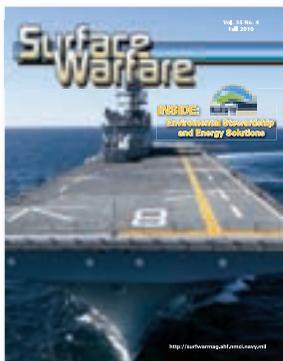


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Surface Warfare

INSIDE: 
NAVY ENERGY
**Environmental Stewardship
and Energy Solutions**

<http://surfwarmag.ahf.nmci.navy.mil>



On the Cover:
 USS *Makin Island* (LHD 8), commissioned in October 2009, is the first amphibious assault ship to use a hybrid gas turbine/electric drive machinery plant. Fuel savings are projected to reach \$250 million over the life of the ship.



On the Back:
 Lt. Chad Frith, currently serving as a U.S. Naval Forces Central Command operations officer, sums up service as a Surface Warfare Officer: "In surface warfare, IT ALL COUNTS."

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Surface Warfare



◀ **USS Peleliu (LHA 5) and USS Dubuque (LPD 8)** steam off the coast of Pakistan as part of Task Force 59, the Navy's task force for humanitarian assistance and disaster relief, delivering aid to those in flooded regions of the country. (MC2(EXW) Andrew Dunlap)

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Director, Surface Warfare Division

Rear Adm. Frank Pandolfe, USN

Military Editor

LT Scott Cheney-Peters, USN

Managing Editor

MCCS(SW) David Rea, USN

Staff Writer

MCI(AW) Scott Vanderwyst, USN

Administration and Distribution

YN2(SCW) Kevin Capelety, USN

Editorial:

Address editorial inquiries to:

Surface Warfare Magazine

OPNAV N861M

2000 Navy Pentagon

Washington, DC 20350-2000

Phone: (571) 256-7910

FAX: (703) 692-4604

DSN Prefix: 664

E-mail: surfwarmag@navy.mil

Senior Advisor

Cmdr. John Wilshusen, USN

Layout and Design by:

Allen Wayne, Ltd.

Phone: (703) 321-7414

Toll Free: (800) 695-8880

Web: www.allenwayne.com

Printed By:

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150 North Myers Street

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FORCE COMMANDER'S CORNER



I remain extremely impressed by the great work our Surface Force has done in the last several months. From Ballistic Missile Defense (BMD) deployments in Europe to Pacific and Southern Partnership Stations and strike group exercises, we continue to deliver operational success worldwide. Our ships are on station, actively demonstrating our ability to successfully operate independently, in groups, and with partner navies.

Nowhere else was this more evident than during *Rim of the Pacific* 2010. This year's exercise included naval forces from 14 nations, with 32 ships and more than 20,000 Sailors. An exercise of this scope is unprecedented in maritime history, and quite a testament to the strength of our Navy and our allies. Making this year particularly noteworthy was the inclusion of USS Freedom (LCS 1), whose speed added a unique aspect to our Force's interoperability capabilities.

Our ability to deliver operational success in a wide range of environments is a direct result of a strong training foundation. As operational requirements shift so,

too, will our training mechanisms. I am particularly happy with two initiatives of note, both undertaken in response to a strong demand signal from the waterfront: revision 1E to the Surface Force Training Manual (SFTM), and the launch of the Surface Warfare Officer (SWO) Proficiency Book pilot program.

SFTM Revision 1E is the product of a comprehensive two-year review of all 22 training mission areas designed to reduce the administrative burden on ships while increasing the rigor of certification assessment during shortened training phases. Afloat Training Group (ATG) acted as the leader during development, and now has taken the lead in communicating these changes through a series of waterfront seminars in fleet concentration areas. Expect to see a Force-wide rollout this fall.

The SWO "Pro Book," akin to an aviator's flight log, is currently in testing aboard three ships and at the Surface Warfare Officer School. We developed the Pro Book in response to a demonstrated need to better capture, record, and track the development

and sustainment of professional skills. The Pro Book will standardize the way SWOs track their navigation, seamanship, and ship handling professional progress; recording critical metrics and giving us much-needed training feedback. During the pilot program we will work to smooth out the technical and administrative processes, paving the way for a Force-wide distribution early in 2011.

In the same way that we continually adapt our training mechanisms to ensure that our ships and Sailors remain ready, so, too, must we regularly evaluate our family readiness programs. As my wife Towanda has said for years, "Family readiness equals operational readiness." I am proud of our Ombudsmen and senior spouses who are currently working hard to standardize communication efforts throughout the Surface Force by leveraging interactive platforms like social media and family resource websites, and developing a training continuum to ensure this capability only continues to grow.

Never forget that our Surface Force is the heart of our great Navy. Thank you again for all that you do every day.

Keep Charging!

D. C. Curtis
Vice Admiral, U.S. Navy
Commander, Naval Surface Forces
U.S. Pacific Fleet

Director's Corner



As Sailors, we love the sea. The maritime environment frames our operations and provides the backdrop to our adventures. The deep water challenges us to become professionals who are aware and respectful of the ocean's power. The sea also rewards us with unequalled beauty and freedom to sail. Taking a ship to sea, conducting successful operations, and returning safely to port exemplifies how we serve our nation and reflects who we are as individuals.

In this issue of *Surface Warfare*, the OPNAV N86 team brings you a series of great articles that illuminate various aspects of our profession, with a special emphasis on protecting our maritime home:

- Rear Admiral David Titley, Oceanographer of the Navy, starts us off with an overview of the impact of a changing global climate on our maritime

environment. For example, in the not too distant future, major shipping routes may skirt the receding polar ice cap, posing new opportunities for commerce but also challenging a fragile eco-system. For our Navy, these changes may portend a return to cold weather operations after decades of Arabian Gulf, Mediterranean Sea, and Pacific Ocean deployments. Are we ready?

- In "From Haze Gray to Biofuel Green," MCCS(SW) David Rea provides an overview of our Navy's efforts to develop alternate fuels that will provide greater operational flexibility and help free our nation from its dependency on foreign oil. This bold initiative, led by Secretary of the Navy Ray Mabus, is one of the most strategically important undertakings ever attempted by our military. Do you know the goals and timeline of this important effort?
- Ms. Barbara Mendoza, N86 PAO, provides an article on "Defending Freedom, Protecting Maritime Life" that describes how our Navy is partnering with academia, private industry, and non-governmental organizations to develop and execute a marine mammal research program. What are some of the mitigation measures our Sailors follow to protect marine life? Is your ship ready to implement them successfully?

- Operationally, this issue contains interesting articles about USS *Vicksburg's* (CG 69) outstanding naval surface fire support performance while deployed to Northern Europe and Third Fleet's tremendous success with *Rim of the Pacific* (RIMPAC) 2010. Did you know that 14 nations and over 20,000 Sailors participated in this year's RIMPAC?
- While the sea is our dominant physical domain, we increasingly dwell in cyberspace, as well. Defending that vital realm is a growing military mission. Vice Admiral Bernard McCullough, Commander of the newly formed Tenth Fleet, describes his team's important mission in the article "Cyber Warfare Comes of Age."
- Finally, MC1(AW) Scott Vanderwyst provides a fun and interesting article on "Superstitions at Sea." Did you know that there are coins placed under the masts of every Navy ship during construction? Do you know why? Read and find out!

These articles and many more are in this issue. I hope you enjoy them! And, as always, thanks to each of you for your service to our Navy and our nation!

Frank Pandolfe
Rear Admiral, U.S. Navy
Director, Surface Warfare

..... Inside SW

By Lt. Scott Cheney-Peters, Military Editor

Greetings to everyone out in the Fleet and ashore, working to improve our Navy and fulfill our missions around the world. I'm incredibly excited for the opportunity to serve on the staff of *Surface Warfare* here in our nation's capital, and to work on getting your stories out to the rest of the Fleet.

One of the reasons I'm glad to be in D.C. is that it's where I got my start in the Navy. I received my commission through the George Washington University Navy Reserve Officer Training Corps program while attending Georgetown University. From there I headed out on my first division officer tour in the engineering

department aboard USS *Fitzgerald* (DDG 62), homeported in Yokosuka, Japan. Most recently I served in the operations department aboard USS *Oak Hill* (LSD 51), homeported in Little Creek, Va.

You'll notice in this issue that our broad theme is the Surface Navy's approach to the environment. We look at what the Surface Navy is doing to continue our role as environmental stewards, how we're responding to changes in the environment and climate, how this is impacting our current surface operations, and how it may do so in the future. We also hear directly from the crews of USS *Vicksburg* (CG 69), USS *Carney* (DDG

64), and USS *Frank Cable* (AS 40) as they get their time in the spotlight, as well as what the re-establishment of U.S. Tenth Fleet means for our cyber-warfare capabilities.

While I'm sad to have left my shipmates and the seas behind, I look forward to the opportunities to engage with the broader Surface Warfare community. During my time here, my number one goal is to get YOUR story told. Additionally, I will do my best to keep you both entertained and informed, and always proud of your service.

We are dedicated to continued improvement. We want to make this magazine ever more relevant, interesting, and appealing to you, our readers. Lt. Gillian Medina, my predecessor, set us on a great course towards success, and we need your help to continue that journey. If you have a story to tell, or a great photograph, we want to hear about it. Some of our most relevant features come by Fleet submission, whether enlisted or a junior officer. For submissions, gripes, critiques, or suggestions of any kind, e-mail us at surfwarmag@navy.mil

Another way you can contribute to the future success of this magazine is through our readership survey. If you haven't had a chance to check it out yet, please get online and head to <http://www.surveymonkey.com/s/2RT6WCK>. Your feedback – features you enjoy, the layout of the magazine, and other areas that you think are missing – is vitally important as we look for ways to improve.

My sincerest thanks to everyone who contributed to my first issue – we hope you find this a timely topic!



▲ USS *Oak Hill* (LSD 51) is guided to a pier by tug boats during a homecoming ceremony at Earl Industries Shipyard in Portsmouth, Va., after returning from a 2008 deployment. (MC3 Mandy Hunsucker/USN)

Navigating Through a Changing Climate

By Rear Adm. David W. Titley, Oceanographer of the Navy

In August, the U.S. Navy participated in the Canadian Arctic military exercise Operation *Natsiq*. USS *Porter* (DDG 78) and a P-3 maritime patrol aircraft participated to experience first-hand the challenges of polar operations. It is a sign of things to come. As climate change makes the Arctic more accessible, all of the nations in the region, including the United States, are reshaping policy and strategy to adapt. This has spurred the U.S. Navy to begin preparing for future mission requirements in the Arctic. And as the century progresses, climate change will present other strategic challenges to maritime security and operational readiness.

There is a persistent irony in the work of policy makers and strategic planners in the Pentagon – they must anticipate and plan for threats and challenges that will affect military operations decades in the future, long after most of them have retired.

As the Department of Defense (DoD) and the Navy look to the future, one “contact of interest” emerging on

the horizon is the changing climate. As a result, Chief of Naval Operations Adm. Gary Roughead established Task Force Climate Change (TFCC) to assess the possible impacts of climate change on maritime security requirements and make recommendations on how the Navy should address them.

This is no small task. Developing a way ahead for the Navy to address

climate change is like voyage planning with outdated charts, incomplete vessel specifications, and an absence of Sailing Directions. One challenge is the uncertainty in climate projections, including the timing, severity, and location of future changes. Also, the impact of climate change in a given region will vary with the region’s ability to adapt. This in turn depends upon economic, political, and social factors that are arguably harder to predict than climate itself.

Nevertheless, there is overwhelming evidence that the Earth’s climate is changing. Large scale climate changes have occurred throughout the planet’s history. Such changes are being observed today, and they are most dramatic in the Arctic. The Arctic atmosphere and ocean are warming at about twice the rate of the rest of the planet. There has been a resulting decrease in Arctic sea ice extent (total area covered by some amount of ice, including ice floes with open water between them) and thickness, as well as reductions in snow cover, melting of glaciers and ice sheets, thawing of the permafrost, and the encroachment of plants and animals normally confined to more southern latitudes.

It is the loss of sea ice that first gained the Navy’s attention, for this



▲ USS *Porter* (DDG 78) moored pier-side at St. Johns, Newfoundland, Canada prior to Operation *Natsiq*. (Photo courtesy of Raytheon)

has made the Arctic more accessible to maritime activity. In the summer of 2007, the amount of sea ice covering the Arctic Ocean was at a record low, and 2008 and 2009 were the second and third lowest coverages, respectively.

While ice extent is a critical metric, the thickness of the ice is more meaningful. Reduction in ice volume means that thicker, multi-year sea ice is being replaced by first-year ice that is thinner and more susceptible to melting and the influence of waves and wind. Consequently, it is notable that the ice volume in September 2009 was the lowest on record, 67 percent below the maximum volume since satellite observations began in 1979.

Another interesting metric is that the two sea routes through the Arctic, the Northwest Passage (along the Canadian and Alaskan coasts) and Northeast Passage (along the Russian coast) were open simultaneously in 2008 for the first time in recorded history.

Currently, portions of the Arctic are open for only a limited period during the short summer thaw, but an increasing number of scientists believe that the Arctic Ocean will be relatively ice free for at least four weeks in summer by the late 2030's. This is likely to lead to increased human activity there. We are already observing an increase in "eco-tourism." Significant oil, natural gas, and mineral deposits in the seafloor already have the attention of numerous energy companies. Navigable routes through the Arctic will create attractive savings in time and energy costs, potentially reshaping the global transportation system. Consequently, the potential exists for the Bering Strait to take on the strategic significance of both the Strait of Malacca (for transport of goods and cargo) and Strait of Hormuz (for energy transport) during the last half of this century.

While the risk for conflict in the Arctic is low, it is a maritime

domain and as such the strategic imperatives and core capabilities identified in the Maritime Strategy (*A Cooperative Strategy for 21st Century Seapower*) apply equally to that region. Moreover, the National Arctic Policy (National Security Presidential Directive-66/Homeland Security Presidential Directive-25) requires that the Department of Defense be able to execute many of the same missions in the Arctic as in any other ocean, specifically calling on the DoD to increase capability in maritime domain awareness (MDA) and search and rescue (SAR). Clearly, there are implications for the U.S. Navy and Coast Guard.

A key consideration is the fact that the Arctic will remain an extremely harsh operating environment throughout this century, with severe weather and ice-cover prevailing throughout the winter months. That harsh environment presents many challenges to surface operations. Surface combatants are not currently designed with reinforced hulls to withstand floating ice (ice-hardening is very costly and changes the stability, speed, maneuverability, and fuel efficiency of ships), so crews must become proficient at detecting and avoiding it. Other concerns include the effects of extreme conditions on weapon systems, icing on the ship's superstructure, adequate foul weather gear, challenging communications, and lack of nearby support facilities to provide resupply, medical aid, and search and rescue capabilities.

The 2010 *Quadrennial Defense Review* (QDR), one of the foundation documents of defense strategy, recommends partnerships with the U.S. Coast Guard and Department of Homeland Security to address some of these challenges to mission readiness.

Partnerships with other federal agencies, and with other nations, will help us prepare for these new challenges more effectively and

with less cost. Operation *Natsiq*, for example, will allow naval personnel to experience first hand the challenges of Arctic operations and help planners identify our capability gaps. It will also give us a chance to learn from the Arctic expertise of the Canadian Navy while simultaneously strengthening our relationship with an important ally. We can expect more of these Arctic training operations in the future, including joint exercises with other Arctic nations.

While the changing Arctic is a near-term concern, the long-term effects of climate change will also impact the Navy. Thermal expansion of the warming ocean and melting ice sheets and glaciers over land could potentially cause sea levels to slowly rise by three to six feet in some locations by the end of the century. It will also mean that flooding from tropical storms may be more intense. These concerns may affect some of our coastal installations, including piers and approaches, and need to be considered in future base infrastructure planning. The QDR also included an Infrastructure Vulnerability Assessment study that found that 153 naval installations are at significant risk from climatic stresses.

Additionally, changing weather patterns could affect the availability of adequate supplies of fresh water and increase the potential for fire hazards in certain regions, both of which are also concerns for some of our bases. Water resource challenges will affect food production in vulnerable regions around the world. Significantly, warming and increasing acidification of the ocean may affect the availability of seafood, a primary source of protein for millions of people. Rising sea levels and climate-related resource challenges may result in migrations of people, giving rise to regional instability. The QDR refers to climate change as a potential "instability accelerant."

For some areas, there will be benefits to climate change. In



▲ An iceberg drifts by USS *Porter* (DDG 78) off the coast of Newfoundland, Canada. (Photo courtesy of Raytheon)

northern regions, longer growing seasons will increase agricultural output, and the northward migrations of some fish stocks will favor commercial fishing. The marine transportation industry could realize huge savings from shorter shipping routes across the Arctic. Russia, Canada, and the U.S., in particular, might see gains from a moderating climate as unexploited oil, gas, and mineral resources become accessible to Arctic nations. China and the European Union have also shown interest in the Arctic as a potential solution to emerging energy requirements. Overall, nations in the high and middle latitudes will be more likely to benefit from their moderating climates. The unequal benefits and challenges of climate change will certainly change the geopolitical landscape.

