

SW

Surface Warfare

CARDINAL HEADINGS *for* SURFACE WARFARE

Quick Math for
Officers of the Deck

The 3Cs of 3M: Using Communication to
Create Culture Ensures Continuity of
Material Readiness of The Fleet

From Concept to Reality:
The Future of
Destroyers is Here!

AMDR – The Navy's Next-
Generation Integrated Air and
Missile Defense Radar

SW



▶▶ The guided-missile destroyer USS **Fitzgerald** (DDG 62) launches a Standard Missile-3 as part of a joint ballistic missile defense exercise. (U.S. Navy photo)



▲▲ American flags are placed at a fountain in honor of fallen service members during a Veterans Day ceremony at the Tidewater Veterans Memorial in Virginia Beach. (MC3(SW) Betsy Knapper/USN)

▼▼ Sailors participate in a firefighting exercise during a general quarters drill aboard the aircraft carrier USS **John C. Stennis** (CVN 74). (MCSN Katarzyna Kobiljak/USN)



▶▶ Twenty-six U.S. Navy ships and the Japan Maritime Self-Defense Force, including ships from the **George Washington** Carrier Strike Group, transit together at the conclusion of exercise **Keen Sword 2013**, a biannual exercise held to enable the U.S. and Japan to train in coordination procedures and heighten interoperability needed to effectively defend or respond to a crisis in Japan and the Asia-Pacific region. (MCC(SW/EXW) Jennifer A. Villalovos/USN)





▶▶ The guided-missile destroyer USS **Laboon** (DDG 58) gets underway from the Marathi NATO pier facility following a scheduled port visit.
(Paul Farley/USN)



▲▲ HTFN Elizabeth Nolan grinds the deck in the ship's store aboard the **Arleigh Burke**-class guided-missile destroyer USS **Curtis Wilbur** (DDG 54).
(MCSN Amanda S. Kitchner/USN)



▲▲ AM3 Mel Suguitan assigned to the HSL-51 Warlords Helicopter Squadron embarked on the **Arleigh Burke**-class guided-missile destroyer USS **McCampbell** (DDG 85), shows the outside of an SH-60B helicopter to a member of the Republic of Philippines Navy during a tour of the ship.
(MCSN Declan Barnes/USN)



Commander's Corner



Surface Warriors One of the great things about my job is the ability to travel and meet with Sailors at every level, from the most junior enlisted to senior leadership. At every stop I make a point of meeting with as many as I can to listen to what the Fleet is talking about.

Late last year I headed to Hawaii and visited with our Pearl Harbor-based ships and commands to personally see how they are doing and what their concerns were. Before that I was in Washington, D.C., and Millington, Tenn., to hear about personnel issues.

Here's what I'm seeing and hearing—everyone is interested in the future. Your personal interest is important and frankly, gratifying. It means you are engaged in your jobs and careers and remain focused on the mission. But you do have concerns about the budget, OPTEMPO/PERSTEMPO and what lies ahead in terms of manning.

I can tell you there are budget cuts coming and we are doing our best to plan for operating in an austere environment. We don't have all the answers but we do know the oceans haven't gotten smaller and the world hasn't gotten safer so we will continue to steam ahead and support the national security strategy. I promise you we are bore-sighted on doing everything we can to maintain readiness.

Speaking of being ready and mission focused, late last year the MCM community put out a NAVADMIN which closed out in November asking for volunteers to provide sustained support in the C5F AOR. The response was immediate and overwhelming. The IA manning numbers were reached and our motivated Sailors were put into those billets. Many thanks to those who stepped up and volunteered.

As part of my priorities I announced a few months back, we are shifting how enlisted billets are filled. Instead of simply requesting a body to fill a billet we will be looking for the right Sailor from the right rating with the right quals and certs to fill a specific billet. This initiative is intended to create the best professional development opportunities for our enlisted surface warriors, while ensuring the Navy has the best qualified individual Sailor doing the job he or she has been trained to do. As future requirements are being drawn up and manning levels being determined, it would make sense for motivated Sailors to be ready to be indispensable.

Finally, now that the presidential campaign has passed, the holidays are passed and opening, and a new year has begun, I want to emphasize that your leadership truly understands and appreciates the difficult times we face and the challenges ahead of us.

We are a maritime Nation and will always rely on a strong Navy. The composition of that "strong Navy" will see some current capabilities go away and newer capabilities—LCS, CANES, Unmanned Systems—be integrated operationally. We are in a dynamic environment and the Surface Navy is critical to our Nation's security.

Thank you for all you do and keep it up!

Thomas Copeman

Thomas Copeman
Vice Admiral, U.S. Navy
Commander, Naval Surface Forces

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◀◀ The guided-missile destroyer USS **Barry** (DDG 52) is underway throughout the outer bands of Hurricane Sandy in the North Atlantic.
(STG3 Christopher Brewer/USN)

Director's Letter



Surface Warriors It has been a year since I took the helm of N96 and 2012 was full of great accomplishments by our Naval Surface Forces. On any given day our Ships and Sailors are in every region in the world professionally executing assigned missions with capabilities only we can deliver. In the past year we have also seen some changes, supported by COMNAVSURFOR, NAVSEA, and others in how our Fleet is preparing for upcoming deployments.

If you remember a year ago, I laid out my top three priorities and our team has been diligently working them while setting our force on a course to sustained readiness and long-term health. I would like to review the progress made to date regarding these three priorities.

My first priority: making the ships we have today work together seamlessly. In 2012, we made investments in many areas, but two, Aegis Wholeness and surface ship maintenance, were aimed directly at improving interoperability and readiness. These investments along with better governance, requirements, planning and execution are already proving their worth.

My second priority: fielding the Littoral Combat Ships (LCS) and integrating them into the Fleet. To support the CNO's second tenant, "Operate Forward," we are introducing LCS into the Fleet in numbers. The capabilities in this ship class will expand our ability to operate forward and ensure dominance in the littorals. LCS Fleet presence will quickly ramp up: Three have been delivered and are in service, five are under construction, four more on contract, and we expect to order four more per year over the next three fiscal years. The integrated LCS schedule will result in the delivery of 17 LCSs and 21 mission packages by the end of FY17.

My third priority: investing wisely in future technology so that we can continue to outpace threats. We are investing responsibly to remain the world's most combat effective, technically advanced, and resilient Surface Navy. The Fiscal Year 2013 President's Budget (PB-13) builds new ships (DDG-51 / DDG-1000 / LCS / LHA / LPD-17), modernizes our DDG-51 class with Advanced Capability Build 12, procures several next generation weapon and sensor systems (Standard Missile-6, Offensive Anti-Surface Weapon (OASuW), Naval Integrated Fire Control-Counter Air (NIFC-CA), Air and Missile Defense Radar (AMDR), MK-54 torpedo, and Griffin, to name a few), and funds critical manning and training requirements.

To help guide the continued development of our future Surface Force, CNSF, CNSL, OPNAV N95, and I co-signed *Cardinal Headings for Surface Warfare* (you'll find a copy inside this magazine). The intent for *Cardinal Headings* is to provide insight into the direction of Surface Warfare, and the investments we are making to maintain a robust Surface Force. There are warfare challenges in the coming years, some of which we can't predict, and we will most likely have to wrestle with the potential impacts of near- to mid-term declining defense dollars. That said, I view this as a great opportunity to make decisions about what's truly important for the long-term success of our Surface Navy.

I am grateful for your service and hope you spent the holidays with your families. For those on the high seas and deployed forward, you are on my mind and I wish you a safe return to loved ones.

Tom Rowden

Tom Rowden
Rear Admiral, U.S. Navy
Director, Surface Warfare

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On the cover: The Cardinal Headings initiative represents the direction in which the Navy is progressing toward in matters pertaining to Surface Warfare. Read more from the insert beginning on page 26



On the back: DDG-1000 deckhouse is lowered onto its hull. Navy-Industry teamwork ensured a successful first joining of composite and steel structures in the DDG-1000 program, paving the way for the future deckhouse. DDG-1000 is on schedule to be christened and launched in 2013.



◀ U.S. Army AH-64D Apache helicopter takes off from Afloat Forward Staging Base (Interim) USS *Ponce* (AFSB(i) 15), during an exercise as the guided-missile destroyer USS *Benfold* (DDG 65) transits nearby. *Ponce*, formerly designated as an amphibious transport dock ship, was converted and reclassified to fulfill a long-standing U.S. Central Command request for an AFSB to be located in the U.S. 5th Fleet area of responsibility.

(MC1(SW/AW) Jon Rasmussen/USN)

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INSIDE SW

In this edition

of the magazine we present everyone with a copy of *Cardinal Headings for Surface Warfare*. *Cardinal Headings* provides a long-range vision for how the Navy's Surface Force will deliver and sustain a full-spectrum Surface combat force while remaining the world's most combat-effective, technically-advanced, and resilient Surface Navy. The Surface Warfare community has been developing *Cardinal Heading for Surface Warfare* for the last several months with the intent to provide strategic guidance which will inform and shape decisions regarding the development and sustainment of the Navy's future Surface Force. It is consistent with the latest national security and defense guidance and is designed to support the CNO's Sailing Directions and the forthcoming revision to A Cooperative Strategy for 21st Century Seapower (CS 21), while also providing the flexibility to address constantly evolving fiscal and geopolitical circumstances. The CNO's Navigation Plan, the Navy's annual classified Strategic Plan, and equivalent documents from the Marine Corps and the Coast Guard are also foundational to *Cardinal Headings*.



Ultimately, with disciplined and sustained adherence to *Cardinal Headings* and the forthcoming Surface Force Master Plan, we will produce Surface Force "wholeness." Wholeness for the Surface Warfare community means ensuring today's ships can sail and fight together seamlessly with every system working as designed and properly fielded, equipped, manned, trained, maintained, sustained, modernized, and deployed.

On another note, the magazine is moving to San Diego. Vice Adm. Copeman, Commander, Naval Surface Forces and his staff will produce future editions of *Surface Warfare*. My staff and I have had a great time producing this magazine for the past year. We appreciate all of the contributions and inputs from the Fleet. Without your help the magazine would not have been possible. Thank you.

—Lt. Kathryn Dawson



SNA photography contest winners



2nd place

Storm in the Pacific

Photo by MIDN Vytautas Drejeris, USN, US Naval Academy

3rd place

A moment of silence for the Burial At Sea detail onboard USS **Curts** (FFG 38).

Photo by FC2(SW) Evan Kubik, USN from USS **Curts** (FFG 38)



1st Place

The guided-missile cruiser USS **Anzio** (CG 68) sails through crashing waves while participating in composite training unit exercise (COMPTUEX).

Photo by MC2 Aaron Chase, USN from USS **Winston S Churchill** (DDG 81)



Honorable Mention

USS **Constitution** fires a 21-gun salute toward Fort Independence on Castle Island during the ship's July 4th underway as part of an event for Boston Navy Week. Boston Navy Week is one of 15 signature events planned across America in 2012. The eight-day long event commemorated the Bicentennial of the War of 1812.

Photo by MCSN Michael Achterling, USN from USS **Constitution**

The 3Cs of 3M:

Using **Communication** to create **Culture** ensures **Continuity** of material readiness of the Fleet

By Cmdr. Robert Stover, USN, Afloat Training Group San Diego



▲▲ On board USS **Sterett** (DDG 104), CF Division Officer Ensign Molly King conducts a maintenance validation spot check on the aft Close-In Weapon System (CIWS) mount, while FC2(SW) Caleb Johnson and FC3 Michael Masters perform preventative maintenance. (U.S. Navy Photo)

Within two hours of reporting as the Director of Engineering for Afloat Training Group (ATG) San Diego in Aug. 2012, I was told three times that USW (Undersea Warfare) and 3M (Maintenance and Material Management) are the top two areas lacking consistent proficiency in the Surface Fleet.

Because Engineering Department is responsible for training San Diego ships in 3M, I began searching for best 3M practices. My staff pointed to two Pacific Fleet ships, USS **Sterett** (DDG 104) and USS **Rentz** (FFG 46), Commander, Naval Surface Force, U.S. Pacific Fleet (CNSP) Code N43 (Mr. Jerry Brugger) and the Board of Inspections and Survey (INSURV) for answers to how to get 3M right and why it matters.

— USS **Rentz** completed a 3M mid-cycle assessment (MCA) in Apr. 2012, performing well with a command total score (CTS) of 91.06 percent. Cmdr. Lance Lantier, who recently fleeted up to command **Rentz**, provided a consolidated response to the best practices questions. His answers reflect the shared philosophy that carried both ships to success in 3M, which could not have been achieved if they were simply “ramping up.”

Q: How did you make 3M part of your daily routine?

A: Include 3M in your daily battle rhythm; maintenance happens every day, 365 days a year, so why not beat that drum at every opportunity? If the commanding officer (CO), executive officer (XO), command master chief (CMC), or any senior khaki is walking around and sees maintenance being performed, they can stop and ask about what the maintenance man is doing, look over the check with him, evaluate deck plate compliance.

Q: What is the one key factor that you would identify as having had the greatest impact on your 3-M success?

A: Without blinking an eye, we can say the answer is COMMUNICATION.

Communication between maintenance men, work center supervisors, the chief petty officer (CPO) mess and wardroom had the greatest impact with the success of the program internally. Externally, whenever a question was brought up, our Maintenance and Material Management Coordinator (3MC) shared that information with other 3MC's on the water front. When in doubt, we had no problem bringing issues up to ATG and CNSP for guidance. As a result, **Rentz** has 12 separate “additional guidance” documents, complete with an index, which is kept in every work center manual. We have also provided these documents to ATG, visiting perspective COs/XOs, and other ships. When we had a question about a safety-related issue, we directly engaged the Naval Safety Center and got the answer. This was also helpful during our safety survey, as the same people we engaged at the Naval Safety Center were present. It just shows once again that communication internally and externally is the key.

Q: How did you prepare for your most recent 3M assessment?

A: **Rentz** conducted rigorous cross-departmental administrative effectiveness reviews (AER), involving all CPOs, division officers (DIVO), and department heads (DH). Everyone involved gave their assigned work center a thorough look, and discrepancies were identified with enough time for correction. **Rentz** also conducted a consolidated ship's maintenance program (CSMP) review with all departments and corrected discrepancies during the review. It took a great deal of time, but we believe it paid huge dividends on the outcome of the 3M MCA. A vigorous



spot check program is another key to the program's success. Every work center supervisor, leading CPO (LCPO), DIVO, and DH, along with the 3MC, CMC, XO, and CO conduct weekly spot checks. Many of our historical spot checks focus on those checks that have been identified as being on troubled systems, which we often see in quarterly newsletters. Spot checkers are encouraged to also look for checks that include hazardous material (HAZMAT), tag-outs, or require personnel protective equipment (PPE). The spot check program brought to light many questions regarding these subjects which were worked out well in advance of the assessment. Reviewing SKED and CSMP by the chain of command in a timely manner is also imperative.

