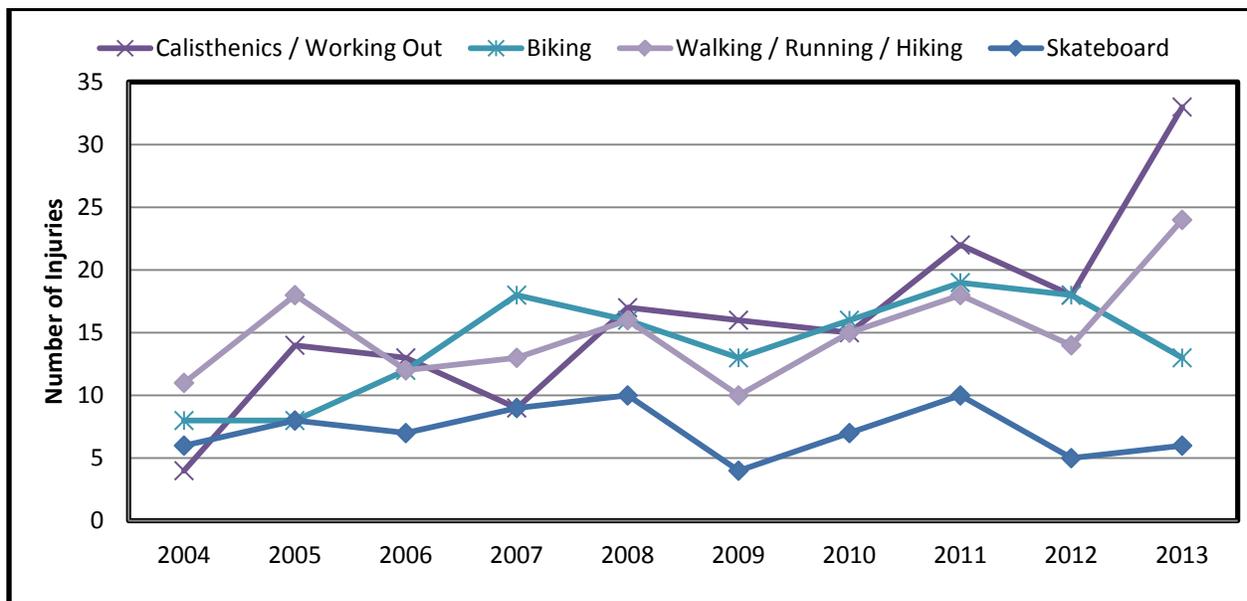


Figure 5.6: Exercise, Biking, and Skateboarding Injuries.

HSWL SC safety and environmental health staff noticed an increase in calisthenics/work-out injuries during 2013. Calisthenics/work out injuries numbered 33 in 2013, which is 48% above the 10 year average of 16. In the same year, walking/running/hiking injuries reached a 10 year high of 24 versus an average occurrence rate of 15 over 10 years.

Chapter 6: Motor Vehicle Mishaps

Key Takeaways

- *More active duty military were killed by off duty motor vehicles accidents than operational mishaps.*
- *Poor judgment, alcohol, speed and fatigue are the leading casual factors.*
- *Almost all personnel reporting a motor cycle mishap had received training, suggesting that intrusive leadership as well as training is needed to reduce MC mishaps.*

Class A Motor Vehicle Mishap Summary

On average, off-duty motor vehicle mishaps kill more Coast Guard members every year than operational activities. In the last 10 years, 61 shipmates were lost to Class A mishaps while operating a (non-recreational) private motor vehicle (PMV), or were hit by one while walking. These PMV mishaps represent 69% of all fatal mishaps.