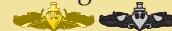
What does all this mean for the Navy? Climate change does not ensure that there will be more armed conflict, but may be one of several

factors leading to it, particularly when it creates competition for water resources and productive agricultural land. In Africa, drought and the encroachment of the Sahara on arable land has contributed to mass migrations, public health crises, the rise of armed militias and extremist ideologies, failed states, civil war, and the demand for increased international peacekeeping forces. Competition for water rights is already straining relations between nations over the Nile, Indus, and Mekong rivers. In this globalized age, regional instability is a legitimate national security concern and increases the probability of naval contingency operations and need for regional security efforts. There is also the potential for increased humanitarian assistance and disaster relief missions.

Although many of these impacts will be felt in the future, DoD strategic planners are taking them seriously today. Already the Naval Academy, Naval Postgraduate School, and Naval

War College are incorporating climate change science and national security concerns into their coursework and study topics. The DoD, Navy, and other U.S. Government agencies are conducting numerous studies and impact assessments, and climate change has been addressed in two table-top exercises and one wargame at the Naval War College. The Navy has released the Arctic Roadmap and the Climate Change Roadmap, both signed by Vice Chief of Naval Operations (VCNO), while CNO signed the Navy Strategic Objectives for the Arctic – all intended to guide Navy planning, investment, and policy to address a changing climate. Finally, the Navy is joining other federal agencies to sponsor research into the science of climate change to better understand its nature, to determine a timeline of change, and to increase our ability to predict environmental impacts from an operational timeline of several hours to a strategic timeline out to 30 years.

It is sometimes said that “in voyage planning, the wind and waves get more votes than you.” Successful surface warfare professionals have applied this truth throughout history and continue to do so today at the tactical and operational scales. Hurricane and typhoon avoidance using Optimum Ship Track Routing (OTSR) is the most familiar example. By addressing the impacts of climate change on national security, the U.S. Navy is applying this concept on a strategic level. Moving forward deliberately, the Navy is making decisions based on the best available science. The end state is to ensure our Navy is prepared to meet any and all emerging mission requirements throughout the 21st century.



Rear Adm. Titley is the Oceanographer of the Navy and Director of Task Force Climate Change.

From Haze Gray to Biofuel Green

By MCCS(SW) David Rea, Managing Editor, *Surface Warfare*



No one reading this article needs a reminder about our Nation's recent gas-price hikes due to ever-fluctuating oil prices. But as much as we are concerned about filling up our vehicles, how often do we think of those oil prices when it comes to our Surface Fleet?

Not only is oil a costly commodity, but its production sources are an additional source of concern. Foreign wells provide the bulk of our supply, which means that we are not in full control of what we use to fuel the warships securing our nation and partners worldwide.

As Secretary of the Navy (SECNAV) Ray Mabus explained during a keynote address at the Naval War College's 61st Current Strategy Forum in Newport, R.I., June 9, finding our own renewable energy sources is "a matter of energy independence; it's a matter of our security."

"It's a matter of making sure that when we need those ships at sea, when we need those aircraft in the air, when we need the Marines on the ground, we have the energy produced right here in the United States to do that," he added.

That is why the Navy is now changing course from fossil fuels and steering towards our nation's first Green Fleet, to be demonstrated by 2012, and deployed by 2016. The Green Fleet will be a Green Strike Group comprised of a nuclear-powered aircraft carrier, aircraft running on biofuels, and hybrid-electric surface combatants.

"The Navy paid \$1.2 billion for fuel in Fiscal Year (FY) 2007; in FY 2008, the Navy spent \$5.1 billion," explained

Rear Adm. Phillip Cullom, director, Fleet Readiness Division and Task Force Energy. "We can't buy futures in the price of fuel. We buy from the Defense Energy Support Center – that's the organization that buys our fuel – and by law, we can't hedge, we pay whatever the market value is for the fuel."

"Now, the problem is, the price for that commodity is becoming ever more volatile," he added.

If total U.S. consumption is looked upon as 100 barrels of fuel, the U.S. government only uses two barrels. Of those two barrels the Department of Defense (DoD) uses nearly all, or 92 percent. Navy accounts for a quarter of DoD usage, or approximately 0.5 percent of the nation's total. While that may be a "drop in the bucket compared to our nation's overall consumption, it's still 30 million barrels per year, and that is a lot," Rear Adm. Cullom said.

Additionally, a significant amount of the petroleum our nation and our Navy uses – nearly 65 percent – comes from non-domestic sources. According to Rear Adm. Cullom the driving force behind going green is to ensure that our energy is a "strategic resource that we can treat as a competitive advantage, and not a debilitating weakness."

And that's why, he explained, the Navy needs to take an "off ramp" from petroleum. "There's a good benefit for the 'green piece,' but it's really about the security that we need to have to be able to do our mission, and energy security is the real driver for why we need an energy strategy."

Another aspect of going green is increasing the efficient use of our

energy resources, thereby enhancing the Surface Fleet's combat capability. Fuel efficiency expands the Fleet's tactical reach by giving both ships and aircraft increased range and endurance.

Combat capability, Rear Adm. Cullom emphasized, is what it's all about. "The Green Fleet demonstration will showcase a whole range of new and different energy technologies and practices; and practices, that's an important piece in the way we operate," he said. "It will emphasize that being green really meets two important warrior needs – it ensures our mobility and will expand our tactical reach."

Along with bio and alternative fuels, the Navy is embracing advances in other energy-saving measures. Earlier this year the U.S. Navy installed a stern flap on USS *Kearsarge* (LHD 8), which will make the ship more hydrodynamic, reducing drag and the energy required to propel the ship through even calm seas.

"This is an excellent example of the Navy incorporating a proven fuel-saving technology into our ships," explained Petter Kristiansen, Fleet Readiness Research and Development program manager at Naval Sea Systems Command (NAVSEA). "Previous installations on other Navy ships generated annual fuel savings of \$365,000 to \$450,000 per ship."

Another project underway is testing a coating to keep ship propellers clear of marine growth. "Barnacles and other shell organisms significantly impair propeller performance, resulting in high fuel consumption," Kristiansen said. The coating is designed to reduce marine growth

accumulation while underway, and by so doing, help avoid increased fuel usage. He also said that a new underwater hull coating applied late last year on USS *Port Royal* (CG 73) has potential to save more than \$180,000 annually in fuel costs.

As much money as these efforts will save the U.S. Navy each year through reduced fuel consumption, the impact on daily operations is more than simply financial.

Rear Adm. Cullom pointed to the Navy's very frequent underway replenishments (UNREPs). "At the end of the day, if we are able to not use as much fuel, or not use as much of a source of energy, we can go further, longer, without having to worry about resupply," he explained. "That's very critical, because how often do we refuel? At least once a week, and sometimes more frequently if we're conducting operations that require significant speed."

Any time the Navy conducts UNREPs, it creates a period of vulnerability, for both the oiler and the warship. "Foreign submariners view it as getting 'two for one,' and it's easy for them to tell that if you have

two ships right alongside each other, they're probably combatants," he said. "As I like to describe it, conducting so many UNREPs is like an Achilles Heel." By using new technologies, such as hybrid-electric drives, "we can strengthen that tendon by lengthening our operating time at sea between fueling," Rear Adm. Cullom added.

For example, the Navy's first hybrid ship, the USS *Makin Island* (LHD 8), operates with two drives – a conventional gas turbine drive and an electric drive. Once *Makin Island* drops below 10 knots, the ship is solely powered by the electric drive, thus saving fuel and allowing for longer operating periods. By using less fuel, Rear Adm. Cullom explained, "We could change refueling from every four days to every 10, or 12 days, and give combat capability back to our warriors at sea."

Not Your Father's Biofuels

One important thing for people to understand, said Rear Adm. Cullom, is that the biofuels the Navy is developing are not the biofuels that most people read about in magazines

or hear about on the news. "Where it is different is this, we're not using first-generation biofuel, like ethanols or a bio diesel that is plant-derived," he explained. First-generation biofuels can have, and cause, significant problems when put into a marine environment or engines operating in a marine environment. "They can separate out, grow, and can actually sludge up a ship's tanks," he continued. "The biofuels we are developing are called 'next generation biofuels,' and the difference is that they look, smell and act just like petroleum, and that's why we are mixing it 50/50 with petroleum."

What this delivers to the Fleet is a fuel that is a direct replacement for petroleum. The biofuel does not need to go in separate tanks, doesn't need to be segregated when brought aboard a ship, and can run in any engine for which the Navy certifies it. "What we are doing now is certifying it to be used in all of our current shipboard engines, making no modifications to the engines themselves," Rear Adm. Cullom said.

Simply put, for today's ships, the Navy is modifying the fuel, not the



▲ USS *Essex* (LHD 2) comes alongside USNS *Pecos* (T-AO 197) for an underway replenishment (UNREP). The transition to biofuels and integration of advances in other energy-saving measures will decrease the frequency of UNREPs, and lengthen the Navy's operating time and tactical reach at sea. (MCSN Brandon Myrick/USN)



▲ Secretary of the Navy Ray Mabus addresses an audience during a memorandum of understanding signing ceremony held at the Pentagon this past January. The U.S. Department of Agriculture and Department of the Navy will work together to reduce energy consumption derived from fossil fuels. (MC2 Kevin O'Brien/USN)

platforms. "The engineering is for conservation and efficiency. The best dollars spent are to make current platforms more energy efficient and then as we design the next generation of ships and planes, to make them even that much more efficient," Rear Adm. Cullom said. "That way we make an efficient use of the Fleet we have today."

He said that they are looking at a full range of options, and one option that is very attractive is using algae. "We've taken delivery on algae-based biofuels as well, and we'll soon be testing operating engines on that type of biofuel," he added.

Another important aspect the Navy will highlight during the Green Fleet demonstration is the use of a hybrid-electric drive aboard a destroyer. According to Rear Adm. Cullom, that destroyer will be like the new Toyota Prius, a hybrid gas-electric car. "At low speeds, it will operate using an electric motor instead of its LM2500s. Currently those engines are lit off 24/7, and are using fuel 24/7." Securing the LM2500s when high speeds are not required will save a lot of fuel. Task Force Energy estimates that use of hybrid-electric drives could save up to

8,500 barrels of fuel, per ship, per year.

Perhaps the clearest way ahead is provided by Rear Adm. Cullom's perspective that today's Sailors need to become the "regeneration" generation, steering a clear course towards using resources in a very responsible manner. For the Navy, it's primarily about security. "Energy security and national security fit together, and going in this direction is principally about being able to do our mission. It's about having more, not less, as petroleum resources diminish in supply and increases in cost."

"By pursuing better energy resources and use, we will – at the end of the day – make the world and our nation a safer place."

Rear Adm. Cullom continued, saying the Navy strives to make the best investments with a vision towards the future. "We must always look forward, way past tomorrow, in our resource-constrained world, so as we build our future weapons systems, the systems themselves do not increase our energy demands," he said. "We need to be able to accomplish the missions, but expend the least amount of energy." 

In his recent Energy Awareness Message to the Fleet, Secretary of the Navy Ray Mabus listed five ambitious energy targets:

Target 1 – By 2020, half of the Navy and Marine Corps' total energy consumption, both ashore and afloat, will be supplied by alternative sources.

Target 2 – By 2020, half of the Navy and Marine Corps installations will be net-zero energy consumers, using solar, wind, ocean, and geothermal power generated on base.

Target 3 – By 2016, the Navy will sail the Great Green Fleet, a carrier strike group composed of nuclear ships, hybrid electric ships running on biofuel, and aircraft flying on biofuel.

Target 4 – By 2015, the Department of the Navy will cut in half the amount of petroleum used by the commercial vehicle fleet through phased adoption of hybrid, electric, and flex-fuel vehicles.

Target 5 – Effective immediately, the Navy and Marine Corps have changed the way contracts are awarded. Industry will be held contractually accountable for meeting energy efficient targets.

USS *Frank Cable* Leads the Way in Protecting the Environment

By MC3 Samantha Crosson, USS *Frank Cable* (AS 40)

USS *Frank Cable* (AS 40), one of only two submarine tenders remaining in service, is the only active duty U.S. Navy surface ship that calls Guam's sparkling waters home. The 1,200 Sailors who man her 53 shops perform complex maintenance as well as nuclear and radiological support for submarines and surface ships, and are as devoted to taking care of the surrounding environment as they are to repairing the nation's warships.

Earlier this year, *Frank Cable* was named the winner of both the Chief of Naval Operations' and the Secretary of the Navy's Environmental Quality, Large Ship Awards, Fiscal Year 2009 in recognition of the crew's environmental stewardship. Lt. Cmdr. Scott Greenstein, the ship's Environmental Protection Officer, accepted the awards during a ceremony held this past June at the U.S. Navy Memorial Heritage Center in Washington, D.C.

Key to *Frank Cable's* victory is the strength and alignment of her Environmental and Natural Resources Program's training, organization, and documentation. From initial and annual all hands environmental protection training, to the appointment of an afloat environmental protection coordinator (AEPC), the pride with which the command undertakes their responsibilities as guardians of their ocean surroundings is evident in their adherence to internal processes designed to prevent pollution.



▲ Lt. Cmdr. Scott Greenstein, USS *Frank Cable's* (AS 40) Environmental Protection Officer, is presented the Chief of Naval Operations 2009 Environmental Quality Award, Large Ship from Chief of Naval Operations Adm. Gary Roughead and Commander, Military Sealift Command, Rear Adm. Mark Buzby. (U.S. Navy photo)

In addition to having an established and superbly executed environmental program, *Frank Cable* proactively seeks out new ways to minimize her environmental footprint. With such a large complement of Sailors, this task is far from easy.

On a recent underway, Sailors in the Supply department were confronted daily with the refuse generated by their shipmates. Nonetheless, they stuck to the ship's own stringent procedures for waste disposal by organizing and storing all solid waste materials – recycling, trash, and food waste – until they returned pier-side, rather than unloading it into the ocean.

Electrician's Mate Fireman Peter Fruean said the efforts are certainly

worthwhile. "I worked as a mess attendant during our underway," he explained. "We had to take extra time in our day to arrange the trash, but the extra hours of sorting and disposing of trash was worth it to ensure we kept our oceans clean."

Two plastic waste processing units and an auxiliary unit installed during a maintenance availability in 2009 greatly improved the ship's ability to compactly process plastics for storage and eventual disposal ashore. Sailors also installed a new motor for the plastic waste shredder, helping Sailors reach their waste storage goals by increasing their capacity for quickly breaking down the plastic before reaching the processors.

Paint is another area of concern for the environmentally-minded crew. The ship's Deck department contributed to environmental stewardship by significantly reducing the amount of spray painting they conducted in the past two years. Sailors used brush and roller painting for exterior painting to minimize the release of volatile organic compounds harmful to the environment and people. When it was necessary for paint to come off, Sailors used a manual scraper rather than electric grinders or sanders, allowing for more effective collection and disposal of the waste paint chips.

Whether at sea or in their homeport, *Frank Cable* goes the extra mile to ensure they are keeping their surroundings in pristine condition.

"We have very strict management on the use and re-use of hazardous material (HM)," said Lt. Cmdr. Greenstein. "We have a thorough system of checking in and out paint cans to optimize use of paint, and we also collect paint chips so they do not pollute our waters or environment here."

In fact, the ship's Hazardous Waste Minimization Center (HAZMINCEN), which is responsible for customers aboard *Frank Cable*, the on-board Fleet

Maintenance Activity, submarine units homeported in Guam, and visiting tended units, streamlined the HM reissue process in 2008 and was able to increase the amount of HM requests fulfilled by reuse items by 90 percent over the previous year.

Frank Cable's Commanding Officer, Capt. Tom Stanley, cited the crew's efforts as the reason they earned the award. "The Navy has very strict guidelines for everything we dispose of; the Sailors have to follow those rules in order to protect our environment," he said. "The fact that we didn't have any inadvertent discharges during our underway, and that we properly disposed of our hazardous material, means that we did everything we could to protect the environment."

In addition to serving as one of two submarine tenders still in naval service, *Frank Cable* further distinguishes herself by not only operating in a flourishing marine ecosystem, but by also calling it home.

"We have a big advantage because we are able to see via snorkeling, diving, and going to the beach, how beautiful Guam and the ocean are," Capt. Stanley said. "That inspires and motivates us to protect it more than the average Sailor in the average home port."

Many Sailors agree that the island of Guam is beautiful, and they share the conviction that they must do their part to keep it that way. As evidence, *Frank Cable's* Sailors conduct more than 10 community relations projects each year to improve and protect the environment.

"Most Sailors here hike, snorkel, and enjoy the beaches," said Electrician's Mate Fireman Aubri Harmon. "Guam offers Sailors so much to do in our off time, and it is our responsibility to give back to the island by doing our part to keep it clean."

Frank Cable is the Navy's largest command on Guam, and by earning this award has proved that her continuous efforts are not only making a difference in the Navy, but also in the local communities that support her.

Frank Cable is currently undergoing refitting and modernization at Guam Shipyard for Military Sealift Command conversion.  