— USS **Sterett** performed well on its past two 3M assessments with little or no outside assistance. Their Oct. 2011 MCA was conducted with almost no notice and at the end of deployment. **Sterett** passed its subsequent June 2012 3M certification with an overall CTS of 94.58 percent. Three of the many personnel responsible for **Sterett's** success during this period were CMDCM(SW) Christopher Benavides, ABFCS(SW/AW) Andre Barriga, **Sterett's** 3MC, and Chief Engineer, Lt. Ernie Miller. Their detailed answers to how they prepared for two successful assessments echoed CULTURE and COMMUNICATION across and up/down the chain of command.

Q: What is the one key factor that you would identify as having had the greatest impact on your 3M success?

A: “Culture change! 100 percent effort from every Sailor aboard! We focused on procedural compliance and standardization during the conduct of maintenance and our internal

▲▲ On board USS **Sterett** (DDG 104), ET3(SW) Casey Aragon performs preventive maintenance on the STC-2 terminal Net box. (U.S. Navy Photo)

▶ On board USS **Sterett** (DDG 104), FC2(SW) Caleb Johnson and FC3 Michael Masters perform preventative maintenance on the aft CIWS mount. (U.S. Navy Photo)



"We pushed the maintenance personnel to do their best, while teaching them on the spot when they made mistakes."

—ABFCS(SW/AW) Andre Barriga

assessment procedures. We met with all of the khaki and reviewed the AER check sheet, each line item was covered, ensuring every inspector understood the requirement, which paid off as AER scores began to settle out vice the roller coaster scores we were seeing prior," said CMDCM Benavides.

"We performed a scrub of the forecasting report with the DIVO/CPO to ensure that we had all the materials required to perform the maintenance. AERs are a check-point for admin. However, they do not reflect how well/poorly maintenance is being performed," said Lt. Miller.

"We were tough as possible performing spot checks. We pushed the maintenance personnel to do their best, while teaching them on the spot when they made mistakes. The same went for equipment validation spot checks. We generated a maintenance person spot check cheat sheet (which can be laminated to any clip board)," said ABFCS Barriga

Q: How did you make 3M part of your daily routine?

A: "Our CO made 3M a command priority through 3M related meetings, 3M Training Team (3MTT) AERs, and 3M "block parties." The command made it a top priority, 100% participation and compliance from the mess ensured every Sailor understood the importance of proper maintenance practices. The CPO mess was on the deckplates training and validating maintenance daily," ABFCS(SW/AW) Barriga said.

"I walked around daily (which made DIVOs and CPOs walk around daily) and watched PMS being performed. This showed the maintenance men that the right way to do maintenance is to do the maintenance correctly every time. If a process is not working correctly, an AER will not tell you as much as putting eyes on, and we made this the culture in Engineering," said Lt. Miller.

Q: How did you prepare for your most recent 3M assessment?

A: "Dedicated time was allotted each day where we focused on spot check training both for the spot checker to the maintenance person, HAZMAT, AER training so we were all on the same page as we conducted AER's (we should have done this in the beginning)," said CMDCM Benavides.

"We ensured that all members of 3M training team (3MTT) and the Command were on the same page all the way down to the last detail prior to making preparations. The cross training was effective with having different 3MTT members look at different work centers throughout the command," Barriga said.

"We had a CPO and DIVO (from 2 different divisions) look at a division's AER. This provided cross training throughout

the department and a “new” set of eyes. The corrections were made and re-inspected by the Chief Engineer. We did the round robin every other week with a week in between reviews to correct discrepancies and allow time for process improvement to take effect. All divisions were looked at 4 times prior to the assessment and each DIVO and CPO had an opportunity to work together,” said Lt. Ernie Miller.

— Mr. Jerry Brugger, a long-time leader in 3M at CNSP and author of many assessment criteria in the Command Naval Surface Forces Pacific and Atlantic (CNSP/CNSL) 3M Instruction 4790.1 series, identified CULTURE as the “first order of precedence for a unit” to have a successful program.

Q: Is there one group (officers, chiefs, department heads, departmental 3MCs, etc) aboard Ship that has the most impact on 3M culture?

A: Successful units have a culture that originates in the wardroom and CPO mess. Both groups have a major impact. Both must be proactive, in action and not just words, be in the spaces, be knowledgeable, and follow up. CPOs must train Sailors and mentor junior officers in 3M.

Q: What are the most common 3M areas that cause ships to either succeed or fail?

A: SELF-ASSESSMENT! A critical self-assessment (required quarterly by instruction) will find problems. Omitted checks and standardization hits are obvious and should not be overlooked.

Changes to preventive maintenance system (PMS) require a CPO, DIVO, and DH review with signature to legally execute maintenance. Ask questions during the review; do not just accept the corrections or changes.

Q: How long in advance should a Ship begin preparing for a 3M assessment?

A: A unit should be ready for any 3M assessment at any time. 3M is something done daily like sweepers, which is basic preventive maintenance. The documentation of the maintenance also needs to occur daily.

— Mr. Robert Strait, Director, Operations Analysis and Command Information Officer at the Board of Inspection and Survey (INSURV) answered why CONTINUITY of 3M performance matters during a ship's life.

Q: How is 3M important to the long-term material health of a ship?

A: 3M is probably the single biggest factor to a ship reaching its expected service life, with modernization being a close second.

Q: Do you have any metrics that tie 3M to successful INSURV inspections?

A: Of all of the material inspections conducted over the past 10 years, 42% of the deficiencies that we have written are PMS related (factoring out normal wear and tear and deficiencies of unknown cause). The majority of these are PMS not being conducted or PMS not being conducted correctly.

Q: Do you have any anecdotal/empirical “best practices” you have brought back from the ships that have done the best during INSURV?

A: The better a ship does with their PMS program and with their zone inspection program, the better they will do on a material inspection, in general. We have reported to Congress, CNO, and Fleet Commanders routinely through our annual reports that PMS accomplishment, or lack thereof, has been the biggest contributor to ship material readiness.

Successful crews continuously communicate the standards while maintaining a top-down culture that includes every officer and chief petty officer assisting the maintenance personnel in adhering to those standards. A culture of 3M is key to not only ensuring a successful 3M certification, but more importantly maintaining the continuity of material health and battle readiness across the span of a ship's life—3M – everyday and at every level. SW

▼ On board USS **Sterett** (DDG 104), Damage Control Assistant Lt. j.g. Eric Mason conducts a spot check on GSM3(SW) Jennifer Llarina and GSM3(SW) MacGyver Bilugan who are conducting routine maintenance on a fuel oil control valve. (U.S. Navy Photo)





Rules for Navigation

By Capt. Jim Boorujy, USN, *Commanding Officer*

of the Center for Security Forces

*At sea, Capt. Boorujy commanded the USS **Nassau** (LHA 4), the USS **De Wert** (FFG 45), and MCM Rotational Crew in USS **Pioneer** (MCM 9) and USS **Ardent** (MCM 12).*

During three tours as a ship captain, I developed “thumb rules” which guided my actions and decision making regarding navigation and shiphandling. These rules are written for the commanding officer (CO), but apply well to all bridge and combat information center watchstanders. Of course, a CO must enforce compliance with all established navigation procedures, but, for me, these thumb rules supplemented those procedures and served as focal points. I hope they are helpful. Given my experiences, I thought I would put them in print and attempt to help some other ship captains along the way.

1. *Be the lead navigator and shiphandler.* Getting your ship safely to the right place, at the right time, is a prerequisite for accomplishing any mission. Therefore, navigating, piloting, and shiphandling should always be top priorities for any captain.
2. *Do not think you have the chart memorized.* Even when pulling into your homeport, look at the chart. Look at it a lot. Get out of the captain’s chair and look at it. Study it. Read the notes! You will be surprised how few people will read the notes!
3. *Have a radar and GPS display set up near the centerline compass so you can drive the ship by yourself if need be.* If you ever find yourself in the channel when the fog closes in, you will be glad you have such a set up.

4. *Look out the window.* Teach your officers of the deck to do the same. The bridge team should be organized to ensure that a watch officer is constantly looking out the window! If not, they may all get absorbed with matters inside the pilothouse!
5. *Always be in an approved ‘box’ or on an approved track.* Using the various global positioning system (GPS) aids available today, you should enter the track or the operating area (a.k.a. “box”) into the system. Furthermore, do not assume a box assigned by higher authority is safe. Always check tracks and operating areas assigned to your ship.
6. *Someday GPS will be wrong.* You need to navigate as if it will be wrong someday. If you do not, you will be the one to run aground when it is wrong.
7. *GPS is almost always right.* GPS is usually very accurate; use it constantly. Keep one eye on the GPS plot. If the GPS does not match what you are seeing via other plots, you have a serious problem.
8. *Do what the pilot says.* Pilots are very good at what they do. If they were not very good, they would not hold their job. Therefore, when you have a pilot aboard, I recommend ‘going with the flow’ ... i.e. do not ‘fight’ the pilot. Each pilot will maneuver your ship his own way. And his way is tailored to the environment and resources he has available. When you are not in homeport, this can be significantly different from what you are accustomed to. He knows the harbor, and works with the tugs and linehandlers every day.

- a. You may need to ‘improve’ the pilot’s orders. You know how your ship responds better than he. My last ship was a steam ship; many pilots gave orders as if it would respond like a diesel ship. On that ship (an LHA) I converted “Back 1/3” to “Back 2/3” routinely.
 - b. If the pilot makes an error, he will probably be able to fix it faster than you can. You will need to ‘translate’ orders from the pilot to your conning officer. You will have more experience with pilots than your conning officer. They often use civilian standard commands, often with a heavy accent. Your conning officer may get confused.
 - c. And, finally, there are exceptions to my rule, ‘do what the pilot says.’ You may need to take control from the pilot ... your call.
9. *Go slow in shallow water.* Do not forget about squat. Squat can be significant – 15 feet or more under certain conditions. Know what your ship squats, and allow for it.
10. *When docking or undocking* – go slow. When you are maneuvering around a pier, go slow. Save your fancy maneuvering for the simulators. Be patient and careful. Use tugs when they are available.
11. *More safe is better than less safe; don’t take chances.* When you are maneuvering a ship, it is not easy to extract yourself from difficult situations. Therefore it is imperative that you avoid them. Think ahead and do not take chances!
12. *Avoid fish havens, spoil grounds, unsurveyed areas, wrecks, capped oil wells.* These areas frequently do not have a

charted depth, or depth may vary after being surveyed. Do not take chances. If water depth is questionable, avoid the area. Furthermore, highlight anything that could hazard your ship, including buoys! Highlight shoal water, the hazards listed above and any other hazards you come across when you study the chart. If hazards are not highlighted on the chart, it is more likely you will hit them. Highlight them on both your paper and electronic charts, and ensure you avoid them.

13. *When in the areas of high contact density, maneuver as little as possible.* Whenever you maneuver, all your contact solutions *change*. Furthermore, the solutions all your contacts had on you will change. Therefore, when sailing through areas of high contact density, only maneuver when necessary. Avoid unnecessary maneuvering to help yourself and others keep ‘the bubble.’ [SW](#)



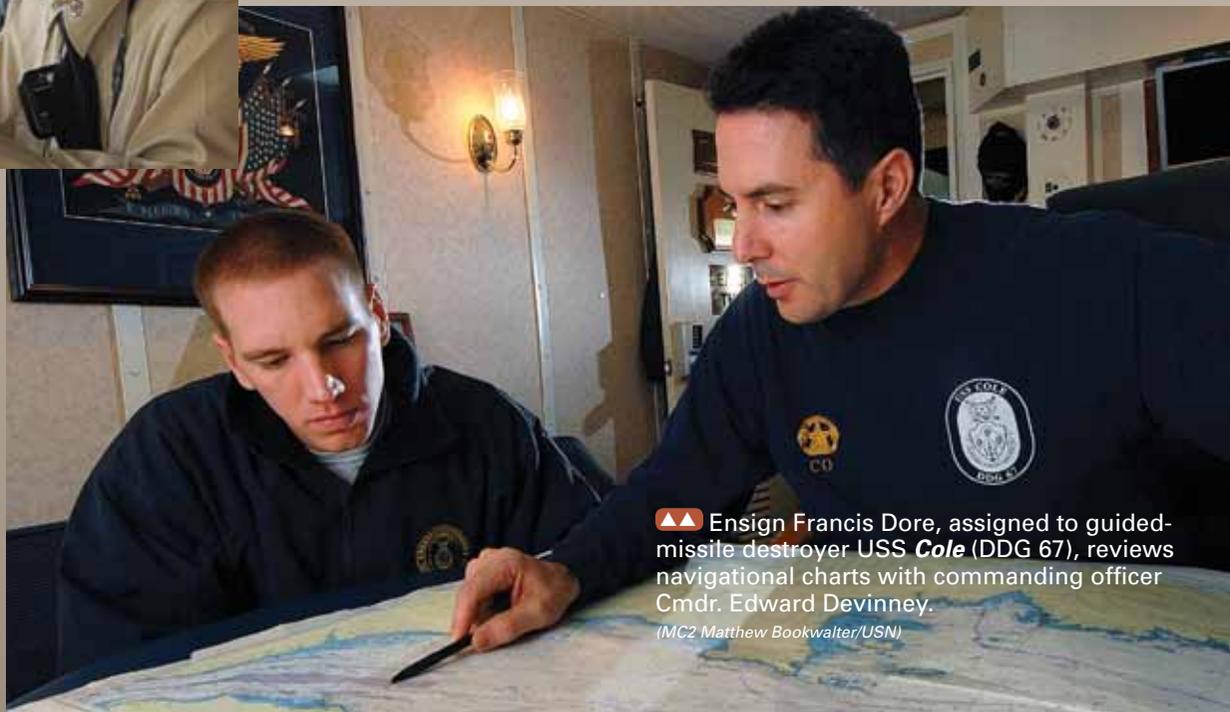
▲▲ QM3 Perry Avila conducts on-the-job training with QM2 Angela Everett aboard the amphibious dock landing ship USS *Carter Hall* during the *Iwo Jima* Expeditionary Strike Group’s composite unit training exercise.

(MC2(SW/AW) Flordeliz Valerio/USN)



▲▲ QMCS David Tokarski looks through an alidade on the bridge of the multi-purpose amphibious assault ship USS *Bataan* (LHD 5) during the ship’s *Battle of Midway* remembrance.