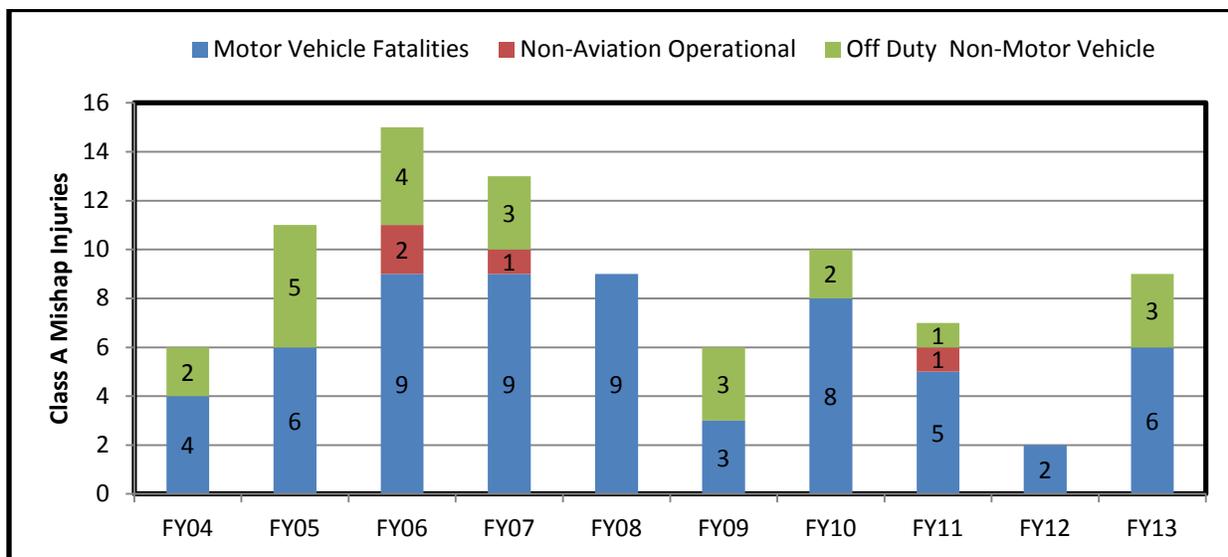


Figure 6.1: Class A Fatal Mishaps FY04-FY13 by Motor Vehicles and Non-Motor Vehicle Related.

Six shipmates were lost to fatal vehicular crashes in FY13. FY13 mishap characteristics closely match those typically recorded every year, with small variations in unit type and age. All members lost to Class A motor vehicle mishaps in FY13 were male, all but one was off-duty, and four were in their twenties.

In five of the six FY13 fatalities, the member operated the vehicle in an unsafe manner or committed a judgment error, or both. Analysis of the mishaps revealed that the most important factor is speed. In FY13 of the six fatal vehicular mishaps, five of the operators lost control of their vehicle; four of those were single vehicle fatality mishaps.

The “Don’t Let Your Guard Down” (DLYGD) campaign created in FY08 was in response to sustained losses in FY06, FY07 and FY08 due increasingly to motorcycle related mishaps. The DLYGD campaign began as a three year motorcycle and driving safety initiative of the Atlantic Area Commander and subsequently expanded service-wide in ALCOAST 460/10 (Shipmate 7) “to stem the tide of future mishaps”. DLYGD included risk management strategies and leadership interventions. The campaign had significant effect through command, senior enlisted and peer mentoring efforts, particularly in the first year (FY09).

