



# Naval Safety Center

## LESSONS LEARNED



19-23

### SIX COMMON TRAITS OF A MISHAP SHIP

#### How to Avoid Organizational Drift into Shoal Water

What if you could identify your ship’s risk of having a significant surface mishap and intervene beforehand? Today’s Commanding Officers (COs) have new tools, processes, and additional type commander support to help identify and measure their crews’ operational safety culture. It takes all hands to make it work. Whether you are a department head, division chief, or new to the surface warfare community, you have a crucial role in maintaining a culture of operational safety in whatever capacity you serve. This lesson describes six traits of a mishap ship and the holistic approach developed to institutionalize a culture of unit self-assessment and improvement in operational safety.



#### **Background**

Eighty percent of surface force mishap causal factors are attributed to human error, and for decades the Navy has spent billions of dollars on initiatives to improve readiness and safety in response. Despite these initiatives and thousands of mishap report recommendations accomplished, the mishap rate only marginally declined over the last 20 years. Most recently in 2017, four mishaps resulted in 17 Sailor fatalities and three ships taken out of commission for extended periods. These events forced the Navy to look once again at how it trains and readies Sailors. The Comprehensive Review (CR) of Recent Surface Force Incidents team convened to examine incidents at sea with an emphasis on the four in 2017. The team identified over a dozen common human factors that contributed to the mishaps — the same causal factors identified in decades of ship mishaps. Actions taken before 2017 to improve readiness included man, train, and equip improvements; procedural updates; and expanded supervision. All those efforts improved the force, but did not directly address the common underlying influences (or traits) behind the individual human factors cited in the mishaps.

Building on the findings of the CR, the Surface Safety Cell at Commander Naval Surface Forces (CNSF) examined over 100 Class A and B mishaps that occurred over the past 20 years and identified six traits that were common to all of them. They noted human performance contributions to the mishaps and looked for common characteristics among over 100 safety and legal investigations. Beyond tallying the coded human factors, the Safety Cell noted clear signs of organizational drift into failure (or deviation from standards). Over time, individual watchstanders took shortcuts or made uncorrected errors, which gradually became the new normal. Eventually, the ship’s daily performance was just one error or omission away from a mishap, yet the crews didn’t see it coming. All ships were “certified” to perform the operations during which the mishaps occurred. — *Incidentally, most of the mishaps occurred during normal operations, not ‘high risk’ or special evolutions.*

#### **Six Common Traits of a Mishap Ship**

1. Watchstanders did not perform specific required actions they were trained, qualified, and the team was certified to perform	4. Substandard risk management in planning
2. Previous near miss, but no action taken	5. Lack of watch team coordination
3. Poor log keeping as a practice	6. Mishap ships were “above average”

## SIX COMMON TRAITS OF A MISHAP SHIP

### Six Common Traits of a Mishap Ship...Explained

1. **One, or usually many, watchstanders decided not to or did not perform specific required actions or protocols that they had been trained, qualified, and certified to perform.**  
The failures were almost always in mission areas in which the ship was certified to operate safely. CNSF found objective quality evidence that the individual team members involved knew what they were supposed to do in the vital mission areas affected, yet they did not.

2. **Previous near miss, but no action taken.** It was strikingly likely that the ship, crew, or team had a previous near miss in similar circumstances, but no explicit action was taken to correct potential causes. In reconstruction interviews and examination of available data, the boards of investigation uncovered previous events involving the same or nearly similar errors or difficulties that were later cited as causal factors in the mishap in question.



3. **Poor log keeping.** Logs do not cause mishaps, of course, but they certainly can be used for mishap reconstruction and trend analysis. At the basic level, they are supervisory measures. When investigating boards looked at logs, it did not matter if they went back two weeks or two years; they had been incomplete or inadequate for the entire period examined. In other words, the logs themselves reflected a particular way of doing business over a long period of time – not just a new problem that cropped up on the day of the mishap.
4. **Substandard risk management in operational and daily planning.** What was unique in the case of the mishap ships was having an inadequate plan from the start. Hazards or risks were known and well documented. The crews consistently did not address them in planning and execution.
5. **Lack of watch team coordination.** It's not uncommon to see problems with communications formality or flow between the bridge and combat in navigation or seamanship mishaps. More broadly though, these team communications were flawed no matter the mishap type or what personnel comprised the watch team.

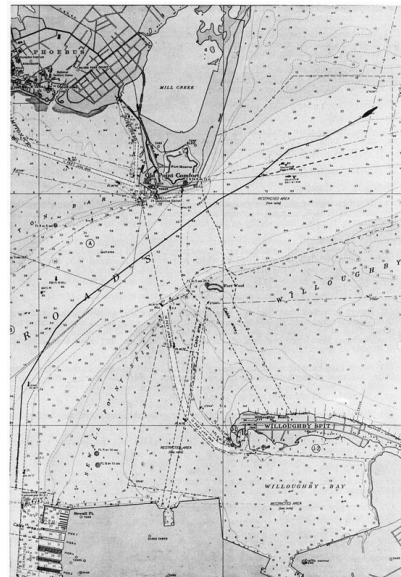


6. **Mishap ships were highly likely to be regarded as above average.** In some cases, the ships were award winners, and in others, they had recent successes in narrowly focused inspections, certifications or assist visits (ICAV). One mishap DDG, for example, achieved the highest recorded score for their ship class on Board of Inspection and Survey standards very shortly before their mishap.