FY10 SECNAV Energy and Water Management Awards

Large Ship Award

USS *Iwo Jima* (LHD 7)

Small Ship Award

USS *Lake Champlain* (CG 57)

Platinum Level of Achievement

USS *Bataan* (LHD 5)

USS *Nitze* (DDG 94)

Gold Level of Achievement

USS *Bonhomme Richard* (LHD 6)

USS *John Paul Jones* (DDG 53)

Blue Level of Achievement

USS *Harpers Ferry* (LSD 49)

USS *Higgins* (DDG 76)

Awardees were based on fiscal year 2009 accomplishments in their Energy Efficiency Programs and received cash prizes for their achievements. Winners were characterized as having "comprehensive efficiency programs with senior-level command involvement, well staffed and trained energy teams, aggressive awareness

campaigns, innovative energy efficiency measures, and consistent reduction in energy consumption." Awardees are authorized to fly the SECNAV Energy Flag for a year beginning on Oct. 6.

For shipboard energy saving tips and ways you can help your ship compete, check out NAVSEA's incentivized energy conservation program website at www.i-encon.com.

Taking Care of Waste... The Right Way

By Barbara Mendoza, N86 Public Affairs Officer

Navy ships routinely operate at sea for long periods of time, and generate a significant amount of waste from the hundreds of Sailors aboard. Operating much like a city at sea, there are different types of waste Sailors generate daily, and the ship's waste stream must be properly managed to protect our oceans against environmental hazards.

"Protecting our birds, sea turtles, other marine mammals and plant life at sea is no different from protecting the environment while on land," said Naval Sea Systems Command (NAVSEA) Shipboard Environmental Protection Technical Coordinator, James Higgins. "Sailors are extremely aware of the environmental hazards and use extra caution while deployed to ensure all waste is properly disposed of in accordance with Navy policy."

That policy is to comply with all applicable international and U.S. environmental laws and regulations, including the International Convention for the Prevention of Pollution from Ships (also known as "MARPOL 73/78"), the Act to Prevent Pollution from Ships, the Clean Water Act, and the Clean Air Act. The Navy established fleetwide policies and developed and installed equipment aboard its ships to meet these requirements, but adhering to regulations isn't the only motivation.

"Sailors today grew up with recycling bins and don't want to put anything in the ocean that is going to harm marine and plant life. They have a personal background and upbringing that supports that, and being in the Navy isn't any different,"



▲ SN Ernie Gillis utilizes the solid waste pulper aboard USS **Ford** (FFG 54) to grind paper, cardboard, and food waste into benign, biodegradable slurry that is discharged at least three nautical miles from shore where it degrades into the environment. (CSC(SS) Todd Young/USN)

said Mike Pletke, Office of the Chief of Naval Operations (OPNAV) N45, Afloat Environmental action officer. "There is a culture of respect for the environment. We have to be out at sea to do our mission, but we have to protect the environment as well."

For commands to comply with the shipboard environmental program policies, Navy procedures must be followed and training provided to Sailors on the equipment used to separate solid waste, plastic waste, sewage, oils and hazardous material. For example, there are three solid waste systems aboard each Navy warship to ensure solid waste discharges are made with minimal environmental impact while at sea, and that no plastic is discharged at sea. These systems include large and small pulpers, metal and glass shredders, and plastic waste processors.

"Environmental systems are pretty much the same throughout the entire

Navy. The large and small pulpers are oversized garbage disposals with water circulating through a big set of rotating blades," Higgins said. "The pulper grinds paper, cardboard, and food waste into benign, biodegradable slurry that is discharged at least three nautical miles from shore, where it degrades into the environment. The operator inserts trash in the feeder, where it gets ground up and mixed with seawater, and then drains over the side."

He explained that the large pulpers, fitted on larger ships, handle between 500 to 1,000 pounds per hour, depending on whether it is fed paper or cardboard. The small pulpers, fitted on smaller ships, can handle between 200 and 300 pounds per hour.

"The plastic waste processors are basically effective garbage compactors that heat the outside of the plastic and form it into a stable shape, similar to an oversized hockey puck," Higgins

Oily Waste Equipment

All U.S. Navy warships are equipped with oil/water separators that meet the current environmental standard of 15 parts per million, which is roughly equivalent to one drop of oil in a gallon of water. Oily waste treatment equipment installed on new ships achieves even higher oil removal performance through the use of oil/water separators along with U.S. Navy-developed effluent polishers that use ultrafiltration membrane technology. Because the membrane system is a physical barrier system, the system produces a much clearer effluent.

Hazardous Material Management

Over the past 25 years, the Navy has moved to a centralized system for hazardous material control and management onboard its ships. A centralized Hazardous Material Minimization Center allows ships to carefully control what hazardous materials come aboard, how and where they are stored, who is permitted to use them, and how they are ultimately disposed of after being used or when no longer needed.

Sewage Collection, Holding, and Transfer

All U.S. Navy warships are equipped with systems designed to collect, hold, and transfer black water (sewage). At sea, Navy ships do not discharge black water closer than three nautical miles from the nearest coast. Navy ships are designed to be able to hold a minimum of 12 hours of black water on board from three nautical miles from shore until arriving pierside, and when exiting port until outside three nautical miles. When in port, Navy ships transfer black and gray water ashore for treatment.

said. Once the processor melts the plastic wastes – including those contaminated with food – into disks, they can be stored on board until an opportunity for offloading ashore. This allows Navy ships to comply with the policy of not discharging plastics at sea.

On the other hand, the metal/glass shredder uses grinding to break up metal and glass into small pieces, which are then placed in a burlap bag and discharged at least 12 nautical miles from shore. The burlap bags, metal and glass rapidly sink to the bottom where they assimilate into the marine environment.

All Sailors receive regular environmental general military training (GMT) on environmental policies and procedures of how to separate trash for the three systems. Sailors that actually operate and maintain the machines go through additional training, while those with bridge watchstanding responsibilities must be knowledgeable of the discharge distance restrictions.

As for new systems being put into place, one is an improved version of the plastic waste processor. Installation on board surface ships began in 2005, and is currently scheduled to be completed for all ships in 2012. “The new system has the

same footprint as the old plastic waste processor, but we are improving the throughput and making thicker plastic pucks,” Higgins said. “The machines will process about three times as much plastic per cycle.” He said that the new system is about 90 percent self-cleaning, and also reduces the amount of maintenance and the number of parts involved in the machine by a factor of two.

Higgins also boasted about the low rate of problems taking the new plastic waste processor out of service. “Basically where we used to see somewhere between a 50 to 70 percent failure rate on the old plastic waste processors, now we are only seeing between 20 to 30 percent on the new plastic waste processors, saving the Navy money and man-hours.”

When it comes to protecting the environment, the Navy takes its responsibilities extremely seriously without compromising the mission. “We are always looking at ways to do it cheaper and find more effective ways to protect the environment, but the mission is first,” Pletke stated. “We have to keep that in mind – we can’t be environmentally friendly at the cost of the mission. We accomplish the mission while being good stewards of the environment.” 



▲ EMFN Alex Robinson holds a disc of melted plastic after using the compress melt unit (CMU) machine aboard USS *Peleliu* (LHA 5). Shipboard plastics are collected, melted into discs using the CMU, and then transferred to shore for proper disposal. (MCSA *Destiny Cheek*/USN)

WRAPS and PRIME:

On a Mission to Minimize Navy Waste

By Brian Kettl, Asset Protection and Pollution Department, Naval Inventory Control Point

As the Navy increases its commitment to reducing waste streams and a shrinking environmental footprint, the Naval Inventory Control Point (NAVICP) is engaged with the Fleet to provide solutions to shipboard solid waste management issues.

Waste reduction not only helps the Navy to be a better environmental steward, but also decreases the time, labor, and energy required to properly process the trash. NAVICP works to minimize waste through the Waste Reduction Afloat Protects the Sea (WRAPS) and Plastic Removal in Marine Environment (PRIME) programs.

The WRAPS program assesses strategies to reduce waste generated at sea. To better understand every day Fleet waste issues, periodic survey teams sample a waste stream on a Navy ship or activity. They carefully examine the components of a waste stream, identify targets for focused waste reduction efforts, and develop strategies to minimize the targeted areas. The team then implements and evaluates these strategies on an experimental scale. If a strategy proves successful, WRAPS recommends the solution to the Navy.

For example, a study conducted aboard USS *Porter* (DDG 78) in 2008 revealed that plastic bottles made up 15 percent of the ship's plastic waste stream. This led to a pilot effort to assess the effectiveness of using reusable water bottles as a strategy to reduce plastic waste. WRAPS gave metal sports bottles to the crew of USS *Oscar Austin* (DDG 79) to determine if this will lead to a reduction in the purchase of plastic water bottles and thus reduce

waste. USS *Winston S. Churchill* (DDG 81) will also take part in the study; it did not receive any water bottles and will serve as the control. NAVICP will track the purchasing and disposal habits of both ships to determine the success of this strategy.

Plastic is difficult to dispose of at sea because of the environmental regulations and laws that prohibit the discharge of plastics into the ocean. The International Convention for the Prevention of Pollution from Ships (MARPOL) treaty provides specific limits as to what material can be dumped and where dumping can occur in the ocean. The MARPOL treaty prohibits any and all discharges of plastic into the sea and has since been adopted into public U.S. Law. Therefore, Navy ships must store all plastic waste aboard until an offload opportunity occurs. This can result in unpleasant and unsanitary working conditions if the plastic is not handled and treated properly.

Additionally, space is a premium on all ships, and storing waste can quickly become a problem on larger ships such as aircraft carriers that daily generate large volumes of plastic waste. The Plastic Removal in Marine Environment (PRIME) program was formed to deal with these issues. PRIME works with the General Services Administration (GSA) to identify products that are not packaged in plastic. Participants in the PRIME program are contractually obligated to package PRIME products in biodegradable materials. These items are then available for purchase on GSA Advantage in the Environmental Section of the GSA website.

The *Porter* study also revealed that plastic garbage bags make up more than 31 percent of a ship's plastic waste stream. The Navy does have wet strength paper bags; however, they are bulky, expensive, and can still succumb to moist food waste. As a result, plastic garbage bags are often used for food waste and miscellaneous waste aboard ships. To solve this dilemma, PRIME is working to improve wet strength paper bags and find a solution to the waste bag issue.

PRIME is collaborating with several companies via the Small Business Innovative Research (SBIR) program to see if they can create a non-plastic waste bag that will be able to handle food waste. If an alternative can be developed, the Navy may no longer need plastic garbage bags.

WRAPS and PRIME are two important components of the Navy's efforts to improve its environmental stewardship. Both programs focus on identifying and implementing new supply processes and products that will reduce Navy waste. These programs also recognize packaging as a major component of the waste stream. To combat this, WRAPS continues to develop innovative ways to reduce the waste created by a Navy activity while PRIME attempts to reduce packaging with a focus on identifying plastic alternatives. Through these programs, the Navy has signified its commitment to improving waste handling practices and reducing its environmental impact.



Defending Freedom, Protecting Marine Life

By Barbara Mendoza, N86 Public Affairs Officer



▲ Pilot whales surface near the NATO Research Vessel *Alliance* during the multinational Biological and Behavioral Studies of Marine Mammals in the Western Mediterranean Sea. (Ann Allen/USN)

The U.S. Navy is a responsible environmental steward, and recognizes the need to protect marine life without jeopardizing national security – the Navy’s primary mission.

A key focus of the Navy’s environmental stewardship at sea is the protection of marine species, including marine mammals. The U.S. Navy is a world leader in this research, with more than \$100 million committed to marine mammal research during the past five years alone. To fully comply with environmental laws, the Navy analyzes the potential effects of training on the environment and cooperates with environmental regulatory agencies, as appropriate, in planning for training and testing activities at sea.

In partnership with the National Marine Fisheries Service (NMFS),

the Navy develops and implements science-based monitoring and mitigation measures to protect marine mammals while conducting Navy operations at sea. According to Dr. Bob Gisiner, Office of the Chief of Naval Operations (OPNAV) 45, Marine Sciences branch head, “The Navy marine mammal research program is guided by research and technology development related to understanding the effects of sound on marine mammals, including physiological, behavioral and ecological effects.”

The program is currently focused on the following general areas:

- Marine mammal ecology and population dynamics (increasing understanding of behavior, seasonal distribution, and abundance of marine species in areas where Navy conducts testing and training activities)

- Criteria and thresholds to measure the effects of Navy-generated sounds
- Improving mitigation and monitoring techniques
- Sound field characterization (developing better protocols and models for predicting how sound propagates in water)

The Navy also partners with academia, private industry, and non-governmental organizations (NGO) in developing and executing its marine mammal research program. “The focus of the program is to give the Navy the knowledge, tools, and technologies that it needs to be in compliance with the law in terms of protecting marine mammals and being good stewards of the ocean environment in which we work,” Dr. Gisiner explained. During the past decade, the Navy spent between \$10 and \$14 million per year in support of research by universities and science institutions to help better understand the effects of Navy-generated sound on marine mammals, and to seek new tools and approaches the Navy can use to manage those impacts.

Currently, the Navy employs 29 mitigation measures during sonar exercises, designed to lessen potential effects. These measures include stationing specially trained lookouts to watch for marine mammals, passive acoustic monitoring for marine mammals, establishing safety zones around ships where sonar power is reduced or shut down if marine mammals are sighted, and using mandatory reporting requirements up the chain of command and to regulatory agencies when injured marine mammals are spotted.

Sailors use various monitoring techniques before, during, and after exercises to detect and avoid marine mammals. The Navy is also exploring options, techniques, and tools to improve current monitoring and mitigation efforts. Fieldwork is taking place at the Atlantic Undersea Test and Evaluation Center (AUTECE) undersea range in the Bahamas and on the undersea Southern California Offshore Range (SCORE).

"The reason for using these facilities is the availability of passive acoustic monitoring tools, specifically bottom mounted and deployable sensors to collect data on species that are both resident and transient on these ranges," said Dr. Frank Stone, OPNAV N45 Marine Mammal Research and Development program manager.

In addition, satellite tags are used to track the movement of these animals on a wider scale. Results from this effort provide information on how "normal" behavior is defined on these ranges. "When 'normal' behavior has been defined, then in future projects, individual animal behavior will be monitored for comparison during underwater sound-emitting events to determine if there is a change in behavior as a result of the sound exposure," Dr. Stone said.



▲ Sonar Technicians aboard USS *The Sullivans* (DDG 68) monitor sonar equipment during the Southeastern Anti-Submarine Warfare Integrated Training Initiative. The Sailors are remaining alert for signs of marine mammals as well as for submarine activity. (MC2 Sunday Williams/USN)

Other aspects of monitoring systems the Navy would like to further explore involve automating the data collected through passive monitoring, validating data sets of vocalizing mammals detected during passive monitoring, and developing baseline information on resident and transient species in certain geographic areas. Marine mammals "vocalize" in a variety of ways, each of them suited to a particular behavior

or situation. For example, dolphins exhibit two main types of vocalization: clicks and whistles. The "clicks" are used in echolocation to find food. Each individual dolphin also has a series of whistles (like a Morse code) distinct from any other member of the group, called a "signature whistle." This signature whistle distinguishes an individual, providing a way for dolphins to recognize and bond with others.

Watchstanders also benefit from the required use of a computer-based decision support tool called the Protective Measures Assessment Protocol (PMAP) program. Released for fleetwide distribution in October 2004, this CD-ROM tool helps commanders understand the environmental factors of the areas in which they may train or operate. PMAP assists unit commanders in maintaining readiness by identifying and implementing appropriate protective measures for sensitive marine resources during routine training and exercises. Most operational units on the Standard Navy Distribution List can download updated PMAP software from the



▲ A Sailor searches the surrounding seas for marine mammals as part of the Navy's environmental stewardship. (U.S. Navy photo)



▲ An officer displays a “whale wheel,” which provides information about the features, size, locations, and migratory habits of various species of whales. (U.S. Navy photo)

PMAP website at <https://geonet/spawar.navy.mil/pmap>.

“Fundamentally, when we don’t know what our effect is going to be, we have a responsibility to minimize the risk to the animals,” Dr. Stone explained. “So we developed the PMAP program; part of it is to establish the shut down ranges for tactical sonar.” In other words, when ships are 1000 yards from a marine mammal, the ship is to reduce sonar power to 6 dB; if closer than 500 yards – 4 dB; and if marine mammals are 200 yards away, the ship must shut down sonar. “These distances were designed to protect the animals from getting a TTS (temporary threshold shift) in their hearing,” Dr. Stone said. A TTS occurs when an animal’s hearing baseline temporarily shifts, changing the range of sounds that they can hear for that duration.

To put the Navy active sonar use in perspective, it is important to note that, of the U.S. Navy’s approximately 289 surface ships, only 58 percent are equipped with mid-frequency active sonar. About half of these ships are underway at any given time, and for each ship, active sonar is turned on only a small percentage of the time during training and some types of maintenance activities.

In the event of a whale stranding,

the battle watch captain (BWC) is notified at either Commander Fleet Forces Command (CFFC) or Commander Pacific Fleet (CPF), depending on location. In a recent stranding where whales washed up on the shores of North Carolina and Florida, CFFC had the responsibility to find out where sonar activity took place within 72 hours of the event.