Vehicle Mishap Trends

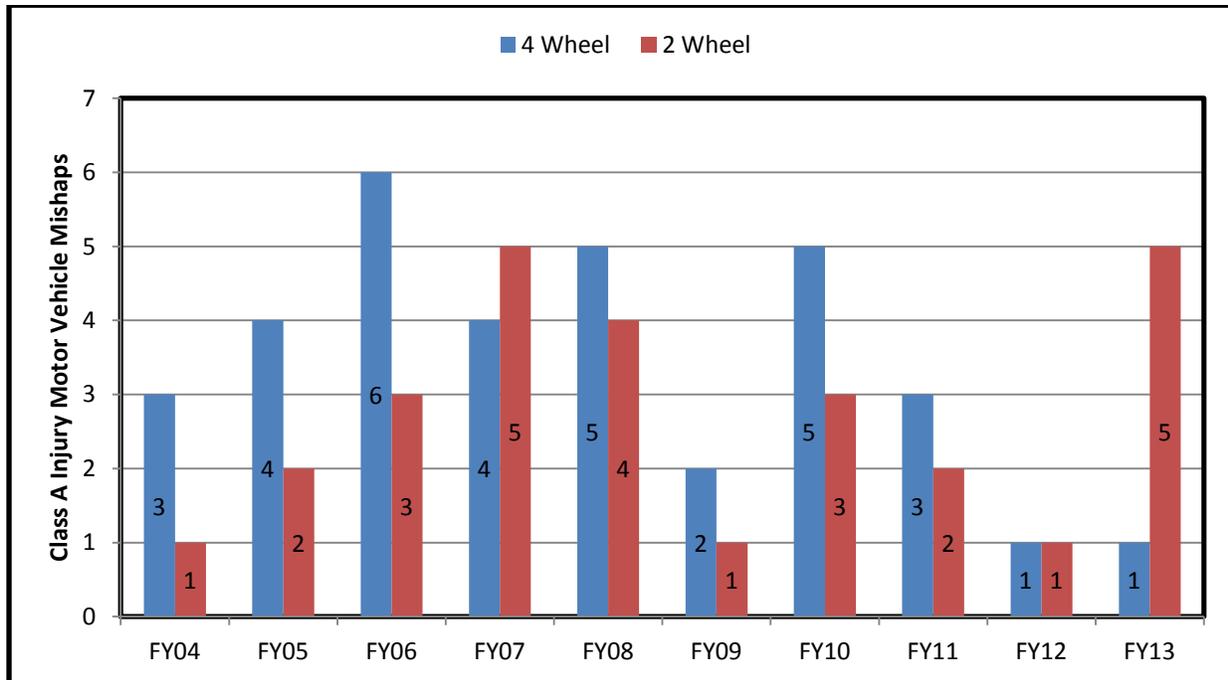


Figure 6.2: Vehicle Types. Coast Guard Class A Motor Vehicle Mishap.

The Coast Guard suffered the loss of five members to motorcycle mishaps in FY13, only FY07 recorded as many motorcycle fatalities in a single year. Vehicle types (4 wheels vs. 2 wheels) involved in class A fatal mishaps over the past 10 years have shifted with marked increase in motorcycle related mishaps compared to passenger vehicles.

Improvements in automobile safety engineering and increased use occupant restraint systems continue to help reduce major injuries and fatalities in passenger vehicles. The most recent Coast Guard annual seatbelt surveys indicated a high rate of compliance and reviews of significant class C motor vehicle injury mishaps also confirm a high level seatbelt wear.

Vehicle Mishap Trends, continued

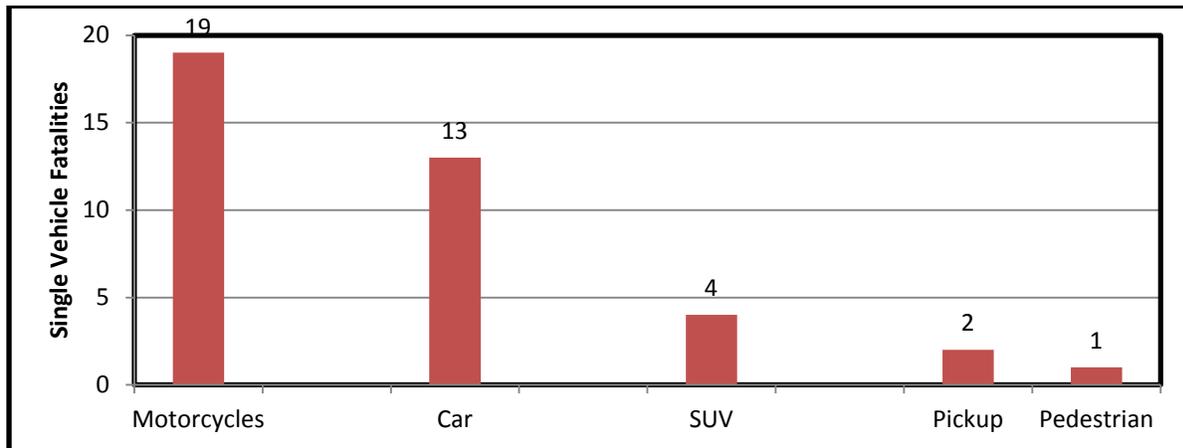


Figure 6.3: Single Vehicle Class A Motor Vehicle Mishaps by Vehicle Type FY04 – FY13.

In the last 10 years, single vehicle crashes (motor cycles and passenger vehicles) accounted for approximately 67% of all off-duty Class A motor vehicle mishaps. Although there are few motorcyclists (7% to 8%) compared to drivers, they represent a disproportionate number of vehicular deaths.

MV Mishap Causal Factors

In FY13 poor judgment was a factor in five of the six fatalities, these included: speeding, operating a vehicle in a fatigued state, failure to obtain required training, and failure to wear all required personal protective equipment.

