

# SEA COMPASS



The Naval Safety Center Magazine for Surface, Submarine and Diving Operations

Vol. 4, No. 2  
2014

**ORM Issue**  
*Back to Basics*

**Fleet Safety Campaign Plan Overview**  
**Steps to the ORM Mindset**  
**Case Study: Afloat Safety Analysis**  
**The Science Behind TCRM**

LESSONS LEARNED | BEST PRACTICES | RESOURCES

# SEA COMPASS ORM Issue

## Back to Basics

The Naval Safety Center Magazine for Surface, Submarine and Diving Operations  
2014, Vol. 4, Issue 2

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# CONTENTS

Vol. 4, Issue 2 / 2014

## STATUS

- 2 Editor's Note: Balancing Resources
- 3 Building a Culture of Operational Excellence BY APRIL PHILLIPS
- 4 A Supervisor's Investment BY GREGG GILLETTE
- 5 Fitness Matters to Mission Readiness BY CMDCM (AW/SW) PAUL KINGSBURY

## THE BASICS

- 6 Ten Steps to the ORM Mindset
- 7 ORM 101 By DENIS KOMORNIK
- 8 What ORM Is and Isn't
- 9 Organizing Your Local Program: Roles and Responsibilities

## TCRM

- 10 What's the Science Behind TCRM BY KD VANDRIE
- 12 TCRM Down Below: Do You Know Your Dive Emergency Procedures? BY LT JOHN ORAVITZ
- 14 Set Condition 1A for Wet Well Operation BY LCDR JAMES BOSTICK and BMCS MICHAEL SWEITZER

## CASE STUDIES

- 16 Lessons from Miami BY LT JOHN ORAVITZ
- 18 They Do Sometimes Get Hurt BY EILEEN CHOLLET, PH.D.

## BEST PRACTICES

- 20 Honor Thy Prop Arc Safety Chain BY LCDR JASON D. WELLS
- 22 USS Germantown Sets the Bar in Safety BY LT JESSE JOHN ROND
- 24 Momsen's Journey BY ENS KRISTIN WIHERA
- 26 Visual Aids Get Sailors Talking About Safety BY CDR DEREK ATKINSON
- 28 Tracking Down Mishaps and Hazards BY LT MICHAEL LOPEZ

## OFF DUTY

- 29 TCRM in the Real World BY DEREK NELSON

## TOOLS AND REFERENCES

- 30 Assessment Tools
- 31 Frequently Asked Questions
- 32 Training and Web Resources
- 33 Anatomy of The ABCD Model

**About the Cover:** LCDR James Bostick, senior deck analyst in the Naval Safety Center's Afloat Safety Programs Directorate, performs an assessment of a rigid inflatable boat (RIB) aboard USS Barry (DDG 52) during a safety survey. *U.S. Navy photo by Dan Steber*

**This page:** Sailors from the deck department aboard USS Kitty Hawk (CV 63) heave on mooring lines as they prepare for departure. *U.S. Navy photo by PHAN Adam York*

## Balancing Time, Energy With ORM Tools and Resources

This issue of *Sea Compass* is about going back to basics — learning more about operational risk management and time-critical risk management, that is. If you're an afloat safety officer, you know about making ORM an integral part of on-duty operations. You might even use it to manage risks associated with off-duty activities.

My first introduction to ORM was more than 14 years ago when I became part of a marketing team that designed posters and publications promoting operational risk management. I've since learned how to apply the ORM deliberate and in-depth five-step process to almost everything I do, whether I'm rearranging furniture at home or going on long road trips. I also worked for a company where I designed graphics pertaining to risk and resource management. So it's almost second-nature for me to—as most safety professionals would say—“ORM it” (whatever “it” is). But I'm still learning; as you probably are as well. Demands from work and personal lifestyles are such that every day becomes a balancing act. Resources like this magazine come in handy in aligning strategies for managing time and energy to accomplish a task or mission.

The subject-matter experts in the Afloat Safety Programs Directorate and contributing writers from the fleet offer resources to help you get an overview of the Navy's safety culture, understand ORM and its basic principles, learn from past mistakes and new ideas, stay safe off duty, and use the right tools for your program. Consider their contributions as components for your safety toolbox. After all, you're not just balancing time and energy; you're creating an arsenal of strategies to attack the enemy: human error.

This is the third installment of ORM-centric publications we've produced at the Naval Safety Center (*ORM-The Essentials* in 2007 and *Leadership Essentials* in 2012). In this issue, you'll relearn the basics of ORM and get an introduction to the ABCD Model and the science behind TCRM — how it helps mitigate operational and personal risks by improving situational awareness.

For starters, April Phillips gives us an overview of the Fleet Safety Campaign Plan, which examines our safety culture (Page 3). Viewpoints from a former Navy chaplain and the Naval Safety Center CMC address risk mitigation through personal involvement (starting on Page 4). Beyond the basics of ORM, you can read about the science behind TCRM as explained by KD Van Drie (Page 10). There are also scenarios that emphasize time-critical and crew resource management: diving emergency procedures (Page 12) and wet well operation (Page 14). You'll read about case studies such as lessons from the USS *Miami* (SSN 755) fire and CSG-2's analysis of how Sailors get hurt on ships (Page 18). Most importantly, take note on best practices from the fleet and see how you can contribute to creating a more engaged workforce and a much safer workplace.

Risk will be present all the time, but it can be managed. ORM reduces risks and helps us make the right decisions. Use it as a tool to not let human error diminish personal capabilities and degrade mission readiness.



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### NAVAL SAFETY CENTER WELCOMES NEW COMMANDER

In October, Rear Admiral Christopher J. Murray took over from Rear Admiral Kenneth Norton as Commander, Naval Safety Center.

RDML Murray has served tours with VF-1, VF-124, VF-111, and VF-14, culminating this phase of his career as commanding officer of VF-143. He served as Commander of Carrier Air Wing Nine from November 2006 to December 2009.



# Building a Culture of Operational Excellence

**W**hen Adm. Bill Gortney, Commander, U.S. Fleet Forces Command, and Adm. Harry Harris, Commander, U.S. Pacific Fleet, signed the Fleet Safety Campaign in June, they were very clear about the campaign's end state: A culture of operational excellence where risk management is second nature and safety practices are embedded in mission accomplishment.

The impact doesn't end there. Mishaps have forced some ships to delay deployments which means another crew had to get underway early to take up the slack. Safety isn't just good for keeping Sailors and Marines attached to all their fingers and toes. It's crucial for maintaining adequate rest, training, and maintenance between deployments. It's good warfighting, and it's inseparable from readiness.

For many, this type of thinking requires a mind shift. Be honest – have you ever thought the ORM brief before an evolution was just keeping you from getting at the job you needed to be doing right then? If so, it probably means the brief could have benefited from more interactive content, but it also potentially points to a culture where safety is seen as a barrier to the mission rather than an active part of it.

As the Fleet Safety Campaign begins to attack the enemy centers of gravity (complacency, inattention, fatigue, stress, and many other causes of human error) the culture will begin to shift. It won't happen overnight, so don't expect any drastic changes that can be stressful in and of themselves. Everyone has a role to play in the campaign effort. Remember that everyone is a leader, and your risk management attitudes – both positive and negative – are contagious. **SC**

*Ms. Phillips is the Naval Safety Center's strategic communications planner and a member of the Fleet Safety Campaign Operational Planning Team.*

**ON THE WEB: Fleet Safety Campaign Plan** [http://www.public.navy.mil/comnavsafecen/Documents/instructions/Safety\\_Campaign\\_Plan\\_INST.pdf](http://www.public.navy.mil/comnavsafecen/Documents/instructions/Safety_Campaign_Plan_INST.pdf)

# A Supervisor's Investment

By Gregg Gillette

In life, we protect that which we deem valuable. This isn't just professionally speaking, but even more so in our personal lives. Nevertheless, our level of protection is subjectively based upon our perceived value of what we are "protecting" and our understanding of the threat level in the area of protection. As such, some of us have chosen to invest in a constantly monitored motion-detector and camera-equipped home-security system while others feel at ease, safe, and protected with nothing more than a deadbolt on their doors.

In the context of safety and mishap prevention, personal protective equipment (PPE) is the lowest form. It is used when performing a task involving an identified hazard that cannot be removed through engineering or administrative controls, or when another process can't be substituted. For some tasks, PPE will always be required. But simply making PPE usage a requirement should not be a supervisor's sole involvement in the OSHA requirement to ensure a safe work place. OSHA regulations state that every employer shall furnish to each of their employees "a place of employment free from recognized hazards," including the tasks that the employee performs and the worksite itself. The employer is required to protect their workers from recognized hazards; however, all hazards aren't always easily recognizable.

The very first step in operational risk management (ORM) is to recognize the hazards associated with the task or the site. This requirement covers all known hazards, but how are new hazards identified? In many cases they can be identified after a mishap with a thorough investigation. An investigator's primary objective is to find out what happened in order to prevent recurrence. However, even trained investigators appreciate support from employees.

After a mishap, the injured worker's supervisor can help by performing basic steps. Seeking immediate medical attention, if needed, is the first step. Just as crucial; getting an idea of what happened and why. The supervisor may



Photo by MC3 Juan M. Pinaldez Jr.

perform the initial inquiry or designate a competent co-worker who knows the injured worker and the task that was being performed when the mishap occurred.

This same-day proactive identification of the causal factor(s) may prevent others from getting hurt doing the same task. The action suggests that the workers' current well-being and future safety is worth the supervisor's time and effort.

Information obtained at the scene is crucial. It can help identify causal factors that should eventually lead to a newly recognized or identified hazard, or it can be used to rule out that any of the work process was unsafe. Unfortunately safety representatives are often viewed as outsiders rather than co-workers. That misplaced perception could prevent the safety investigator from learning all the facts necessary to correctly determine the cause of the injury. Not knowing the cause equates to the hazard remaining unidentified and workers remaining vulnerable. Therefore, the supervisor's investment shown by their personal involvement as an attempt to prevent recurrence of such suffering will hopefully be understood as a statement of value and worth to their co-workers. **SC**

.....  
*Mr. Gillette, a retired U.S. Navy chaplain, is a safety specialist and mishap investigator at NAS Jacksonville.*





# Fitness Matters to Mission Readiness

By CMDCM (AW/SW) Paul Kingsbury

**W**hile staying fit does not involve making complex decisions in a matter of minutes, it directly affects your ability to contribute to mission readiness. As a leader, you can influence your Sailors' attitudes toward physical readiness.

For most tasks, we apply standard operating procedures to minimize preventable errors, maximize crew coordination and optimize the use of ORM. One such task demands dedication and weeks (sometimes months) of personal assessment and work. This task is expected, and it is unavoidable: the semi-annual physical fitness assessment (PFA).

Just as our ships must be fully mission-capable and combat-ready, Sailors must ensure they are physically and mentally mission-ready as well. One of the reasons we conduct the PFA is to evaluate your functional fitness: cardiovascular fitness, upper body and core strength. The jobs we do often require a lot of physical exertion or require some amount of stamina.

In some warfare communities, specialties and ratings, physical fitness correlates directly to job performance (SEALs, EOD, divers, pilots, rescue swimmers). But how about the command career counselor, information systems technician, supply officer, operations specialist, or command master chief? Just as we invest time maintaining our ships, submarines, aircraft and other weapon platforms to ensure high levels of combat readiness, we all need to invest the same amount of attention to the combat readiness of our bodies — to our personal well-being.

In conjunction with the annual physical health assessment, the Navy performs periodic checks of fitness level as well. Perhaps you've heard of the term "trust but verify." The PFA is the Navy's method of verifying you meet a basic level of functional fitness and professionalism. Your physical readiness has direct impact on your ability to contribute to mission readiness and your leadership effectiveness.