“We have a system onboard ships called SPORTS (Sonar Positional Reporting System) that identifies which ships are broadcasting sonar and at what time,” Dr. Stone said. “Then CFFC does the time-distance analysis, and if it looks like there is potential that sonar could be involved, we ask for more details. In these cases, 99 percent of the time the nearest ship using sonar is more than 200 miles away and it’s a coincidence that the ship was broadcasting when the animal came on shore.”

Stone reiterated that these precautions do not mean that the ship can’t operate at all if whales are spotted. The Navy must train and exercise to maintain readiness. “We want a level of awareness to protect the animals, but not to the extent that it affects training fidelity,” Dr. Stone emphasized. “To assist with environmental awareness, watchstanders have a Whale

Identification Wheel to help identify marine mammals they may encounter at sea.” Through the appropriate application of mitigation measures and a heightened awareness of ocean life, the Navy can conduct exercises safe to both ship and marine mammal.

During the next five to ten years, the Navy expects its research will provide the information required to improve data collection technology and develop better methods to enhance our understanding of the short, medium and long-term effects of anthropogenic, or human-derived, activities on living marine resources. These tools will enable the Navy to meet and optimize its training and testing objectives in an environmentally responsible manner, and to provide regulatory agencies with sufficient, scientifically defensible information to assess, monitor and mitigate the effects of Navy-generated sound on marine mammals.

Dr. Gisiner stated that OPNAV N45 is working on developing curriculum and instructional materials which Sailors can complete online in order to further educate them on the process of protecting the marine mammal environment. He is, however, aware of the numerous training requirements that Sailors, both enlisted and officers, already face, and understands they are nearly maxed out.

“We have to be sensitive about how much of a training burden we want to add to the already rigorous training schedule for Sailors, so we have to be a little bit clever on how we go about conducting this kind of education and training process,” Dr. Gisiner said.

“We think the watchstanders are already doing a great job, and would encourage them to keep up the good work,” he added. “We are not trying to make this extra responsibility complicated. We are going to try to make their lives easier while helping the Navy remain a good steward of the environment.” 

CG CLASSRON Peel and Stick Non-Skid Trial Complete

By Lt. Chris Seivers, Public Affairs Officer, Guided-Missile Cruiser Class Squadron

Anyone who has ever been involved with the removal and application of traditional non-skid knows it's one of the most dirty, time-consuming, and un-fun jobs in the Fleet. Anyone who has ever commanded a ship and worried about top-side weight knows traditional non-skid is exceedingly heavy and negatively impacts a ship's stability. And anyone who has ever handed over the money for traditional non-skid knows it's very expensive.

For many ships and Sailors, those challenges are now a thing of the past. After an extensive study conducted by the former Guided-Missile Cruiser



▲ Sailors aboard USS *Lake Champlain* (CG 57) replace traditional non-skid with the new peel and stick non-skid. (FCC(SW) Anthony Belbeck/USN)



▲ This section of the new can peel and stick non-skid showing slight wear can be easily replaced. The new non-skid also reduces cost and offers weight reduction over traditional non-skid. (FCC(SW) Anthony Belbeck/USN)



Class Squadron (CG CLASSRON) and an 18-month wear test aboard USS *Lake Champlain* (CG 57), the Naval Sea Systems Command (NAVSEA) has added peel and stick non-skid to its list of standard items and authorized it for topside, shipboard use fleetwide.

Peel and stick non-skid costs 66 percent less than traditional non-skid and also offers a weight reduction of 50 percent. This can add up to significant cost and weight savings. In fact, over the course of the test, *Lake Champlain* reported a cost savings of \$30,840 and a weight savings of 1,430 pounds.

The weight savings are especially significant in upper-level topside areas where a ship's weight and balance is critical. Cost savings in subsequent years are expected to be even higher, because only worn sections need to be replaced vice an entire area, which is required with traditional non-skid.

Perhaps the biggest fans of peel and stick are Sailors themselves. Responses from *Lake Champlain's* crew collected at the end of the trial were nearly all positive. Sailors agreed peel and stick non-skid was easier to keep clean and repair than traditional non-skid.

The material was originally laid by ship's force aboard *Lake Champlain* in April 2008. About 18 months later, Naval Surface Warfare Center, Carderock Division (NSWCCD) representatives visited the ship to see how the non-skid held up. They took coefficient of friction (CoF) measurements, which determine the ability of non-skid to prevent skid, on each level and determined that they were acceptable.

The NSWCCD inspection found that the material had faded from its original dark gray color due to ultraviolet (UV) exposure – typical of that seen with traditional non-skids. They noticed some areas of patch repairs, but they were cleanly done. Also, edges of the peel and stick showed “peel back” in many locations, but only as far as an eighth of an inch; the remainder of the material appeared well adhered.

NSWCCD recommended that in areas prone to high wear – such as the bottom of ladders and exterior of water tight doors – the non-skid should be applied in smaller sections, so that the area can be more easily replaced when worn. Also, due to the extent of edge lifting observed, it was recommended that edge sealant be used during installation.

A naval message from Commander, Naval Surface Forces provided further guidance on the subject of peel and stick non-skid applications and the Commander, Naval Surfaces Forces, U.S. Pacific Fleet N47 department has information on ordering and installing the material; they can be reached at 619-556-6672 / 6675. 

USS *Carney*

Tops the Fleet in Maintenance

By Lt. j.g. Sara Everett,
USS *Carney* Public Affairs

Sailors serving aboard USS *Carney* (DDG 64) know well the ship's extended name of "505 Feet of American Fighting Steel." But what truly exemplifies this warship – and why she was the Chief of Naval Operations' nominee for the 2009 Secretary of the Navy Defense Maintenance Award – was her "505 Feet of *Superbly-Maintained* American Fighting Steel."

Homeported in Mayport, Fla., *Carney's* mission is to be prepared to conduct prompt, sustained combat operations at sea, independently, or as a member of a Carrier or Expeditionary Strike Group.

According to *Carney's* Commanding Officer, Cmdr. Brendan McLane, the cornerstone of the ship's ability to earn this nomination is credited to their outstanding maintenance program and the Sailors who execute it.

"*Carney* Sailors take pride in their ship, and their pride centers on maintaining her at the highest state of readiness. Knowing that a ready ship can complete our nation's tasking, can also save lives, and keep their shipmates safe, all at the same time," Cmdr. McLane explained. "Also, for most Sailors, this ship is their home-away-from-home for the next three to five years, so our Sailors take care of the ship. *Carney* Sailors are family, and by caring for their surroundings, they are taking care of each other."

He said *Carney* Sailors have earned a fleetwide reputation as a crew that can self-assess and take the immediate actions needed to correct any material discrepancies that could prevent the ship from supporting the Fleet.

"Our mantra is 'preparation, preparation, preparation,' and we teach our Sailors to plan early, manage time effectively, and to be critical of themselves," Cmdr. McLane said.

Highlighting this ability was the ship's recognition as Commander, Naval Surface Force Atlantic's 2008 Self Sufficient Ship of the Year.

In one example of this preparation prowess, less than 24 hours before *Carney* departed for a port visit to New York City, Gas Turbine System Technician – Mechanical (GSM) 2nd Class Michael Rushing discovered a pinhole leak in the fuel oil system piping in Main Engine Room 1 (MER1). He took immediate action to deflect the fuel to the bilge and cover it with aqueous film forming foam (AFFF), preventing a potential Class Bravo fire.

GSM2 Rushing said that the crew has repeatedly trained for scenarios such as this. "As you are training for things like this, you can begin to think that it is all tedious and monotonous," he said. "But you don't realize until you go into a situation like that just how much that training has become embedded in your memory. You act upon that training like it is second nature."

He added that everyone who needed to respond to the casualty did, and there was no confusion. "It just happened in an instant – every Sailor knew what had to be done and did their job."

Following the casualty, *Carney* Sailors demonstrated exceptional ingenuity and resourcefulness, working with Southeast Regional Maintenance Center, *Carney's* Port



▲ USS *Carney's* (DDG 64) Commanding Officer Cmdr. Brendan McLane watches as DCFN William Collins (left) and DC2(SW) Zackary Dangler clarify notes on the P-100 pump maintenance requirement card. (U.S. Navy photo)

Engineer and Naval Sea Systems Command Design Engineers to make repairs in time for the ship to get underway on time and meet her high-visibility tasking in support of New York City's 400th Anniversary, in which Carney was the sole U.S. Navy representative.

"Carney's sound maintenance practices and quick-acting response to this casualty allowed us to participate in this significant international festival," Cmdr. McLane said. "A year spent preparing and training came through in the end. Our Sailors responded to the 'real deal' with confidence and quick action."

In another example of self-sufficiency, Carney Sailors made emergent repairs on the thermocouple wiring harness of Number 1 Gas Turbine Generator (GTG). Without the thermocouples there would be no way to monitor the inlet temperature of the engine, taking it out of commission. This time it was the Gas Turbine System Technicians – Electrical who took the lead, conducting depot level repairs and returning the GTG to full operation.

Other self-sufficient maintenance accomplishments include the manufacture and installation of protective covers to the ship's armory door hinges; repairing mechanical seals on a sea water service pump; painting and preserving Carney's mast; repairing four sliding vanes on Number 2 Aqueous Film Forming Foam (AFFF) concentrate pump; repairing and replacing a faulty fire main valve and fire main reducing valve for 1A reverse osmosis unit; and repairing a fire main reducing valve and piping for 1B reverse osmosis unit.

These repairs saved the Navy more than \$130,000 in parts and labor, and are representative of the work performed by Carney Sailors on a daily basis.

Another key component of Carney's nomination was her effective use of maintenance resources. This entailed a close working relationship with project managers and port engineers from Southeast Regional Maintenance Center (SERMC) to minimize equipment downtime and expedite casualty report (CASREP) support. In just one of many concrete examples of

this partnership, micro-miniature (2M) repair technicians from Carney worked side-by-side with SERMC engineers to trouble-shoot both port and starboard torsionmeters and seek rapid part replacements to bring the ship back up to speed when faulty components were discovered in both motherboards.

Resource management played a role in CNO's nomination as well. Carney's fuels personnel developed an innovative tracking matrix to monitor fuel usage broken down by mission area, plant configuration, and speed. Sailors then used the data to make recommendations for the most efficient equipment configurations during daily operations/intelligence briefs.

For all that Carney's crew accomplished in their daily maintenance efforts, one word took precedence above all – safety. According to Carney's Command Master Chief, CMDCM(SW/AW) Ross Cramer, safety of the crew is paramount to their success.

"On board, every Carney warrior is a safety officer, and we ensure a climate of forceful back-up," Master Chief Cramer said. "Any Sailor feels comfortable enough to stop an unsafe act, or to intervene when something does not look right. Lessons learned are solicited from the most junior to the most senior person present after all evolutions."

The command strives to maintain the highest safety and risk management standards, and all safety programs were recently evaluated as effective during ULTRA-E and the Industrial Health Survey.

The confidence that comes with working in a safe, well-prepared, and well-maintained environment translates into a highly effective operational unit. Carney, thanks to the professionalism of her crew, proved one such ship. The recognition given by CNO as the nominee for the 2009 Secretary of Defense Maintenance Award was well earned. 



▲ Waves crash over the bow of USS Carney (DDG 64) while the ship was deployed earlier this year as part of the Eisenhower Carrier Strike Group. (MAC Anthony Sganga/USN)

FIRE FOR EFFECT

USS *Vicksburg's* Naval Service Fire Support Team Excels in the North Atlantic

By Ensign Paul Moody, Gunnery Officer, USS *Vicksburg* (CG 69)



▲ USS *Vicksburg's* (CG 69) NSFS team celebrates after their qualification shoot at Frohavet, Norway. (Lt. j.g. Marc Schorn/USN)

In December 2009, USS *Vicksburg* (CG 69) began a successful cycle of Naval Surface Fire Support (NSFS) training when Expeditionary Warfare Training Group Atlantic (EWTGLANT) sent their Mobile Training Team (MTT) to Mayport, Fla., to conduct annual NSFS training for *Vicksburg's* 12-man team.

A successful NSFS team is built upon a foundation of broad knowledge and requires every team member to master skills beyond the normal boundaries of their source rating. For example, an operations specialist (OS) must learn the job of a fire controlman (FC) and vice versa to ensure the overall team fully understands their responsibilities and how their role fits into the team.

Throughout a week of complex training, the MTT instructors aboard *Vicksburg* polished an already cohesive team of veterans,

and incorporated several novice members, by focusing on professional watchstanding practices and radio-telephone (RT) procedures.

Once an NSFS team masters the basics, they must continuously train and practice to perform their duties quickly and accurately. Among the many technical aspects of NSFS, two stand out among the rest: radio voice procedures and time management. Although in-rate skills such as plotting and weapons systems operation cannot be ignored, voice communications and rapid, safe execution are what makes a superior NSFS team.

For the *Vicksburg's* NSFS team, focusing their efforts on these areas paid huge dividends throughout the week. By week's end the team had successfully completed all missions within required time limits, several in as little as ninety seconds, and without

a single RT infraction. Overall, the NSFS team was awarded full certification while achieving a final score of 96.3 percent.

According to EWTGLANT Director of Operations and Training, U.S. Marine Corps Col. Scott Williams, the "team's motivation and readiness to perform were evident from day one." Through this combination of "competence and esprit-de-corps," said Col. Scott, *Vicksburg's* NSFS team was clearly "ready to bring the fight to the enemy in support of amphibious operations."

The NSFS team then had to complete an annual graded live-fire exercise (FIREX) to be fully prepared to conduct combat calls for fire. While most NSFS teams complete their live-fire certification using a mobile Integrated Maritime Portable Acoustic Scoring and Simulation (IMPASS) range, inclement weather and the northern right whale calving season hampered two separate attempts, requiring an alternate certification exercise. Undeterred, *Vicksburg* sought out creative solutions and was fortunate enough to conduct several FIREXs at foreign gunnery ranges during a three-month Theater Security Cooperation Surge Deployment to Northern Europe.

Vicksburg's first event was supported by Norwegian partners on their range in Frohavet with spotter services provided by the Second Anglico Fire Support Company based at Camp Lejeune, N.C. Two enlisted U.S. Marines and a U.S. Navy gunnery liaison officer (GLO) flew to Norway and met the ship on the Frohavet Range for an extended FIREX on



▲ USS *Vicksburg* (CG 69) fires on the Frohavet, Norway gunnery range during her NSFS live-fire certification. (Lt. j.g. Marc Schorn/USN)

March 10. *Vicksburg's* NSFS team performed with distinction, achieving perfect scores during calls for Refire Targets, Danger Close, Countermech, Suppression of Enemy Air Defenses (SEAD) and Coordinated Illumination. The team's efforts culminated in an overall score of 99.2 percent.

Unlike the simulated conditions presented during the MTT event, live calls for fire were more challenging due to real-world navigation requirements, live external communications, and weather and sea conditions. As before, the NSFS Team met these challenges and achieved impressive results by continually focusing on the basics.

In addition to completing her own qualification events, *Vicksburg* also provided live-fire training support to ten Norwegian Commandos, assisting them in achieving full spotter qualifications. Over the course of six hours of firing, she safely expended a total of 193 rounds, a rare opportunity for any U.S. warship. The FIREX at Frohavet was an immense success made possible by the professional assistance of Norway's range safety and liaison officers.

Vicksburg also participated in the annual *Joint Warrior* 10-1 Exercise, hosted by Great Britain's Royal Navy from April 13 - 24. *Joint Warrior* presented several opportunities for the ship to execute live-fire services

at Cape Wrath, considered to be one of the world's most challenging fire support ranges. The ship spent two days conducting supporting fire missions with the British Royal Marines as well as members of the First Air Naval Gunfire Liaison Company (ANGLICO) and 10th U.S. Marines Regiment.

On April 16, *Vicksburg* successfully completed more than 20 calls for fire,

including SEAD, Countermech and scheduled fires, safely expending 87 rounds. Not only did she successfully complete all missions assigned, these calls for fire were executed while maneuvering at fifteen knots, another opportunity many U.S. warships do not often experience.

Four nights later, on April 20, *Vicksburg* lit up the night sky over Cape Wrath with 39 illumination rounds. Responding to coordinated calls for fire with artillery and mortar brigades, she supported the Royal Marines as they made their way to their objectives, expending another 100 rounds without a single gun casualty.

While not every ship will enjoy the opportunities *Vicksburg's* NSFS team had to display their gunnery skills, the success they exhibited is within reach of every one, and begins as it did for *Vicksburg* with the basics of competence, team work, and motivation. 

REQUIRED MISSIONS AND DESCRIPTIONS

Area Target

A pre-planned firing mission covering a specific geographic area, with intent to deter, disrupt, or destroy the strategic target prior to "H-Hour."

Refire

When a target has been previously fired upon and the grids have been recorded in order to use again.

Danger Close

When friendly forces are within 650 meters of target.

Countermech

When tanks or track vehicles are the targets.

Suppression of Enemy Air Defense (SEAD)

SEAD is used in conjunction with fixed or rotary-wing aircraft against enemy air defense assets. Used to mark for destruction or suppression when aircraft engage a high-value target.

Coordination of Illumination Rounds (COORD ILLUM)

Used at night, COORD ILLUM is used to light up targets for spotters, who then use high explosives to destroy the targets.