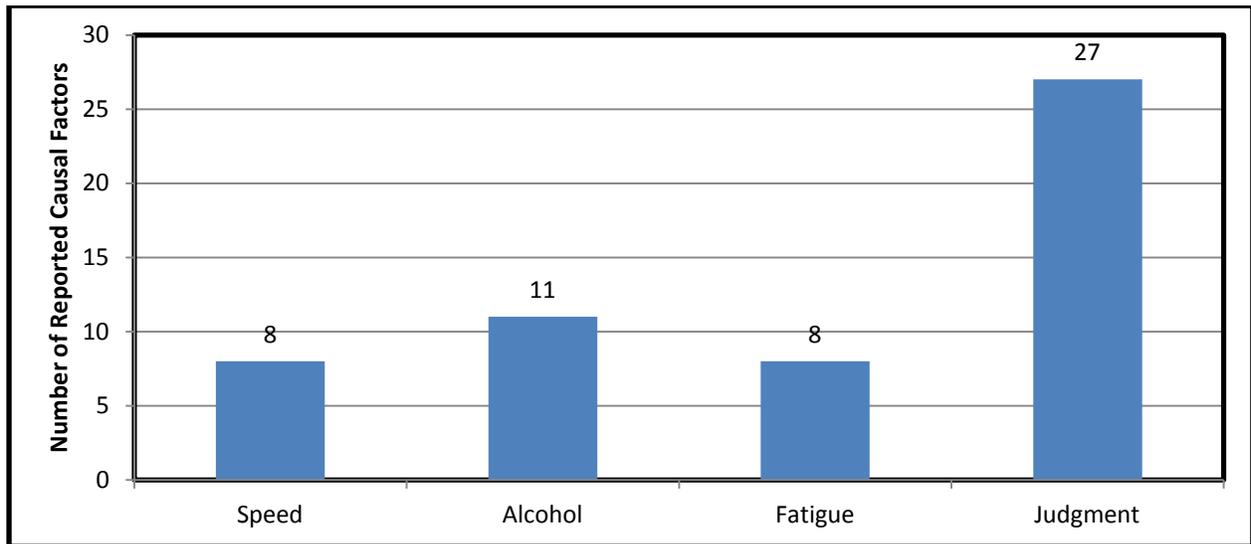


Figure 6.4: Cumulative Causal Factors for FY04 - FY13 Motor Vehicle Fatalities.

Mishaps due to judgment were split about evenly between motorcyclist and drivers. Though difficult to prove and not often identified in mishaps reports, distraction is considered a major contributor to fatal and non-fatal crashes nationally. Of the 54 reported causal factors, alcohol was related to about 20% of the fatalities. According to AAA, alcohol is cited as a factor in 30-40% of motor vehicle fatalities in the US.

Seasonal Concerns

The time of year motor vehicle mishaps will most likely occur can be fairly well bracketed. PMV mishaps are concentrated in the warmer months of April through October.

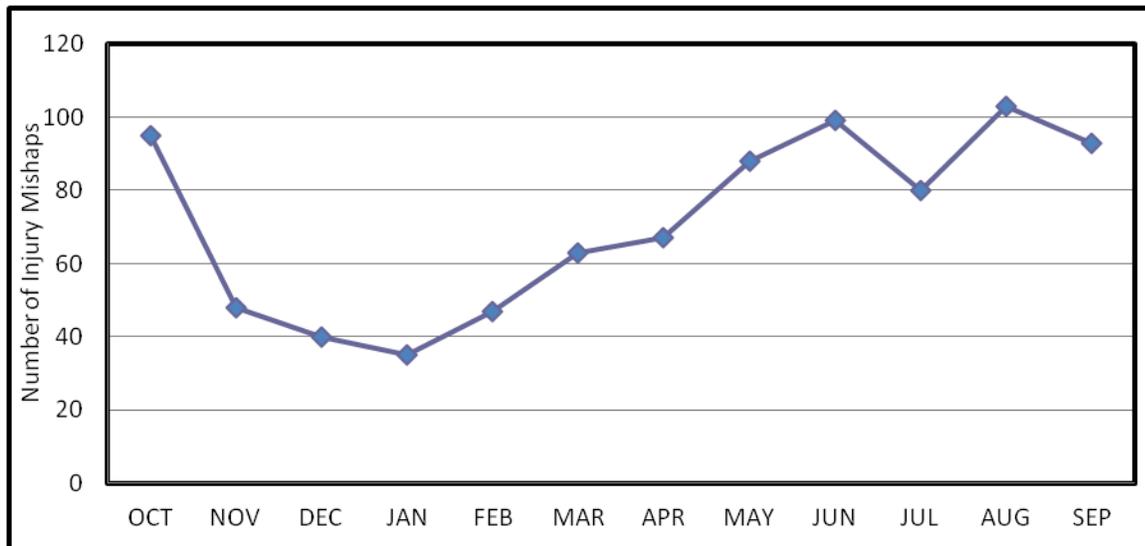


Figure 6.5: Cumulative Motorcycle Injury Mishaps (All Classes) by Month FY04-FY13.

Warmer weather means more motor vehicle mishaps, usually due to either increased recreational opportunity. Motor vehicle safety campaigns should be intensified during warmer months with special emphasis directed to motorcyclists. Though Figure 6.5 represents motorcycles only, the passenger vehicle data varies only slightly.