Life on a ship exposes you to many hazards. We endure long periods of standing (or sitting), often in extreme environmental conditions. Watchstanding requires mental alertness, as well. It is affected by the level of your physical readiness. Going up and down the ladders all day or stabilizing your body in periods of extreme sea states all require some amount of physical fitness. Many Sailors perform maintenance or operations which require functional fitness to perform heavy lifting, pushing or pulling. We must all be physically prepared to endure the challenges that combat and damage control may bring. Long periods of firefighting, handling heavy damage control gear such as shoring and dewatering pumps, and transporting injured Sailors and rendering first aid require minimum standards or functional fitness.

When faced with the prospect of surviving at sea and

treading water for days, how long could you survive? A few minutes? Hours? Days? The higher your state of physical fitness, the better your odds of survival. Physical fitness also improves your internal health and gives you more energy, which can help you deal more effectively with mental and physical stress day-to-day and in combat situations.

When preparing for the semi-annual PFA, consider how your level of physical readiness and your personal appearance also affect your leadership effectiveness. It strengthens your ability to motivate and influence others to increase their levels of fitness and inspire them to work together as a crew. When leaders don't appear physically fit, their subordinate's sense that they subscribe to double standards. Their credibility drops and their ability to effectively lead is compromised. The crew may not perform as well as expected.

So how does risk management and crew resource management (CRM) relate to fitness? As long as you are part of the Navy and Marine Corps team, it is your responsibility to take physical fitness seriously. After all, you could face some risks to your career if you don't manage your mental, health and physical readiness.

CRM refers to effective use of all available resources by individuals, crews and teams to safely and effectively accomplish a mission or task. By applying CRM to physical readiness, you can learn skills that will enable you and your team to identify and manage conditions that may otherwise lead to human errors.

Two of the seven behavioral skills of CRM apply to the PFA: leadership and situational awareness. As a leader, it is your responsibility to be aware of crew factors that may impact everyone's ability to perform the task at hand. This includes such things as attitudes, personalities, level of training, experience, fatigue, and physiological issues. Everyone on your watch team must be able to maintain awareness of what is happening around them and their primary duties.

So as you prepare for your next PRT cycle, take some time to reflect on how the process contributes to risk mitigation. More importantly, reflect on how you can improve your level of physical readiness. Investing time and resources in your crew's physical fitness will have a direct impact on the degree of mission readiness and accuracy in which they operate. **SC**

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CMDCM Kingsbury is the Naval Safety Center's command master chief.

## Suggested Readings

*Power: Why Some People Have It and Others Don't* by Jeffrey Pfeffer  
*The 7 Types of Power, Using Power Effectively in Organizations* by Sharlyn Lauby (eBook)

# Ten Steps to the **ORM MINDSET**

ORM should be a vital part of a unit's culture: the way things are done by the leaders and members, something that is at the forefront of all activities. Here are the vital elements of this shared mindset:

- 1.** Leaders know that managing risk is an integral part of mission success.
- 2.** Everyone understands that any loss of personnel (on duty or off), equipment or capability degrades the unit's ability to accomplish its missions.
- 3.** Everyone recognizes the factors that might lead to loss or mission failure. They view these factors as threats.
- 4.** Everyone understands that ORM is a tactic to defeat these threats.
- 5.** Everyone abides by the principles of ORM. They accept risk when the benefits outweigh the cost. They accept no unnecessary risk. They make risk decisions at the proper level. And they anticipate and manage risk through planning.
- 6.** Everyone realizes that they may not know whether an associated risk is acceptable. Therefore, they need to ask their immediate supervisor or higher so the decision to accept risk can be made at the proper level.
- 7.** Everyone understands that they already use ORM every day through such risk controls as standard operating procedures, personal protective equipment, seat belts, speed limits, and qualification standards.
- 8.** Unit planning includes deliberate risk assessments, using assessments previously developed for recurring events, as well as developing new assessments for new tasks.
- 9.** Before executing a plan or an evolution, unit members ask "What's different today?" This is time-critical ORM: a way to recognize last-minute changes to a "routine" evolution and identify any new hazards.
- 10.** ORM isn't seen as an administrative burden that is only applied when time allows. Personnel are constantly aware, watching for change and putting controls in place to ensure success.



# ORM 101

By Denis Komornik

- **Make risk decisions at the right level.** Risk-management decisions should be made by the leader directly responsible for the operation. If the risk cannot be controlled at that level, that leader must elevate the decision to their chain of command.
- **Accept risk when benefits outweigh the costs.** The goal is not to eliminate risk, which is inherent in what we do, but to manage it so that we can accomplish the mission with minimal losses. Leaders must consider benefits and costs associated with a hazard's risks to make informed decisions.
- **Accept no unnecessary risks.** Accept only those risks that are necessary to accomplish the mission.
- **Anticipate and manage risk by planning.** Risks are more easily controlled when identified early.

**W**hat's more important: safety or the mission? I ask officers and enlisted Sailors this question during our assist visits. As a warfighter, mission accomplishment is our primary goal. But does that mean safety takes a backseat? Let's see how we can answer this question.

First, we all recognize that we have a mission or task to perform no matter how seemingly minimal. Second, to accomplish this mission or task we must make informed risk decisions that affect everyone. Understanding our decision-making responsibilities includes using the ORM process to ensure mission success by weighing the risks with the benefits. Correct ORM execution results in safety as a by-product and the ability to accomplish missions or tasks.

## About Those Principles

The starting point for learning about ORM is the understanding and application of the four principles: making risk decisions at the right level, accepting risks when benefits outweigh the costs, accepting no unnecessary risks, and anticipating and managing risks by planning. These principles are the foundation of the five-step process and the rationale behind the ORM program.

When one understands these principles, the remainder of the ORM process of three-levels (in-depth, deliberate and time critical) and five-step process (identify hazards, assess hazards, make risk decisions, implement controls, and supervise) makes a lot more sense. Just how easy is it to understand ORM and its principles? Let's look at an incident that happened not too long ago.

Aboard a U.S. Navy ship, a LTJG was in the midst of a zone inspection. He opened a fan room hatch and found a discrepancy: hazardous material and rags were stored improperly. The Sailor pointed out his discovery to the division chief, but was told, "We need those extra supplies; we are headed out on cruise and it's hard to get the stuff to do our jobs. On top of that, hazmat has no more room for storage." The LTJG ignored the discovery and moved on.

What happened next is general "crew" knowledge of personnel illegally smoking in the fan room and accidentally leaving the area with smoldering cigarette embers. This caused a large fire with extensive ship damage and injuries to personnel.

Now imagine that you are the LTJG and found this issue. Which principle would you apply to the situation? Anticipating and managing risk by planning could help identify this mission shortfall and allow you to provide your command proper risk management measures.

If the Sailor had identified these shortfalls using the ORM principles, the issue could have been addressed using the deliberate five-step process. The crew could have planned for acquisition of the required material to meet mission requirements. It's important to know that the ORM five-step process assists in documenting the mission, identifying the hazards and collecting lessons learned and best practices. Equally as important is having trained subject-matter experts (SMEs) in your command to assist in making decisions at the right level.

## Informed Decision Makers

ORM reduces or offsets risks by systematically identifying hazards, and assessing and controlling the associated risks. It allows you to make decisions that weigh risks against mission or task benefits. Navy personnel are responsible for managing risk in all tasks, while leaders at every level are responsible for ensuring proper procedures are in place and appropriate resources are available for their personnel to perform assigned tasks.

We have to work toward an environment in which every officer, enlisted, or civilian person is trained and motivated to personally manage risk in everything they do at work and off-duty. If it doesn't look or feel right, it probably isn't. Stop what you're doing and ask the ORM SME. Managing risk is everyone's responsibility and is a continuous process that pervades our warfighting strategy; it must be integrated in our Navy culture. It is our approach to problem solving and decision making. **SC**

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*Mr. Komornik is the Naval Safety Center's ORM training and education specialist.*

## OPERATIONAL RISK

**MANAGEMENT** is a tool for making smart decisions at all levels. Each person has a role to play in managing risk for the unit, and each role is vital to success. These roles require different skills and knowledge.

- **Leaders use the ORM process to plan unit operations.**
- **Junior personnel manage risk while they're actually doing tasks.**

You already use ORM every day. When you follow a checklist, you're doing step four ("Implement Controls"). When you watch for changes, you're doing step five ("Supervise"). There are many other ways to apply ORM – both at the deliberate and time-critical levels.



### ✓ What ORM Is

- A mindset and methodology that applies to any activity
- Accomplishing the mission with acceptable risk
- Planning using a standard, five-step process
- A continuous process
- Based on people's experiences
- Following procedures
- Watching for change
- Flexible
- Best when applied as a team
- Asking "What's different today?"
- A process that depends on skill and knowledge
- Sharing experiences and lessons learned
- Using available tools and resources
- Applied, standardized common sense
- "Looking before leaping"
- As in-depth as you have time for

### ✗ What ORM Isn't

- A way to avoid risk
- A safety-only program
- Limited to complex, high-risk evolutions
- A program rather than a process
- Only for on-duty tasks
- Just for your boss
- Just a planning tool
- Automatic
- Static
- Difficult
- Someone else's job
- A fail-safe process
- A bunch of checklists
- A bullet in a briefing guide
- TQL

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- ORM program assessment checklist
- Risk matrix postcard
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- Web tools and resource links
- Email updates



# Roles and Responsibilities

## Commanders, Commanding Officers and Officers in Charge:

- 1 Establish command policy and expectations for on- and off-duty ORM.
- 2 Designate your command ORM manager. This person will oversee command ORM implementation and training, and will measure ORM effectiveness within the unit. Recommend the XO or department head fill this role.
- 3 Address the ORM process in mission, training, safety, and lessons-learned reports. Reports should comment on hazards, risk assessments, and effectiveness of risk-mitigation efforts.
- 4 Inform the chain of command of hazards identified by the ORM process that cannot be controlled at the command level.
- 5 Ensure ORM risk decisions are being made at the appropriate level within the command.

## ORM Manager:

- 1 Ensure the ORM process is applied to all aspects of command operations and activities.
- 2 Designate at least one officer and one senior enlisted person (or a civilian equivalent) as ORM assistants. Additional senior personnel may be designated based on command mission or unit size.
  - ➔ Ensure the command ORM assistants complete (at least one of the following): the instructor-led ORM Application and Integration Course, Aviation Safety Officer Course, Aviation Safety Command Course, Surface Warfare Officer School, or the Submarine Officer Advanced Course.

## ORM Assistants:

- 1 As the command's subject matter experts (SMEs), the ORM assistants assist command personnel in doing risk assessments. They also train command personnel using resources such as ORM assessments, general military training (GMT), ORM training, videos, and lesson guides and materials provided by the ORM model manager, school houses, or other sources. Suggested venues for this training include training in work centers, at standdowns, indoctrination classes, and training syllabus events.
- 2 Direct the use of tools and resources such as Total Risk Assessment and Control System (TRACS) or its equivalent. Assist with hazard identification and risk prioritization. Assist with hazard controls for ORM assessments on common tasks and evolutions. Help develop ORM assessments for unique tasks or evolutions.
- 3 Include ORM in the orientation and training of all military and civilian command personnel. The level of training should be commensurate with rank, experience and leadership position.
- 4 Include ORM training in individual development training course plans and individual development plans for civilian personnel.
- 5 Incorporate identified hazards, assessments, and controls into briefs, notices and written plans.
- 6 Conduct a thorough risk assessment for all command operations, tasks, and activities including new or complex evolutions, defining acceptable risk, and possible contingencies for the evolution.
- 7 Ensure periodic command ORM evolution and program evaluations are completed and logged.
- 8 Submit ORM lessons learned and best practices to the ORM model manager for annual dissemination.

(Reference OPNAVINST 3500.39 series)

# What's the Science Behind TCRM?

**KD VanDrie, developer of the ABCD Model explains**

Time-critical risk management, or TCRM, refers to the application of ORM at the execution level of a mission or task: the time-critical point. However, the methodology of applying the deliberate five-step process of ORM in a time-critical situation has proven to be impractical.