Cyber Warfare Comes of Age

Vice Adm. Bernard McCullough III
Commander, U.S. Fleet Cyber Command/Commander, U.S. Tenth Fleet

The history of mankind is often broken into different periods, or ages: the Stone Age, the Bronze Age, the Iron Age, and so on. The defining characteristic of each of these ages is finding a new instrument to use as a tool, be it a stone chip used as an axe, a formed bronze spade, or an iron plowshare.

Another trait is that the new material used as a tool, inevitably, is also used to make a new weapon, from stone arrowheads to bronze spearheads to iron swords. New technology always finds its way into the current methods of warfare, and in the Information Age, things are no different.

The Information Age is commonly thought to be an outgrowth of the Space Age, where one of the most important advances was the miniaturization of computers. The increase in technological capability of the personal computer, combined with the increase in speed, reliability, and reach of the Internet, has created an environment where information flows freely and there is almost nowhere in the world that cannot be reached via computer. These advances offered limitless potential for growth and efficiency both in the civilian and military worlds. Both worlds were quick to recognize, and attempted to capitalize on, the potential of computer networks and interlinked communications.

Gone are the days of receiving record message traffic over high frequency or very high frequency

nets that may or may not have come across cleanly. Now we can send messages via e-mail, chat, or any number of methods to ensure a steady and seamless flow of data. Support facilities on shore can log in and monitor system performance remotely to ensure optimal efficiencies are gained. Through systems like the Automatic Identification System (AIS), we can maintain an awareness of the maritime domain that is unparalleled in our lifetime. Ships can send data back and forth to ensure a seamless picture of the area, ensuring maximum awareness and protection.

The examples of how technology and communications are being used to enhance our operations are limitless. Unfortunately, so too are the dangers this very technology brings, and that is something we do not talk about often enough.

Moving to the Tip of the Spear

Just as man-made hand tools rapidly became implements of war, so too are computers becoming weapons after what can be characterized as a period of benevolent, exponential growth. When personal computers were first connected to the Internet, everyone wanted to get online, and no one thought of the potential consequences, or vulnerabilities, that could, and would, arise. No one knew what a virus was, or how damaging it could be; now there is scarcely a person reading this article that does not have some sort of firewall or virus



▲ As cyber warfare comes of age, never has a simple key stroke held so much importance in the safety and security of our Fleet. (MCI Jason Brunson/USN)

monitoring software which conducts daily to weekly checks to make sure something has not gone wrong and allowed the enemy inside the wire.

We must apply this very same diligence to our Navy networks.

The Department of Defense has invested billions of dollars in the command and control of our ships, aircraft, and submarines. Our highly technical system of communications allows us to engage in a kinetic fight against a numerically superior enemy, or an advanced asymmetric threat, and have reasonable assurance of victory. Our ability to use various forms of intelligence, from satellites to communications networks, combined with radar pictures and the ability to relay that information between aircraft and ships, allows us to have a handful of assets engage an enemy, from over the horizon, and cause debilitating damage while minimizing collateral damage.

This “one versus many” method of fighting is vital to our success, but it hinges on our ability to command and control our assets. More important is the ability to maintain command and control of those command and control networks, or C2 of C2. Without this

level of information superiority, the “one versus many” approach will quickly degrade into a “one vs. one” dogfight, and all the investments we have made in dominating combat capability will be for naught.

In order to maintain the information superiority the Navy currently has, Chief of Naval Operations Adm. Gary Roughead directed the establishment of Fleet Cyber Command, the re-establishment of the U.S. Tenth Fleet, and the merger of N2 and N6 on the Navy staff to ensure that all required elements – from operations to resources – were correctly aligned.

While we are currently at an advantage in the cyberspace environment, we will not maintain that edge unless we treat cyberspace as an operational environment the same as we do with land, sea, and air. The creation of these commands, as well as the formation of the Information Dominance Corps, is designed to do

just that: treat information like the combat system it truly is.

Sharpening the Edge

Fleet Cyber Command/U.S. Tenth Fleet exists to operationalize cyber warfare and serves as the central operational authority for networks, cryptology and signals intelligence, information operations, cyber, electronic warfare, and space operations in support of forces afloat and ashore.

The command has two areas of prime interest at the moment. The first, and most important, is defining the battle space for cyber operations. Much like an air defense picture, we need to understand our boundaries, what we can affect and what we cannot. We must determine where the “vital area” is and what we are authorized to do if the enemy gets inside it. What legal authorizations and ramifications are there for defending our networks or launching a cyber counter-attack?

These are questions that we must answer to facilitate our second focus: support of the Combatant Commanders’ warfighting requirements.

The requirements of the combatant commanders are based on the operational needs to achieve an effect. Most shaping of the operational environment occurs through the removal of objects. If you want to deny your enemy situational awareness, you physically destroy his radar. Fleet Cyber Command is working closely with forward commanders to create non-kinetic actions that achieve the same overall effect. Perhaps, instead of using missiles to remove the radar, you remove its power source, or block the flow of information coming from it, or corrupt that data. There are myriad options for achieving the desired end state of making that radar non-operational. This is merely a fictional example of the utility of cyber warfare, and of its limitless potential, but it highlights the necessity of being able to operate freely in the cyber domain.

An Eye to the Future

Cyber operations is the future of warfare. This is not to say that combat on land, sea, and air will be relegated to history, because kinetic operational art will remain at the forefront of our profession. However, nation state actors and hacktivists have been shown to begin their activities long before the first tank rolls, or the first ship sails. Phase zero operations, and preparation of the battle space, are already being influenced by the utility of cyber operations but we must move further and faster to ensure that cyber effects are woven into the very fabric of all phases of operations.

We must recognize that defense of the networks is of the same level of importance as weapons qualifications, or any other tactical qualification. If we are unable to defend the network, we may lose the fight without ever firing a shot. 



▲ Vice Adm. Barry McCullough, Commander, U.S. Fleet Cyber Command and Commander, U.S. Tenth Fleet, speaks at the commissioning ceremony for U.S. Fleet Cyber Command at Ft. George G. Meade, Md. (MC1 Tiffini Vanderwyst/USN)

Beyond Belief? Superstitions at Sea

By MC1 (AW) Scott Vanderwyst, *Surface Warfare*

Superstitions have been with us since humans first began to try to understand their world. They began when our ancestors tried to explain situations they could not fully comprehend. For example, many early societies believed that sacrifices and tributes would bring about a plentiful harvest and vestiges of those early rituals can still be found in modern-day holidays and celebrations.

As one of the world's oldest professions, sailing's superstitions have had plenty of time to develop. Mariners once thought the oceans were filled with mermaids and sea monsters who would actively try to prevent a successful passage. Hence they created, performed, and observed multiple rituals to appease the "Gods" to ensure safe journeys. It was once believed that if a Sailor fell overboard it was best not to try to save him, for the "Sea" deemed it a necessary sacrifice.

From The Beginning

Nautical rituals are often stylized forms of superstitions, and one of the oldest still performed today is the "blessing" of all newly built ships to protect them at sea. Blessing a new vessel with liquid is as ancient as sailing itself. A Babylonian narrative dated to 3000 B.C. described actions taken after a ship was built:

*Openings to the water I stopped;
I searched for cracks and
The wanting parts I fixed;
Three sari of bitumen I poured over
the outside
To the gods I caused oxen to be sacrificed*

The ancient Greeks wreathed their heads with olive branches, drank wine, and poured water on their new vessels. Early Christians and Jews both used wine and water in their new ships to call upon God to protect them at sea. The Vikings were known to have offered human sacrifices to appease the angry Gods of the northern seas before taking a vessel on its maiden voyage.

During the Middle Ages, an English ceremony called the "standing cup" was routinely performed. The presiding official took a ceremonial sip of wine and then poured the rest on the deck or over the bow. The cup was then thrown over the side. As navies grew larger, the expensive cup was caught in a net for re-use.

In the 17th century the ceremony was replaced by the practice we recognize and perform to this day – breaking a bottle across the bow. These days champagne, instead of

wine, is the widely accepted choice for launching a new ship.

Another superstition embedded in this ritual views it as a bad omen if the bottle does not break on the first attempt. To combat this, specially made bottles of thin glass are available specifically for launching ceremonies.

Spare Change

One tradition that U.S. and many foreign navies continue to follow, is the placing of coins under the mast during construction. Today, the image on the coin reflects the ship or the namesake of the vessel.

This tradition likely originated in Greek mythology, with coins used as payment to ferry souls of lost mariners across the River Styx to Hades. A more pragmatic explanation tells us Greek sailors would use these well hidden drachmas to pay their way home in case of shipwreck.

Carrying on this time honored tradition, every U.S. Navy ship, from



▲ Debra Dunham, mother of late Cpl. Jason Dunham and ship's sponsor, breaks a bottle of champagne across the bow of USS *Jason Dunham* (DDG 109). Babylonian scripts date the tradition of blessing a ship back to 3000 B.C. (MC2 Kevin O'Brien/USN)

USS *Constitution* to our most recently commissioned ship, has had a coin, or coins, placed under her mast.

(Don't) Whistle While You Work

Whistling at sea is one of the oldest taboos among seafarers, for reasons that have evolved over time. The oldest and most striking belief is that whistling will conjure up storm winds, thus putting the ship and her crew in danger. Later, it was deemed best not to whistle as it would confuse communications aboard ships since the bos'n's pipe was (and is) utilized to pass along information. Today, whistling is also considered bad luck in engine rooms, as the noise could mask the sound of a steam leak.

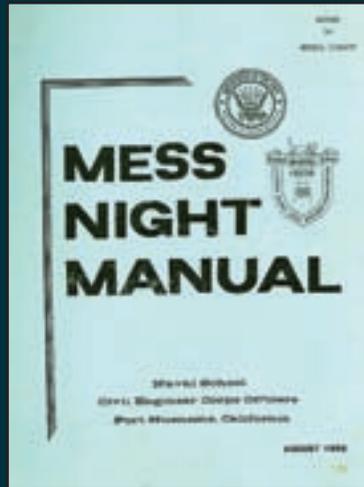
Ironically, in the days of sail, the cook was not only allowed to whistle, but encouraged to do so. Why? It was said that if the cook was heard whistling, he was unable to spit in the food he was preparing for the crew.

Toasting Etiquette

The term "toast" comes to us from sixteenth century England, where bits of toasted bread were added to drinks. Back then toast was a delicacy, only used during formal occasions involving guests of honor. Thus, to honor the person was to "toast" him, a term and tradition still in existence. Among seafarers today, including the U.S. Navy, two superstitions are followed concerning toasts and can still be witnessed during official ceremonies and formal events.

The first tradition dictates that water should never be used for a toast. It is believed that in doing so, the fate of the person honored is sealed in a way most feared by Sailors. Such a fate is referenced in the U.S. Navy's *Mess Night Manual*, dated August 1986:

"Toasts are usually made with champagne, but other wines are also suitable. At a Mess Night, port



▲ Superstitions have even found their way into official U.S. Naval publications. (Photo courtesy of Naval History and Heritage Command)

wine is used for all toasts. Although civilian practice is more permissive, in the military, toasts are never drunk with liqueurs, soft drinks, or water. Tradition is that the object of a toast with water will die by drowning."

The other toasting custom originates from the days when the sound of bells ringing was associated with funerals. Therefore any similar sounds were avoided as much as possible, for fear they would bring the specter of death upon those who created them.

This is why at Navy Balls, Dining In/Dining Out ceremonies, and other formal events, once the glass has been raised and the toast spoken, there is one conspicuous sound you will not hear – the clinking of glasses. However, if you should momentarily forget and clink your glass with another shipmate, just quickly stop the ringing before the sound ends on its own. According to an old British Naval saying, "Stop the ring and the Devil takes two soldiers in lieu."

Tattoo, Tattoo

How many Sailors (and people in general) have tattoos? Today tattoos have become a popular form of personal expression. But there

was a time when a tattoo was not merely decorative, but also believed to harness goodwill and protection for those adorned.

British Seaman Robert Stainsby, stationed aboard HMS *Endeavour*, is the first documented Sailor to receive a tattoo, as recorded in a journal by the ship's natural history artist, Sydney Parkinson.

In an entry dated July 13, 1769, while in port Tahiti, he wrote, "Mr. Stainsby, myself, and some others of our company, underwent the operation, and had our arms marked." Tattooing quickly gained popularity among European Sailors.

The crucifix tattoo was popular among Sailors. It was believed that if a Sailor decorated with one perished at sea and his remains washed up ashore, he would receive a proper burial. A pig and rooster, separately tattooed on each knee and foot, were considered lucky for varying reasons. One belief was the Sailor would never go hungry, having his own "bacon and eggs." Another was that since pigs and chickens dislike water, if the Sailor was thrown overboard or otherwise lost at sea, the tattoos would point the way to the nearest land. Swallow tattoos were considered a badge of honor for any mariner who crossed the Atlantic or sailed more than 5,000 nautical miles. Why a swallow? Because legend states that a swallow will always find its way home.

Rime or Reason?

Live animals also play an important role in nautical superstitions. The albatross, native to the South Pacific, was once believed to carry the souls of Sailors who perished at sea; killing one was to bring death upon oneself and possibly the entire crew. The albatross superstition was immortalized in Samuel Taylor Coleridge's (1772-1834) epic poem, *The Rime of the Ancient Mariner*. The Ancient Mariner kills the bird and bad luck ensues; the fate of



▲ The superstition surrounding the albatross was immortalized in the epic poem, *The Rime of the Ancient Mariner*. (Photo courtesy of Strategic Insight)

the 200-man crew hinges on a game of chance with "Death" itself. In other parts of the world, the seagull was held in the same regard.

On the other hand, dolphins following the wake of a vessel are considered lucky, as it is believed they have the good fortunes of man in mind. Their presence implies their protection and a safe journey.

Conversely, sharks were once believed to be nautical equivalent of vultures. Believed able to sense

those near death, seeing one close to your ship was a bad omen. The manta ray, or "sea devil," was also a discomfiting sight for a wary seafarer. It was once thought they could attach themselves to a ship's anchor and drag her down to the bottom of the ocean.

Fleeting Look

When departing for a long deployment, it's common to see Sailors, family members and friends waving and shouting their farewells to one another. However, once the ship has left port, superstition warns Sailors never to look back. Doing so implies you are not prepared to complete the voyage; thus bringing bad luck to not only yourself, but possibly the ship and her entire crew as well.

Similarly, long ago it was considered a bad omen for the wives of mariners to wave or wish their husbands goodbye when departing to sea. It was believed that if the "Sea" heard loved ones saying goodbye to their Sailors they were not meant to return. Further, if they waved to their beloved

mariners as they set sail, then a wave would wash the seafarer overboard sometime during the voyage.

Deal Me Out

Today, when walking through the mess decks aboard a ship, you can see Sailors playing cards games such as Hearts and Spades. But beware the mariner who brought cards aboard a vessel during the days of sail. In those days, fortune tellers had a practice called cartomancy, which used regular playing cards to tell one's future. Since fortune tellers were associated with the "black arts," cards became known as the "devil's picture books," and one who possessed them was thought liable for any ill which befell a crew. The practice of using regular playing cards was common among fortune tellers until the mid-twentieth century, when tarot cards increased in popularity.

Are You Superstitious?

Through the passage of time and with an increase in our understanding of the world, many superstitions have become obsolete, but not all. They still penetrate our lives and even affect our behavior, sometimes without us even realizing it.

How many sports fans wear their "lucky" jersey to the game? How many of you out there keep a certain coin or trinket with you? Have you ever "knocked on wood" or "crossed your fingers?" How many brides have worn "something old, something new, something borrowed and something blue?" It is even estimated that 80 percent of the world's high-rise buildings do not list a "13th" floor.

Whether you are superstitious or not, American author, Judith Viorst, summed it up this way, "Superstition is foolish, childish, primitive and irrational - but how much does it cost you to knock on wood," even on a ship? 🚢 🎴 🃏



▲ In days past, the sight of a loved one waving goodbye was believed to be a harbinger of doom. (MCC David Rush/USN)

SURFACE FORCES NAMES 2010 SHIPHANDLER OF THE YEAR

By Commander Naval Surface Forces, Public Affairs Office

“I am greatly honored to win this award and owe my success to the USS Peleliu wardroom for their mentorship. I am particularly proud to represent the ‘amphibious Navy’ and a ‘big-deck’ ship.”