(MC3 Ryan Steinhour/USN)



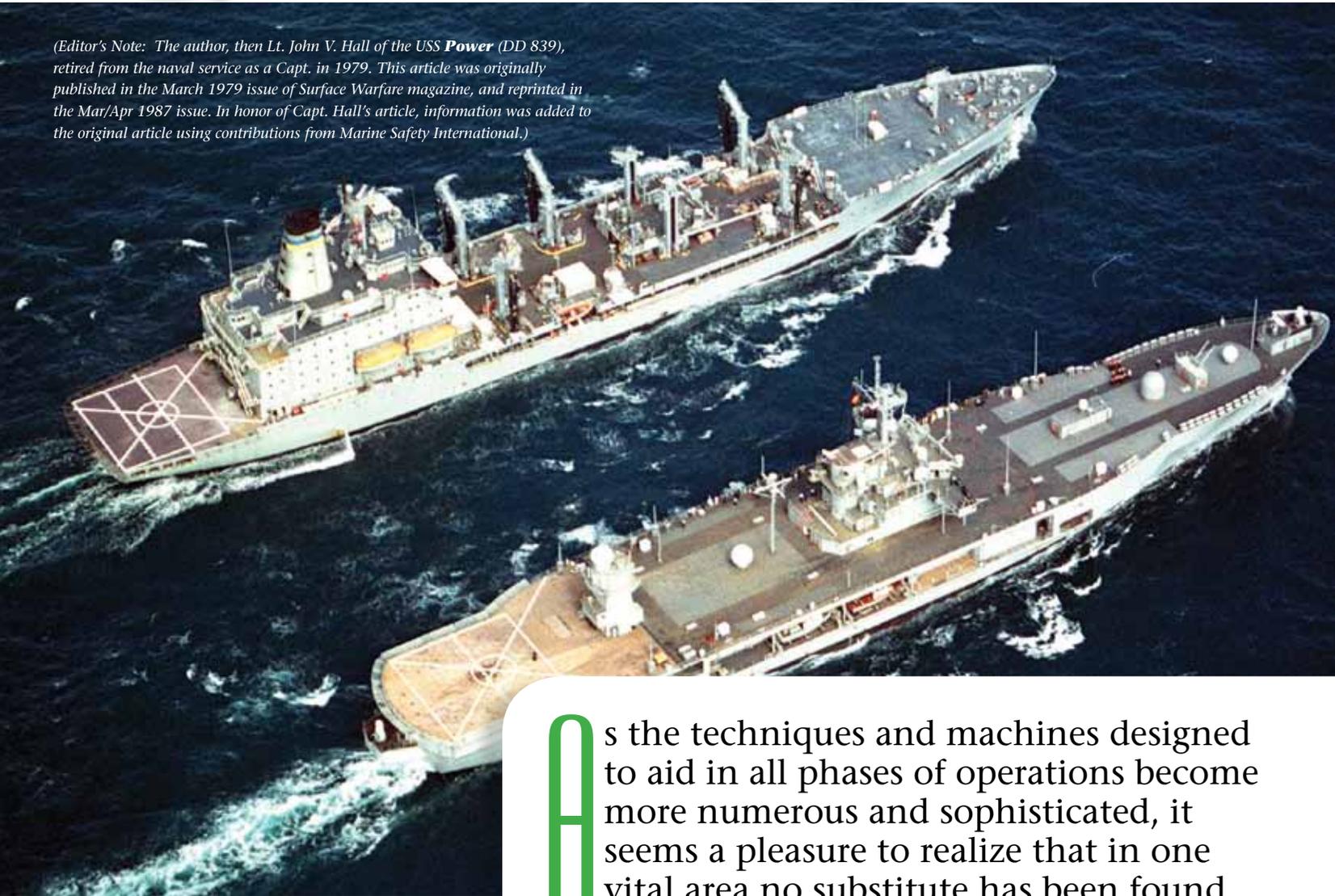
▲▲ Ensign Francis Dore, assigned to guided-missile destroyer USS *Cole* (DDG 67), reviews navigational charts with commanding officer Cmdr. Edward Devinney.

(MC2 Matthew Bookwalter/USN)

QUICK MATH

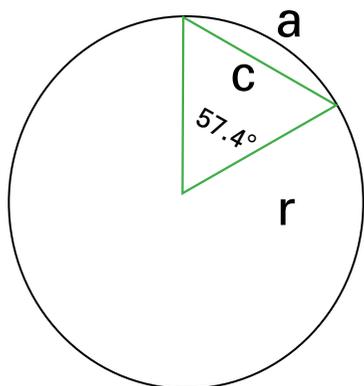
By Lt. John V. Hall, USN and Marine Safety International

(Editor's Note: The author, then Lt. John V. Hall of the USS Power (DD 839), retired from the naval service as a Capt. in 1979. This article was originally published in the March 1979 issue of Surface Warfare magazine, and reprinted in the Mar/Apr 1987 issue. In honor of Capt. Hall's article, information was added to the original article using contributions from Marine Safety International.)



As the techniques and machines designed to aid in all phases of operations become more numerous and sophisticated, it seems a pleasure to realize that in one vital area no substitute has been found, or is likely to be for the exercise of good human judgment and thought, aided by rather simple equipment of long standing.

graphic 1



The conning officer (CONN) does of course have numerous aids to help perform even the most elementary maneuvers. Combat Information Center (CIC), radar, and the maneuvering board (MoBoards) are close at hand. Information concerning contacts is clearly displayed. Everything on the bridge seems to be calm, in order, ready. Probably it is. But somehow, something can come up fast enough and unexpectedly enough so that an almost instantaneous.

Decision will have to be made without much outside help. Even if help and recommendations are quickly forthcoming, there is still the question, is this correct? Is it the safest, quickest and best way? The responsibility for making this determination does not leave the bridge; it is there to stay.

The CONN then has an obligation to use every means available to quickly and accurately make this determination. The officer of the deck (OOD) is required to study pertinent tactical doctrine, the maneuvering characteristics of his own ship and other types, and maneuvering board. He is required to give and receive instruction so that his decision will always be acceptable. There is however, a faculty which an OOD can develop and use effectively with just a little analysis and practice, but which few seem to consciously use. It is no more than mental arithmetic, based on a variety of simple rules.

When the OOD uses "thumb rules" in maneuvering, he is merely applying a little pre-cooked math to a specific situation. When he exercises "seaman's eye", he is also making mathematical calculations, but on a level below (or above) the level of conscious figuring. Let's look for a minute at one simple device: radian measure.

Most OOD's have run across the radian at one time or another in elementary math courses. Few appreciate it properly. What is a Radian?

A radian is defined as the angle which subtends an arc of a circle where the length of the arc equals the radius. In the drawing, arc a, radius r and chord c are shown. When $a = r$ the angle shown is one "radian" or 57.4 degrees. (see graphic 1)

If we round 57.4 to 60, we can say that the length of the arc created an angle of 60 degrees is going to be approximately equal to the radius. Consequently the length of the arc subtended by an angle of 1 degree is going to be approximately 1/60 of the radius, 2 degrees, 2/60 of the radius, 10 degrees, 1/6 of the radius, and so forth. For small angles (30 degrees or less), the arc (a) and chord (c) are approximately equal.

Simply put: for every angle of 1 degree, the ratio of the long side of a triangle to the short side is 1 to 60. So for the triangle shown, if the long side is 600 yards, then the short side is 10 yards. (see graphic 2)

For instance:

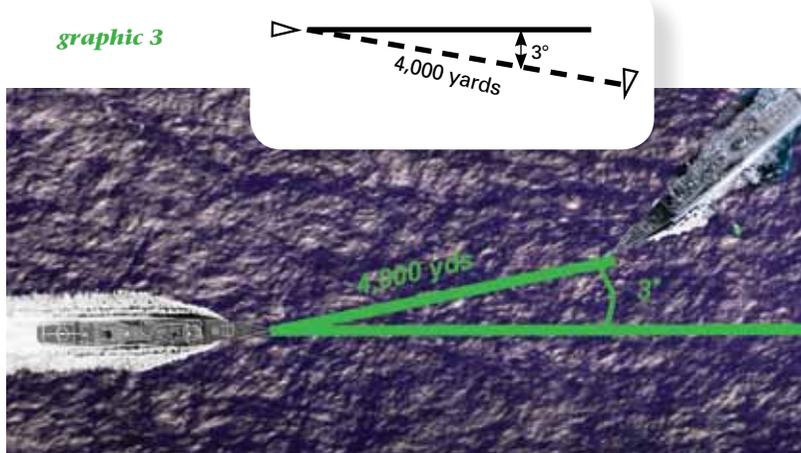
You see a fishing boat about two miles ahead, 3 degrees on your starboard bow. He seems to be DIW. How close do you come if you hold your course?

True this is an instant's work on a maneuvering board. But why not convert that 3 degrees to 1/20 of a radian (3 degrees / 60 degrees), and then take 1/20 of the range, thus getting your 200 yard CPA? Too close? Five hundred yards would be better. Well, 500 is 1/8 of 4000, and 1/8 of a radian is what? Between 7 and 8 degrees. To clear him by 500 yards, starting now, you should steer about 8 degrees off his bearing so you come left 5 degrees. (see graphic 3)

graphic 2



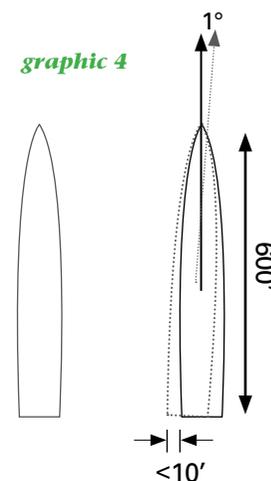
graphic 3

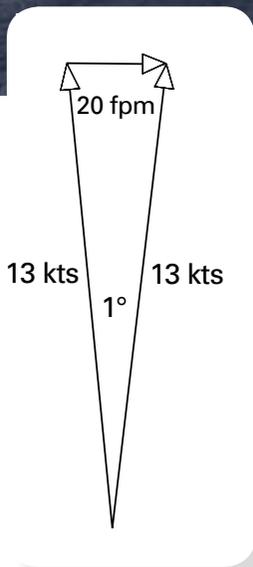


Another application of the radian rule: (see graphic 4)

While alongside during underway replenishment (UNREP), one of our primary concerns is keeping a safe distance from the delivery ship. Since we routinely steer courses to the left and right of replenishment course while adjusting position, it would be useful to know how this affects the position of our stern. There are a lot of variables at work during an UNREP but figuring out the lateral movement of the stern (at least theoretically) for a heading change is relatively easy to do. For simplicity, assume our ship is 600 feet long. If we change

graphic 4





heading 1 degree, and if we assume the ship pivots at the bow (a “worst case” scenario), we apply the radian rule ratio of 1/60 and conclude that the stern moves left 10 feet. Since we know that the ship will pivot somewhere aft of the bow, the 10 foot figure represents the most the stern will move toward the delivery ship for every one degree of heading change.

Yet another application... (see graphic 5)

Most UNREPs are conducted at a speed of 13 knots. When the receiving ship steers a heading to the right or left of Romeo Corpen she should either open or close depending on what side of the delivery ship she is on. It is useful to know what the rate of lateral opening or closing is for every degree of heading difference. In the diagram to the right, the two ship’s vectors are shown with a heading

difference of one degree. If we take 1/60 of 13 knots (which happens to be 1300 feet per minute) we get 21.6 feet per minute (fpm), which we round off to 20 fpm. Thus, in the absence of other forces, for every one degree of heading difference from Romeo Corpen we open (or close) at the rate of about 20 feet per minute.

Getting out of close quarters — the “five degree” maneuver

If, by some circumstance, you find yourself dangerously close to the oiler, say 60 or 80 feet, you have to open the distance quickly because interactive forces are increasing exponentially and you are running out of time. You initiate emergency breakaway; but you can’t floor the accelerator until the rigs are clear, and the increase in speed of water passing over the hull may cause the water pressure between ships decrease further, increasing chances for collision. You are so close that you’re concerned that if you come right, your stern may hit the delivery ship. Nevertheless, that’s what you have to do and what’s

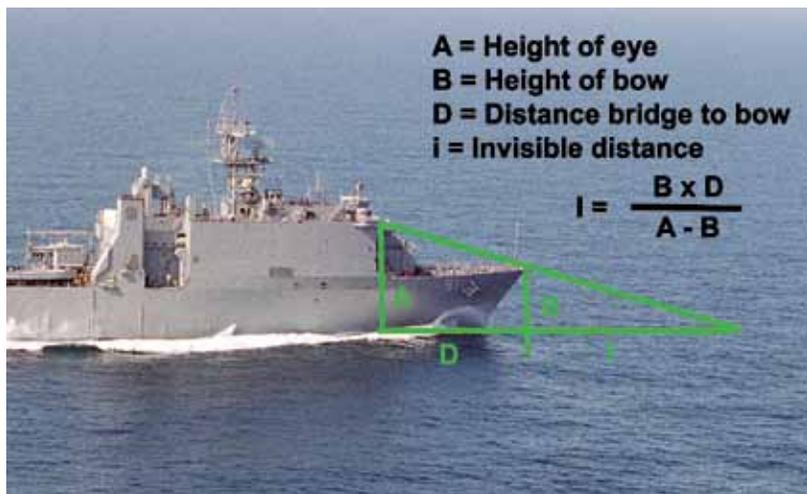
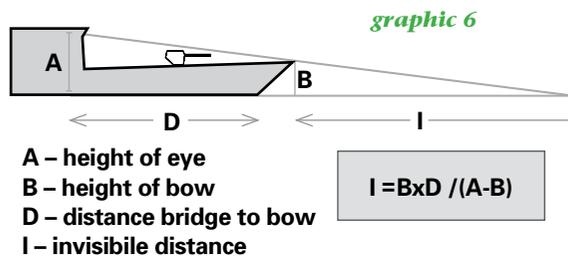
more, you have to make a decisive course change.

Assume you are to starboard of the oiler. As we learned above, for every degree of heading change to the right the stern move left and will close the oiler by as much as 10 feet (for a 600 foot long ship). At the same time, however, each degree of heading change to the right adds about 20 feet per minute to your opening vector. Thus, if you make a course change to the right of five degrees, your stern will close by at most 50 feet. At the same time you will achieve an opening rate of 100 feet per minute or more. In fact, as the ship comes right even though the stern rotates toward the delivery ship, it closes by much less than 50 feet because the opening vector takes effect and the ship tracks to the right.

It is recommended that this “five degree” maneuver be executed by giving a course order (i.e. “Helm, come right smartly to XXX.”) vice a rudder order and that the helmsman be a qualified master helmsman who has been briefed to anticipate such an order in the event of an emergency breakaway. You may choose to use rudder orders, but the helmsman may be carrying significant amounts of rudder already to hold the ordered course and will know what’s needed to execute a smart course change. The real challenge in this maneuver may be returning to base course before you open up too far.

The Three Minute and One Minute Rules

Experienced OODs are well versed in the three minute rule which states that the distance in yards traveled in 3 minutes is equal to the speed in knots multiplied by 100. Thus a ship going 10 knots travels 1000 yards in 3 minutes. For slow speeds it may sometimes be useful to use the One Minute Rule which is essentially the 3 minute rule divided by





three. The One Minute rule says that the distance traveled in feet in one minute is equal to the speed in knots multiplied by 100. Thus a ship approaching a berth at 2 knots will travel 200 feet in one minute.