The Naval Safety Center, with its ORM division, serves as the model manager and subject-matter expert for the Navy's ORM program. The ORM model manager has chosen the A-B-C-D mnemonic as the scheme to use based on its scientific foundation.

The ABCD Model (Figure 1) is not a replacement for the five-step ORM process or a different process of risk management. It is the practical application of the five-step process in a time-critical environment.

Figure 1 shows the graphic representations or icons that illustrate how a set of recognizable patterns can help individuals recall a set of actions to counter risk even when distracted.

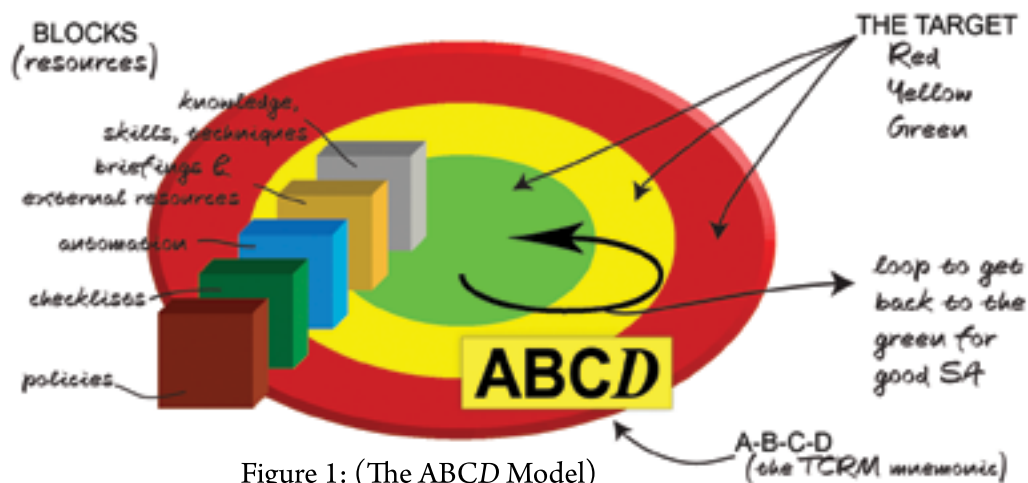


Figure 1: (The ABCD Model)

The ABCD Model is a visual reminder to assist in remembering and applying the principles of ORM and improve communications during an event, a task, or a mission. The model helps raise situational awareness and improve skills and knowledge.

Figure 2 shows the relationship between the five-step ORM process and TCRM using the ABCD Model. The following breakdown explains each letter and expected action. See page 33 (inside back cover) for a detailed illustration of the ABCD Model.



Figure 2: TCRM link to the 5-Step ORM Process



## A wealth of science ...

Research related to risk management has grown by leaps and bounds in the past decade and has led to the development of our ABCD Model which consists of icons – a mnemonic, resource blocks and a three-colored target. We refer to the ABCD Model as a set of tools because it's a framework to help managers ensure that they don't expose their organization to any more risk than is acceptable.

Behind the A-B-C-D mnemonic and icons (which captures the basic skills of situational awareness, decision making, communications and active learning), there is a wealth of science. This includes the phases of situational awareness, complexity theory, risk assessment, development of expertise, habit formation, decision making styles, communication and education.

The ABCD Model toolbox is there to help mitigate the effects of stress on the brain and to provide a mental model that can be shared by everyone.

The **A-B-C-D** mnemonic represents TCRM. Each letter represents an action to be taken by an individual to mitigate personal or mission-related risk by improving situational awareness (Assess the situation, Balance resources, Communicate to others, *Do and Debrief the event*).

The **Resource Blocks** icon is based on extensive experience in the design and development of operational guidance, instructional design, use of automation, and operations research in both civilian and DoD applications. Additionally we have drawn from NASA human factors research. The model has been used extensively in the design of scenario-based training and was further validated through data collection and analysis of those events. The resource blocks are consistent with widely accepted mishap causal-factor research and exist to visually show how to stop a chain of errors before it becomes a consequence, even if we've lost track of the errors.

The **Target** icon helps to quickly evaluate and communicate your level of risk, from the green area where everything is optimal, through the yellow area where

stress begins to take its toll, or in the red area where there is a significant chance goals may not be met, or where the risk exceeds the reward. It can also be used as a lens for situational awareness from green (good) to red (poor). The swooping arrow represents the return to good SA.

The framework of the ABCD Model is meant to make all of this science easily accessible, in real-time, to people that need to get a job done in a dynamic, time-critical, and often high-risk environment. At its core, the ABCD Model is about dealing with the physical and psychological effects of stress on the brain. When we are under stress from any source, it affects our ability to effectively manage risk.

We designed the ABCD Model to make complex ideas intuitive, to get the core concepts into the habit and instinct part of the brain as quickly as possible. With the A-B-C-D mnemonic loop, we built a continuous improvement process that is just as instinctive as the rest of the tools, and effective whether done informally with personal evaluation or formally with organization wide data collection and analysis.

The solution begins here and now with you. What is your knowledge of TCRM? Have you

provided your people with the necessary resources, tools and training to successfully do their jobs? The leader's role is a decisive factor in the successful integration of time-critical risk management. This is a Navy-Marine Corps team effort. Everyone must know their responsibilities and the consequences of a loss of a teammate. We still have to measure up and TCRM assists us. TCRM, it's for on- and off-duty. Learn it. Use it. **SC**

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*Ms. VanDrie is the president of Volant Systems, LLC, and has taught risk and resource management strategies to a variety of audience groups including the Navy, Marine Corps, commercial airlines, and other industries including medical and educational institutions.*

*The original interview appeared in the Leadership Essentials issue of ORM magazine (2012).*

The A-B-C-D  
mnemonic and  
icons capture  
the basic skills  
of situational  
awareness,  
decision making,  
communications  
and active  
learning.

# TCRM Down Below

## Do you know your dive emergency procedures?

By LT John Oravitz

**W**e are all becoming very familiar with ORM and we are getting better at understanding time-critical risk management (TCRM), but our goal is to be outstanding at TCRM. Why? A diver's life may depend on it.

Diving operations must revolve around operational and time-critical risk management because the environment in which the work is being done can be very unforgiving. Whether it's a single dive or a group dive (divers descend, or often descend, in pairs), using TCRM can improve awareness. This is essential in executing the mission and returning to the surface.

During diving operations, communication between the diver(s) and the supervisor is critical. However, circumstances may arise when there isn't time for the diving supervisor to analyze the situation and recommend an action for the diver. A basic understanding of the purpose and functionality of TCRM could be a lifesaver.

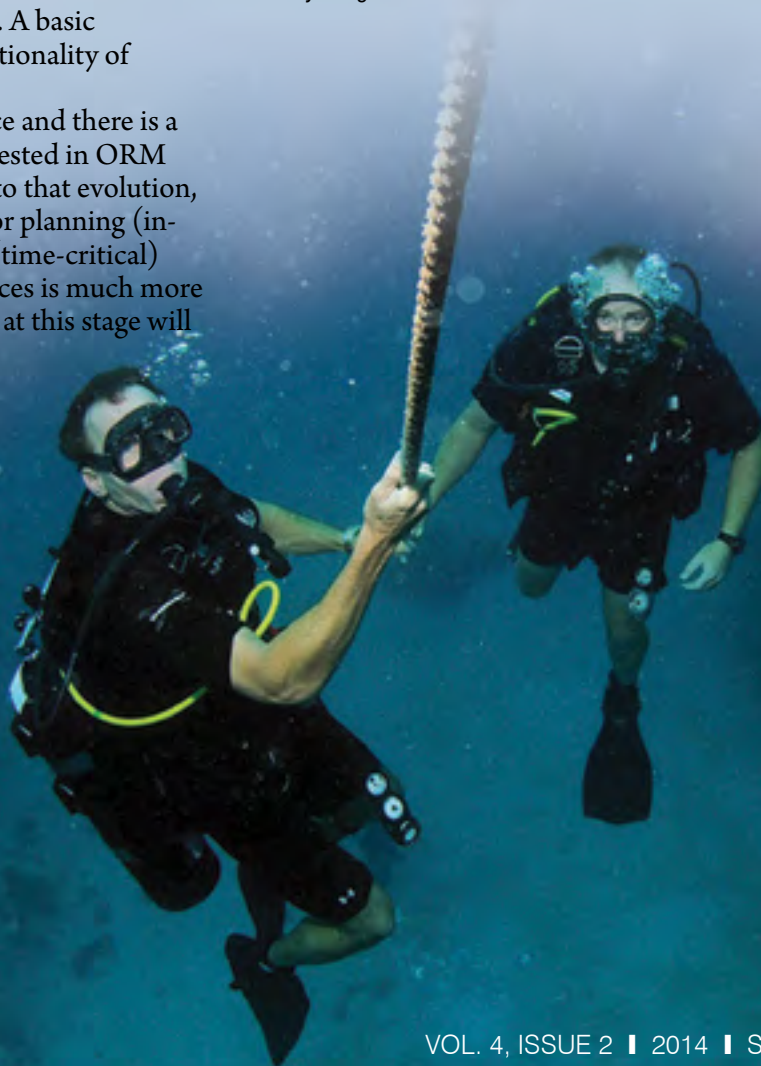
ORM is typically applied in advance and there is a direct correlation between the time invested in ORM and the success of the evolution. Prior to that evolution, there is unlimited access to resources for planning (in-depth). It is at the task execution level (time-critical) when the ability to reach out for resources is much more limited. Knowing how to apply TCRM at this stage will help you the most.

**TCRM AT ITS BEST** – Underwater operations (this page and opposite) are especially fluid and require strong situational awareness and a clear understanding of all emergency procedures. *U.S. Navy photos*

Implementing TCRM in a diving emergency revolves around knowing and balancing resources; those established resources all divers know and love: emergency procedures. Every evolution begins with a safety brief, which always includes a discussion of the emergency procedures. If divers didn't pay attention to the brief before executing a dive or simply don't know the emergency procedures, their execution of TCRM will be much less successful.

Let me sell it to you another way, if what you are doing has an emergency procedure, it is most likely dangerous. It is in your best interest to know those emergency procedures and know how to apply them using TCRM. **SC**

.....  
*LT Oravitz is the submarine division head for NAVSAFECEN's Afloat Safety Programs Directorate.*







## ABCD

**How do you do that for deep-sea diving? It is as simple as applying the easy-to-remember A-B-C-D time critical risk management scheme (Assess risks, Balance your resources, Communicate, *Do and debrief*).**

**A - Assess the situation:** You may only have a split second to assess the situation; you may have lost your primary air supply, dropped a tool, or found a live suction where there shouldn't be one.

**B - Balance your resources:** Balancing resources can be difficult unless your dive buddy is right there with you and even more difficult if you are diving alone. Knowing your emergency procedures inside and out ahead of time will really help you balance those resources.

**C - Communicate to others:** Communicating may not be the easiest thing to do, especially if you don't have air or don't have time to make a line pull signal, but once you are safe, establish communication with the supervisor and let him know what happened.

**D - Do and debrief the event:** If you have been following the scenario, **Do** may already have been done and **debrief** will take place after the dive.



Sailors from deck department of an amphibious assault ship remove shoring in the well deck. *Photo by MC3 J. Michael Schwartz*

# Set Condition 1A for Wet Well Operation

By LCDR James Bostick and BMCS Michael Sweitzer

An amphibious ship is completing landing craft utility (LCU) operations. The ship secured from condition 1A before the craft was shored and secured for sea to be at its next station for the next scheduled evolution. The ship was making max speed available and the well deck was not completely de-ballasted prior to moving shoring to the well.

The well deck control officer, ship's bo's'n, and first lieutenant were not on station in the well deck but left instructions to complete shoring on the LCU with the shoring team. The shoring team consisted of six Sailors and one safety observer.