– Lt. j.g. Billy Griffin



▲ Lt. j.g. Billy Griffin (far right), of USS *Peleliu* (LHA 5), tutors a Naval Academy midshipman at the Littoral Combat Ship Shore Based Training Facility in San Diego. (U.S. Navy photo)

Junior Officer Award for Excellence in Shiphandling Competition

- Annual competition sponsored by Commander, Naval Surface Forces
- All officers on duty afloat in the grade lieutenant and below are eligible
- Competitors are nominated by their group/squadron and submitted to Commander, Naval Surface Forces (CNSF)
- Final competition hosted at the Surface Warfare Officer School in Newport, R.I.
- Competition included simulated evolutions: mooring to a pier, underway from a pier, channel piloting, man-overboard maneuvers and underway replenishment conning
- Competitors also graded on: “rules of the road” application, use of standard commands, use of engine and rudder orders, use of mooring lines and tugs, and command presence

Lt. j.g. Billy Griffin

- Hometown: Indianapolis, Ind.
- College: United States Naval Academy (2008)
- Current command: USS *Peleliu* (LHA 5), Electrical Officer
- Next command: USS *Peleliu* (LHA 5), Fire Control Officer



▲ Lt. j.g. Chris Peters (left), USS *Mason* (DDG 87), Atlantic Fleet Shiphandler of the Year, and Lt. j.g. Billy Griffin, USS *Peleliu* (LHA 5), Pacific Fleet Shiphandler of the Year receive their respective awards. (U.S. Navy photo)

Lt. j.g. Billy Griffin, electrical officer, USS *Peleliu* (LHA 5) has been selected as the Naval Surface Forces 2010 Shiphandler of the Year. The second annual event was held at the Surface Warfare Officer School (SWOS) in Newport, R.I. this past May. Lt. j.g. Griffin, who previously won the Surface Forces Pacific competition, narrowly defeated in a two-day simulator championship the Atlantic Surface Forces champion, Lt. j.g. Chris Peters, at the time serving aboard USS *Mason* (DDG 87) and now the naval science instructor at Boston University.

Prior to arriving in Newport for the finals, both Lt. j.g. Griffin and Lt. j.g. Peters proved their shiphandling proficiency on several occasions. Each advanced through a series of contests in their respective fleets in order to earn their spot in the final simulator competition.

The Admiral’s Trophy will be presented to Lt. j.g. Griffin at the Surface Navy Association National Symposium in Washington, D.C. in January 2011, as well as a runner-up award to Lt. j.g. Peters. 

RIMPAC 2010:

Combined Agility, Synergy, and Support with our Maritime Partners

By Lt. j.g. Nick Papadakis, Navy Public Affairs Support Element West



▲ *Rim of the Pacific (RIMPAC) 2010* Commander, Combined Task Force Vice Adm. Richard Hunt shakes hands with the lead helmsman on the bridge of the Japan Maritime Self-Defense Force (JMSDF) *Murasame*-class destroyer JS *Akebono* (DD 108). (MC2 Jeremy Starr/USN)

More than 20,000 personnel from 14 countries completed *Rim of the Pacific (RIMPAC) 2010* on Aug. 1. The six-week exercise, conducted in and around the Hawaiian Islands, provided training in a joint multinational effort to ensure the freedom of navigation as a basis for global peace and prosperity.

"RIMPAC has clearly achieved everything that we set it up to do," explained Vice Adm. Richard Hunt, Commander, U.S. Third Fleet (C3F). "We met all of our training objectives, and in doing so as an international force, we have increased our interoperability; built upon our solid relationships; and improved the readiness, capability, and capacity of the Pacific maritime forces."

"During this exercise, we blended different capabilities, equipment,

personnel, authorities and procedures into a very effective and capable force able to respond to a myriad of maritime challenges," he added.

RIMPAC 2010, with the theme of "Combined Agility, Synergy, and Support," was the 22nd time the exercise was conducted since its inception. The major objectives for this year's exercise included improving the readiness and efficiency of each of the participating units and exercising interoperability among partner nations that have a common interest in regional maritime security.

More than 30 ships, five submarines, and more than 170 aircraft took part in this year's exercise.

"Bilateral and multilateral exercises, such as RIMPAC, enhance cooperation between partnering nations and provide a unique opportunity

to practice our abilities to plan, communicate, and execute maritime operations," Vice Adm. Hunt said.

The exercise takes place every two years, and is conducted in four phases over two months. The first phase is the in port phase, during which members get to know each other and establish working relationships through a series of briefings and meet-and-greets. The Schedule of Events (SOE) phase consists of a series of smaller exercises to hone skills that will be used in the final phase. The Force Integration Training (FIT) phase is new to the exercise this year, and gives exercise members supplemental time for unit level training and live fire experimentation. Finally, the tactical phase culminates with a war-like simulation, where participants play through a pre-arranged scenario used to simulate conditions and events that might arise during an actual maritime conflict.

The U.S. Pacific Fleet event commenced June 23, with the arrival of the ships at Joint Base Pearl Harbor-Hickam.

During the exercise, participating nations conducted three sinking exercises, 140 discreet live-fire exercises, 30 surface-to-air engagements, 40 air-to-air missile engagements, 12 surface-to-surface engagements, launched 76 laser-guided bombs, and fired more than 1,000 rounds of ordnance from 20 surface combatants.

Other events included mine removal, ship interdiction, mid-air refueling, counter-piracy measures,

amphibious landings, and anti-submarine warfare (ASW).

In all, 960 of the 985 planned events were completed in the Hawaiian operating area – from Kaneohe Bay and Bellows, to the Pacific Missile Range Facility, to Pohakuloa Training Area on the “Big” Island of Hawaii.

“As different countries working as one force, we learn from each other as we work together,” said Royal Australian Navy Lt. Cmdr. Antony Pisani, the Australian officer assigned to U.S. Third Fleet Headquarters in San Diego, and a principle planner for the exercise.

“It is a coalition of nations working together during every phase, from planning and coordination, to the tactical phase and the war-fighting scenarios,” said Capt. Paul McKeon, director of the exercise control group. “The mark of success is when all the participating countries’ training goals are met.”

This year coalition members held more senior positions than in years past. For example, Japanese Maritime Self Defense Force (JMSDF) Rear Adm. Kazuki Yamashita served as Assistant Deputy of the Combined Task Force (CTF).

“During the exercise I visited most of all participant units with Vice Adm. Hunt,” Rear Adm. Yamashita said. “I am deeply impressed with the professionalism of every Sailor on each ship.”

An advantage to having other countries work with the U.S. Navy is the new perspective it lends to exercise scenarios. This year, RIMPAC employed Australia’s procedures for operating in a maritime environment, and all other countries followed their lead.

“Exercises of this nature are fundamental to enhancing our navies’ interoperability, establishing outstanding relations between nations, and creating the bonds of



▲ The Republic of Korea Navy destroyer *Sejong the Great* (DDGH 991), left, is underway in formation with USS *Bonhomme Richard* (LHD 6) and USS *Chosin* (CG 65) during *Rim of the Pacific* (RIMPAC) 2010. (MCI Scott Taylor/USN)

trust that will be instrumental to our collective success in the event that we are called upon to work together,” explained Canadian Rear Adm. Ron Lloyd, the Combined Forces Maritime Component Commander. “Every country has ownership of the exercise.”

“RIMPAC promotes maritime partnerships,” added Capt. Paul Krug, U.S. Third Fleet N51. “Every country brings their own set of expertise to the table.”

RIMPAC has many far-reaching benefits, and not just in the war fighting category. The benefits of the exercise can also be seen when it comes to humanitarian aid efforts. Many of the techniques used in former RIMPACs have been used successfully for relief efforts in the aftermath of global disasters, and the experience of working together brings a level of comfort which further aids the professional execution of such crucial operations.

“Our work in past RIMPAC exercises directly impacted our ability to send Tsunami relief to Indonesia in 2005 in a coordinated, efficient fashion, while working with several different countries, their aid relief agencies, civil and military agencies,” said Capt. McKeon. “We always encourage new nations to participate in RIMPAC.”

Participants in RIMPAC 2010 included Australia, Canada, Chile,

Columbia, France, Indonesia, Japan, Republic of Korea, Malaysia, Netherlands, Peru, Singapore, Thailand and the United States. The newest participants this year include Colombia, France, Malaysia and Thailand. Brazil, India and New Zealand were observer nations, receiving invitations to RIMPAC to gain insight into the exercise prior to becoming a full participant in future evolutions.

Vice Adm. Hunt, along with senior members of the combined forces, held a press conference after the exercise, announcing the conclusion of this year’s RIMPAC.

“We are clearly able to execute across all levels of maritime operations,” Vice Adm. Hunt said. “In today’s world, properly trained, combat-ready forces are essential to countering terrorism, violent extremism and piracy.”

“RIMPAC has been a fantastic success not only for the United States, but for all thirteen nations that participated with us,” he continued. “It is this trust and confidence that we’ve developed amongst our international participants that is perhaps the most important aspect of RIMPAC; it is the one that is enduring. It is this that will provide huge benefits in the realm of increased maritime security for years to come.”



Surface Warfare Officer Proficiency Book

By Commander Naval Surface Forces, Public Affairs Office

Pro Book: A way to capture, record, and track the development and sustainment of professional skills – the “proficiency” of Surface Warfare Officers (SWOs). Akin to a naval aviator’s flight log book, the new SWO Proficiency Book (Pro Book) will standardize the way SWOs track their professional proficiency as both mariners and warfighters, while concurrently providing a strong training management tool to enhance efficiency of the qualification process.

Training and Career Guidance for the SWO

Unlike a static written logbook, the adaptive SWO Pro Book serves as an interactive career development tool. The web-based system is designed to be more than just a record keeper for achievements and watchstanding hours; it provides real-time “performance support” and feedback. The Pro Book will integrate SWOS lessons, publications, references, and even professional reading (lessons learned, unclassified investigations, and CNO reading recommendations) to specific line items in Personal Qualification System (PQS) Books – thereby providing the right information the instant a SWO needs it.

Individual Training Results – stores, tracks, and displays the SWO’s achievements (classroom scores, simulator events, watchstanding hours, special evolutions, PQS, reading completion, and self-paced refresher study).

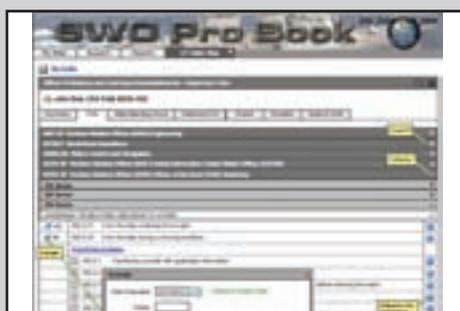
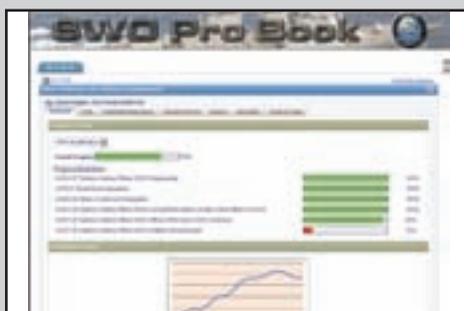
Rapid Learning and Experience Evaluator (RLEE) – provides an individual professional development plan by evaluating the SWO’s current proficiency and identifies areas for improvement (displays a list of suggested PQS and notional navigation, seamanship, and shiphandling (NSS) experience goals to be attained).

Automatic Corrective Action Triggers – provides “intelligent tutor” technology to hone professional skills.

On-Demand Queries – provides training aids for specific learning topics (references, diagrams, publications, etc.).

Portal Access to Online Material – expedites online learning through quick links (Navy Knowledge Online (NKO), Joint Knowledge Online (JKO), Surface Warfare Enterprise Computer Based Training (SWE CBT)).

Proficiency Tracker – displays a SWO’s NSS proficiency in a line graph based on qualification achievements, evolution experience, and maritime education over time.



Feedback for the Force

The Pro Book’s “Metrics Manager” will collect and provide instant data feedback about professional progress, qualification attainment, and proficiency levels across the Fleet, enabling the Navy to measure SWO proficiency over time. The Surface Force will use these metrics to determine how its training programs contribute to fleetwide professional knowledge, skills, qualification attainment, and of course, overall NSS proficiency. Using this data, Type Commanders will be able to make informed decisions concerning the SWO training pipeline, manning, and retention. The Pro Book also promises improved alignment of SWOS with individual afloat SWO training.

Senior Watch Officer – Through a “supervisor” log-in, the Pro Book allows for simplified watchbill management and can provide for optimized watchbills to ensure the most proficient watchstanders are in place for complex evolutions. Also allows for easy tracking and analysis of PQS progress, including major qualifications and schools.

Commanding Officer – Provides command-wide SWO proficiency awareness, allows for a more effective mentor program, and gives a snapshot of a transferring officer’s experience and aptitude.

The Pro Book pilot program is currently underway on three ships – USS **Boxer** (LHD 4), USS **Howard** (DDG 83), and USS **Preble** (DDG 86), and at the Surface Warfare Officer School in Newport, R.I. Data collection and reviews concluded in September, with a forcewide Pro Book rollout beginning in early 2011.



The New Surface Force Training Manual

Commander, Naval Surface Forces, Public Affairs Office sat down with Capt. Kurush Morris, Naval Surface Forces Training and Readiness Officer, for an explanation of how the 1.E revisions to the Surface Force Training Manual decrease the administrative burden, while increasing training standards, rigor and reporting fidelity.

What was the goal for the 1.E revisions to the Surface Force Training Manual (SFTM)?

“As the demand for surface ships and Surface Warriors continue to grow, it is becoming increasingly important to optimize shipboard training – to make it more efficient and salient. The ultimate goal of the “Echo” version is to reduce the administrative burden on the ships, while increasing the standards and rigor required to sustain warfare area requirements. These new updates enable the Surface Fleet to execute our nation’s maritime strategy, meet combatant commander’s tasking and achieve necessary efficiencies while maintaining the highest level of proficiency across all warfare areas.”

How do the revisions increase the rigor but decrease the workload?

“The new SFTM aligns the Basic Phase training requirements with the deployment cycle, which increases the length of most mission area certifications, however, assessments to ensure ships are maintaining required levels of proficiency remain in place and have become more intense.”

How does the new SFTM increase training and assessment intensity?

“We’ve made training and assessment more effective by expanding Unit Level Training Assessment-Sustainment (ULTRA-S) from three to five days, which ensures the ship is maintaining a required level of proficiency. The new revision also includes Single Point Failure (SPF) standards to make sure ships are passing critical wickets during training. Fail to check one of those boxes, like required gear for rescue swimmers, and the ship won’t pass.”

With all the new requirements, how is the admin burden reduced?

“We’ve extended the periodicity of most Continuous Certification

Requirements (CCRs) from 90 to 180 days to correspond with the deployment cycle. This will end up saving commands more than 950 hours of training and assessment during the Sustainment Phase. And, even though there are more CCRs, there’s actually a net reduction in training requirements since FXPs are now included as Advanced Training (AT).”

You mentioned an increase in meaningful reporting, how is that accomplished?

“With the addition of SPF standards, we have weighted the most critical requirements to make sure those standards were being met. It used to be an all or none mentality, but now ships will be able to accurately report their training aptitude without fear of failing a check. We also removed the Battle E and Unit Competitions requirements, this solidifies the SFTM as the performance standard, and identifies the Battle E as the measure of excellence in their particular warfare area, separate from training standards.”

How were the revisions developed?

“The 1.E revision is the product of a comprehensive two-year review of all 22 training mission areas, formed from an accumulation of contributions from commands across the Fleet, outside agencies and staffs from ATG commands around the world. It is a product stemming from the training experts on the waterfront.”



Impact to the Fleet

- +58 CCRs
- +13 Advanced Training CCRs
- Added Single Point of Failure standards
- Expanded ULTRA-S (now three to five days)
- Revised all 22 mission area tabs
- Extended certification periodicity to meet Fleet Response Plan cycle
- Eliminated TRAREPs
- Tab completion score set at “proficiency”
- Improved and revised TORIS program

Seasoned Stewards of the Environment

By Lt. Scott Cheney-Peters, Military Editor, *Surface Warfare*

Since the first sea-going craft was buffeted by ocean waves, Sailors required a firm grasp on the many ways climate and weather can affect their ships and operations in order to excel in their trade. It is no surprise then that the Navy has long sought a mastery of environmental issues in order to fulfill its missions.

These efforts can be summarized in two broad categories: limiting our own impact on the environment; and developing capabilities to respond to changes and disasters we can't prevent – all the while seeking to better understand what has occurred and what may occur. What follows are recent highlights of those endeavors.

Setting the Standard

Legislation, treaties, and collaborative scientific work with an eye towards the future have shaped and strengthened the Navy's environmental stewardship for many years:

Oct. 21, 1972

Congress passes the Marine Mammal Protection Act (MMPA),

establishing a Federal responsibility to protect marine mammals. One of the most visible ways the Navy works towards the success of this act is through coordination with other federal agencies such as the National Marine Fisheries Service (NMFS) in the National Oceanic and Atmospheric Administration (NOAA) to develop and employ mitigation measures when naval exercises are conducted in the vicinity of marine mammal habitats.

Sept. 12, 1972

The Defense Supply Agency, the precursor to the Defense Logistics Agency (DLA), establishes the Defense Property Disposal Service (DPDS), four years before Congress passes the Resource Conservation and Recovery Act (RCRA). In 1985, the DPDS is renamed the Defense Reutilization and Marketing Offices (DRMO), and is now spread throughout 39 states and 14 countries, under the new title of DLA Disposition Services.

Feb. 17, 1973

The International Convention for the Prevention of Pollution from

Ships (MARPOL) is signed. This convention, adopted into U.S. law with the passage of the 1980 Act to Prevent Pollution from Ships, details the allowable limits for what can be discharged or disposed of into the ocean, and in what areas. MARPOL comes into force 10 years after signing on Oct. 2, 1983.