Motorcycle Safety Training

The Coast Guard requires a minimum level of motorcycle safety training for all active duty personnel and provides support in obtaining either local Coast Guard or DoD training or reimburses the member for commercial training. HSWL SC processes approximately 300 reimbursement requests per year.



Figure 6.6: Motorcycle Training Status. Note: This includes injuries regardless of mishap class.

Two of the five motorcyclists that died in FY13 did not have training documentation, but overall, in recent years, the data shows that almost all motorcyclists involved in mishaps had received the CG required training.

Chapter 7: Environmental & Occupational Illness Mishaps

Key Takeaways

- *Mishaps are under reported.*
- *Many Commands are not aware of the reporting requirements.*
- *HSWL SC will focus on identifying and characterizing exposures in similar exposure groups – conducting enterprise wide Health Risk Assessments.*

Background

Historically, the number of mishap reports submitted each year due to occupational illnesses has been very low. This might be interpreted as an indication of exceptionally safe workplaces and operations in the Coast Guard or merely a deficiency in reporting. As discussed below, based on our recent health risk assessment findings, the latter explanation appears to be the most likely. However, the actual explanation for the low annual occupational illness incidences recorded in the mishap system is more complex.

Reporting Requirements

According to CG instructions, in addition to physical work-related injuries, occupational illnesses that result in any of the following: death, days away from work, restricted duty, transfer to another job, medical treatment beyond first aid, or loss of consciousness are also reportable mishaps. Occupational illnesses include acute (short-term exposure) and chronic (long-term exposure) illnesses such as, but not limited to, skin diseases (i.e. contact dermatitis), respiratory disorders (i.e. occupational asthma), poisoning (i.e. lead), hearing loss (i.e. standard threshold shift), work-related Musculoskeletal Disorders (MSD), occupational exposures to active tuberculosis resulting in subsequent infection, and work-related needle stick injuries and cuts from sharp objects contaminated with potentially infectious material.

Accordingly, a mishap report shall be initiated upon first diagnosis of illnesses linked to chronic exposures. Therefore, Coast Guard units are required to submit a mishap report when military or civilian personnel develop exposure-related illnesses as determined by a health care provider and when attributed to chemical, physical, or biological agent exposures in the workplace or during a hazardous materials response.

In addition, it is recommended that units submit Class D mishap reports for events with high potential for loss (HIPO) and Coast Guard-wide implications, which can be used as indicators of trends and can teach valuable lessons. Near mishaps are reportable even though they may result in minimal or no damage, may not have resulted in personnel injury, or may not otherwise be reportable in the mishap reporting system. Any near misses that may identify possible deficiencies in current operational policy or procedures, allowances, outfits or personal protective equipment (PPE), platform configuration, or performance regardless of whether injury, illness, or damage results must be reported.

Health Risk Assessments

Over the last two years we have conducted more than 250 health risks assessments (HRA) at shore facilities and on Cutters to evaluate worker exposures to asbestos, lead, chromium, beryllium, mercury, isocyanates, volatile organic chemicals, mold, noise, heat stress and many other occupational stressors. In addition, our teams have visited hundreds of units to evaluate operations and assist commands in identify hazardous conditions. During these visits, our teams have routinely observed hazardous conditions with high potential for worker exposures and have also identified exposures that exceeded contaminant occupational action levels and/or exposure limits. For example, exposure risks for asbestos and/or lead dust were identified onboard more than 50 Cutters, lead dust exposure risks were identified at several small arms firing ranges and armories, and hexavalent chromium and/or isocyanate exposures and exposure risks were identified at 23 Air Stations during coating removal and application operations. These examples only represent a small sample of the findings from our assessments.

As previously mentioned, hazardous conditions with high potential for worker exposures have often been observed. For example, observing damaged friable asbestos-containing materials in an occupied space, crews scraping lead-containing paint, and welding stainless steel without proper engineering controls and personal protective equipment. In many cases, our teams witness these processes and operations while in progress and were not able to collect personal air samples to determine if exposures exceeded the applicable exposure limits. Instead, the SEH member would make a professional judgment regarding the exposure, prescribe safe work practices and personal protective equipment necessary to mitigate the exposure risks, provide hazard awareness training to personnel, and then arrange to conduct a health risk assessment including collecting personal air samples to evaluate the actual exposure risks. In addition, SEH staff often hear stories from unit personnel regarding potentially hazardous exposures and near miss events that occurred during operations and missions. Most of these exchanges occur during training sessions, where an increase in hazard awareness often triggers retrospective evaluation of the member's previous experiences. However, the majority of these personnel indicate that these events were not reported to their command or through the mishap reporting system. In addition, many personnel report that they did not seek medical attention or consult with a medical provider after experiencing symptoms following a potential exposure event. Therefore, these events are not captured, flagged for risk assessments, shared with other units that may encounter similar conditions, or used to reduce risks and improve safety and health in the Coast Guard. In addition, it is worth noting that risk assessment and sampling data gaps also exist in other higher risk missions and operations. This is especially true for the marine safety and security communities whose workplace consists of waterfront facilities, vessels, and shipyards, where personnel encounter diverse and constantly changing exposure risks.