The Invisible Distance Formula

The Invisible distance formula is not quick math. It has to be calculated in advance but once calculated it provides a useful tool for close quarters situations. A good example of its use is the situation where you are entering a berth and need to estimate the distance ahead to a fixed object such as the quay wall. From the bridge, your line of sight over the bullnose will intersect the surface of the water at some distance ahead of the bow which, given your height of eye and the typical draft and trim of the vessel will be a fixed distance. Typically for CGs and DDGs this distance is about 80 or 90 yards. However, using the drawing and formula below you can calculate what it will be for your particular ship. You will find that differences in height of eye and small changes in ship's draft will not affect the result very much. (see graphic 6)

One of the things an OOD is expected to know is, of course, the maneuvering characteristics, or "tactical curves" of his ship. Usually this will comprise a volume of figures and graphs, which can scarcely be memorized. However, it is imperative for the OOD to have a rather accurate knowledge of advance, transfer, turning diameter and turning rates for

various speeds and rudder angles. It is not too much to memorize figures for, say, ten, fifteen, twenty, and twenty-five knots, the same rudder angles, and 180° of turn. In any event, the data should be most readily accessible, preferably in a handy tabulated form.

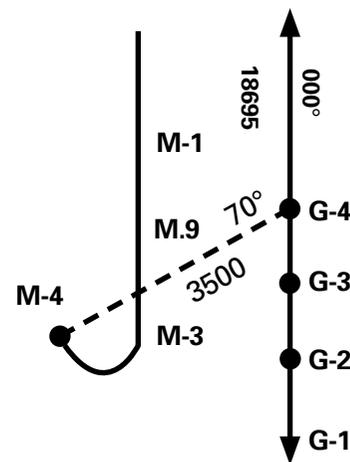
Now suppose that you are a considerable distance ahead of your guide, and you are told to take station much closer, dead ahead. You decide to turn and head back on the reciprocal course, almost "down the throat". He's making 20 knots, you are at 25, and suddenly there you are with a closing range of nearly 45 knots and a decision to make. It is well to come prepared.

(see graphic 7)

Your station is 1000 yards dead ahead of the guide, and you have decided to turn back to base course at 25 knots with 15 degrees rudder, slowing to 20 as you begin to steady up on base course. Now you absolutely must know how long that turn is going to take.

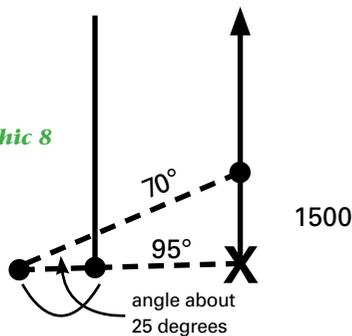
For safety's sake you are going to assume it takes three minutes. In three minutes the Guide will approach you

graphic 7

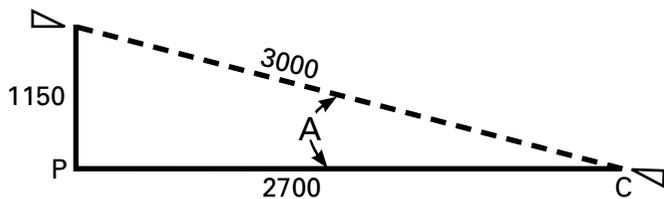




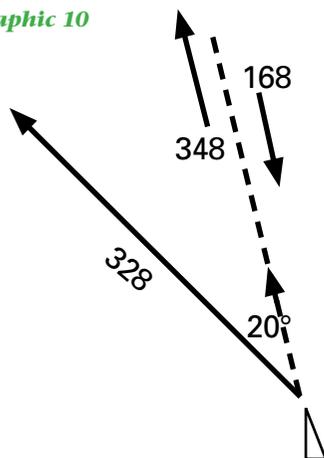
graphic 8



graphic 9



graphic 10



by a matter of 2000 yards, due to his own motion. Therefore, when his range is 3000 yards you will turn, and when you have completed your turn and slowed to 20 knots, you will be just about 1000 yards ahead of him, actually a trifle more. However, if from necessity or choice you are going to do it as described here, there is no other way than to make these calculations. CIC can do no more and you may be lucky if they react quickly enough to do as much. A maneuvering board is no help. It will have to be done in your head.

Here you are coming into what might be screen station, 3500 yards from the guide and somewhat abaft of his beam. His course is 000°, speed 18, and when on station he will bear 070°. You are coming down a more or less reciprocal course along the track shown at 20 knots. (see graphic 8)

You chose your course, by eye or by maneuvering, so as to be displaced towards the guide's track by the diameter of your turning circle. Now as you close him, you are again wondering where to start your turn.

Begin by assuming that your turn will take place at a point. The point chosen is the one you reach on completion of your turn. This assumption will introduce error, but not much in a situation similar to this example. How long this turn is going to take (you know or have looked it up) 2 ½ minutes at 20 knots, with standard rudder. Again you are going to slow to 15 towards the end of the turn.

While you spend 2 ½ minutes turning, the guide will go how far along his track? About 1500 yards, by the three minute rule. Those 1500 yards are less than half of your 3500 yards final range. The angle A above is therefore a little less than half a radian, say 25 degrees. Therefore when the guide bears 005, you will begin your turn.

Now when you look at it objectively, what could be simpler to calculate? All you used was the knowledge you had anyway, plus the radian rule. You make no attempt to be absolutely precise. You used several approximations, for simplicity's sake. Probably you turned a little late, and corrected for that immediately on coming out of your turn. What gave your mental calculations their value was the fact that you knew you would come out quite close to station.

At the moment you began your turn, the situation looked like this: (see graphic 9)

graphic 11

You turned with the guide at a range of 3000 yards. With your turning diameter of 1150 yards, the angle A was a little over one-third of a radian, say 25 degrees. The distance from C to P was therefore only 2700 yards. If your turn had, in fact taken 3 minutes, as you assumed, you would have ended up only 700 yards ahead, which could be cutting it rather fine, to say nothing of putting you 300 yards behind station. That extra half minute you allowed for the turn served to compensate for 300 yards, inasmuch as half a minute represented very close to 300 yards in the advance of the guide along his track.

How do most OOD's figure reciprocal bearings? A quick glance at the maneuvering board is no doubt easiest and surest. But if you want to do it in your head, do you try to add or subtract 180 degrees? This can become awkward, and can lead to errors. Why not add 200° and then subtract 20, or conversely subtract 200 and add 20? This is of course extremely simple, but have all OOD's thought of it?

Few OOD's realize target angles, reciprocal bearings and angle-on-the bow can be useful tools to determine a contact's course.

The contact bears 168°. The reciprocal is 348°, the contact is 20 degrees on the starboard bow. Contact course 348° minus 20 equals 328°. The solution is found in an instant, and if your estimate was good, will be better than CIC's, which may not be available anyway for two or three minutes.

(see graphic 10)

Visualizing relationships is a large part of using "quick math" to help you determine contact course, CPA, and other information, but it can also help you communicate better.

CONN often rely on reports from the foc'sle and fantail to judge the ships position and movement. This is only useful if everyone is speaking the same language. The drawing below suggests several terms and definitions that might prove useful in communicating between the bridge and various lookouts.

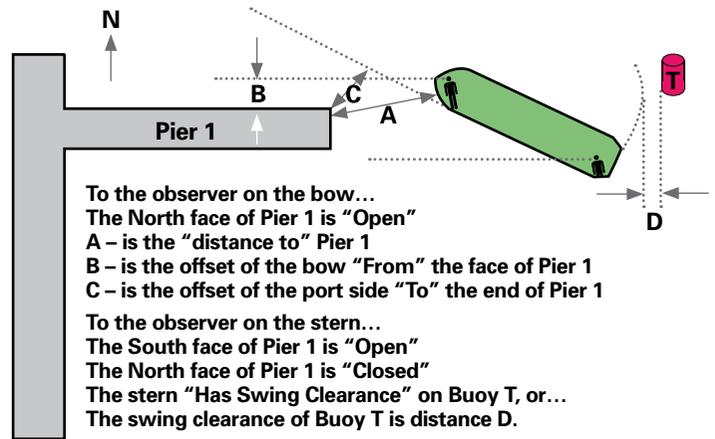
(see graphic 11)

Doubling the Angle on the Bow (A Classic DR tool)

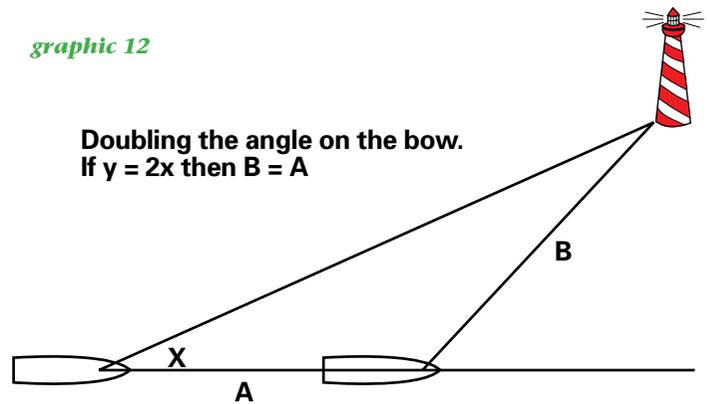
Another application of basic trigonometry can be useful in obtaining an estimated position from a single landmark. Shoot the bearing to a fixed object and record the difference between your heading and the bearing (angle on the bow). Maintain course and continue to shoot bearings to the object until the angle on the bow is twice what it was at the first bearing. At that point, your distance from the fixed object is equal to the distance traveled between the two bearings. The bearing and distance thus obtained can be plotted as an estimated position. (see graphic 12)

It would be impossible to exhaust the situations in which an OOD should be able to find fast and reasonably accurate mental solutions to maneuvering problems. The variety of techniques, tricks, and thumb rules is also endless. I believe, however, that it is appropriate to stress that this type of thinking, and mental preparation, should be just one typical part of an OOD's continuous and analytical effort to qualify himself to meet any situation which may arise.

The radian rule and the three minute rule are excellent aids to an OOD in the execution of his conning responsibilities on the bridge. Their use is for assisting in making rapid and accurate maneuvering decisions. SW



graphic 12



During our year at *Surface Warfare* we have run the gamut of subjects ranging from managing your naval career to developing capabilities to instituting new standards across the Fleet. We've covered the bicentennial of the War of 1812, observed the largest amphibious exercise in the last ten years, and followed the DDG-1000 to its final stages of development. We've seen commissionings of new Ships as well as the change of office of the Master Chief Petty Officer of the Navy. All the while, the backbone of the Navy has been the Sailors' dedication and commitment as seen during humanitarian efforts such as relief for Hurricane Sandy. We look forward to your continued readership as we enter into the New Year. It's been an honor to support the Fleet in all things Surface Warfare.

▶▶ SNA National kicks off the year.

Attendees have a themed discussion about, "Sustaining Today's Force Structure and Building the Navy's Future Force" with a panel of Navy representatives during the 24th Annual Surface Navy Association National Symposium. This year's theme was "Surface Navy: A Credible Force in Uncertain Times."

(MC2(EXW) Todd Frantom/USN)



▶▶ Bold Alligator 2012 (Jan 30. to Feb 12) largest amphibious exercise held in ten years. Bold Alligator, held from Jan. 30 to Feb. 12, 2012 off the coast of South Carolina, is the largest naval amphibious exercise held in the past 10 years and represents the Navy and Marine Corps' revitalization of the full range of amphibious operations, focusing on today's fight with today's forces while showcasing the advantages of seabasing.

(MC1(SCW) Demetrius Kennon/USN)



▶▶ 21st Century Sailor and Marine Initiative The initiative consolidates a set of objectives and policies, new and existing, to maximize Sailor and Marine personal readiness, build resiliency and hone combat-effectiveness.

(MC2(AW) Gary Granger Jr./USN)



▶▶ International Operation Sail 2012 commemorates the bicentennial of the War of 1812. Indonesian navy tall ship KRI *Dewaruci* began its cruise from Surabaya, East Java, Indonesia on Jan. 14 as part of International Operation Sail 2012 to commemorate the bicentennial of the War of 1812, Feb. 29.

(Tech. Sgt. Michael R. Holzworth/USAF)





◀◀ **Stephen W. Groves (FFG 29) was decommissioned on Feb. 24, 2012.** Sailors assigned to the guided-missile frigate **USS Stephen W. Groves** disembark the ship for the last time during the ship's decommissioning ceremony at Naval Station Mayport. The ship was decommissioned after 30 years of service.
(MC2(AW) Gary Granger Jr./USN)



◀◀ **USS Boone (FFG 28) was decommissioned on Feb. 23, 2012.**

FEBRUARY



◀◀ **USS John L. Hall (FFG 32) was decommissioned on March 9, 2012.** Cmdr. Richard Meyer, commanding officer of the guided-missile frigate **USS John L. Hall** (FFG 32), receives the command pennant from CMDCM James Tocorzic during the decommissioning ceremony for the ship at Naval Station Mayport. Hall, named in honor of Adm. John L. Hall Jr., has been in service with the U.S. Navy since June 1982.
(MC2(AW) Gary Granger Jr./USN)



◀◀ **USS Ponce (was LDP 15 and now AFSB(i) 15) was converted to an Afloat Forward Staging Base (AFSB) on March 31, 2012.** Afloat Forward Staging Base (Interim) **USS Ponce** (AFSB(i) 15) transits the Arabian Gulf during *International Mine Countermeasures Exercise 2012 (IMCMEX 12)*. IMCMEX 12 includes navies from more than 30 countries whose focus is to promote regional security through mine countermeasures operations in the U.S. 5th Fleet area of responsibility. The U.S. Navy is constantly deployed to preserve peace, protect commerce, and deter aggression through forward presence.

(MC3 Jumar T. Balacy/USN)

MARCH



▲▲ **USS San Diego (LPD 22) was commissioned May 19, 2012.** Sailors run aboard the newest **San Antonio**-class amphibious transport dock ship **USS San Diego (LPD 22)** to man the ship and bring her to life during its commissioning ceremony. **San Diego** is the fourth ship named for the city and the first to be homeported in San Diego.

(MC3(SW/AW) Shawnte Bryan/USN)



◀◀ **USS Anchorage (LPD 23) sits pier side at Naval Station Guantanamo Bay while refueling and taking on other supplies.** **USS Anchorage** conducted a homeport change from Huntington Ingalls Shipbuilding Site Avondale in Avondale, La., to Naval Base San Diego, San Diego, Calif. After its arrival in San Diego, **USS Anchorage** will be commissioned LPD-23, May 4, 2013.

(MC3 Joshua Hammond/USN)



▼▼ **USS Fort Worth (LCS 3) was commissioned Sept. 22, 2012.** Sailors assigned to the **Freedom**-class littoral combat ship **USS Fort Worth (LCS 3)** run to man the ship and bring her to life during the commissioning ceremony in Galveston, Texas.