Their objective was to move the 12" x 12" x 10' pieces of shoring from the upper vehicle storage to the well deck. During the brief, the safety observer ordered all personnel to be on the same side of the shoring while carrying it to the well deck. The safety observer, however, did not walk

with the personnel nor monitor the movement of the shoring.

During the operation, four Sailors were on one side of the shoring and two were on the other side. As the Sailors were getting ready to set the shoring down, one of the Sailors devised a plan to just throw the shoring off their shoulder to the left. This unknowingly caused the shoring to drag one of the Sailors who was on the

opposite side, crushing his head between the shoring and the deck. The Sailor sustained fatal head injuries.

There are many questions that surround this scenario. Did everyone – individuals, crews and teams – effectively use all available resources to safely and effectively accomplish the mission or task?

Did supervisors do anything, prior to the task, to minimize the crew's preventable errors, maximize crew coordination and optimize/enhance the use of ORM? Understanding the threats and hazards – the things that stand in the way of the successful accomplishment of




task/mission – allows personnel to execute, sometimes under extreme stress. Crew resource management training teaches skills that enable individuals to identify and manage conditions that may otherwise lead to human errors.

The outcome could have been different if everyone applied the A-B-C-D of time-critical risk management and asked these important questions:

**A - Assess the situation:** Is this what we planned for? What's different? What are the changes? Are the environmental conditions correct for this evolution?

**B - Balance your resources:** Is this the right number of personnel for the task? Are there qualified personnel on station to ensure the task is completed safely and in accordance with all applicable instructions?

**C - Communicate to others:** Did the petty officer in charge (POIC), safety observer, and well deck control officer (WDCO) all communicate what was required of the shoring team and ensure the team comprehended the instructions? Did the officer of the day (OOD) know that the craft was not secured yet?

**D - Do and Debrief the event:** Did the CO and everyone down to the junior personnel know what was planned? Was a debrief planned and conducted at the end of the event? 

## What Should Have Happened?

➔ Once the LCU was in the correct position in the well deck, and the ship completed de-ballasting, the WDCO should have communicated the assessment of the de-ballasting and shoring requirements to the OOD in the pilot house:

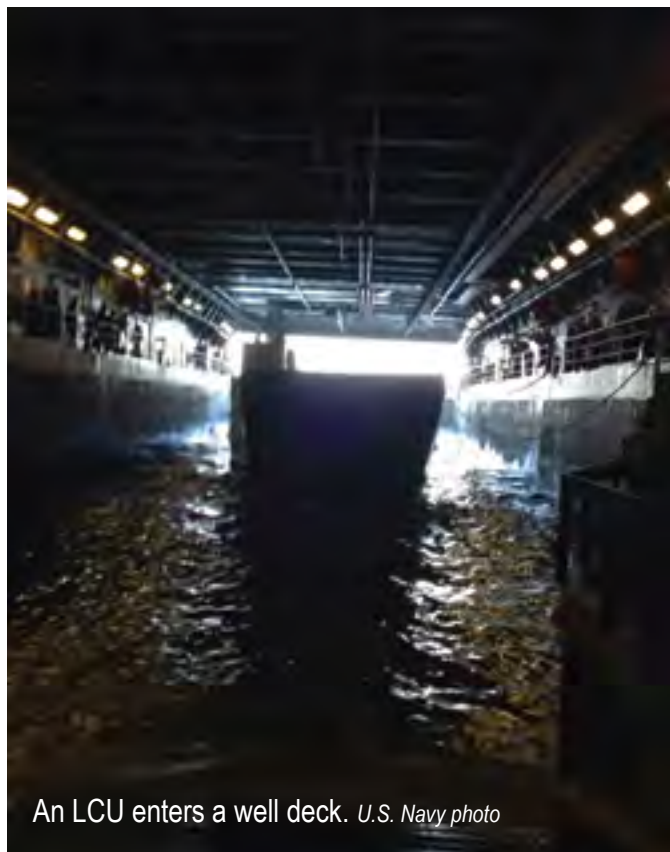
① that they were commencing shoring of the LCU, and

② to ask permission to turn on the white lights in the upper vehicle and the well deck.

➔ The ship's bos'n should have been on station along with the safety observer and a POIC to conduct a shoring brief with the shoring team.

➔ The ship should have maintained a safe speed and not conducted any maneuvering until shoring was completed (Assess the situation).

➔ The POIC and safety observer should have walked with the shoring team as they were carrying the shoring to the well deck (Balance resources), ensuring they properly put the shoring in place.



An LCU enters a well deck. U.S. Navy photo

*Editor's Note: Condition 1A is to set well deck operations and involves additional watchstanders on the bridge and in combat information center as well as manning well deck and ballast control stations.*

*Photos used in this article are for illustration only.*

*LCDR Bostick is the lead deck and seamanship analyst and BMCS Sweitzer is the deck and seamanship analyst at NAVSAFECEN's Afloat Safety Programs Directorate. They each have served multiple tours on amphibious, carrier and surface combatant ships.*

## GAUGING RISK



**Were the Sailors in the Yellow?**

**In the Green?**

**In the Red?**

See page 33 (inside back cover) for a detailed illustration of the ABCD Model.

US Navy handout (Reuters / Handout)

## Lessons from Miami

By LT John Oravitz

Submarine life is difficult and complex in many ways. The mission is inherently dangerous while operating underwater, and when you are not at sea, you may be at a shipyard or an intermediate maintenance facility. Submarine maintenance at a shipyard also has its share of danger and complexities.

On May 15, 1969, USS *Guitarro* (SSN 665) sank pierside during a maintenance period. It prompted the development and implementation of the NAVSEA 6010 Manual, “Industrial Ships Safety Manual for Submarines,” which formalized and codified shipyard maintenance practices to prevent future incidents.

Fast forward to May 23, 2012. A Naval Sea Systems Command (NAVSEA) shipyard worker had set fire to rags onboard USS *Miami* (SSN 755) because he wanted to go home (he was subsequently sentenced to 17 years in federal prison for arson). Intense heat caused suspended temporary services to collapse and severely hindered damage control efforts, which lasted 12 hours. The fire injured seven people, caused \$450 million in damage, and resulted in the decommissioning of the vessel 10 years ahead of schedule. The mishap resulted in a series of investigations and the implementation of the “NAVSEA Industrial Ship Safety Manual for Fire Prevention and Response” (NAVSEA 8010 Manual).

Four working groups, led by the Quality Programs and Certification Office (NAVSEA 04XQ), immediately identified the need for a formal document to capture all industrial fire safety aspects. But until the 8010 Manual could be assembled and rolled out, Fire Serial 009 (COMNAVSEASYS COM 211050Z May 2013) was released as a temporary measure. It referenced 46 CFR Part 164 Subpart 164.009, “Non-Combustible Materials for Merchant Vessels.” This new CFR (Code of Federal Regulations) requirement mandated the use of metal wire or strapping to suspend temporary services during any submarine maintenance period to prevent a similar incident.

During maintenance, only a few hatches are available for entry and exit. To accommodate the flow

of work, temporary services are put in place, such as ventilation (in and out), power sources, high and low pressure air, and temporary lighting. According to NAVSEA 04XQ, “metal straps would survive the temperatures associated with a rolling overhead fire and/or flashover situation ... as fire is darkened with firefighter hose team advancement, the firefighters do not become encumbered by collapsed temporary services, slowing their response or, worse yet, entrapping them.”

NAVSAFECEN’s submarine safety survey team included this new requirement in the “General Departmental” category of the submarine safety checklist (a department head and XO walkthrough inspection). On several surveys, the team found that some NAVSEA shipyards were not in compliance with the Fire Serial 009/8010 Manual requirement: they were using Kevlar-reinforced synthetic line and/or Nomex fireproof line instead of metal. One of the reports from surveys conducted onboard two units noted that the NAVSAFECEN survey team interacted with NAVSEA shipyard to rectify the discrepancy. The report further stated that personnel who were installing shipyard temporary services (e.g., the Kevlar line) admitted that “they knew of the metal wire requirement and they knew that there was metal wire in the shop.”

Even though the 8010 Manual references the same CFR requirement as the interim Fire Serial 009, two different NAVSEA shipyards repeatedly stated that they could use the Kevlar. Their rationale was that the 8010 Manual had a 180-day implementation period (which was true). But they had completely ignored the fact that the requirement was the same.

NAVSEA 04XQ finally intervened. “...The requirement in Chapter 10 of 8010 Manual is clear that the material used to suspend temporary services is required to meet the non-combustibility testing requirements (164.009-15) in Occupational Safety and Health Standards for Shipping, 46 CFR Part 164 Subpart 164.009, “Non-Combustible Materials for



Merchant Vessels” (e.g.,  $750^{\circ} \pm 10^{\circ} \text{C}$ ).”

NAVSEA 04XQ further explained that “the (metal) tie downs survive the temperatures associated with a rolling overhead fire, flashover, or chimneying situation. Copper does not melt until about 1950 F and steels are 2500 to 3000 F. This means that any copper, steel, or steel-reinforced services will long-survive the 1300 F tie material.

Emphasizing that this was a significant lesson learned from the *Miami* fire (key vertical accesses were not usable for firefighter advancement due to dropped services), NAVSEA 04XQ had disseminated this information to ensure the other three naval shipyards were aware of this non-compliance and that they thoroughly implement use of correct material at their facilities.



Photo by MC2 Benjamin Crossley

From NAVSEA Letter 9077, dated Feb. 6, 2014:

“On 23MAY2012, a major fire occurred on board USS *Miami* (SSN 755) during her overhaul at Portsmouth Naval Shipyard, which caused major damage to the forward compartment of the submarine and resulted in her inactivation from the Fleet 10 years before scheduled. The fire burned for nearly 12 hours, and required extensive effort by Ship’s Force (SF), Navy’s Fire and Emergency Services (F&ES), local mutual aid fire departments (20 companies), and the shipyard to extinguish. The fire was started intentionally in the forward compartment, spread rapidly to cleaning supplies that had been stored onboard, and flashed over and spread to the upper level and forward and aft before SF and F&ES could establish an effective fire-fighting response. Initial efforts were also hampered by conflicting reports with regards to the location of the fire, difficulties in getting hoses and sufficient water on the fire, interferences from temporary services, and air flow patterns due to hull cuts, vertical fire spread, and ventilation paths.”

## Reduce the potential for shipboard fire by following these simple precautions:

Minimize accumulation of combustible material, particularly in unoccupied spaces and spaces with limited or restricted access aboard ships and buildings. Try to store combustible material in a metal container to minimize the chance of ignition from external sources.

Make sure people know that vacuum cleaners can catch fire. Empty all vacuum cleaners at the end of each shift. Recommend storage off-hull or in a separate steel container as mitigation for the potential delayed ignition of the filter and contents.

If a vacuum cleaner is being used to collect debris after the completion of hot work, ensure it doesn’t contain other combustible material prior to such use. Wait 30 minutes after hot work is completed, and ensure hot work debris are cool to touch before vacuuming. Vacuum cleaners intended for such service should be clearly labeled to indicate their use in support of hot work and not used in other applications.

Remove excessive or adrift combustibles from vessels.

Route temporary services so that ingress and egress accesses are safe and support potential firefighting requirements. Remove temporary services that are no longer in use.

Inspect hot-work sites to ensure combustibles are protected or removed and that operations are in accordance with NSTM 074 (Vol. 1, Welding and Allied Processes), OSHA and local instructions.

What did we learn from this evolution? From 1915 to 1963, the U.S. Navy lost 16 submarines to non-combat related causes. Since the 1963 establishment of the Submarine Safety Program (SUBSAFE), the Navy has lost only two vessels: the non-SUBSAFE-certified USS *Scorpion* (SSN 589) and USS *Miami* (SSN 755). If you are involved with submarine maintenance in any way, think about that statement. Protocols and standard requirements are there for a reason. Know them, understand them, and practice them. **SC**

.....  
LT Oravitz is the submarine division head at the Naval Safety Center.