Discussion

Given the fiscal climate and resource limitations, it is not possible for the SEH community to evaluate all Coast Guard exposure risks. Therefore, we adopted an alternate and multi-faceted strategy to identify and prioritize exposure risks by leveraging the resources and funding available.

Discussion, continued

In 2011, all Coast Guard units were directed to perform annual unit safety assessments using the Unit Safety Self-Assessment Tool. The goals of this initiative were to encourage more participation and ownership in the safety and health program at the unit level and to allow our SMART Teams to shift some of their focus from identifying facility-related deficiencies (fire and life safety) to recognition, evaluation, and control of exposures and hazards associated with higher risk missions, operations, and activities. In addition, this process would allow us to review and trend unit-identified hazardous conditions across the Coast Guard, which would assist the SEH community in prioritizing and focusing available resources on the highest risk missions, operations, and activities.

Concurrently, we began to perform gap analyses studies by examining historical health risk assessment reports, exposure data, mishap statistics, and new/changing occupational safety and health regulations. The primary objective was to identify Coast Guard operations/activities with high exposure risk. In addition, we developed standardized assessment protocols, coordinated enterprise-wide health risk assessments for the priority high risk operations, developed hazard-specific safe work practices and unit-level hazard awareness training modules to mitigate the hazards and enhance unit awareness, and recommended additional engineering controls as needed to further reduce exposure risks.

Chapter 8: Safety Management System

(Reprinted with modification from the CG 1131 FY-13 Aviation Safety Annual Report)

Today's modern CG is migrating to increasingly diverse and complex systems to meet operational demands. The rapid increase in volume and variety of operations will challenge current safety strategies and practices. To meet these challenges, the CG is adopting a business-like management framework to institute and oversee safety efforts. Just as businesses use management systems to coordinate activities to remain competitive and maintain business viability, Safety Management Systems (SMS) leverage similar frameworks to manage safety.

The CG safety program incorporates several advanced SMS elements. We maintain several mature and integrated safety programs and systems throughout our enterprise. The headquarters Tri-P and their fleet counterparts routinely collaborate to address cross-cutting goals and objectives focused on continuous improvement of safety: mission effectiveness (doing the right things right) and operational efficiency. The CG manages programs and deploys systems that enhance safety for operational units. SMS is now considered a world-wide industry standard. If that assertion is true, we think we can do better than just maintain the status quo.

SMS is a reorganization of safety activities in a standardized, forward-looking manner to identify and control hazards. The goal of a successful SMS is to maximize mission effectiveness by mitigating hazards to manage risk to acceptable levels and prevent mishaps. The four components that comprise SMS are: 1) safety and environmental health policy, 2) safety risk management, 3) safety assurance, and 4) safety promotion.

Policy

This component of SMS establishes senior leadership's and management's commitment and expectations to continually improve safety and defines the methods, processes, and organizational structure needed to meet safety goals. Not all safety policy resides in our Safety and Environmental Health manual. Instead, CG safety doctrine, policy, and Tactics, Techniques, and Procedures (TTP) are integrated into nearly every operational and logistics document that we consider relevant to our operational way of life. The following paragraphs summarize a few of the fundamental policies and guidance documents that form the basis of our safety roles and responsibilities. We challenge you to become the expert on these safety references and provide feedback on how we can improve them.

The Safety and Environmental Manual, COMDTINST M5100.47 (series) Revision A is in the final stages of review and slated for release in FY14. The revision includes several policy updates and clarifications; TTP content is extracted for republication in more flexible guidance documentation.

The Operational Risk Management Instruction, COMDTINST 3500.3 (series) formalizes processes and procedures to implement risk management (RM). This instruction is under revision and is slated for release in FY14. One of its major changes is the transition to more deliberate RM practices that will increase awareness of hazard exposure early in the operational period and afford greater opportunity for mitigation.

Policy, continued

The other major change is the integration of all CG risk management-related programs to standardize content and emphasize the contribution of all these hazard identification activities to help establish and sustain an effective risk management program.