(MC2(SW/AW) Rosalie Garcia/USN)

▲▲ **Master Chief Petty Officer of the Navy (MCPON) Rick West Change of Office and Retirement Ceremony on Sept. 28, 2012.**

Chief of Naval Operations (CNO) Adm. Jonathan Greenert speaks at the change of office and retirement ceremony of MCPON Rick West, the 12th MCPON, and incoming MCPON Michael Stevens, the 13th MCPON. West served 32 years in the Navy before retiring as the top enlisted service member.

(MC1(SW/EXW) Peter D. Lawlor/USN)

▶▶ **USS Michael Murphy (DDG 112) was commissioned Oct. 6 2012.** Sailors assigned to the guided-missile destroyer USS **Michael Murphy** (DDG 112) run aboard to man the rails and bring the ship to life during its commissioning ceremony at Manhattan's pier 88. The new destroyer honors the late Seal, Lt. Michael P. Murphy, a New York native who was posthumously awarded the Medal of Honor for his actions in combat as leader of a four-man reconnaissance team in Afghanistan. The ship will be based in Pearl Harbor, Hawaii.
(MC2(SW/AW) John Scorza/USN)



◀◀ **Seal Lt. Michael P. Murphy, from Patchogue, N.Y.** Murphy was killed by enemy forces during a reconnaissance mission, Operation Red Wing, June 28, 2005, while leading a four-man team tasked with finding a key Taliban leader in the mountainous terrain near Asadabad, Afghanistan. The team came under fire from a much larger enemy force with superior tactical position. Murphy knowingly left his position of cover to get a clear signal in order to communicate with his headquarters and was mortally wounded while exposing himself to enemy fire. While being shot and shot at, Murphy provided his unit's location and requested immediate support for his element. He returned to his cover position to continue the fight until finally succumbing to his wounds.
(U.S. Navy Photo)



▲▲ **The guided-missile destroyer Michael Murphy (DDG 112) makes its way through New York Harbor in preparation for its commissioning on Oct. 6.** The new destroyer honors the late Lt. (SEAL) Michael P. Murphy, a New York native, who was posthumously awarded the Medal of Honor for his actions in combat as leader of a four-man reconnaissance team in Afghanistan. Murphy was the first person to be awarded the Medal of Honor for actions in Afghanistan, and the first member of the U.S. Navy to receive the award since the Vietnam War.
(MC3 Megan Anuci/USN)

▼▼ **Hurricane Sandy hits the northeastern region of the U.S. Oct. 26.** USS **Wasp** (LHD 1), USS **San Antonio** (LPD 17), and USS **Carter Hall** (LSD 50) were positioned in New York City's harbor to provide relief support to areas affected by Hurricane Sandy, a super-storm that began impacting the northeastern U.S. region Oct. 26.
(MC2(SW/AW) Gretchen Albrecht/USN)



▲▲ **USS Bataan holds Navy Marine Corps Classic 2012 basketball game Nov. 9.** Staff and volunteers dry the basketball court aboard the multipurpose amphibious assault ship USS **Bataan** (LHD 5) during halftime of the Navy-Marine Corps Classic 2012 basketball game at Naval Station Mayport, Nov. 9.
(MCSN Rob Aylward/USN)

Surface Team One

In Pursuit of Sustained Operational Availability

By Rear Adm. David J. Gale, *Commander, Navy Regional Maintenance Center*

While briefing Congress this March, Chief of Naval Operations (CNO) Adm. Jonathan Greenert said the two factors that drive the Navy's ability to provide presence are the size of the fleet and the amount of time ships can remain deployed. While the former is contingent upon adequate funding for the acquisition and proper lifecycle maintenance of ships, the latter is reliant on the operational availability of the Fleet, which requires a reduction in ships' lost operational days.

To achieve a reduction in lost operational days, we need to ensure better adherence to our maintenance schedules within the surface ship community. As Commander, Navy Regional Maintenance Center (CNRMC), I oversee the day-to-day operations of our regional maintenance centers (RMCs). Early in my tenure as CNRMC, I recognized the importance of working across surface ship maintenance organizations and, in turn, engaged with other Navy leaders within the domain to establish Surface Team One (ST1).

As co-chairs of ST1, Commander, Naval Surface Warfare for Naval Sea Systems Command (NAVSEA-SEA 21) Rear Adm. Jim Shannon and I lead our other partnered commands to tackle the primary drivers that will influence positive change.

The goal of ST1 is to affect that positive change by meeting ships expected service life (ESL) and addressing current readiness challenges. We are making forward strides toward those ends by implementing long-term, systematic improvements to quality, schedule, and cost performance.

From the lost operational days that concern fleet commanders, to the support, advocacy and oversight the RMCs need to effectively navigate ships' maintenance availabilities and perform at peak levels, I have found we collectively make the most progress when we work to understand one another's unique requirements and

constraints, and develop agreed upon strategies for success. The essence of ST1 is partnership and progress.

ST1 leadership works in conjunction with our core team members to establish Surface Ship maintenance and modernization priorities. We accomplish this by coordinating multiple cross-organizational initiatives to maximize efficiencies and cost-benefits across the domain, while avoiding redundant efforts.

One way ST1 reduces redundancies and to achieve cross-organizational coordination of Surface Ship maintenance initiatives is through the advent of its knowledge sharing networks (KSNs). The KSNs, which are at the forefront of ST1's initiatives, are communities of organizations created to address specific issues and work together to identify processes, procedures and solutions for those issues. These groups work collaboratively to manage the evolution of those processes over time, and within ST1, our senior leaders define the goals and objectives of each KSN, and provide support required to

overcome obstacles when required.

Each KSN is comprised of subject matter experts whose expertise directly supports the functional area of the specific group, though all groups directly support specific requirements of the broader Surface Ship maintenance community.

Eleven KSNs have been established to date and include modernization; assessments; planning; sustainment; corrosion control; advanced planning; engineering; quality assurance; command, control, communications, computers and intelligence (C5I); lessons learned, and metrics.

The KSNs brief the ST1 executive steering committee (ESC) on a quarterly basis to ensure alignment to other ongoing efforts and to receive guidance and direction, as necessary. They have also established a common set of priorities, approved by senior Navy leadership within the ST1

The goal of ST1 is to affect that positive change by meeting ships expected service life (ESL) and addressing current readiness challenges.



◀ With the stroke of a pen, Commander, Naval Sea Systems Command, Vice Adm. Kevin McCoy officially established the new Navy Regional Maintenance Center (NRMC).

(U.S. Navy Photo)

community, including U.S. Fleet Forces Command (USFFC); Commander, Pacific Fleet (CPF); both Type Commanders (TYCOMs); and Naval Sea Systems Command (NAVSEA). Once these priorities are approved, they are then communicated throughout the ST1 enterprise through Navy memos, each of which highlighted the need to address specific areas in the Surface maintenance and modernization community.

The focus of these priorities includes the execution of advanced planning; flag-level involvement; better control of growth and new work; more effective availability management to stay within budget and schedule controls; strategic modernization planning; the establishment of effective command and control; and the definition of positional authority.

In addition to the collaborative efforts of the KSNs, ST1 is also working to increase the level of rigor in work certification procedures, and place a heavier emphasis on total ship readiness assessments (TSRA).

TSRA is a common integrated process to plan, identify, assess, document, repair, validate ship's current ship's maintenance project (CSMP), validate ship's systems configuration and provide self-sufficiency maintenance training to ship's force with the expectation of ensuring operational availability goals are met through the execution of total ship systems operational assessments and functional verifications. These assessments are planned and executed by the RMCs on all Surface Ships, and are routinely communicated and supported by ST1 stakeholders.

Additionally, the TSRA program provides a framework and schedule to plan and execute a comprehensive assessment of ship's hull, mechanical, electrical (HM&E), combat systems (C/S), C5I systems, support equipment, and logistics condition. It also includes the review and integration of data and information contained in maintenance and trending databases such as an integrated condition assessment systems (ICAS), integrated performance assessment reports (IPARs), CSMP and corrosion control information management systems (CCIMS) as part of the planning process.

TSRA is a five-phased assessment process for ships that is scheduled by the TYCOMs and executed by the RMCs. These assessments cover a variety of shipboard systems and equipment, and are conducted to support work package

development for major maintenance availabilities, prepare the ship for basic training and prepare the ship for deployed operations.

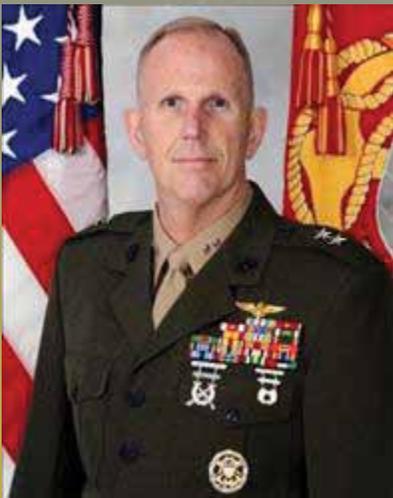
Phase one consists of a pre-availability/pre-deployment assessments of structural and other slow-to-degrade systems including most "life-cycle" material assessments; phase two consists of post-deployment/pre-availability assessments of propulsion, auxiliary and C5I systems in order to identify growth/new work candidates prior to CNO availabilities; phase three runs concurrently with a CNO availability and consists of tank/void assessments; other selected systems which are best conducted in an availability and to support sea trials readiness; phase four is a post-availability/pre-basic phase assessment which ensures ship material readiness to support basic phase training and operations; and phase five is a pre-deployment assessment, preparing a ship for advanced/integrated training and deployment operations.

To date, we have seen great engagement of the TSRA processes throughout the RMCs, and have promulgated awareness of the program throughout our community using ST1 as a conduit of our ship readiness and assessment requirements. I believe, within this enterprise, we all share the responsibility to improve fleet readiness. Our RMCs, which reside across all waterfronts, are responsible for implementing and executing progressive maintenance and modernization programs. In recent months, they have gained ground through the implementation of standardized procedures and innovations in ship maintenance practices. Furthermore, our RMCs', in conjunction with ST1 support, are actively applying the community's agreed upon principles in practical, executable ways.

Through TSRA execution and our KSNs, we have worked together to develop a common understanding of maintenance requirements across the waterfronts and are building build upon the adherence of those requirements to meet ST1's mission of achieving surface ship wholeness.

Collectively, we see ST1 as the conduit through which we can effect meaningful change and as the most reliable means by which we can fully realize our ideal state by returning ships that are fully capable to the fleet, on time. Through this collaborative work, ST1's efforts have already positively affected the end goal of surface ship readiness. [SW](#)

CARDINAL HEADINGS *for* SURFACE WARFARE



“In a time of unfolding change, *Cardinal Headings* provides the fleet and Surface Warfare Community with a comprehensive course line forward that will guide correction of known fleet shortfalls and speed the Navy and Marine Corps Team towards greater surface, mine and amphibious warfare, combat readiness, effectiveness and wholeness.”

—MajGen Timothy C. Hanifen, USMC, N95 Director for Expeditionary Warfare, CNO OPNAV Staff N9 Requirements & Resources

“Cardinal Headings is intended to guide today’s Fleet as well as tomorrow’s in how we will approach our investment decisions regarding the acquisition, modernization, maintenance, and sustainment of our Surface Combatants and amphibious warships. This also includes the procurement and acquisition of future weapon systems and sensors.”

—Rear Adm. Tom Rowden, USN, N96 Director for Surface Warfare, CNO OPNAV Staff N9 Requirements & Resources





CARDINAL HEADINGS *for* SURFACE WARFARE





MISSION

Deliver and sustain a full-spectrum surface combat force.

VISION

Remain the world's most combat effective, technically advanced, and resilient Surface Navy.



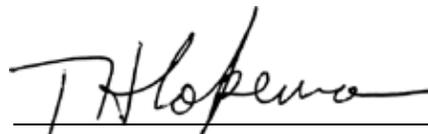
CHANGES AND CONSTANTS

The history of the United States Navy's Surface Force has been a story of technological change – from sail to steam to nuclear power; from smooth-bore cannons to guided missiles. Two centuries have also brought great shifts of strategic focus for the Navy – from Atlantic trade routes to globalization.

While U.S. Navy history is a story of change, that change is underpinned by foundational truths that have remained constant. First and foremost, the U.S. Navy exists to support and defend the Constitution and the country whose course it directs. Beyond this most fundamental mission, whether challenging the Barbary States in the 1800s or containing the Soviet Union during the Cold War, the Navy has ensured freedom of the seas for American commerce and exploration, as well as freedom of movement for U.S. forces in time of war. These missions remain foundational as our nation continues its rebalance toward the Asia-Pacific region, and are aligned with the CNO's tenets of Warfighting First, Operate Forward, and Be Ready. They will remain constant throughout any future strategic shift. To succeed in these missions, the Surface Force must maintain credible combat forces to reassure our allies, discourage potential adversaries and, most importantly, win when called upon to fight.

THE PURPOSE OF CARDINAL HEADINGS

Being the world's most powerful Navy requires considerable conscious, sober thinking. Decisions made today can have lasting effects for decades, both positive and negative. The fleet requires the most combat-capable ships we can reasonably afford. Our ships must be sufficiently manned with well-trained, well-led crews. Such tasks are challenging in the best of financial times. The nation's interests cannot be served without solid, comprehensive guidance and detailed, realistic, risk-informed planning. The purpose of this document is to guide decisions regarding the development of the future Surface Force. Its companion document, the Surface Force Master Plan, is the link between Cardinal Headings and our current force; it is an operational view of how we intend to execute our moral and legal duty to provide forces capable of prompt and sustained combat operations at and from the sea over the years to come.



VADM T. H. Copeman III
Commander, Naval Surface Forces



RADM T. S. Rowden
Director, Surface Warfare



RADM D. M. Thomas, Jr.
Commander, Naval Surface Force Atlantic



MajGen T. C. Hanifen
Director, Expeditionary Warfare



PART I: CONTEXT

“The Navy shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations at sea.”

10 USC Sec. 5062

INTRODUCTION

Congressional direction for the U.S. Navy to be prepared to conduct prompt and sustained combat operations at sea in support of national interests serves as our foundational requirement. Everything else is derived from this.

PROMPT

U.S. Navy ships operate forward, so as to be at the point of interaction in time to influence the course of events in our favor. To reassure allies and deter adversaries, we must arrive on scene rapidly with credible combat power. To succeed, we must be able to effectively employ our combat power



toward defeating our adversaries.

To achieve these aims, we must have well-armed, ready ships with tactically proficient leadership and well-trained crews. Further, the commanding officers of our ships must have the cognitive agility and moral fortitude to function independently in uncertain circumstances with poor or no communications with higher authority. Providing such ships and crews requires high operational availability while on station and effective, embedded and externally supported training.