## REFERENCE:

Fire Message Serial 009 (COMNAVSEASYS COM 211050Z May 2013)

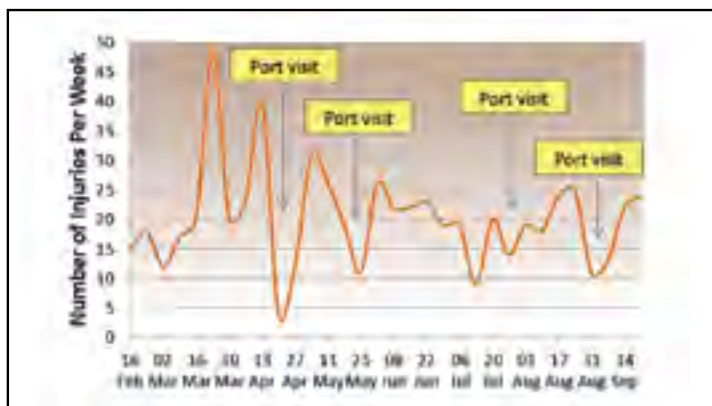
# They Do Sometimes Get Hurt

When the USS *George H.W. Bush* (CVN 77) carrier strike group turns west after a successful Middle East deployment, those aboard will be thinking about heading home, sitting down for turkey and pie with their loved ones. While a safe homecoming is every commander's priority, Carrier Strike Group 2 (CSG-2) decided to go beyond the usual lessons learned and take a rigorous, data-driven approach to safety, with some unexpected results.

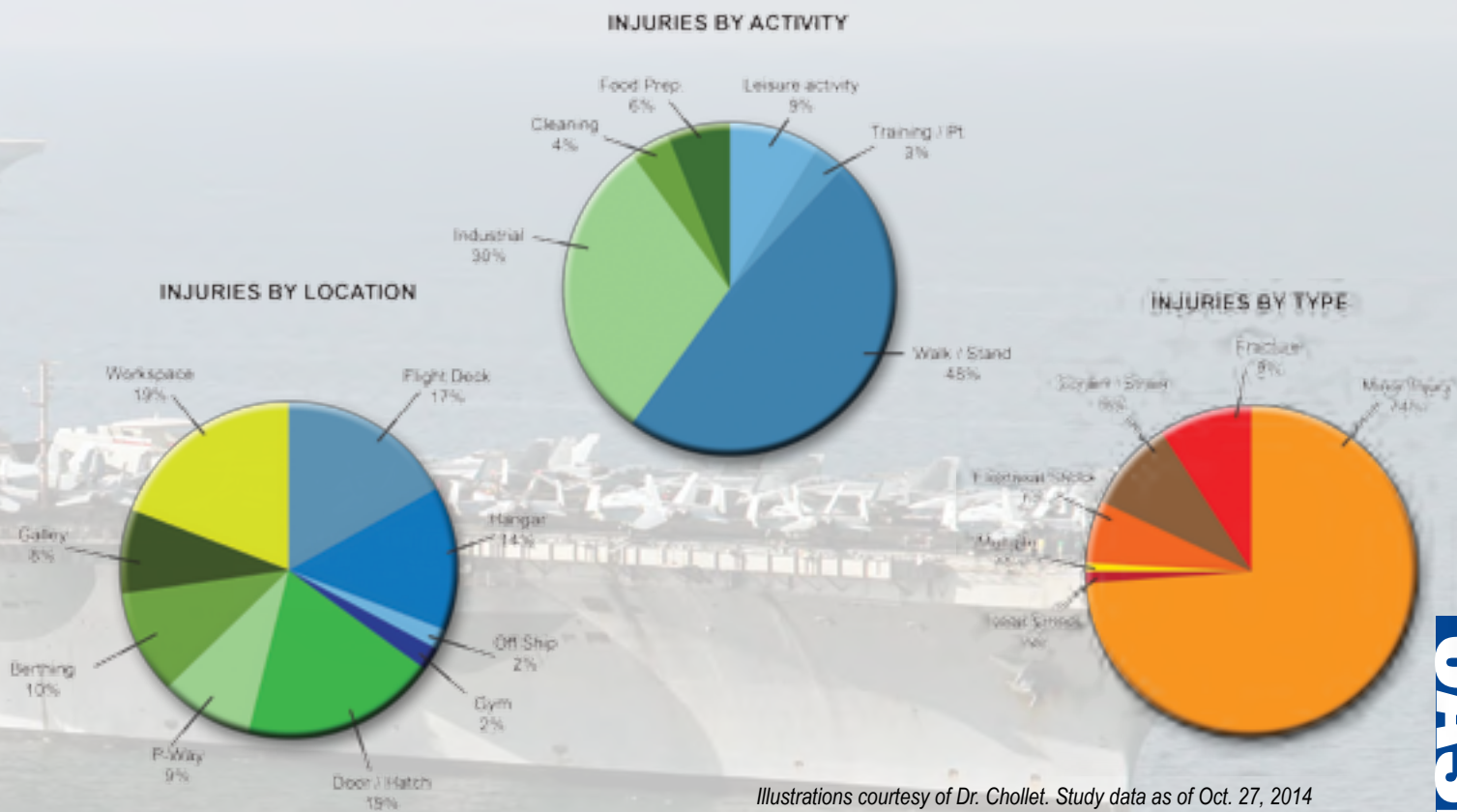
By Eileen Chollet, Ph.D.

**Since an aircraft carrier is such an obviously dangerous place,** the results of the injury study were all the more striking: afloat personnel are four times less likely to get seriously injured than civilians back in CONUS. According to 2010 Centers for Disease Control statistics, the rate of emergency room visits for injuries for males 15-24 years old is 19.7 visits per 100 persons per year <sup>[1]</sup>, equivalent to about 22 trips to the medical department per week for a carrier with an embarked air wing. The medical department on GHWB saw an average of 21 Sailors per week for injuries, but 75 percent of those injuries were far too minor to send someone to the ER, requiring only minor treatment or no treatment at all. The CDC statistics show that most injuries treated in the ER come from traffic accidents and brawls; neither is common at sea. Though Sailors are doing dangerous work, their procedures, protective equipment and robust health are working to keep them safe from injury afloat.

Still Sailors do sometimes get hurt. During GHWB's deployment, Sailors accumulated over four person-years of light duty. Surprisingly, about half of injuries occur from just walking around the ship, and only one in three injuries was from industrial work like doing maintenance. About one in five of the shipboard injuries were slips and trips, often while carrying gear up and down ladders. Safety officers can make the ship safer by







tracking exactly where people get hurt and investigating hazards (such as condensation from the ever-present Middle East humidity.) One in four injuries arose from Sailors catching fingers in doors, hatches, and racks, and broken fingers required about half of the light duty that was accumulated on the ship.

It's worth stressing an old, familiar lesson – the most dangerous task is the one the Sailor has not done recently. This issue is well-understood in the aviation community; pilots, no matter how experienced or talented, are much more likely to have a mishap if they haven't flown much in the previous month <sup>[2]</sup>.

Life at sea is no different: when GHWB CSG first arrived in the Middle East, the injury rate spiked to twice the rate seen during the rest of the deployment. The data also show that junior enlisted Sailors (E-3 and below) were five times more likely to get hurt than senior enlisted and officers, in part because they are not as familiar with the shipboard environment. When conducting safety training, a focus on junior enlisted and newly-arrived sailors will have the biggest impact on risk management.

About one in five of the shipboard injuries were slips and trips, often while carrying gear up and down ladders.

Though life in the Navy is never risk-free, commanders should be encouraged that the procedures already in place are keeping their Sailors pretty safe, and that minding the simple things like hatches and ladders can help them stay even safer. The strike group hopes our lessons learned give future deploying strike groups plenty of reason to be thankful. **SC**

*Dr. Chollet is CNA Corp.'s Center for Naval Analyses representative to the George H. W. Bush carrier strike group. As the Department of the Navy's federally funded research and development center, CNA reps have been doing field-based, data-driven operations analysis for more than 70 years. Dr. Chollet has been in the field with the strike group since November 2013, working a diverse set of projects including safety, coalition integration, and Operation Inherent Resolve.*

#### REFERENCES

- <sup>[1]</sup> Centers for Disease Control. "National Hospital Ambulatory Medical Care Survey", accessed Oct. 21, 2014 at [http://www.cdc.gov/nchs/data/ahcd/nhamcs\\_emergency/2010\\_ed\\_web\\_tables.pdf](http://www.cdc.gov/nchs/data/ahcd/nhamcs_emergency/2010_ed_web_tables.pdf).
- <sup>[2]</sup> W. Brobst, K. L. Thompson, and A. C. Brown. Air Wing Training Study: Flight Hours, Mishap Rates, and Tactical Proficiency. CRM D0018776.A2/Final, October 2008.

# Best Practices

## or “ORM in the Fleet”



# Honor Thy Prop Arc Safety Chain

By LCDR Jason D. Wells

**V**AW-125, an E-2D advanced Hawkeye squadron, strives to build a culture where every member creates and maintains a safe and professional aviation environment. We make every effort to ingrain the concepts of risk management into each Sailor’s thought process. While achievable, this remains a challenge with each day presenting new and interesting issues as we change environments during our work-up cycle.

Every member of our team understands the intricacies of E-2D maintenance, practices, and the gotchas that can arise in a VAW squadron. We have developed a strong safety culture; but what happens when conditions change? The VAW-125 “Tigertails” safety team raised this concern when embedding in USS *Theodore Roosevelt* (CVN 71) for a three-week, at-sea period. We were entering a new environment with Sailors on an aircraft carrier who weren’t accustomed to the complexities and safety concerns of two 13.5-foot propellers turning at 1106 RPMs. We put the five-step process of ORM to work.

### IDENTIFY THE HAZARDS

The propeller arc (the circle described by a propeller when it is moving or static) presents a severe risk on

a carrier flight deck. No one would intentionally walk into a propeller arc. However, when you add stress, fatigue, wind, and low visibility to the equation, accidentally walking into a moving propeller becomes a real possibility.

Using the first step of ORM, we identified two hazards. 1) Many *Theodore Roosevelt* Sailors had not spent “quality” time operating around the E-2D Hawkeye. 2) VAW-125 “Tigertails” had not operated recently in the high-paced environment of flight-deck operations.

### ASSESS THE HAZARD

The probability of an incident on the flight deck rises when you have inexperienced personnel operating in an unfamiliar environment or around unfamiliar aircraft.





The human prop arc safety chain surrounds aircraft 600 after arrested landing.

## MAKE RISK DECISIONS

We had to prevent a propeller incident. Using available time, we were able to deliberately plan a response and came up with several solutions. In addition to our mandatory flight deck familiarization and shipboard safety discussion, *Theodore Roosevelt* Sailors provided a ship safety brief for VAW-125 personnel. We also discussed an entertaining way to get Sailors' attention about the seriousness of prop arc safety. Our resident video expert, LT Adrian Kellgren, and our very own voice talent, LT Dartanya Santana (who dubbed the voice of a young James Earl Jones), developed a plan. An humorous video will get the attention of Sailors but still emphasize the serious nature of operating around propellers, especially on the flight deck. We want to provide personnel an engaging medium that also serves as an "edutainment" during the upcoming underway period.

## IMPLEMENT CONTROLS

The video will emphasize the following do's and don'ts:

1. Always honor the prop safety chain. This is group of personnel forming an arc designed to keep people out of the prop arc during engine starts and

shutdowns. Anyone needing to enter this arc must get the attention of the plane captain (PC). You will be challenged for your own protection, regardless of rank, if trying to enter the prop safety chain without getting the attention of the PC.

2. Treat every prop as if it is spinning. This instills the habits and respect necessary to prevent accidentally walking into a spinning propeller.