Sept. 21, 1976

President Gerald Ford signs the Resource Conservation and Recovery Act (RCRA) into law. The RCRA directs federal agencies to promote recycling, and along with the Pollution Prevention Act of 1990 14 years later, regulates the disposal of e-waste such as old computers. These laws require the Navy to properly reuse, recycle, and dispose of old parts. This act regulates the disposal of hazardous waste upon transfer or off-loading to a shore facility or another ship.

Dec. 11, 1980

Congress enacts the Environmental Response Compensation and Liability Act (CERCLA), establishing within



the Department of Defense (DoD) a process to reduce the risk of hazardous waste contamination from DoD activities harming human health and the environment. This becomes the model for the Environmental Protection Agency (EPA)'s "Superfund" clean-up process and is today known as the Navy/Corps Installation Restoration Program.

April 2001

The National Naval Ice Center, the Office of Naval Research, the Oceanographer of the Navy, and the U.S. Arctic Research Commission sponsor the *Naval Operations in an Ice-Free Arctic* symposium. The symposium examines the impact rapid changes to Arctic ice coverage have on national strategic issues and naval operations. A second symposium in July 2007 and a third in June 2009 expand the discussions to other commercial maritime operations.

April 2007

The Center for Naval Analyses releases "National Security and Climate Change," a strategic report which projects climate change as a "serious threat to America's national security" and a "threat multiplier" in already fragile regions. Additionally, the report recommends that such consequences should be "fully integrated" into national security and defense strategies.

These recommendations are echoed in the October 2007 document, *A Cooperative Strategy for 21st Century Seapower*, jointly released by the U.S. Navy, U.S. Marine Corps, and U.S. Coast Guard, which states the effects of climate change have the potential to be sources of "competition and conflict." The recommendations also influenced the January 2010 *Quadrennial Defense Review* (QDR), which calls climate change a global "instability accelerant."

January 2009

National Security Presidential Directive/Homeland Security Presidential Directive (NSPD-66/HSPD-25) establishes the U.S. Arctic Policy, acknowledging the changing Arctic and tasking the DoD to provide maritime domain awareness there.

May 2009

As a result of a CNO Executive Board on the Arctic, CNO establishes Task Force Climate Change (TFCC), headed by the Oceanographer of the Navy, Rear Adm. David Titley, to determine climate changes effects on maritime security.

November 2009

TFCC releases the "Navy Arctic Roadmap," the Navy's way ahead regarding the changing Arctic environment and stressing "cooperative partnerships." In May 2010, CNO

signs off on the Navy Arctic strategic objectives, outlining the goals of a safe, stable, and secure Arctic.

April 2010

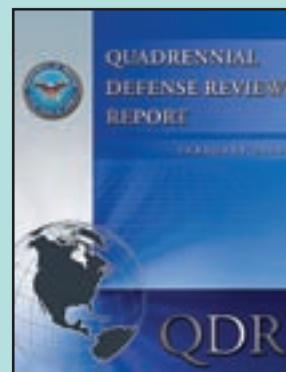
TFCC releases the "Navy Climate Change Roadmap," the Navy's way ahead regarding global climate change, laying out in a three-phase approach broken down into priorities for the years leading up through fiscal year 2014.

With such an acute attention to the two-way relationship between the environment and our maritime operations, it's easy to understand why Secretary of the Navy Ray Mabus was selected to develop the recovery plans for the states stricken by the oil leak in the Gulf of Mexico. Nor would this be the Navy's first experience with environmental disasters and efforts to provide relief.

The Navy's history of rendering assistance domestically and internationally spans more than 140 years. From droughts and floods to storms and crop failures, these experiences and lessons learned are another source of the Navy's potential in the 21st century as it continues its important humanitarian assistance / disaster relief mission in the face of a changing world. 



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Recipe for Disaster

By MC1(AW) Scott Vanderwyst, *Surface Warfare*

With the holiday season quickly approaching, many thoughts spring to mind. A holiday feast surrounded by family and close friends; sparkling lights, carolers, the excitement of opening presents, and strategically-planned kisses under mistletoe. It's a time when the air is filled with laughter and warmth, and you may enjoy consuming just a few extra calories.

But some thoughts do not come to mind until the proverbial realization that, "it's too late:" fire, destruction, and, even worse, death. During the holidays, it is common for households to be filled with more guests than we are accustomed to. Adults, children, and pets moving about in and out of the house can sometimes create confusion while trying to prepare a specially-made feast.

The results of a momentary lapse of attention can be disastrous. Cooking is the single leading cause of all residential fires, accounting for more than 40 percent of all reported fires. According to the National Fire Protection Agency (NFPA), in 2008 about 1,300 cooking-related fires were reported on Thanksgiving Day alone, causing more property damage and claiming more lives than any other day of the year. Another 1,400 cooking-related fires were reported during Christmas Eve and Christmas Day in 2008.

So whether you're preparing a feast or just a simple snack, cooking safety should always be at the forefront of your thoughts. Below are some guidelines from the U.S. Fire Administration (USFA) to ensure your holidays remain festive, and the only heat you experience is from your favorite chili recipe.



▲ Practicing proper cooking techniques will greatly reduce the chance of an accident occurring.
(MCSN Michael Calloway/USN)



▲ Unlike the person pictured, you should adhere to proper cooking techniques to minimize the chance of an out-of-control fire. (MC2 Aaron Burden/USN)

In The Kitchen

- Ensure the cooking area is a “kid-free” and “pet-free” zone, keeping them at least three feet from the cooking area. If children or pets are present, always use the back burners on the stove first.
- Pay attention and always stay in the kitchen while cooking. The leading cause of cooking fires is unattended cooking.
- Keep anything that can catch fire away from your stovetop, such as potholders, oven mitts, wooden utensils, food packaging, towels, or curtains.
- Keep the stovetop, burners, and oven clean.
- Wear short, close-fitting or tightly rolled sleeves when cooking. Loose clothing can dangle and catch fire if it comes into contact with a gas flame or electric burner.

Outdoors

Cooking safety is required for outdoor grilling and frying as well. The NFPA reported that from 1998 to 2007, more than 130 fires caused more than \$8 million worth of property damage from turkey fryers alone. The same rules for indoor cooking apply here too, but there are additional steps you must take to ensure you have an enjoyable outdoor experience.

- Read the owner’s manual for the grill or fryer. The manual provides specific usage guidelines as well as safety precautions. It will also ensure you assemble the grill/fryer properly.
- Grill in an open area, and stay away from buildings and overhead structures. Also, do not grill or fry near your garage or carport. These areas can create a breeze, sending heat, smoke, and ashes into the structures.
- Keep the grill or fryer stable. Place it on a hard, flat surface – preferably concrete.

- Use long-handled utensils to avoid grease splatters and burns.

Extinguishing Fires

If a fire should occur, you must take QUICK and DECISIVE action to contain it and prevent a major incident.

- Always have baking soda or a portable fire extinguisher nearby. Also, ensure you know how to properly use the fire extinguisher and that it’s properly charged. A bucket of sand also works well in the absence of an extinguisher.
- When grilling or frying, have a garden hose ready in case the surrounding area catches fire.
- NEVER use water to put out a grease fire – it will only spread the oil, and the flames.

For more information please visit the NFPA website at www.nfpa.org, or the USFA website at www.usfa.dhs.gov 

Book Review

A Measureless Peril:

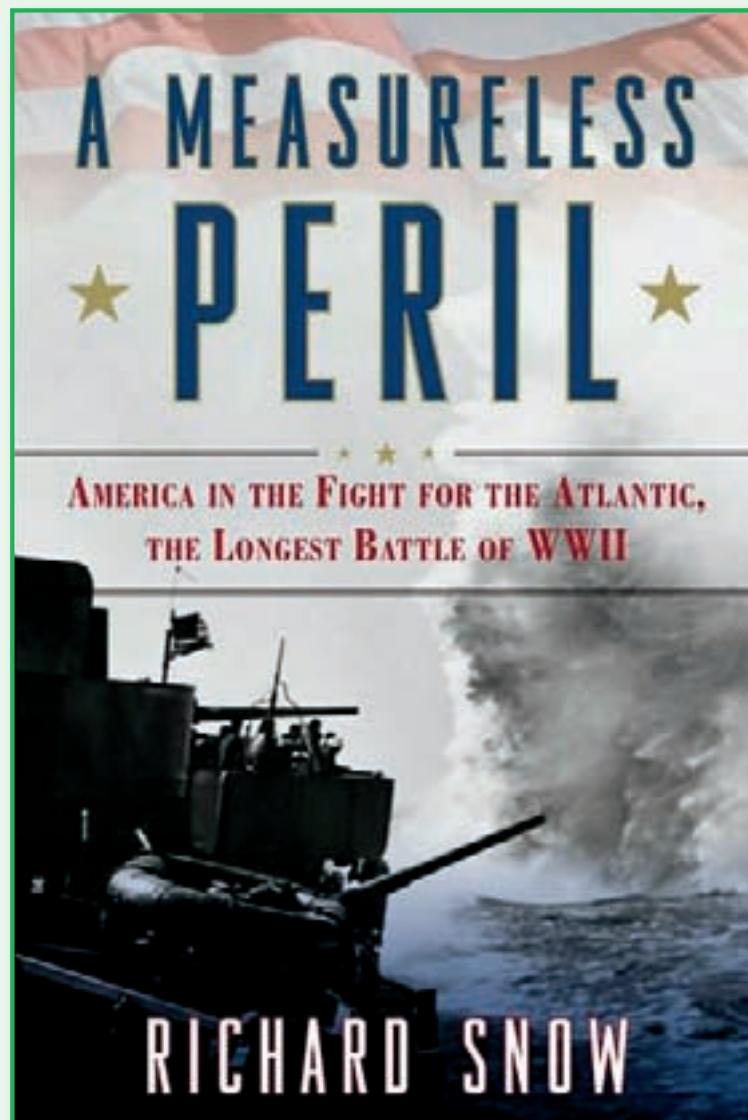
America in the Fight for the Atlantic, the Longest Battle of WWII

By Padraic McDermott

Hardcore history buffs searching for timelines and shot-by-shot accounts of the Battle of the North Atlantic should not start with Richard Snow's *A Measureless Peril*. One of the first things a reader will probably realize about the book is that it is not precisely a history book, but more of a piece of long-form journalism. Given Snow's decades of experience in journalism as the former editor of *American Heritage* magazine, it is perhaps not surprising that the book reads much like a collection of columns. With that caveat, the reader will find that *A Measureless Peril* adds great value to the body of World War II literature.

The book is a mixture of investigative reporting and first-person accounts of the war gleaned by the author from his father's conversations, letters, and diaries. Snow's father (Richard Snow, Sr.), was a young professional architect in New York when war broke out, and he quickly volunteered to serve with the Navy. Although he got his start in shipyard duty, he eventually negotiated an escape to anti-submarine warfare (ASW) training, and then received orders to a destroyer escort. The book opens through the eyes of the elder Snow, and the reader might be justified in wondering if the whole work will be a not-so-subtle tribute to the author's

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father. However, the story soon leaps to more solid history, and the strength of Snow's investigative reporting quickly asserts itself.

One other note for readers, if not a criticism, is that the author presumes a certain level of historical knowledge in the reader. The author's subject is

Take our readership survey at: <http://www.surveymonkey.com/s/2RT6WCK>

the Battle of the Atlantic; other events before and during World War II, such as the German invasion of Russia and Italian capitulation, are alluded to and casually mentioned in passing. For all that, it is an engrossing work full of detail and is immensely enjoyable. As with other works of history based upon the recollections of living people, the book is quite accessible; it should be enjoyable to readers of any background. Like so many other maritime history works, the book is all the more interesting for readers with any level of experience standing watch in the U.S. Navy.

Long mid-watches in the barren North Atlantic winter; drill after drill to practice gunnery, man overboard procedures, fire drills, and then “more fire drills;” monotony pierced by sudden chaos; these are the precincts inhabited by the characters in the sweeping drama of the Battle of the Atlantic Snow describes. U.S. Navy Sailors may feel a quick kinship with the bluejackets of long ago who escorted convoys and hunted U-boats in the icy Atlantic.

The U-boats form the other half of the story in *A Measureless Peril*, and here Snow really distinguishes himself. He devotes nearly half the chapters in the book to the story of the growth, heyday, and downfall of the German submarine arm and its leaders and warriors. The effect is to heighten the sense of wonder that the American, British, and Canadian Sailors managed to decisively crush such a formidable enemy.

Snow’s story covers not only the U.S. Navy, but the whole national effort to respond to the U-boat threat in the late 1930s and throughout the war. When war broke out among the European powers, the U.S. found itself hamstrung, not only by a lack of sufficient equipment, trained Sailors, and ships, but also by the effects of Neutrality Acts passed by Congress in the late 1930s to try to avoid war. The
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book traces the efforts of President Franklin Roosevelt to quietly ready the Navy and other military departments for war, while simultaneously preparing the public and Congress, and gaining the authority and funding needed to meet the Nazi menace. These efforts included the passage of the Lend-Lease Act, authorizing the supply of war material to Britain and other Allies; the arming of escorts for convoys; and eventually the authority for Navy ships to engage German U-boats.

Snow also details the U-boat patrols in 1942 that took German Sailors into New York harbor, off the coast of Miami, and near other East Coast harbors. For many months, sinking ships could be seen and smelled in the towns on the Atlantic Coast; Long Islanders sometimes called their local fire departments to report the flames of sinking merchants on the sea.

Even before the onset of war, the U.S. faced a shortage of proper escorts for trans-Atlantic convoys, and Snow outlines the development of destroyer escorts from concept to reality. Along the way, the reader also learns about the growth in shipbuilding capacity and naval creativity that led to escort carriers, Liberty ships, and rapid modular production. Among other novelties that might raise eyebrows is the discovery that machining yards and plants throughout the country undertook shipbuilding with little or no prior experience, often producing just a portion of a ship and then shipping it to a coastal yard for assembly.

Some other elements of the war effort should sound familiar to modern Sailors. New destroyers were named for heroes who had fallen in the war, much like the recent destroyers USS *Jason Dunham* (DDG 109), USS *Michael Murphy* (DDG 112), and USS *Michael Monsoor* (DDG 1001). When the Navy faced an unprecedented challenge in the German U-boat threat

in the North Atlantic, it responded in an unconventional way by establishing the ASW-oriented U.S. Tenth Fleet – a special fleet designed to fight a special mission. Just this year, in response to today’s unprecedented cyber threat, U.S. Tenth Fleet is back in existence, this time focusing on protecting our networks.

U.S. efforts to combat the U-boat threat were not always perfect. With the U-boats sinking catastrophic amounts of Allied merchant tonnage, the U.S. tried everything it could to fight back while building up merchant shipping production and starting the construction of the destroyer escorts. Early efforts included programs to ambush U-boats with disguised decoy ships, and authorization for wealthy Americans to arm their private yachts and hunt submarines. Throughout the war, a solid theme emerged: American Sailors and merchant mariners faced down the awesome U-boat threat with fortitude and determination.

As the war progressed, Americans became increasingly skillful at convoy escorting and ASW, and American industrial production made itself felt in the steel hulls of more and more of every type of vessel. The story, like the war, wore to an inevitable conclusion as the last vestige of the German threat was swept from the sea by triumphant American hunter-killer groups. From beginning to end, Snow weaves a story of incredible hardship, tedium, terror, discipline, and patient optimism. The book is a fitting tribute to Lt. Richard Snow, Sr. and the thousands of American and Allied Sailors who beat back the enemy to win the Battle of the Atlantic. 

A Measureless Peril
By Richard Snow
(Naval Institute Press 2010)
326 Pages

Dealing with Obesity

Hugh Cox, Public Affairs, Navy and Marine Corps Public Health Center



According to the World Health Organization, the rate of obesity in the U.S. doubled between 1980 and 2000, and now about a third of all adults are obese as measured by the U.S. Center for Disease Control's (CDC) 2007-2008 National Health and Nutrition Examination Survey (NHANES). The resulting physical, psychological and social problems pose a genuine threat to millions of Americans, including U.S. service members and their families.

The Consequences of Obesity

Obesity is not merely a cosmetic issue. It is a major underlying cause of premature death and disability.

"Many Americans may not yet realize how many conditions are either caused by or made worse by obesity," explained Dr. Steve Heaston, public health educator with the Navy & Marine Corps Public Health Center.

Those conditions include coronary heart disease; type-two diabetes; several types of cancers (endometrial, breast, and colon); hypertension (high blood pressure); dyslipidemia (high total cholesterol or high levels of triglycerides); stroke, liver and gallbladder disease; sleep apnea and respiratory problems; osteoarthritis (a degeneration of cartilage and its underlying bone within a joint); and gynecological problems such as abnormal menses and infertility. Additionally, these medical conditions have very real consequences that include pain, physical disability and death.

Obesity often creates psychological problems for the individual in addition to the physical effects.

"Individuals who are significantly overweight are often dissatisfied with themselves and may have lower self-

esteem," Heaston said. "This may lead to even more overeating and reduced interaction within social settings."