SUSTAINED

As we operate forward, often independently, our ships must be able to fight through and beyond the first salvos with little or no direct support. The technological complexity of today’s ships, combined with the imperative to most efficiently use our finite resources, makes the goal of self-sufficiency of our ships more challenging than ever. The key to achieving self-sufficiency is highly trained and skilled Sailors.



Being able to sustain combat operations also means that hard decisions must be made when procuring ships and weapon systems. We must increase operational availability over time and reduce total ownership costs, even if it requires more money at initial purchase. We must balance capability and capacity when buying weapon systems, with



an eye toward reserving space, weight, and power for future capabilities not envisioned today.

Affordable combat and weapons systems solutions must be a part of the equation.

Finally, we must have systems and a culture that produces the warrior ethos, technical agility, and expertise to fight through the challenges of sustained combat operations wherever those operations may take us. We must also provide the logistic and maintenance support required to keep them in the fight or quickly return them to the fight if need be.

ASSUMPTIONS

Assumptions must be made to guide planning. Derived from higher level guidance and supplemented by the judgment of the Surface Flag leadership, we make the following assumptions:

Assumption: *A number of littoral states will gain in power and influence, and they will build fleets to protect their interests.*

Implication: Interactions among states (and non-state actors) will drive maritime national security complexity, and the unique role of the U.S. Surface Force in our national security will remain crucial. This role will be performed by both forward-deployed and forward-stationed surface combatants and amphibious warships.

Assumption: *Resource scarcity will continue to dominate fiscal decisions.*



Implication: Regardless of the budget environment in any given year, the Surface Force will be judicious in its fiscal decisions to ensure the operational availability of our ships and systems across their expected service lives. Considering all platform and system decisions in the context of their total ownership costs is an ongoing imperative and may necessitate greater initial investments to reduce ownership costs. The reduced size of the Surface Force fleet requires each ship to be more adaptable while leveraging technology to enhance agility across an expanding range of surface warfare requirements.

Assumption: *The U.S. Navy will continue to carry out its peacetime missions in concert with friends, allies and other like-minded maritime nations. In war, it will operate alongside navies with which it has established peacetime operational relationships.*

Implication: Interoperability and integration with partner navies will continue to improve. Our systems will interoperate more seamlessly, and mutually important tactics, techniques and procedures should continue to be developed.

Assumption: *The Navy will continue to operate as part of a Joint Force, and its primary partner will be the U.S. Marine Corps.*

Implication: The Navy and Marine Corps will become more integrated, and this team will



It takes well-trained Sailors, operating properly engineered, built and equipped ships to put credible combat power to sea — and those ships must be properly maintained. Without ships of this character we have no effective Navy.

continue to be called upon to protect and advance American interests. The two services will field and operate common technologies wherever possible, and the increased integration will result in a more widely varying number of ships embarking Marines.

Assumption: Adversaries will continue to hone their ability to deny freedom of maneuver to U.S. Forces.

Implication: Our investments in hardware, training, and

education will account for the fact that our adversaries will attempt to deter us from using all of the sea and

air space guaranteed to us under international law, and they will always be working to improve their capability, capacity, and concepts of operation to defeat us in war.

Assumption: The Surface Navy will continue to provide a considerable portion of the nation's Ballistic Missile Defense (BMD) architecture, capability, and capacity.



Implication: BMD-capable combatants will be in high demand for the foreseeable future and our resource planning will factor in this enduring mission.

Assumption: Pressures will exist—both internal and external—which if unmitigated, will tend to hollow the force.

Implication: Surface Force leadership will closely monitor the relationship between force structure and our ability to man, train, and equip that which we operate. Critical to this task will be the effective



scheduling and resourcing of maintenance and modernization to achieve the expected service life from the ships we operate, keeping combat systems relevant and engineering plants healthy. To do this, we will produce Surface Force “wholeness,” which means ensuring today’s ships can sail and fight together seamlessly, with every system working as designed and properly fielded, equipped, manned, trained, maintained, sustained, modernized, and deployed.



PART II: ACQUISITION AND MAINTENANCE; READY FORCES NOW WHILE PLANNING FOR THE FUTURE

BUILDING THE RIGHT SHIP AT THE RIGHT COST

Ships built today must be cost effective and deliver credible combat capability and capacity over their entire expected service lives – up to forty years for capital ships. The Navy cannot afford to allow ships to lose relevance and be decommissioned prematurely. Each ship in the fleet matters. It is important to note that today's major surface combatants and most amphibious warships were designed to counter the Soviet Navy during the Cold War. They were designed with enough capacity to remain relevant and healthy through changing maritime strategies. This is the standard to which U.S. Navy ships must be built.



Proven ship designs with the capacity to remain relevant into the future will continue to be built. Using these proven designs enables total ownership cost savings and increased combat effectiveness of the entire fleet, as commonality enables

efficient maintenance and logistic support, efficient and effective training, and greater institutional knowledge of capabilities and limitations. Synchronized modernization (and maintenance) plans will be developed and executed with the cooperation of the various resource sponsors and program offices that support surface combatant and amphibious combat capability over time.

New ship models, those in development and those yet to be conceived, will be built with the modernization and sustainability inherent in the design. Technological change continues apace, and to not factor change into a design dooms it to early irrelevance. Sustained combat



operations as well as affordability over a given ship class's expected service life both necessitate a focus during the early stages

of requirements determination on affordable lifecycle costs, enhanced reliability, and the ability of the ship and crew to operate forward for sustained periods. In cases where designs can be simplified to reduce vulnerability to technical advances, while still achieving the mission, the simpler design must be seriously considered. In other cases, this may lead to additional costs at the time of purchase, but the value over an expected service life must be weighed more heavily than the initial "sticker" price. Most importantly, new ships must provide for modular payloads with common interfaces and the volume, cooling, electrical power, and survivability to effectively incorporate new payloads throughout a ship's service.



SUSTAINMENT

To achieve the expected service life of our ships while controlling costs requires a firm and steady strain approach to maintenance. We will use a methodical, engineering-based approach to maintenance, and we will fund that maintenance. Such an approach will increase the operational availability of ships, and it will ultimately cost the American taxpayer less money.

Sustaining combat operations in the far corners of the globe requires the Surface Force to be actively engaged in developing much-needed shore support infrastructure and the continuing operational

excellence and professionalism of the Combat Logistics Force. We cannot function without shore and at-sea logistics support; we must remain constructively engaged in these

areas. The Navy's ability to rapidly move people, equipment, supplies, and ammunition to and from anywhere in the world, as required, is a capability and capacity we cannot afford to sacrifice.

WEAPONS

Surface combatants play a critical role in overall military success by providing defense of amphibious and aviation high-value assets. That said, we will energetically develop and field offensive weapons for our



surface combatants, ensuring the surface fleet remains successful in future fights. Our ships are dispersed across the globe, often alone. They will, in many cases, be the first U.S. military forces on the scene. Their ability to deter conflict will be directly proportional to their combat capability and resiliency, and their combat capability is directly linked to their ability to prevail in any fight. As with ship modernization, the surface fleet will develop modernization plans for weapon systems so that the ability to hold the enemy at risk – in addition to being able to defend against enemy weapons – is maintained over time. The Surface Navy must always be able to take the fight to the enemy, with precision and speed.

As with ships, total ownership costs and future relevance will be considered when purchasing weapon systems. In

general, we will purchase systems that are on the right side of the cost curve while maintaining combat effectiveness.

If the acme of skill is to win

without having to fight, as Sun Tzu said, then losing without having the opportunity to fight is the acme of failure. We cannot afford to fail.

During years of austere defense budgets after the Vietnam War, the U.S. Navy was actively developing the Aegis Weapon System. When budgets were restored in the 1980s, the Navy was positioned to procure a ground-breaking weapons system that provided dominating combat capability for years to come. As we move forward, regardless of the budget conditions in a given year, research and development money will be spent on those technologies that hold promise for military effectiveness and those that also conserve precious fiscal resources.



PART III: MANPOWER AND TRAINING; TARGETED INVESTMENT

John Paul Jones observed that men mean more than guns in the rating of a ship. That truism still holds. As threats to global security evolve, so must the Surface Navy and its Sailors. Today's force is the most educated and diverse group in the history of the Surface Navy. We must use their creativity, varied backgrounds, and strengths to succeed as a military force.



SHAPE THE FORCE TO ENSURE THE RIGHT PEOPLE ARE IN THE RIGHT JOBS

Recruiting and retention rates will ebb and flow with the state of the economy, but our requirements for



ships that are fully manned with skilled Sailors will remain constant. In this respect, we are

a vertically integrated enterprise. We take raw material from the civilian world, and we develop these human resources through each tour into highly skilled technicians and eventually leaders with technical and tactical skills. Our Sailors must have quality training from initial entry through senior-level courses to gain the skills required for mission success. We will work to ensure that each Sailor is given enriching shore tours, so that they are more capable when they return to sea duty.

Ships are designed to operate with a specific number of Sailors. We will man our ships to the required number of personnel possessing the required skill sets. Since manpower is the largest single cost-driver for the Surface Force, we will seek to drive down the required number of Sailors on ships through technical innovation and alterna-



tive concepts associated with at-sea operations. The text book example of innovation driving down manpower was the shift from steam to gas turbine propulsion, which reduced manning requirements on ships by hundreds of Sailors. It is important to sequence the manning reductions properly. The ability to reduce manning because of a technological change comes first, and then the manpower is reduced. We will no longer reduce manpower first, hoping that innovation will follow.



TRAINING PARADIGM

Our mission is to be prepared to conduct combat operations. Our integrated and advanced training will be focused on preparations for high-level combat operations. Our officers and enlisted personnel will be developed over their careers using a holistic approach with a deep, solid foundation in the basics of naval warfare, and they will be trained to have the cognitive agility to “land on their feet”



inside a chaotic situation, pivot to the task at hand and carry the day. We must be able to fight and win high-end wars, as well as successfully complete the tasks associated with today’s mission set.

To achieve this, we will balance live and synthetic training. Synthetic training is not simply a cost-saving measure. It gives us the ability to simulate raid sizes, water column conditions, and other variables and risks related to the complexities of major war that we cannot recreate in live training.



SURFACE FORCE



SUMMARY

Building a surface fleet that is prepared to conduct prompt and sustained combat operations globally is a tremendous challenge. To meet this challenge over time, with budgets that rise and fall, we must align our thinking across the Surface Warfare Enterprise to develop platforms and new systems smartly and ensure that we man our ships properly with trained Sailors and Officers. We must be judicious in our use of money in times of plenty and in lean budget years as well.

The American people have conveyed to us their expectations, and the Commander-in-Chief has outlined his priorities in achieving them. We have

completed a frank assessment of our environment and we recognize those elements in the world which we can leverage in our interest and those against which we will have no choice but to adapt. The Surface Force Master Plan will holistically lay out programmatic decisions related to acquisition, modernization, maintenance, manpower, and training to maximize our returns in any given budget year. Disciplined, sustained adherence to our strategy, Cardinal Headings, and the Surface Master Plan is a challenge we must accept.



COMMANDER, NAVAL SURFACE FORCES
2841 RENDOVA RD, SAN DIEGO CA 92155
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“In order to maximize warfighting and readiness within our fiscal controls, we must synchronize our efforts to strike the right balance between sustainment, maintenance, modernization, and acquisition. The best way to achieve that balance in our force-and to train our Sailors to properly operate, fight and win-is to lay out a long-range vision for the Surface Force. Cardinal Headings is designed to provide strategic guidance to inform decisions that will shape the development of the future Surface Force.”

—Rear Adm. Dave Thomas, USN, Commander, Naval Surface Force Atlantic

“This is a call to be forthright with ourselves about where we are and where we need to be in the next decade. We can’t plan on the ‘best-case scenario’; we have to work with the facts. We need to realistically discuss how, with limited resources, we’re going provide for the Surface Forces of tomorrow. Whether it’s about ‘fit and fill’ for the required skill sets at sea, or developing weapon systems to make future capability expansion possible and affordable, we need to consider all options. In the end, we must provide a Surface Force worthy of our Nation.”

—Vice Adm. Tom Copeman, USN, Commander, Naval Surface Forces



From Concept to Reality: The Future of Destroyers is Here!

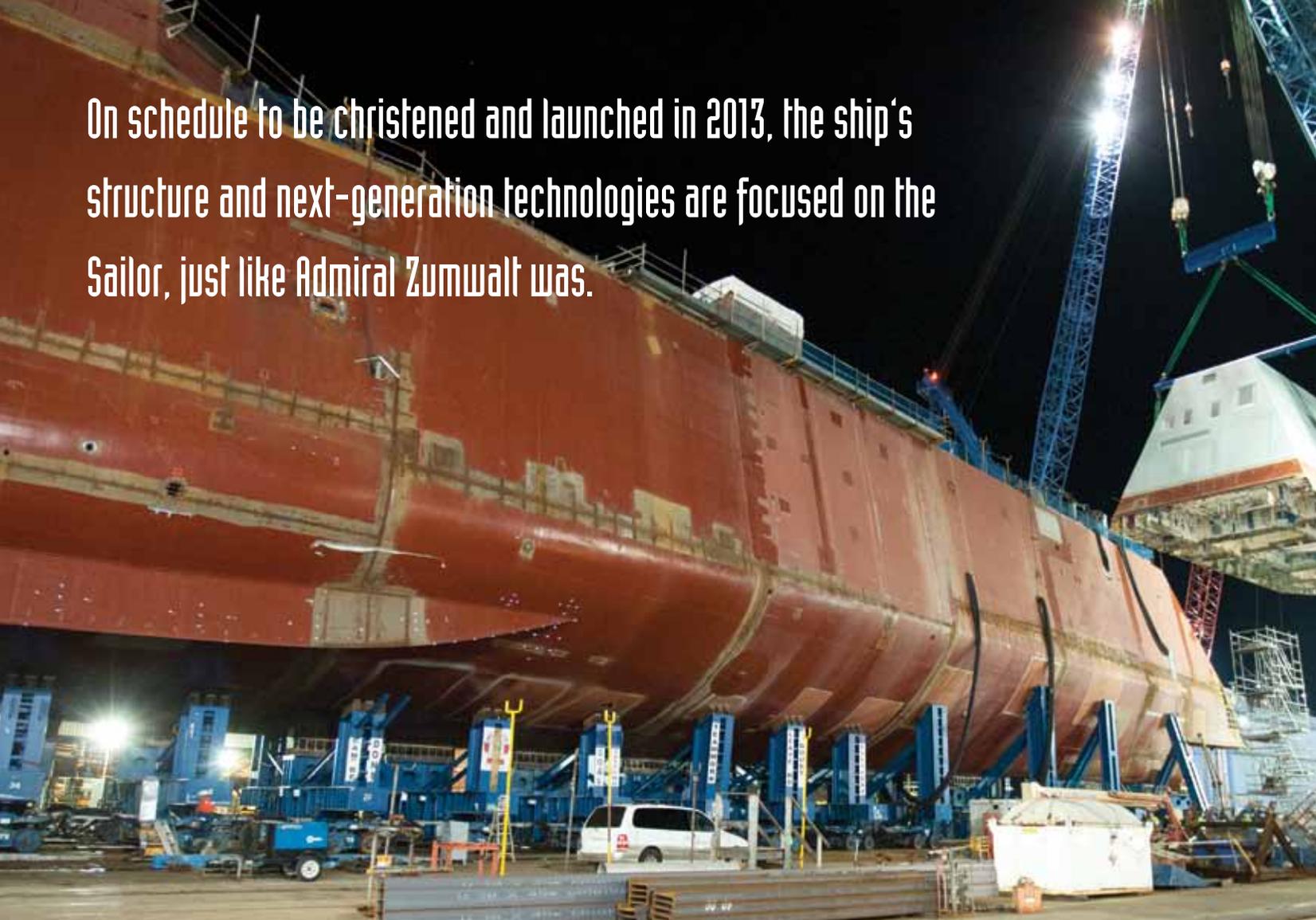
By MCCS(SW/AW) Janet M. Davis, *Surface Warfare*

DDG-1000
deckhouse is
lowered onto
it's hull.