3. Don't ever walk into the prop arc of a moving or static prop.

4. When operating around E-2/C-2 aircraft, approach the aircraft from behind the nacelle.

5. Never walk between the propeller and the fuselage of the aircraft.

## SUPERVISE

The previously applied steps were designed to build and reinforce safe habits while operating around a moving propeller afloat and ashore. The air wing safety officer of the day (and during E-2D events) is required to make observations and provide feedback to ensure the message is being disseminated properly. **SC**

.....  
LCDR Wells is the safety officer for the VAW-125 Tigertails.

## Exceeding Navy Standards

- ✓ **Respiratory Protection Program**
- ✓ **All Seven NAVOSH Programs**
- ✓ **Medical Readiness**
- ✓ **HAZMAT Program**

This page: SN Lauren Smalley ensures her fellow shipmate has a properly fitting respirator. Opposite from top: HT2 Ernest Page instructs a fellow shipmate on proper use of HAZMAT. HM1 Shannon Ramsden organizes her NAVOSH program binder in preparation for INSURV. Photos courtesy of USS Germantown



# USS Germantown Sets the Bar in Safety

By LT Jesse John Rond

**D**eveloping an effective safety program aboard a U.S. naval warship is never an easy task. It often requires years of instilling safety in the command culture and a highly focused organization to manage complex programs with only one chance to demonstrate their effectiveness during inspections.

While this task is an uphill battle, the officers and crew of USS *Germantown* (LSD 42) achieved several incredible accomplishments in the area of occupational health and safety. They have maintained a flawless safety record despite a relentless schedule of certifications, inspections, and operations. In the Navy Occupational Safety and Health (NAVOSH) functional area, they far exceeded the average scores in their recently completed Type Commander Material Inspection (TMI), safety assessment, and Board of Inspection and Survey (INSURV) Material Inspection. These accomplishments are even more profound in light of their recent schedule where they completed a compressed Surface Force Readiness Manual (SFRM) certification cycle. USS *Germantown* truly has set a new standard in encouraging other ships to “Follow in Our Footsteps.”

Its respiratory protection program far exceeded Navy standards. During TMI, the inspector credited the respirator locker as the most organized locker he had ever seen and requested to use pictures the ship's locker in training slides for the rest of the fleet.

The outstanding quality of this program is managed and maintained by Seaman Lauren Smalley. SN Smalley

is no ordinary deck seaman. Her meticulous attention to detail and relentless work ethic was the driving force behind an impeccable respirator program.

“I have been involved in the respirator program for a year and had to build the program up from scratch,” said Smalley. She credited this significant accomplishment to simple training.

“It wasn't until I attended the respiratory protection manager course that I finally understood what I needed to do and felt I had the tools to do it,” she said. Once equipped with the appropriate knowledge, she passed it on to the rest of the crew by teaching them the proper way to fit a respirator, the correct usage, and why it can't be left adrift.

“When I started with the program, respirators were adrift everywhere,” Smalley added. “It was a crew-wide effort to hunt them all down. Even one adrift respirator can fail the entire program.”

USS *Germantown* attained outstanding assessments in all of her medical NAVOSH programs as well. During the recent INSURV and TMI, all seven NAVOSH programs received a score of over 90 percent and the Medical Readiness Inspection (MRI) score was an exceptional 100 percent. Petty Officer 1st Class Shannon Ramsden, a hospital corpsman and the ship's NAVOSH programs manager, said a key component to her success was asking questions to off-ship experts.

“I would email and communicate with the base industrial hygienist,” said Ramsden. With subject matter experts backing her up, Ramsden was able to develop a



clear understanding of expectations and what would be required during all inspections.

High safety standards are also evident in the hazardous material (hazmat) program, which is often a very difficult program to manage and maintain. During supply department's recent Supply Management Certification (SMC), the hazmat program was assessed at a flawless 100 percent with the inspector even commenting that he honestly couldn't find anything to "hit." Their outstanding performance continued with a 100 percent score during TMI and 92 percent during INSURV.

The program manager credits much of the score to the hard work and dedication of his team. "I have 12 personnel within the division and six hazmat assistants that have all helped build the program," said Petty Officer 2nd Class Ernest Page, a hull maintenance technician. "While I've had this NEC for 10 years, I had to recognize that they weren't at the same level just yet. I had to slowly motivate and train them in order to implement required changes." HT2 Page sat down with each member of his hazmat crew. "Only then could I get to know them on a personal level and be able to employ them most effectively."

All the accomplishments of USS *Germantown* are more profound when one realizes just how far the safety programs have come.

HM1 Ramsden had many challenges when she became the ship's NAVOSH program manager a year ago.

"The lead safety, sight conservation, and asbestos programs weren't implemented and I had to build them from nothing," said Ramsden. "It was a lot of work. I had to personally assess every eyewash station on the ship. I then worked with the divisions who owned the eyewash stations to ensure they had the exact tools needed to fix them."

HT2 Page couldn't believe the state of the hazmat program when he first arrived.

"At one point there were 50 pallets of excess hazmat sent off the ship. The program didn't follow the references, the crew wasn't trained on proper handling, the hazmat wasn't inventoried and didn't match up with the logs, and a lot of money was wasted on expensive hazmat that we didn't even need."

Despite starting out so far behind, *Germantown's* safety team managed to pull together and overcome these obstacles. The workload was incredibly high considering the ship had to respond to several contingencies the previous year, complete SFRM mission certifications and then culminate with three extremely rigorous inspections in a six-week period: TMI, Safety Survey and INSURV.

"It took a lot of extra work and keeping personnel late into the evening," said Page. "But it was all worth it. All it takes is dedication and passion to be the very best."



"Overall the ship did very well," said LT Dave Smith, the ship's safety officer. "Safety is a culture and we should always be inspection-ready. This is an effort made by the entire crew. Everyone worked really hard to do well on the inspections. We performed better than average for our class of ship, and that wouldn't have been possible without the hard work and dedication from our Sailors."

Now that USS *Germantown* is one of the safest ships on the waterfront, one might think the crew would be content to rest on their laurels. Nothing could be farther from the truth. The safety team is never satisfied with the status quo and has already identified additional areas to improve upon.

SN Smalley has aspirations for a more efficient method of organizing her respirator paperwork to streamline the documentation process. She also wants to have a respirator bulletin board to better inform the crew about the program.

HT2 Page has found ways to best inventory the hazmat onboard. He also wants to incorporate a more user-friendly automated system that can help order hazmat quickly when supplies get low.

With this kind of dedication and passion for safety, it is no surprise that USS *Germantown* is elevating the bar for ship safety. **SC**

LT Rond is USS *Germantown's* assistant safety officer.



# MOMSEN'S JOURNEY

**Cultivating a culture of safety through education, participation and evaluation.**

By ENS Kristin Wihera

**U**SS *Momsen* (DDG 92) left her homeport of Everett, Washington, in February 2014. She headed to Vigor Shipyard in Seattle to be drydocked for her scheduled CNO availability (DSRA). The most significant concern on everyone's mind was safety. The industrial shipyard environment presented a unique challenge for *Momsen's* safety team: an unfamiliar work environment, thousands of contract workers who follow different safety standards, and a demanding and ambitious work schedule.

Dedicated to increasing mission effectiveness, the safety team leaders decided to attack the problem in three parts: education, participation, and evaluation. Applying the second level of the ORM process (deliberate ORM), the team's goal while in DSRA was to implement detailed planning of our mission.

Before relocating to the shipyard, *Momsen* held a safety standdown in Everett to educate the crew on what to expect during DSRA. We invited the shipyard safety team to come and assist us with the standdown. The team covered important topics such as environmental protection, work-authorization forms, tag-out procedures, electrical safety, and crane safety. We wanted to ensure that the entire crew, both those who have been to shipyards before and those who were seeing a shipyard for the first time, were briefed on what to expect and what was expected from them. By bringing on subject-matter experts and experienced personnel, we were able to brainstorm and performed effectively as a team.

Our main objective was to enable our Sailors and crew to identify and manage conditions that may otherwise lead to human errors. To keep safety fresh on everyone's minds, we held another safety stand down two months into our DSRA. This time we focused on trends and observations from our first 60 days in the yards. This helped cultivate a culture of safety within the crew. We continued to remind the crew of these safety lessons with rotating safety notes in the Plan of the Day and safety posters hung in crew living spaces.

Consistent participation has had the most impact on safety of the crew. Every day, designated members of the ship's safety team and shipyard safety personnel tour the ship to identify hazards. Following every safety walkthrough, a list of the identified safety concerns is disseminated to the crew and shipyard personnel for action. We rely on the crew to fix concerns found by the safety team and, more importantly, to identify hazards in their own spaces.





USS *Momsen* in drydock. Photo by ENS Vanessa Berry

Creating a safe work environment has required all hands' attention and understanding of operational risk management. It has been extremely beneficial involving the division safety petty officers (DSPO) in this process. Each division has their own qualified and designated SPO who assists in the walkthroughs, helping take the safety message down to the deckplates. The SPOs get regular training to better understand the safety program, DSRA safety, and hazard control. With this knowledge, they are able to be true safety leaders within their divisions.

We have continued to improve our safety program with constant self-evaluation. When a safety concern is set to be corrected, the safety team returns within 24 hours to make certain it has been fixed. This process allows us to know if the crew and shipyard workers understand the concern and the proper action. At the completion of every month, the government conducts a trend analysis of the safety concerns found during that month. The results help us understand what types of mishaps we are most susceptible to and how we can prevent them.

In the event of a mishap, we investigate and report the factors that led to the mishap. Discovering the causes of the mishap help us avoid similar mishaps in the future and create recommendations for other ships entering DSRA.

Safety and risk management continue to be a daily focus. Crew members understand what makes a workspace unsafe and know who to report it to. They are consistently reminded of the importance of risk management and their role in keeping everyone out of harm's way. We've documented more than 500 corrective safety actions and fixed even more items on the spot. Some of these actions have been minor, others more significant, but each one is part of creating a safe working environment for the *Momsen* crew and contract workers. As a safety team, we now recognize in what ways we are most vulnerable and how to avoid or minimize those mishaps. **SC**

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ENS Wihera is the assistant safety officer on USS *Momsen* (DDG 92).

# Visual Aids Get Sailors Talking About Safety

By CDR Derek Atkinson

One of the many challenges of being an afloat safety officer is how to effectively leverage your limited resources in order to realize the commanding officer's safety vision. In response to the Naval Safety Center fleet wide need to "operationalize" the principles of risk management at the deck plate level or execution phase of the evolution, the USS *John C. Stennis* (CVN 74) safety department got creative. Our team has worked diligently on building up needed resources that did not previously exist to shape behavior, drive down injuries and ensure procedural compliance.

The second step (B) of the ABCD Model is to "Balance Resources." During an all-hands safety training, the command focused on the Sailor's level of knowledge as a resource. To put it another way, not all resources will be contained in a continuity binder or be issued through supply department neatly packaged.

Your level of knowledge and "muscle memory" will be the resources you must rely on in a dynamic environment. You won't have time to fetch a binder from the workshop when you are in extremis. The resources you need will be your application of knowledge through rehearsal, job aids and visual management. In the aviation profession these are known as critical memory items, or CMI.

In naval aviation the term "chair flying" is a method to habitualize performance to drive critical memory tasks to the subconscious, freeing the brain to process what is unique, different and potentially dangerous. Olympic athletes know this process as visual motor rehearsal and its proven link to increasing human performance. For this to be effective, resources must be tailored to drive the performance toward the goal. During the dry docking planned incremental availability, (DPIA) the safety department created a number of visual job aids to foster an enviable safety culture for the ship and shipyard team.