## SIX COMMON TRAITS OF A MISHAP SHIP

**Case in Point #1:** This summary illustrates some of the six common traits of a mishap ship during a routine transit from homeport. Part of the transit plan for this mishap ship (and we use the term *plan* lightly) consisted of running an acoustic range on the way outbound from its homeport. Thus began a series of human errors (not all-inclusive) and the associated common mishap ship traits that ultimately led to this ship's grounding.

- Three of the five buoys marking the acoustic range were recently removed but remained on the navigation chart. — **Standard risk mitigation in planning.**
- The XO and other key bridge personnel were unaware of the plan to run the acoustic range. — **Standard risk mitigation in planning.**
- Both the CO and OPS mistakenly identified a buoy to be marking the right side of the acoustic range and agreed to pass to the left of it. — **Lack of watch team coordination.**
- XO and NAV made recommendations to turn right, but the CO declined because of his mistaken belief that he knew where he was. — **Did not perform required action or protocol.**
- Combat Information Center (CIC) watch noticed on the radar that the ship was off track, but did not report this information to the bridge. — **Lack of watch team coordination.**
- The CO disbelieved NAV's report of being out of the channel and asked OPS to check the ship's position as a precaution; it was too late. The ship ran aground 52 minutes after departing the pier. — **Lack of watch team coordination.**



In case you haven't already figured this one out, the mishap ship was the battleship USS MISSOURI in the Chesapeake Bay in 1950. More than six decades later, the USS FITZGERALD, USS MCCAIN, USS ANTIETAM, USS LAKE CHAMPLAIN, and many other incidents exhibited striking similarities to the traits exhibited by USS MISSOURI.

**Case in Point #2:** In a more recent grounding, the ship planned to move from its homeport berth to an anchorage to take on supplies. As with the USS MISSOURI scenario, the plan was flawed and not adhered to. Below are some of the similarities in the traits of this mishap ship (not all-inclusive). Ultimately, the high wind and current got the best of the ship, and it ran aground attempting to reposition.

- Deck log entries did not accurately reflect the sequence of events from the declaration of "anchored" up to the grounding. — **Poor log keeping.**
- Navigation planning and execution failed to account for high winds and seas resulting in the ship missing its intended position.— **Standard risk mitigation in planning.**
- There was a lack of communication between the bridge and CIC throughout the evolution. The CO had the speaker from CIC turned down. — **Lack of watch team coordination.**
- NAV did not use head or drop bearings while making course recommendations — **Did not perform required action or protocol.**
- The CO believed the ship was 50-75 yards from anchorage when "let go the anchor" was ordered, but, in reality, the ship was 114 yards off. — **Lack of watch team coordination.**

Unlike more general investigation board recommendations and lessons learned such as "follow established procedures," or "conduct bridge resource management training," the Navy now has the tools to better address the underlying issues that signify a ship is at risk of a mishap before it happens.



## SIX COMMON TRAITS OF A MISHAP SHIP

### Key Takeaways

So what is being done with this information to improve safety and reduce operational risk? As funding and other resources are brought to bear, they are being used to expand and institutionalize a culture of unit self-assessment and improvement in operational safety. **As of September 2019**, here is what's in place that you should look for on your ship.

1. Giving time back to ship COs. The latest Surface Force Training and Readiness Manual (SFTRM) streamlines inspections, certifications, assessments, and visits. This gives COs broader discretion in the types of assistance provided, based on their unit self-assessment of their crew's needs.
2. Bridge Resource Management (BRM) Workshops underway with post-major command CO Advisors. In this new approach to BRM, CO Advisors and Special Sealift Officers take the CO and watch teams from theory to practice in excellence in risk management during daily operations at sea. All watch teams are observed versus the "dream team."
3. Afloat Safety Climate Assessment Surveys (ASCAS). These human performance surveys are a new tool soon to be incorporated into the SFTRM, and can also be done at any time. Anonymous data is debriefed to the CO by a PhD to identify risk areas where they might best focus their efforts, and highlight steps other COs have taken to address these vulnerabilities.
4. Afloat Culture Workshops (ACW). Senior leaders with solid foundations in these concepts and tools facilitate discussions and assess key areas that make an effective team. ACW can be accomplished in place of or following an ASCAS.



USS MISSOURI Grounding—January 1950



USS PORT ROYAL Grounding—February 2009

USS GUARDIAN Grounding—January 2013

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*And remember, "Let's be careful out there"*