December 2012, USS *Zumwalt's* hull and deckhouse were united to make a full ship and like its name sake Adm. Elmo Zumwalt, the 19th Chief of Naval Operations (CNO), it is technology savvy and Sailor friendly. This ship features several advanced capabilities derived from some innovative technical advances, including nifty design changes that our Sailors will appreciate and bring to life when DDG-1000 delivers. ➤





On schedule to be christened and launched in 2013, the ship's structure and next-generation technologies are focused on the Sailor, just like Admiral Zumwalt was.

Did you Know?

DDG-1001 was named **Michael Monsoor** in October 2008 by then-Secretary of the Navy Donald Winter, honoring Petty Officer 2nd Class Michael Monsoor, a Navy SEAL who was posthumously awarded the Medal of Honor for his heroic actions in Ar Ramadi, Iraq, Sept. 29, 2006. DDG-1001 fabrication started in October 2009. The ship is approximately 46 percent complete with delivery planned in 2015.

In April 2012, DDG-1002 was named **Lyndon B. Johnson** by Secretary of the Navy Ray Mabus. The selection of Lyndon B. Johnson honors the nation's 36th president and continues the Navy tradition of naming ships after presidents. DDG-1002 started fabrication April 4, 2012. The ship is approximately 5 percent complete.

Zumwalt's unique surface shipbuilding program is a collaborative work share agreement between General Dynamics-Bath Iron Works (BIW) and Huntington Ingalls Industries (HII). BIW designs, constructs, integrates, tests, and delivers the DDG-1000 class. HII contributes the design, engineering, and fabrication of the stealth-enhancing Integrated Composite Deckhouse and Apertures (IDHA), the helicopter hangar composed of advanced composite materials, and the aft Peripheral Vertical Launching System (PVLS). Northrop Grumman (NG) pioneered **Zumwalt's** striking Wave Piercing Tumblehome Hull. Raytheon incorporates their Integrated Defense System (IDS), featuring the first MK57 VLS shipset, all-electric Integrated Power System (IPS), AN/SQQ-90 integrated undersea warfare combat system, Autonomic Fire Suppression System (AFSS), multi-mission Dual Band Radar (DBR), and the Navy's first actualization of a comprehensive Open Architecture strategy in the Total Ship Computing Environment (TSCE). British Aerospace Electronics (BAE) production efforts include the Advanced Gun System (AGS) and the Long Range Land Attack Projectile (LRLAP) munitions.

The helo hangar, which is built at HII and composed of carbon fiber/vinyl ester skins and balsa and/or foam cores, arrived at BIW in May 2012 and was erected onto the DDG-1000 hull July 2012. Navy-Industry teamwork ensured a



successful first joining of composite and steel structures in the DDG-1000 program, paving the way for the future deckhouse. Using commercial barges for transit, HII shipped the deckhouse to BIW to be lifted, erected, integrated, and tested with the ship's hull. The deckhouse joined with the hull in December 2012.

Prior to ship delivery in July 2014, **Zumwalt** will undergo rigorous tests, trials, and certifications. Significant events in that process includes 'Gas Turbine Generator Light Off' and 'Float Off,' where the ship is physically transferred (or launched) from the BIW's shipbuilding station Land Level Transfer Facility to the water in 2013. In spring 2014, **Zumwalt** will get underway for Builders Trial and its Acceptance Trial, where all of her hull, machinery, electrical equipment, and systems will be fully tested and inspected. Following delivery, the ship's schedule features a year-long battery of shipyard and underway events known as Mission Systems Activation (MSA), integrating and aligning her

systems to warfighting mission readiness. Following MSA and crew move aboard, the ship will conduct Sailaway in 2015, and then participate in multiple inspection and qualification trials leading to a Post Shakedown Availability (PSA) as she is readied for service to the Fleet. **Zumwalt's** final new construction milestone is Initial Operating Capability (IOC), which is set to occur in 2016. At that point, **Zumwalt** will be a state-of-the-art war-ready surface combatant.

But for all the capability of the ship, the difference-maker will be the people. It is time to begin manning **Zumwalt**, the Navy will start seeking out the best and brightest talent for the team that will set the watch and man the rails. Plank Owners report aboard June 2013 through summer 2014, and detailers are looking for applicants. "Having spent numerous years in the 100-plus male berthing compartment, sharing four showers, and limited privacy, I can appreciate how much better the quality of life is going to be with two to four person staterooms, each with its own combination shower/toilet facility," said Lt. Jonathon Esquell, DDG-1000's Main Propulsion Assistant.

On schedule to be christened and launched in 2013, the ship's structure and next-generation technologies are focused on the Sailor, just like Admiral Zumwalt was. Because of the automated sensor processing, virtual presence, and advanced system integration structure, the **Zumwalt's** crew composition will be approximately 130 core crew members. Roving watches

have been replaced by a common network of more than 400 cameras and 30,000 sensors for checking tank fluid levels, equipment operation, etc. Underway, the ship will man only two spaces; the Bridge and the Ship Mission Center (SMC), a futuristic equivalent to the Command Information Center (CIC) on standard ships.

"Part of the change, here, is that there's no engineering control on the ship," said Capt. Jim Downey, DDG-1000 Program Manager, PMS 500. "The engineering watch and the rest of the operational watch all work in a common space."

Ship's company will also be more senior than the standard destroyer. More than 85 percent of the core crew (enlisted) is E-5 and above compared to an **Arleigh Burke**-class destroyer, commonly manned at 52 percent E-5 and above. The crew will be comprised of the following rates – Boatswain's Mate (BM), Culinary Specialist (CS), Cryptologic Technician Collection (CTR), Cryptologic Technician Technical (CTT), Damage Controlman (DC), Engineman (EN), Machinist's Mate (MM), Fire Controlman (FC), Gunner's Mate (GM), Gas Turbine Technician Electrical (GSE), Gas Turbine Technician Mechanical (GSM), Hospital Corpsman (HM), Hull Technician (HT), Intelligence Specialist (IS), Information Systems Technician (IT), Electronics Technician (ET), Logistics Specialists (LS), Operations Specialist (OS), Ship's Serviceman (SH), Sonar Technician Surface (STG), Quartermaster (QM), and Yeoman (YN).

The crew will be selected and phased aboard as they are detailed and trained throughout the next few years. Training locations include the Navy schoolhouse in San Diego and various industry locations with unique and specific **Zumwalt** training. Sailors will start to arrive in 2013 through 2015.

The multi-mission DDG-1000 class destroyer is tailored for sustained operations in the littorals and will provide independent forward presence and deterrence, support special operations forces, and operate as an integral part of joint and combined expeditionary forces. This warship integrates numerous critical technologies, systems, and principles into a complete warfighting system. Its multi-mission design and littoral capabilities make it a globally deployable asset to the Fleet and our Combatant Commanders.

"It's really an honor to work on this program," said Downey. "The class is named after Admiral Zumwalt, of course. He really spearheaded a lot of 'first ofs' in the Navy. He was the commanding officer of the first ever DDG which was designed from the keel up to be a guided-missile carrier, **USS Dewey** (DDG 45), which was built in Bath, Maine, by the same company and principally built in the same Land Level Transfer Facility. So there are a lot of similarities there. But as CNO, he also had a lot of personnel initiatives built into his program. And you really see a state-of-the-art destroyer being delivered with an optimally manned crew with some significant improvement in quality of life for the crew. To follow on in the legacy of Admiral Zumwalt's steps is a great honor. It'll be a remarkable destroyer once we deliver it and it becomes operational." 



 Adm. Elmo Zumwalt

AMDR

The Navy's Next-Generation Integrated Air and Missile Defense Radar

By Lt. Eric Hung, USN, *OPNAV N96 Surface Warfare*

AMDR, have you heard of it? If not, you certainly will soon. It is the Air and Missile Defense Radar (AMDR) and it may become the surface community's radar of the future.

The AN/SPY-1 passive phased-array radar has been the U.S. Navy's premier air defense (AD) radar for the last 30 years. Since 1983, the Navy has fielded four variants of this highly capable radar, first on the *Ticonderoga*-class guided missile cruiser then our *Arleigh Burke*-class guided missile destroyers, and finally on ships of four allied nations. In the last decade, however, we've seen engineering improvements in semiconductor and radar technologies and dramatic shifts in

our threat environment, encouraging the Navy to consider replacing the SPY radar with a more capable, modular, and cost effective radar. AMDR updates and enhances the Navy's capability to provide robust Integrated Air and Missile Defense (IAMD) well into the late 21st century.

Aegis Fire Controlmen (FC) and Combat Information Center (CIC) watchstanders on CGs and DDGs know of SPY-1's tremendous capability, with its 200 nautical mile-360 degree- 100,000 feet search, detect, and track envelope. In 2006, SPY-1 upgrades resulted in a ballistic missile defense (BMD) mission capability. Surface warriors also know the significant maintenance requirements associated with SPY-1; FCs devote copious man-hours conducting



AMDR increases the Navy's air defense capability and introduces a new paradigm for the conduct of maintenance and repairs.

preventive maintenance on over a thousand lowest replaceable units (LRUs), and ships spend hundreds of thousands of dollars in system casualty repair efforts.

Enter AMDR, a radar with vastly superior capability and capacity designed from the ground up to be more easily maintained and upgraded, more energy efficient, and scalable. Though AMDR will potentially outfit multiple future platforms, the Navy will first install the radar in the DDG 51 Flight III **Arleigh Burke**-class expected to reach Initial Operational Capability (IOC) in FY23.

The AMDR radar suite will consist of three key components: S-band and

X-band radars and a radar suite controller (RSC). The S-band radar (AMDR-S) will provide substantially enhanced sensitivity for long-range detection and engagement of advanced air and missile threats through digital beam forming and other capabilities. The SPQ-9B X-band radar provides horizon and surface search capabilities, as well as navigation and periscope detection and discrimination functions. The X-band radar (AMDR-X), currently scheduled for procurement in FY24, will add target illumination and missile communication functions, and deliver enhanced horizon search and tracking capability in adverse environments. The radar suite controller provides S and X band radar resource management as well as coordination and interface to current and future combat systems.

IAMD threats to our future forces are increasingly complex, ranging from anti-ship ballistic missiles to advanced anti-ship cruise missiles. The introduction of AMDR allows the Fleet game-changing capability to counter these serious and numerous threats. AMDR will detect and track a target at half the size and twice the distance of the current SPY-1D(V) radar. Furthermore, it will deliver increased radar track capacity and support an enhanced number of ownship in-flight missiles. These core features consume just a fraction of total available AMDR resources, allowing the system to conduct true simultaneous air defense (AD) and ballistic missile defense (BMD) operations, an order of magnitude better than our current systems.

AMDR increases the Navy's air defense capability and introduces a new paradigm for the conduct of maintenance and repairs. Organizational-level maintenance on AMDR will be conducted by junior Petty Officers with minimal oversight by senior leadership, made possible by unique factors built into the radar's design. For example, a fault detection / fault isolation (FD/FI) program will assist in identifying system degradations and simplify troubleshooting. Dramatic reduction of LRUs (comparative to the SPY radar) will decrease maintenance hours, and an added logistics model will utilize a system of onboard spare parts for quick removal and replacement of degraded LRUs. These innovations ensure AMDR will be more easily maintained and repaired by Sailors afloat, increasing operational availability to conduct the Navy's primary missions through resilient self-sufficiency and engineering design innovations.

Another design improvement to AMDR is the inclusion of two power states. At the higher power state, all radar resources will be available to conduct on-station missions. The system is being designed to operate at this peak state for the majority of its service life. However, when the ship is not deployed or is transiting through regions where full capability is not required, the radar can be operated in a lower power state. This lower power state will reduce ship fuel consumption and increase overall energy efficiency.

Improvements to the SPY-1D(V) design are challenging due to associated hardware upgrade costs and software development complexities, which require entirely new Aegis baselines / advanced capability builds (ACB) and technology insertions (TI). AMDR design, on the other hand, fundamentally employs an Open Architecture (OA) configuration, allowing for easier, cheaper, and faster hardware replacement and software upgrades without the need for extensive shipyard availabilities.

AMDR's final innovative capability is its scalability. The radar installed in Flight III will feature an array face similar in size the current SPY-1 design. However, as future needs may require, the Navy can now enlarge the radar's physical size to deliver greater sensitivity on a larger surface combatant, or condense it for less sensitivity on a smaller combatant. Scalability ensures the Navy can adjust future IAMD ship capability to adapt to evolving and emerging threats.

The Air and Missile Defense Radar will deliver vastly improved Integrated Air and Missile Defense capability, dramatically reduce maintenance requirements, and allows easier repairs and/or upgradability to the future Fleet. The radar's recently completed Technology Development (TD) phase confirmed that in less than ten years, U.S. Navy Sailors will be able to operate this highly-advanced radar to greater effect, at lower cost, while pacing the threat and protecting Navy and Joint Forces against potential adversaries. **SW**



Enterprise: Boldness, energy, and invention in practical affairs.

By USS *Enterprise* (CVN 65) Public Affairs Office

Secretary of the Navy Ray Mabus announced that the third *Gerald R. Ford-class* aircraft carrier will be named *Enterprise*.

"The USS *Enterprise* was the first of its kind, and for 51 years its name has been synonymous with boldness, readiness and an adventurous spirit," said Mabus. "Rarely has our fleet been without a ship bearing the name. I chose to maintain this tradition not solely because of the legacy it invokes, but because the remarkable work of the name *Enterprise* is not done."

The future USS *Enterprise*, designated CVN-80, will be the ninth ship to bear the name.

USS *Enterprise* and subsequent *Gerald R. Ford-class* aircraft carriers will provide improved warfighting capability, quality of life improvements for Sailors and reduced life cycle costs.