Manning and the work required for the DPIA project was not static; rather the manning peaked about 10 months into the project, as did the complexity of the work. The *Stennis* safety team and its civilian counterparts in the environment, safety and health (ESH) department worked together to pre-empt



From left: Rob Pommier, an environmental safety and health manager, Chief Aviation Boatswain's Mate (Handling) Jason Garcia, department leading chief petty officer of safety, and Joe Wright, an environmental safety and health manager, pose for a photograph in front of a ladder well safety poster aboard USS *John C. Stennis* (CVN 74). U.S. Navy photo by MCSN Christopher Frost



hazardous behaviors and created high-impact safety posters. Their goal was to get the attention of the combined team of the ship's force, shipyard civilian and contractors ... in effect, to get them talking about safety on the work sites.

The team decided to use graphic images of injuries related to the type of work being performed and bridge that graphic to a proper hazard control. For example, the machine shop had images of an amputated hand while HAZMAT issue showed severe burns over a woman's head and neck to emphasize proper PPE wear. In areas where the safety team knew power tools were being used with power sourced from either a higher or lower deck, images of bodily damage from run-away tools were displayed to drive behavior to prevent unattended power tools.

Far and away the most successful posters were related to incline ladder safety. Two posters were created to curb injuries from inattention on incline ladders. The first featured an archetype character, a Sailor named I.M. Inarush and it displayed an X-ray of a broken tibia and fibula with the time to heal the broken bones under the title, "Sliding Down Ladders is Not Faster!" Another featured poster was called "The Crumpled Man." It showed a man at the bottom of a ladder with tools, arms and legs akimbo, suggesting poor technique on descending the ladder.

The response was immediate and as desired. The analysis of the types of bodily injury, location of injury and phase of work is an example of performing deliberate ORM with the goal of preventing hazardous behavior at the execution stage. At a peak of 1,600

civilian and contractor workers plus the 2,900 ship's force crew, we achieved an impressive reduction in incline ladder injuries of 78 percent overall and zero ladder injuries for *Stennis* Sailors.

Word about the graphic posters filtered through the shipyard and another project requested the files for immediate implementation. As we've recently completed sea trials and formally ended our DPIA, the posters were in place and despite 18-foot seas in a very light aircraft carrier with no aircraft, ordnance and little fuel, we experienced zero ladder incidences during this underway.

Behaviors are shaped through repetition and rehearsal ... think chair flying or visual motor rehearsal. Applying tailored resources at the final moments of decision making and during execution can influence those behaviors to support your command's safety vision.

In these times of budget constraints, a safety department must take seriously its role in enhancing mission readiness through conservation of assets. The takeaway is that a safety department needs to understand its operating environment and tailor its efforts to generate maximum effect in fostering an effective safety culture. Our decision to go with graphic imagery was calculated and, for a limited time, designed to affect our culture to get people talking and thinking about risk. In our case it was a high payoff effort. **SC**

CDR Atkinson is the safety officer aboard USS John C. Stennis (CVN 74).



## TCRM Visual Aid and Safety Brief Discussion Points

We learn and think with the front part of our brain. Which in turn we bury in our brain stem in the back of our brain. When something puts us under stress our brain shuts down from the front to the back and we react pulling the information we have stored in our brain stem from previous drills we have performed. The question is ... what happens when the reaction that we developed doesn't work? Do we complete the mission? Lose our equipment? Possibly lose lives? This is why the ABCD Model is such a critical part of the process: When under stress you react the way you train! The goal of TCRM is to teach the brain to continue to think by using the ABCD Model.

Courtesy of Surface Warfare Officers School ORM A&I courseware.

# Tracking Down Mishaps and Hazards

By LT Michael Lopez

**D**uring a recent submarine safety survey at Joint Base Pearl Harbor/Hickam, the Naval Safety Center (NAVSAFECEN) team came back with more than just survey results. Two safety officers stood out in the spotlight primarily because of their innovative use of electronic mishap and hazard tracking systems.

LTJG Luis Wu, the safety officer (SO) of USS *Olympia* (SSN 717) had an outstanding and easy to use safety discrepancy tracker that met all of the NAVSAFECEN requirements. His system tracked hazards and mishaps and showed when corrective actions were completed, allowing him to trend the data. Another SO, ETCM Christian Newkirk from USS *Santa Fe* (SSN 763), developed a safety discrepancy tracker that presented trends in various graphic formats.

Both systems allowed the user to track mishaps (cuts, shocks, sprains, even items dropped on body parts) and hazards (sharp objects, broken lights, trip hazards, loose/exposed wires). These innovative ideas facilitated discussions during Safety Council meetings and resulted in NAVSAFECEN Submarine Division's development of a universal safety officer tracker. The "SO Tracker" Excel spreadsheet, which is now available online, combines both of the safety officers' systematic data-collection method into a single program.

The SO Tracker has three main areas: mishaps, hazards and traffic. Each area has its own tracker, data tables, and graph worksheets. This program is easy to use and is also customizable. As it evolves, we expect users to maximize its functionality and recommend updates and changes.

This tracker will not replace WESS reporting requirements, but will serve as an additional resource for tracking and analyzing trends. Since its inception, the SO Tracker has gone through a number of updates to ensure that it complies with INSURV and NSC safety survey requirements. Standardizing how safety officers track and trend their data is highly recommended by the Naval Safety Center and U.S. Naval Submarine Forces.

## THE SO TRACKER

- Required data includes date, location, description, classification, corrective actions, completion date, and more.
- The data worksheet displays tables of classifications and totals of all data points.
- The graphs worksheet displays graphical charts for the data point tables and breaks down the results quarterly and by mishap/hazard type.
- Everything in the worksheets is unified (data will automatically populate in the graphs and tables) for easy presentation.
- A hints worksheet is provided to help with any problems with the data and graphs worksheets.
- A list source worksheet will allow the user to add mishap types to the drop-down lists.
- The change worksheet shows all updated items or functions in the latest version.
- Available online, under the NAVSAFECEN's "Afloat" tab, "Submarine" quick launch, and "Resources."

"The tracker is thorough enough for them [safety officers] to use on a daily basis and especially to formally track safety survey and INSURV discrepancies," said LCDR Brent Livingston, a safety and environment compliance officer from Submarine Atlantic Force. Livingston is also optimistic that this tracker will make it easy for the SO to analyze trends and to hopefully use it for their Safety Council and committee briefings.

Our survey team assesses how effectively the SO manages data and trends, how those trends are presented to the CO at the Safety Council meeting, and how effectively the safety team acts to mitigate potential discrepancies based on existing trends. NAVSAFECEN safety experts intend for this document to evolve into a fleet-wide resource and to standardize the administrative submarine safety program. Generally, the submarine community is trending in a positive direction with regard to safety. Resources like this will further improve safety programs and safety climates aboard submarines. **SC**

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LT Lopez is the submarine safety analyst and scheduler at the Naval Safety Center.

### SO Tracker Download:

[http://www.public.navy.mil/comnavsafecen/Documents/afloat/Submarines/Safe\\_Officer\\_Gen\\_Depart/SO\\_tracker\\_V4.1.xlsx](http://www.public.navy.mil/comnavsafecen/Documents/afloat/Submarines/Safe_Officer_Gen_Depart/SO_tracker_V4.1.xlsx)



# TCRM in the Real World

By Derek Nelson

**T**he first piece of good news is that most of us do a good job of managing risk most of the time (usually without even noticing it). If we didn't, we'd spend a lot more time on crutches and in bandages. So I don't need to waste a lot of ink and time giving you an intro or pep talk.

The second piece of good news is that when we focus on managing risk, we do a decent job of planning. So you don't need the blah-blah about that part, either.

The problem is when plans start to fall apart. Like the Sailor I once interviewed about his DUI. He'd had a designated driver (a young woman that he knew). She'd abstained, he had a few drinks. She was driving them home, so far so good. Then they approached a road block. Instantly distraught, she confessed that she didn't have a license and had some other legal problems lurking in the background. He, chivalrously, slid over to take the wheel and the heat.

If you've had your quota of ORM training, you've heard this phrase: "Change is the mother of all risks." Granted, that's an exaggeration. Inexperience and complacency, to name two factors, put plenty of unsuspecting Sailors and Marines in high-risk situations. One of the reasons that off-duty/recreational mishaps take so many personnel away from the mission is that, off-duty, there's a lack of supervision. On the job, experienced people can at least try to keep subordinates from learning the hard way.

So that everyone can learn to look out for themselves, we teach the theory of risk management. But theory is boring. The real world is tangible and vivid. So, apply the easy-to-remember A-B-C-D time-critical risk management scheme (Assess risks, Balance your resources, Communicate, *Do and debrief*) to an E-5 who headed out to hoist a few.

Yes, picking on drunk guys stacks the odds in our favor, because they are much more likely to fail when it comes to managing risk. However, the following tale is too good of a bad example to ignore.

We don't know how he did on "A," but under "B" he did have money (to buy numerous drinks), didn't have a driver's license (it had been yanked after a DUI), and did have a spouse. He had checked the block for "C" by arranging to have her pick him up, by which time he had been drinking for four and a half hours.

When he got home, alas, he had to start the alphabet all over again, because his neighbor wanted to look at the Harley Sportster that the E-5 wanted to sell. The



Photo by Alexander Steven, Wikimedia.

E-5 then flunked "A" by deciding to give the neighbor a demonstration.

He also did a terrible job on "B" this time, because his resources included zero PPE (he was clad in that ever-popular protective ensemble of cotton shorts, cotton t-shirt and sneakers). His helmet was inside and apparently too hard to fetch. His BAC of 0.33 qualifies as an anti-resource. He took off down the street. The "C" part of this iteration was limited to "Hey, watch this" and "Don't tell my wife."

"D" involved him riding a third of a mile and reversing course. Coming around a sharp turn, he thought that an oncoming car was in his lane. He swerved off the road, hit some gravel, lost control and took a swan dive. He rolled about 20 feet, accruing a textbook assortment of road rash, cuts and bruises on three-quarters of his body, starting with the top of his head.

The neighbor then did some late communicating by calling 9-1-1, and perhaps some debrief by yelling, "Hey, I don't think I want to buy that motorcycle any more" as the ambulance pulled away.

Crappy decisions aren't a seasonal thing, and plenty of sober Sailors and Marines make them during a spectrum of activities. Everybody's vision is perfect when it comes to 20:20 hindsight. The goal is 20:20 foresight. **SC**

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*Mr. Nelson has been writing the Friday Funnies since 2002. He also creates the Photo of the Week feature and writes the NSC blog, "Beyond the Friday Funnies" for the Naval Safety Center website. He has authored more than 200 freelance magazine articles and 10 books about American and military history.*

# ASSESSMENT TOOLS

We've partnered with the fleet assessment commands to develop two tools to help evaluate your programs. These tools help measure the implementation of your program and provide feedback on the effectiveness of your command's ORM training. They were designed to be integrated within existing command-level assessments and to be used by outside evaluation commands.

**The Evolution ORM Assessment Sheet** (Figure 1) looks at how well a unit applies the ORM process during operations. The assessment sheet is an evaluation of your unit, staff, or group's application of the ORM principles and processes during execution of a complex event. A tailorable evolution ORM assessment sheet is also available to focus on your command's individual requirements.

**The ORM Program Assessment Sheet** (Figure 2) measures how well a unit complies with the guiding OPNAVINST 3500.39 series. This assessment sheet is an evaluation of ORM integration of your command's policies, training and the compliance of OPNAVINST 3500.39 series.

These assessment sheets enable you to analyze your command's program strengths and weaknesses. The Naval Safety Center and the assessment commands have found a strong correlation between the task scores for ORM planning and the scores for execution. The better you plan, brief and use ORM, the more likely your performance will improve. **SC**



Figure 1



Figure 2

These ORM assessment sheets are available at: <https://navalforms.documentservices.dla.mil>. Click the tab for "Forms" in the top nav bar, select "Keyword Search," and enter the form name in the box for "Search Criteria." Local reproduction of the forms is authorized.