The Mishap Analysis and Reporting Guide (MARG) is also under development and when complete will be managed by the Health, Safety and Work-life Service Center (HSWL SC). The MARG contains guidance, and the forms and templates relevant to mishap analysis and reporting.

Safety Risk Management

Risk is inherent in all tasks, training, missions, operations, and in personal activities no matter how routine. Risk Management (RM) is a systems-oriented process to identify, assess and control hazards to manage risk associated with any activity.

In the August 2013 issue of the U.S. Naval Institute's Proceeding Magazine (vol. 139/8/1,326), the Vice Commandant penned his thoughts on "Risk Management for the Proficient Operator." Specifically, when faced with a situation that may require deviating from normal operations, one must "...pay due diligence to risk management and develop a well-thought plan of action." To achieve this due diligence, he advocates the following actions: Identify gain, assess risk, crew engagement, decision/plan of action, and a return to normal operations. The article summarizes warranted risk, manageable risk, and the vertical integration of risk mitigation and challenges readers to consider and apply these concepts in their operational communities.

To answer this challenge and support the risk management needs of operators, CG-113 continued its effort in FY14 to develop processes, training, tools, and guidance to update and improve the Operational Risk Management (ORM) program. A series of SITREPS were released during FY13 to describe and explain the purpose and intent of the latest RM changes and tool development. Future SITREP's will describe what to expect from the program advancements.

Safety Assurance

Safety assurance activities include internal evaluations of the effectiveness of the risk management strategies/programs in order to manage new hazards and emerging threats, and make improvements to existing safety programs. In the CG, some of the methods we currently use to support safety assurance include the regional SEHO evaluations, health risk assessments, training, mishap/hazard analysis, safety committees, and anonymous reporting systems.

Assurance is the data cruncher's favorite SMS element. It takes a look at the past and present with an eye toward improving the future. The central question in safety assurance is whether we are collecting and analyzing the right information to make informed future decisions. Accordingly, work through your command if you have suggestions to improve safety assurance activities.

Safety Promotion

This component focuses on training, communication, and recognition for successes, awards, engagement, alignment, and other actions to create a positive safety culture. The command must engage with all hands to establish a clear safety message with achievable goals to create a positive command climate. These actions begin with the free flow of safety information and hazard reporting at all levels of the unit, and recognition for commitment to safety awareness and mishap prevention. Promotion is directly linked to the success of all the other SMS components.

Safety training courses have clearly contributed to the mishap prevention and response capabilities of our command cadre and safety officer communities. Although we had some quota reductions in FY14, we are doubling our efforts to ensure that we target the most appropriate recipients (command and safety personnel) and deliver the best training available.

The HSWL SC has recently taken over the SEH training support program. Messages will be released through the year announcing the availability of training. The major course codes and titles are listed in the table below.

Course Code	Course Title
500094	Forklift & Weight Handling
500096	Shore Confined Space Entry and Rescue
800799	Shipyards Competent Person
800813	Unit Safety Coordinator
501152	Electrical Safe Work Practices
500093	Fire Protection & Life Safety
502352	Motorcycle Rider Coach Preparation
501831	Motorcycle Basic Rider
502001	Motorcycle Advanced Rider

Chapter 9: Safety and Environmental Health Resources

Team Coordination Training (TCT)

The TCT program was developed to increase team effectiveness and minimize human error in cutter, boat and command / control operations and activities. It serves the Active Duty, Reserve and Auxiliary communities. The TCT 8 hour refresher training is a biennial requirement (two years). Unit training requirements can be found in the TCT COMDTINST 1541.1.

The program is comprised of TCT Facilitators and TCT District Administrators. Operational units request TCT Unit Level training through their respective District Administrators who will assign a facilitator and schedule a class. Commands should submit their requests for TCT training 6-8 weeks prior to the training date. Personnel interested in facilitating TCT training should contact their respective District Administrator (see below).

A Front End Analysis (FEA) of the TCT training system revealed numerous deficits including dated and non-specific doctrine, non-standard content, delayed access to trained facilitators, lack of facilitators with operational experience, and a general confusion about the ORM process. A major recommendation from the FEA was to leverage the Learning Management System (LMS) to develop web based training to deliver introduction-level content on Risk Management (RM)/TCT. Operational vignettes will be used to illustrate the basics of RM and TCT in an interactive educational environment. This training will be available on the CG LMS in FY14 and will satisfy the requirement for ORM and TCT initial training. In addition, COMDTINST 1541.1, Team Coordination Training, will be cancelled and TCT content/requirements will be integrated into the update of COMDTINST 3500.3, Operational Risk Management. The new COMDTINST 3500.3 is projected for released in the summer of 2014. TCT Unit level refresher training will continue to be offered as exportable training until it is converted into unit based training. The current TCT Facilitator course is training active duty TCT Facilitators for the transition to unit level training exercises using case studies.