Weight-related medical problems are also very expensive. The current "health care crisis" is not as much a failure to pay for medical care as it is a failure of Americans to maintain their health. In 2008, the U.S. was ranked the worst among 19 leading industrialized nations for preventable deaths, even though in 2008 health care accounted for almost 36 percent of federal spending. Health care also accounted for 16.2 percent of the entire U.S. gross domestic product (GDP). The \$2.3 trillion spent on healthcare in that year translated to \$7,681 per person. Considering the fact that about one-third of all U.S. adults are obese and susceptible to weight-related medical conditions, and that the "baby boomers" are only just beginning to enter the Medicare program in large numbers, the financial burden from obesity seems likely to continue.

What the Science Says

While some cases of obesity are associated with metabolic disorders, medications or genetic differences, science continues to support the Energy Balance Model as the primary method to maintain a healthy body weight. This involves only consuming enough calories to supply short-term energy needs. The good news is that most people can lose weight by consuming moderate calories and engaging in daily physical activity. Sound impossible or unbearable? It isn't. Rather, it's a matter of relearning and practicing new lifestyle habits, and making your own decisions.

What To Do To Lose Weight and Keep It Off

- Eat small portions by placing only a small amount of food on your plate, eating off a smaller plate, or taking only one serving.
- Eat more nutritious, low-calorie foods such as vegetables and other unrefined carbohydrates that contain a lot of fiber and water.
- Read nutrition labels, and buy foods with low amounts of fats or added sugars, especially high-fructose corn syrup.
- Cook food without frying it.
- Substitute healthier, lower-calorie items such as leaner meat and low-fat or non-fat dairy products.
- Drink non-sugar beverages.
- Snack "on purpose" by selecting raw fruits, vegetables and sugar-free snacks, and avoid becoming famished.
- Set aside one hour each day for physical activity that you enjoy.

For more information on obesity and healthy living, visit the Navy & Marine Corps Public Health Center Website at https://www.nmcphc.med.navy.mil/Healthy_Living/.

References:

Centers for Disease Control and Prevention:

<http://www.cdc.gov/obesity/index.html>

Congressional Budget Office Testimony: Growth in Health Care Costs, 2008

<http://cbo.gov/ftpdocs/89xx/doc8948/01-31-HealthTestimony.pdf>



SHIP SHAPE

Are you an expert at identifying surface combatants from foreign navies? Can you tell whether a ship on the horizon is an ally or an enemy? It's time to test your ship identification skills. How about all of you manning the "big eyes," take a look at the ship pictured below and let us know what type of vessel it is, its name and what nation operates it.

Send your entry to surfwarmag@navy.mil with "Ship Shape" in the subject line. Be sure to include your rate, name, ship or unit of assignment and current mailing address. The first individual to provide the correct information will receive recognition in the next issue of *Surface Warfare*.

Congratulations to Dennis Irwin, a retired Navy commander now working as a Systems Analyst with Afloat Training Group Pacific in San Diego, who was the first to identify last issue's ship as the Royal Navy frigate HMS *Cornwall* (F99).



▲ The Royal Navy frigate HMS *Cornwall* (F99) participated in exercise *Joint Warrior 10-1*, a semi-annual event conducted off the coast of Scotland to improve interoperability between allied navies. (MC1 Darius Jackson/USN)



◀ This ship returned to Joint Base Pearl Harbor-Hickam after participating in *Rim of the Pacific* (RIMPAC) 2010 exercises. (MC2 Paul Honnick/USN)

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Views

From the Fleet

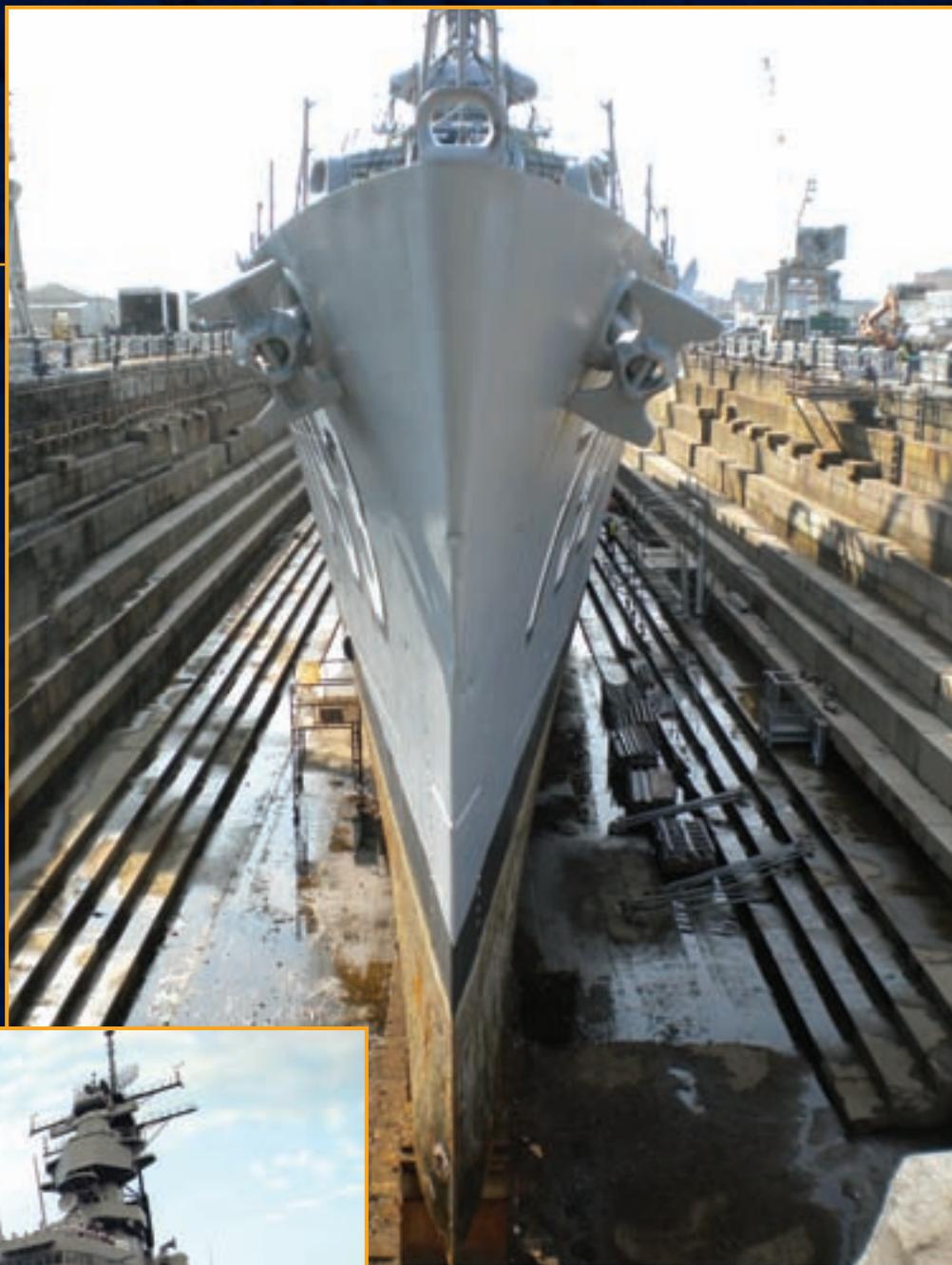
► Sailors aboard USS *Nassau* (LHA 4) shift colors as the ship returns to Naval Station Norfolk after a seven-month deployment. (MC3 Chris Williamson/USN)



▲ Sailors assigned to USS *Bataan* (LHD 5) conduct a rigid-hull inflatable boat recovery during a man overboard drill. (MCSN Erin Boyce/USN)



➤ The *Fletcher*-class destroyer USS *Cassin Young* (DD 793) sits in dry dock at the Charlestown Navy Yard in Boston. (U.S. Navy photo)



◀ Chief petty officer (CPO) selectees listen to a tour guide explain the history of USS *Wisconsin* (BB 64) during the 10th Annual CPO Heritage Days in downtown Norfolk. (MC2 John Stratton/USN)

CAPTAIN'S TRIVIA

CONGRATULATIONS to this issue's Salty Dog, Machinist Mate 1st Class (SW) Lucious Walker, currently serving as a recruiter at Navy Recruiting District Richmond, Va. MM1(SW) Walker was first to answer all five questions on stories within our Summer 2010 issue. Here are the answers:

1. The Naval Ship's Technical Manual (NSTM) 300, Electric Plant Manual, provides the requirements for working on energized equipment.
2. See Table 1, Appendix G, Tag Out Users Manual (TUMS), Rev 6.
3. OPNAVINST 5100.19E, Chapter 23 provides guidance on HAZMAT storage.
4. OPNAVINST 5100.19E, Chapter B3.
5. False. INSURV uses existing Fleet maintenance standards (i.e. PMS, equipment tech manuals, ship specifications) to perform their material inspections of ships.

This issue's challenges are below. The first person to correctly answer all five questions will receive recognition in the next issue. Good luck!

1. In 2008 a study on the _____ revealed that plastic bottles make up ____ percent of a ship's plastic waste stream.
2. What year is the Navy's objective to deploy the countries first Green Fleet?
3. The ice volume in September 2009 was the lowest on record. What is the percentage below the maximum volume?
4. Large pulpers handle between ____ to ____ pounds per hour and small pulpers handle between ____ and ____ pounds per hour.
5. Who does the Navy partner with in developing and executing its marine mammal research program?

CHANGES OF COMMAND

USS <i>Oak Hill</i> (LSD 51) / September Cmdr. David Bauer relieved Cmdr. Daniel Blackburn	MSRON 5 / October Cmdr. Mark Schram relieved Cmdr. Donald Hudson	USS <i>John S. McCain</i> (DDG 56) / November Cmdr. Matthew Lehman relieved Cmdr. Jeffrey Kim	USS <i>Elrod</i> (FFG 55) / December Cmdr. Eric Weilenman relieves Cmdr. Christopher Engdahl
USS <i>Pinckney</i> (DDG 91) / October Cmdr. Matthew McGonigle relieved Cmdr. Errin Armstong	MSRON 7 / October Cmdr. David Suchyta relieved Cmdr. Bryon Johnson	MSRON 6 / November Cmdr. Stephen Murray relieved Cmdr. James Kirby	USS <i>Port Royal</i> (CG 73) / December Cmdr. Eric Weilenman relieves Cmdr. John Lauer
MSRON 4 / October Cmdr. Robert Klaszky relieved Cmdr. Todd Boehm	USS <i>McClusky</i> (FFG 41) / October Cmdr. Darren Glaser relieved Cmdr. Mark Lakamp	USS <i>Mesa Verde</i> (LPD 19) / November Cmdr. John Reilley relieved Cmdr. Lawrence Legree	USS <i>Lassen</i> (DDG 82) / December Cmdr. Walter Wrye relieves Cmdr. Hung Le
USS <i>Ponce</i> (LPD 15) / October Cmdr. Etta Jones relieved Cmdr. Timothy Crone	USS <i>Antietam</i> (CG54) / October Capt. Robert Tortora relieved Capt. John Uhl	COMPHIBRON 6 / November Capt. Steven Yoder relieved Capt. Thomas Negus	USS <i>Kauffman</i> (FFG 59) / December Cmdr. William Shafley relieves Cmdr. Dale Maxey
USS <i>Wasp</i> (LHD 1) / October Capt. Brenda Holdener relieved Capt. Lowell Crow	USS <i>Carr</i> (FFG 52) / October Cmdr. Patrick Kulakowski relieved Cmdr. Eric Ver Hage	USS <i>Robert G. Bradley</i> (FFG 49) / November Cmdr. Darryl Brown relieved Cmdr. Timothy Sparks	USS <i>Mustin</i> (DDG 89) / December Cmdr. Scott Tait relieves Cmdr. Michael Misiewicz
USS <i>Stephen W. Groves</i> (FFG 29) / October Cmdr. Matthew Rick relieved Cmdr. Edward Gettins	USS <i>Vella Gulf</i> (CG 72) / October Capt. Mark Harris relieved Capt. Mark Young	COMDESRON 1 / November Capt. John Steinberger relieved Capt. Erick Young	USS <i>Stout</i> (DDG 55) / December Cmdr. Nathan Borchers relieves Cmdr. Mark Oberley
USS <i>Rushmore</i> (LSD 47) / October Cmdr. Brian Finman relieved Cmdr. William Grotewold	ACU 2 / November Cmdr. Angela Morales relieved Cmdr. Robert Chatham	COMDESRON 23 / December Capt. Jesse Wilson relieves Capt. James Autrey	USS <i>Anzio</i> (CG 68) / December Capt. John Dorey relieves Capt. Frank Olmo
COMPSRON 2 / October Capt. Wesley Brown relieved Capt. Gene Harr	USS <i>San Jacinto</i> (CG 56) / November Capt. Douglas Nashold relieved Capt. John Cordle	COMDESRON 26 / December Capt. Peter Demane relieves Capt. Robert Barwis	USS <i>Decatur</i> (DDG 73) / December Cmdr. Shanti Sethi relieves Cmdr. Christopher Sweeney
USS <i>Curtis Wilbur</i> (DDG 54) / October Cmdr. Christopher Monroe relieved Cmdr. Paul Hogue	COMPHIBRON 4 / November Capt. Peter Pagano relieved Capt. Larry Grippin	USS <i>Nitze</i> (DDG 94) / December Cmdr. John Callaway relieves Cmdr. Richard Brawley	USS <i>McFaul</i> (DDG 74) / December Cmdr. Daniel Gillen relieves Cmdr. Ronald Toland
	MCMRON 2 / November Capt. David Chase relieved Capt. Robert Hospodar		

LIST OF ALL O-3/O-4 COMMANDS

PC Crew <i>Alpha</i>	Lt. Cmdr. Phil Knight	MCM Crew <i>Bulwark</i>	Lt. Cmdr. Brandon Murray
PC Crew <i>Bravo</i>	Lt. Brian Luebbert	MCM Crew <i>Conflict</i>	Lt. Cmdr. Jose Roman
PC Crew <i>Charlie</i>	Lt. Cmdr. John Lucas	MCM Crew <i>Constant</i>	Cmdr. Robert Smith
PC Crew <i>Delta</i>	Lt. Cmdr. Donovan Rivera	MCM Crew <i>Dominant</i>	Lt. Cmdr. Pat Murphy
PC Crew <i>Echo</i>	Lt. Cmdr. Matthew Foster	MCM Crew <i>Exultant</i>	Lt. Cmdr. Jennifer Forbus
PC Crew <i>Foxtrot</i>	Lt. Cmdr. Andrew Klug	MCM Crew <i>Fearless</i>	Lt. Cmdr. Spencer Austin
PC Crew <i>Golf</i>	Lt. Cmdr. Kurt Braeckel	MCM Crew <i>Leader</i>	Lt. Cmdr. Elaine Brunelle
PC Crew <i>Hotel</i>	Lt. Cmdr. Matt Lehmann	MCM Crew <i>Persistent</i>	Lt. Cmdr. Vic Sheldon
PC Crew <i>India</i>	Lt. Cmdr. Nate Diaz	MCM Crew <i>Reaper</i>	Lt. Cmdr. Wayne Liebold
PC Crew <i>Juliet</i>	Lt. Kevin Ducharme	MCM Crew <i>Swerve</i>	Lt. Cmdr. Ian Scaliatine
PC Crew <i>Kilo</i>	Lt. Cmdr. Jay Sego	USS <i>Avenger</i> (MCM 1)	Lt. Cmdr. Patrick German
PC Crew <i>Lima</i>	Lt. Cmdr. Mark Hobdy	USS <i>Defender</i> (MCM 2)	Lt. Cmdr. Andria Slough
PC Crew <i>Mike</i>	Lt. Cmdr. Kelly Jones	USS <i>Guardian</i> (MCM 5)	Lt. Cmdr. Ken Brown
		USS <i>Patriot</i> (MCM 7)	Lt. Cmdr. Walt Mainor

SURFACE WARFARE

SHIPMATE... IN THE SPOTLIGHT

ONE SWO'S STORY

Name: *Lieutenant Chet Frith*

First DIVO: *USS CHUNG-HOON (DDG93)*

COMMO & First LT - Pearl Harbor, HI

Second DIVO: *Officer In Charge, Boat*

Division 552 - San Diego, CA

Ashore #1: *Surface Warfare Junior Officer
Detailer, PERS-41, Millington, TN*

Graduate Education:

*1. Masters of Science in Operations
Management from the University of Arkansas
(funded via Tuition Assistance)*

Current assignment: *Individual Augmentee
Volunteer - NAVCENT Operations Officer,
Baghdad, Iraq*



**FLEXIBILITY
OPPORTUNITY
SERVICE**

On Surface Warfare:

"In Surface Warfare IT ALL COUNTS. Service as a traditional SWO at sea, ashore, in Expeditionary Warfare assignments, and as Individual Augmentees all over the world -Surface Warfare provides flexibility to do a wide array of jobs while staying smartly aligned to achieve personal and professional goals like graduate education and meeting promotion milestones. The challenge and opportunity to help shape the future of our Navy by serving as a Department Head at sea is welcome...sign me up and single-up all lines!"



http://www.npc.navy.mil/Officer/SurfaceWarfare/Detailers/412_DivisionOfficers/