- (1) OPNAV 3502/1 (JAN 2010) Evolution ORM Assessment Sheet
- (2) OPNAV 3502/2 (JAN 2010) Tailorable Evolution ORM Assessment Sheet
- (3) OPNAV 3502/3 (JAN 2010) ORM Program Assessment Sheet

Risk Assessment Matrix			PROBABILITY			
			Frequency of Occurrence Over Time			
			A Likely	B Probable	C May	D Unlikely
SEVERITY	I Effect of Hazard	Loss of Mission Capability, Unit Readiness; Asset, Fatality	1	1	2	3
	II	Significantly Degraded Mission Capability or Unit Readiness; Severe Injury or Damage	1	2	3	4
	III	Degraded Mission Capability or Unit Readiness; Minor Injury or Damage	2	3	4	5
	IV	Little or No Impact to Mission Capability or Unit Readiness; Minimal Injury or Damage	3	4	5	5
Risk Assessment Codes						
1 - Critical    2 - Serious    3 - Moderate    4 - Minor    5 - Negligible						

## RISK MATRIX CARD

This familiar card has been around a long time, but this current version addresses a major change to the way we look at risk management. It's the MISSION and how severity and probability impacts the accomplishment of it.



# FREQUENTLY ASKED QUESTIONS

## ► Who is responsible for ORM in my unit?

Commanding officers and OICs are responsible for ORM within their commands. The executive officer, chief of staff, or civilian equivalent is the unit ORM manager and primary agent of ORM implementation.

## ► What's the best way to implement ORM at my command?

Make sure you meet the existing requirements of OPNAVINST 3500.39 series. You need at least one officer and one senior enlisted trained as ORM assistants (we previously called them "instructors"). Train all command personnel commensurate with their rank and experience. Identify new and complex evolutions at your command, assemble a planning team made up of operators from the various functional areas necessary to complete the evolution, and conduct a deliberate or in-depth risk assessment. Brief the hazards, controls and individual risk-control supervision responsibilities to all evolution participants prior to execution. Identify root causes of conditions that led to failures, recommend actionable solutions to the chain of command to prevent future failures, then retain internally and disseminate externally lessons learned, best practices, and the risk assessments for future planners.

## ► How do I sign up for ORM training?

The ORM training is available on Navy Knowledge Online (NKO). There is also the ORM Application and Integration (A&I) course, which is two days long and led by an instructor. You can also sign up for the A&I course on ENTRIS. It is intended for your ORM manager and assistants.

## ► I've heard ORM described as both a program and a process. What exactly is it?

ORM is both a program and a process. An ORM program refers to a command's compliance with ORM instructions directives, with regard to its organization,

training, implementation, and feedback mechanisms. The ORM process is a systematic approach to managing risks to increase mission success with minimal losses. This involves identifying and assessing hazards, controlling risks, supervising and revising as needed. When commands are assessed for ORM, it will either be an ORM program assessment (compliance-based) or an ORM application assessment (process-based).

## ► How should I document my ORM training?

Document ORM training in both individual training jackets [or Relational Administration (RADM) folders] and at the command-level. A typical entry might be "Last ORM GMT training occurred on ..."

## ► How often should service members and civilian employees receive ORM training?

At least annually, commensurate with their rank or experience level, according to OPNAVINST 3500.39 series. ORM training is also directed to be included in command orientation, as well. Currently, everyone is required to receive annual refresher training.

## ► What is a risk assessment?

A risk assessment is a documented five-step ORM process. Minimally, this involves a list of hazards assessed for risk, the risk controls for those hazards, the residual risks, and who is responsible for supervising the risk controls.

## ► What is time-critical risk management?

This level of ORM is when you are in the execution of the event or do not have time to plan. You have to make risk decisions on the fly. It is using the ORM process when limited by time constraints.

## ► How do you order ORM business Cards?

You may download the files off of our website at [www.public.navy.mil/comnavsafecen/pages/orm/orm\\_businesscards.aspx](http://www.public.navy.mil/comnavsafecen/pages/orm/orm_businesscards.aspx).



# TRAINING & WEB RESOURCES

## ► ORM Application and Integration Course (2 Days)

Course Registrations: All Quota requests are made in the ENTRRS System. Access to ENTRRS may be obtained by logging onto: <https://main.prod.cetars.training.navy.mil>. Select ENTRRS then request access from the initial login screen and fill out the application. For ENTRRS training, email [cetarstraining\\_reque@navy.mil](mailto:cetarstraining_reque@navy.mil). When requesting a seat for the ORM A&I course CIN: A-570-0100, use CDP 09GE for Dam Neck, Va., use 09GJ for San Diego, Calif., and use 03PS for all other locations.

## ► eLearning Courses

First, register for an online account at <https://wwwa.NKO.navy.mil/>. Follow the instructions for “New Users.” Then select “Navy e-Learning” under the horizontal “Learning” tab at the top of the page, On that page, in the left navigation bar under “Content,” select “Browse Categories,” then select “Department of the Navy,” then “ORM” (in the right-hand column). Other ORM training is available by selecting the “Personal Development” tab along the top, then clicking “Risk Management/Safety” in the left navigation bar (the fourth item down). You will find eight traffic-safety items (two are specifically ORM-related), as well as two ORM topics (FY05 GM Topic 1-1, an introduction to the operational risk management process and principles, with a practical application to a long-distance driving scenario), with a facilitator’s guide and a large zip file to download.

## ► ORM Courses (on the Navy e-Learning)

Operational Risk Management - Time-Critical Risk Management  
 Manager - Directing Your Command Risk Management  
 Assistant - Leading Risk Management Integration  
 Individual - Managing Your Risk  
 Supervisor - Managing Your Team’s Risk  
 Time Critical Risk Management

CPPD-GMT-ORMTC-1.0  
 CPPD-ORM-DYCRM-1.0  
 CPPD-ORM-LRMI-1.0  
 CPPD-ORM-MYR-1.0  
 CPPD-ORM-MYTR-1.0  
 CPPD-TCRM09-02

*Note: Refer to OPNAVINST 3500.39C, Encl (3) for periodicity.*

## ► Naval Safety Center Website

<http://www.public.navy.mil/comnavsafecen/Pages/orm/ORM.aspx>

► **ORM Model.** This is a multi-faceted explanation of ORM, with expanded versions of many of the sections contained in this magazine, as well as others (for example, tools and methods). These web pages will continue to be updated and to grow.

<http://www.public.navy.mil/comnavsafecen/Pages/orm/ExplanationofORM.aspx>

► **OPNAVINST 3500.39C.** The online documents in the Department of the Navy Issuances System have been grouped by instruction. On the navigation menu, go to the “Directives” tab, and click on “All Instructions.”

<http://doni.daps.dla.mil>

► **Presentations.** The ORM Fleet Brief is a customizable presentation which includes various types and levels of training.

[http://www.public.navy.mil/comnavsafecen/Documents/presentations/orm/ORM\\_general.pptx](http://www.public.navy.mil/comnavsafecen/Documents/presentations/orm/ORM_general.pptx)

## ► Application and Integration Training

[http://www.public.navy.mil/comnavsafecen/Documents/ORM\\_data/ORM\\_Applic\\_Integ\\_Info/FY12\\_ORM\\_A-I\\_Alsafe.docx](http://www.public.navy.mil/comnavsafecen/Documents/ORM_data/ORM_Applic_Integ_Info/FY12_ORM_A-I_Alsafe.docx)

► **Safety Center Links** to the Army and Air Force ORM sites, as well as the Army, Air Force and Coast Guard RMIS (risk management information system) sites.

[http://www.public.navy.mil/comnavsafecen/Documents/ORM\\_data/ORM\\_Tools\\_and\\_Resources/ORM\\_WEB\\_SITES.doc](http://www.public.navy.mil/comnavsafecen/Documents/ORM_data/ORM_Tools_and_Resources/ORM_WEB_SITES.doc)

► **Army CRM site.** The Army calls it “**Composite Risk Management.**” This site contains basic information, training tools, traffic-safety initiatives and news. It contains a PDF version of its 108-page **Field Manual 5-19** (“Composite Risk Management”); an appendix contains some excellent examples of applying risk management to specific kinds of operations.

<https://safety.army.mil>

► **Air Force ORM site.** The Air Force Safety Center offers the ORM A&I (Course Number WCIP 05E, PDS Code WEI). The course provides “how-to” instruction in applying primary and select ORM tools and techniques. In addition, the integration of ORM into organizational activities is covered. The course is intended for personnel serving as organizational ORM focal points, ORM trainers, lead planners and others requiring a more in-depth understanding of ORM principles, tools and application. The site also has sections devoted to ORM training, guidance, media, tools and lessons learned.

► <http://www.afsec.afmil/organizations/education/rm.asp>.



# ANATOMY OF THE ABCD MODEL

## Gauging Risk

**GREEN** ➡ You can catch errors before they occur

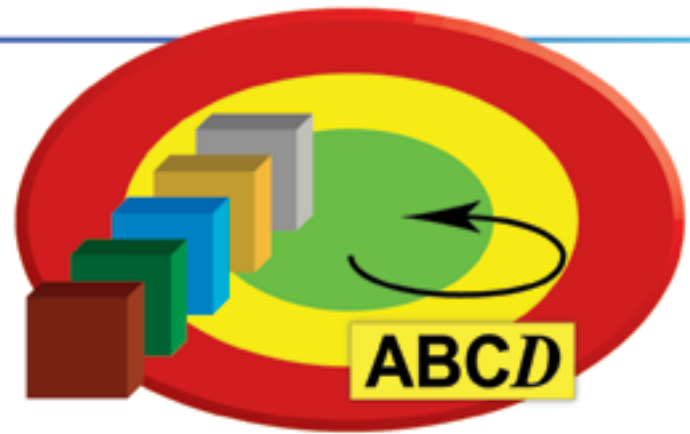
- Good situational awareness
- Tools and procedures in place to catch possible errors

**YELLOW** ➡ Higher chance of errors

- Situational awareness could be decreasing
- Tools and procedures not in place to catch errors

**RED** ➡ Very high chance of serious error

- Stress may be high, tunnel vision may occur
- Resources not effective to catch error



## Factors that Increase Potential for Error

### TASK LOADING

- Task overload/underload

### ADDITIVE CONDITIONS

- Degraded operating conditions: environment, equipment, culture
- Unpredictable situations or flow of information

### CREW FACTORS

- Insufficient communication
- Fatigue/stress/fear
- Group mindset
- "Press on regardless" philosophy

## Use Resources to Improve Performance and Reduce Risk

### POLICIES, PROCEDURES AND ROUTINES

Follow procedures and routines  
(General orders, recruit guide, making your bed)

### CHECKLISTS

Write things down, use a checklist  
(Instructions for rack layout, notes from class, job aides)

### AUTOMATION

Use automation to improve awareness  
(Fire alarms, lights, alarm clocks, email reminders)

### BRIEFINGS AND EXTERNAL RESOURCES

Brief others, share your situational awareness  
(Supervisor, shipmate, chaplain, safety officer)

### KNOWLEDGE, SKILL AND TECHNIQUES

Be familiar with the situation and job requirements  
(Training, practice, drills)



## The TCRM Process and A-B-C-D Mnemonic

# ABCD

### ASSESS THE SITUATION



- Where am I?
- What is going on?
- What will happen next?

### BALANCE RESOURCES



- What are my options?
- How do I use them?

### COMMUNICATE TO OTHERS



- Who needs to know?
- Who can help?
- Who can provide back up?
- Revise if necessary

### DO AND DEBRIEF THE EVENT



- Carry out the plan
- Was the mission successful?
- Did actions reduce the risk?





# Time-Critical Risk Management

Because conditions can change with little or no warning, being ready and alert can minimize risks.

- Assess the situation and potential for threats.
- Balance resources to prevent error.
- Communicate risks and intentions.
- *Do and Debrief to improve future performance.*