Personnel Trained in FY13:

The approximate number of Active Duty, Reserve, Civilians, Auxiliarists receiving exportable, TCT Unit-Level Training was approximately 11,146. Also, approximately 28 Active Duty and Civilian Facilitators were trained at TRACEN Petaluma.

TCT, continued

Current District TCT Administrators are listed below:

District	Administrator	Email	Work Phone	Fax
D1 DPA	CWO David McCarthy	David.J.McCarthy@uscg.mil	(212) 668-7990	(212) 668-7975
D5 DPA NR	CWO Sean McGarigal	Sean.McGargial@uscg.mil	(215) 271-4934	(757) 271-4968
D5 DPA SR	CWO Gale Howerton	Gale.W.Howerton@uscg.mil	(757) 398-6509	(757) 398-6203
D7 DPA	CWO Chris Acklin	Christopher.W.Acklin@uscg.mil	(305) 415-7053	(305) 415-7059
D8 DPA	CWO Jim Todd	James.A.Todd@uscg.mil	(504) 671-2142	(504) 671-2146
D9 DX	LT Don Tremble	Donald.J.Tremble@uscg.mil	(216) 902-6388	(216) 902-6044
D11 DRM	BMCM Stephen Barr	Stephen.L.Barr@uscg.mil	(510) 437-5323	(510) 437-3223
D13 DR	CWO Chris Brown	Christopher.J.Brown@uscg.mil	(206) 220-7082	(206) 220-7084
D14 DPA	Mr. Ted Fuller	Tedd.M.Fuller@uscg.mil	(808) 535-3435	(808) 535-3439
D17 DPI	Mr. Mike Folkerts	Michael.R.Folkerts@uscg.mil	(907) 463-2297	(907) 463-2273

Unit Self Assessment Tool (USAT)

Self-inspections are one of the most important aspects of a unit's safety. Recognizing this importance, COMDTINST M5100.47 requires units to complete and document annual formal unit safety inspections. USAT is an online tool, which can be customized to specific unit needs, allowing units to document self-inspections and track any deficiencies to completion. USAT is ideal for use during the unit's material inspections. USAT supports RM principles, and includes helpful links to sample instructions units can modify to reflect unit structure and operations – saving hours of instruction writing time. It provides a standardized method for recording unit self-surveys in an online format, making them available to both unit and higher command managers. Commands are encouraged to bring high hazard situations to the attention of the servicing Safety and Environmental Health Officer (SEHO) or HSWL SC for assistance in risk assessment and development of appropriate corrective action. Units can access USAT at <https://hswl.uscg.mil/>.

Globally Harmonized Systems (GHS) Information and Training

The Occupational Safety and Health Administration (OSHA) has modified its Hazard Communication Standard (HCS) to conform to the United Nations' Globally Harmonized system of Classification and labeling of Chemicals. OSHA has determined that the modification will improve the quality and consistency of information provided to employees. OSHA has concluded this improved information will enhance the effectiveness of the HCS in ensuring that employees are apprised of the chemical hazards to which they may be exposed, and in reducing the incidence of chemical-related occupational illnesses and injuries.

Additional information, including training can be found at:

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

CG Portal Resources

The single best source of Safety and Environmental Health information is the HSWL SC Safety Division portal page. It contains all current information, safety alerts, safety newsletters, training resources, safety checklists for afloat and shore units, and links to other agencies. In addition, our 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>

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
Assistant Division Chief: CDR Harry Rhambarose	(757) 628-4426 / (757) 647-1007 Cell
Safety & Occupational Health Assistant: Ms. Mary Ferguson	(757) 628-4392
Afloat Safety Branch Chief: CWO4 Andrea Currie	(757) 628-4409 / (757) 646-4108 Cell
Environmental/Health Branch Chief: CDR Michael Boley	(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 Sarah Unthank	(510) 637-1234 / (510) 290-5629 Cell
Assistant Field Ops Branch Chief: LT Joe Johnson	(757) 628-4410 / (757) 615-2133 Cell

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 Benjamin 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	CDR Melburn Dayton	(907) 487-5757 Ext. 2138 / (907) 654-4091 Cell
D17 Ketchikan	LTJG Ray Carter	(907) 228-0317 / (907) 617-0442 Cell