The *Gerald R. Ford-class* aircraft carrier will be 1,092 feet in length and have a beam of 134 feet. The flight deck will be 256 feet wide, and the ship will be able to operate at speeds in excess of 34 knots. *Enterprise* will be built by Huntington Ingalls Industries-Newport News Shipbuilding in Newport News, Va.

Enterprise I

The first *Enterprise* originally belonged to the British and cruised on Lake Champlain to supply their posts in Canada. After the capture of Fort Ticonderoga by the Americans on May 10, 1775, it became the object of desire for Benedict Arnold who realized he would not have control of Lake Champlain until its capture. He learned it was stationed at a small British garrison at St. John's on the Richelieu in Canada, and set out from Skenesborough (Whitehall, N.Y.) in the commandeered sloop *Liberty*. He surprised and captured the British garrison on May 18, took possession of the 70-ton sloop, and sailed it south to Crown Point. It was named *Enterprise* by Arnold and fitted out with twelve long four-pounder carriage guns and ten swivels

Enterprise II

The second *Enterprise* was an eight-gun schooner of 25 tons with a crew of 60 men. Granted a letter of marque commission from the state of Maryland, it made a remarkably successful cruise (June-December 1776) under the command of Capt. James Campbell. *Enterprise* was purchased by the Committee of Secret Correspondence of the Continental Congress 20 December 1776. Under the

command of Capt. Campbell, *Enterprise* served chiefly in convoying transports in Chesapeake Bay. It was also active in reconnoitering the enemy's ships and preventing their tenders and barges from getting supplies from the shores of Maryland and Virginia.

Enterprise III

The third *Enterprise* had a length of 84 feet, 7 inches; extreme beam of 22 feet, 6 inches; tonnage of 135, depth of hold, 10 feet; and a complement of 70 officers and men. It was originally armed with twelve long six-pounders. On Sept. 1, 1812, *Enterprise* got underway in search for British privateers reported off the coast of Maine. After chasing a schooner to the shore on Wood Island, *Enterprise* discovered what appeared to be a ship of war in the bay near Penequid Point on the coast of Maine. It immediately gave chase and soon found her quarry to be the British brig *Boxer*, mounting fourteen 18-pounder carronades, and manned by 72 men. Broadside was exchanged before *Enterprise* ranged ahead to cross *Boxer's* bow and kept up a deadly fire until the enemy hailed and said they had surrendered but could not haul down the colors that were nailed to the mast.



Enterprise I



Enterprise IV



Enterprise III



Enterprise V

Enterprise IV

The fourth **Enterprise** was a schooner built by the New York Navy Yard where it launched on Oct. 26, 1831. Its length between perpendiculars was 83 feet, molded beam 23 feet, 5 inches; depth of hold 10 feet and tonnage 197. It was armed with ten 24 and nine-pounder guns.

Enterprise V

A 1375-ton (displacement) steam sloop of war built at the Portsmouth Navy Yard, Kittery, Maine, was commissioned in mid-March 1877. She performed surveying duties at the mouth of the Mississippi River and in South American rivers during the next year and a half. Late in 1878, **Enterprise** began a tour in European waters. When this ended in the spring of 1880, she was laid up at the Washington Navy Yard. After returning to active service early in 1883, the ship operated along the U.S. East Coast for nearly a year, then began a world-wide hydrographic cruise that lasted until March 1886. Her next deployment, from January 1888 to March 1890, took **Enterprise** to Europe, the Mediterranean and along Africa's Atlantic coast.

Enterprise was employed in the Caribbean and western Atlantic during much of 1890 and 1891, then spent a year on training duty at the U.S. Naval Academy. In October 1892 she became a maritime schoolship for the Commonwealth of Massachusetts, an assignment that lasted until May 1909. USS **Enterprise** was sold in October 1909 and subsequently broken up.

Enterprise VI

The sixth **Enterprise** was a 66-foot motor patrol craft purchased by the Navy on Dec. 6, 1916. It was placed in

the service of the Second Naval District on Sept. 25, 1917, and performed harbor tug duties at Newport, R.I. It shifted to New Bedford, Mass., on Dec. 11, 1917, for operations inside the breakwaters and was transferred to the Bureau of Fisheries on Aug. 2, 1919.

Enterprise VII (CV-6, later CVA-6 and CVS-6)

The seventh **Enterprise** (CV 6) was the first of the **Enterprise** ships to receive the nickname of Big 'E'. Other nicknames included the Lucky 'E', the 'Grey Ghost' and the 'Gallop Ghost'. CV-6 became the sixth aircraft carrier to join the U.S. Navy Fleet upon its commissioning as a **Yorktown**-class carrier on Oct. 3, 1936. It had an overall length of 827 feet and displaced more than 32,000 tons of water. **Enterprise** fought in many of the key Pacific theater battles of World War II, and was one of only three American carriers commissioned prior to World War II to survive the war.

Enterprise was ordered to serve in the Pacific Fleet in April 1939. Big 'E' was returning to the Hawaiian island of Oahu on the morning of Dec. 7, 1941, when it received news of the Japanese attack on Pearl Harbor. **Enterprise** became one of the first ships to respond to its nation's call to war and went on to earn 20 battle stars, the most for any U.S. warship in World War II, for the crucial roles it played in numerous battles including Midway, Guadalcanal, Leyte Gulf, and the 'Doolittle Raid' on Tokyo. Japanese forces

announced that the Big 'E' had been sunk in battle on three separate occasions throughout its Pacific campaign.

After its legendary World War II service, the first Big 'E' was decommissioned on Feb. 17, 1947, as the most decorated ship in U.S. naval history.

Enterprise VIII (CVN 65)

1954, Congress authorized the construction of the world's first nuclear-powered aircraft carrier, the eighth U.S. ship to bear the name **Enterprise**.

The giant ship was to be powered by eight nuclear reactors, two for each of its four propeller shafts. This was a daring undertaking; never before had two nuclear reactors been harnessed together.

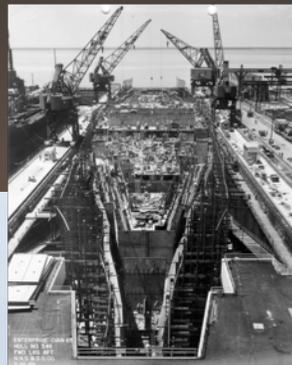
After years of planning and work by thousands, the day finally arrived. At the commissioning of **Enterprise**, the world's first nuclear-powered aircraft carrier, Secretary of the Navy John B. Connally Jr. called it a worthy successor to the highly decorated seventh USS **Enterprise** of World War II. "The fighting Gray Lady, as it was called, served in such well-known battles as the raid on Tokyo and the Battle of Midway," said Secretary Connally. "The new **Enterprise** will reign a long, long time as queen of the seas."

On Nov. 25, 2011, Big 'E' celebrated its 50th birthday, making the carrier the oldest active duty ship in the U.S. Naval fleet. **Enterprise** completed its 25th and final deployment.

Enterprise Sailors continue to set the standard for excellence aboard the world's first nuclear-powered aircraft carrier - proudly furthering the legend begun by the first **Enterprise** Sailors more than two centuries ago. [SW](#)



Enterprise VII



Enterprise VIII



Boatswain's Mate 3rd Class Candace Wortham Steps into the spotlight while serving onboard *USS Wayne E. Meyer*

By Ensign Amber Lynn Daniel, *Navy Diversity and Inclusion Public Affairs*

While afloat experience is critical to the success of any boatswain's mate, 23 year old Candace Wortham has fit a significant amount of knowledge into just five years and two at-sea tours.

"Petty Officer Wortham is mature and dedicated leader that consistently performs at a caliber well beyond her paygrade," said Boatswain's Mate Senior Chief Petty Officer Ryan Gray.

The second oldest of five sisters, Wortham didn't start out with dreams of blue and gold, but a desire to go college eventually lead her to the Navy's doorstep. She had been accepted into several colleges following high school, but couldn't secure enough financial aid

to make her dreams of college a reality. Instead of giving up, Wortham looked to the military.

With her characteristic brutal honesty, she admits that the Navy wasn't her first pick – she'd hoped to join the Air Force. While exploring her options, she met with several recruiters, and the persistence of Navy recruiters ultimately won out. On Sept. 23, 2007, Wortham enlisted as a boatswain's mate and set off for a life at sea.

Although many new recruits dread Navy boot camp, Wortham found the experience to be better than she anticipated.

"It wasn't what I expected," she said. "Going through the physical and

educational obstacles...I thought it was fairly easy."

Her ease with the physical demands of initial training foreshadowed her future career success as a boatswain's mate. The majority of boatswain's mate duties are conducted outdoors, including the physically demanding tasks of maintaining the ship's external structure, painting, maintaining and operating the equipment used in loading and unloading cargo, and linehandling.

After Recruit Training Command, Wortham didn't have to go far for her next stage of training – she moved across the street to Boatswain's Mate 'A' school at Training Support Command Great Lakes, Ill.

"The training they gave us was highly valuable," she recalled. "It helped me understand and get hands on training on what I would actually be doing when I got to my ship."

Following 'A' school, Wortham received orders to the USS *Gridley* (DDG 101) in San Diego, Calif. Excited to put her newly developed skills to use, she took to the tasks on the *Gridley* like a duck to water. "I didn't mind working long hours, because the individuals I worked with at the time were very wonderful people. I believe that a key factor in being happy at work is the good company you keep around you, and that was the case onboard the *Gridley*."

While on deployment, she also developed a passion for helping



◀ BM3(SW) Candace Wortham mans the underway replenishment (UNREP) fueling station aboard the *Arleigh Burke*-class guided-missile destroyer USS *Wayne E. Meyer* (DDG 108) during an UNREP with Military Sealift Command fleet replenishment oiler USNS *Walter S. Diehl* (T-AO 193).

(MC3(SW/AW) Joshua Keim/USN)

▶▶ SN Carnette King, right, and BM3(SW) Candace Wortham stand watch as lee helmsman and helmsman during plane guard operations aboard the **Arleigh Burke**-class guided-missile destroyer USS **Wayne E. Meyer** (DDG 108). (MC3(SW/AW) Joshua Keim/USN)



others. At a port call in Busan, South Korea, Wortham volunteered at a local orphanage for children with developmental disabilities. “Being able to make these children smile, and help them with their daily duties felt wonderful. It really made me a better person,” she said. “It amazed me how different things were outside of the United States, and being able to give back and put a smile on someone’s face that didn’t know who I was - it was beyond wonderful.”

Following the **Gridley**’s deployment, Wortham was reassigned to Helicopter Strike Maritime Squadron 41 (HSM-41), working in the life raft shop to recertify ship life rafts. During that assignment in November 2010, she was promoted to petty officer third class. The promotion solidified Wortham’s desire to stay Navy, and she concentrated her efforts to excel in every facet of her rate.

After her tour with HSM-41, Wortham remained in San Diego, joining the crew of the USS **Wayne E. Meyer** (DDG 108) in February 2011. Within months of arriving she stood out as a Sailor to watch for both her leadership abilities and commitment to mission success.

Recognized as the backbone of every ship’s crew, the unofficial motto of the boatswain’s mate rate can be summed up as “a boatswain’s job is never done.” From the start, Wortham lived and breathed her work, impressing her leadership and becoming the go-to Sailor despite her age and rank. “Her motivation is what sets her apart,” said Gray. “She is industrious, versatile, and her ‘get it done right’ attitude is exceptional and has been the driving force behind her tremendous success.”

Wortham has also excelled as a young woman in predominantly male-dominated rating. Out of the almost 4,700 boatswain’s mates in the fleet today, less than 800 are female, although the community continues to grow in female representation. The lack of women in the community, however, has been a nonissue for Wortham. “I’m a very dominant, outspoken female,” said Wortham. “I fit in quite well in this environment.”

“She is trusted amongst the junior female Sailors where she is seen as THE mentor and guiding light for their questions or concerns.”

—Boatswain’s Mate Senior Chief Petty Officer Ryan Gray

As the Deck Safety Officer on **Wayne E. Meyer**, she was instrumental in gaining Aviation, Search and Rescue, Mobility-Navigation and Mobility Seamanship Certifications. Serving in the trusted role of Investigator for Repair Locker 2, she also helped obtain Engineering Light-Off Assessment and Engineering Certification.

In addition to her daily tasks as a boatswain’s mate, Wortham has an impressive list of collateral duties to her credit. She is the departmental Training Petty Officer for the Operations Department, Repair Parts Petty Officer for OD Division, Respiratory Protection Manager, and an OD Division Damage Control Petty Officer. Wortham has also maxed out on every deck qualification available and qualified as a Helm Safety Officer, a position normally filled by a junior officer. She also serves as the **Wayne E. Meyer**’s Sexual Assault Prevention and Response Representative.

“I’ve become a strong individual, a strong woman that is highly respected for my work ethic and personal achievements,” she said. “I feel like my purpose is not only just to live and make sure I’m successful, but to help others succeed and play a part in helping others overcome some of the obstacles in their lives.”

Her dedication to her shipmates shows not just in her words, but in her actions.

“She never utters a complaint, never accepts failure, and strives for mission success,” said Gray. “She is trusted amongst the junior female Sailors where she is seen as THE mentor and guiding light for their questions or concerns.”

Wortham has also proven that hard work pays off. She earned her Enlisted Surface Warfare Specialist pin in June of 2011, just shy of four months after reporting onboard. Less than a year later, in May 2012, she was promoted to second class petty officer.

Wortham hopes to continue her successful career in the Navy, earning a promotion to petty officer first class. Long term, she wants to earn her chief anchors and possibly submit a Limited Duty Officer package or become a Chief Warrant Officer.

“The Navy has changed my whole outlook on life,” said Wortham. “I have learned to appreciate so much more than I use to, and to value my family so much more. It also has changed me into a more diverse, outspoken and mature individual. Being in the Navy has made me value the work I put forth, and made me strive to honestly be the best I could possibly be at my job.” **SW**



You've Got Orders to... Diego Garcia

By MCSN Eric A. Pastor, *Naval Support Facility Diego Garcia Public Affairs*

Location

Located in the middle of the Indian Ocean, Diego Garcia, British Indian Ocean Territory, is nearly 2,000 miles from the coast of Africa, 1,000 miles south-southwest of the tip of India, and 2,500 miles west-northwest of the coast of Australia. The island of Diego Garcia is the largest of the Chagos Islands located on a large shoal area known as the Great Chagos Bank

Size

The island stretches about 38 miles tip to tip with an area of 6,720 acres. Average elevation is four feet above sea level with a maximum elevation of 22 feet. The lagoon varies in depth from 10 to 100 feet.

Mission

U.S. Navy Support Facility Diego Garcia provides support to U.S. and allied forces forward deployed to the Indian Ocean and Persian Gulf areas of responsibility in support of national policy objectives. NSF Diego Garcia occupies a critical part on the "tip of the spear" for U.S. military forces by supporting a multitude of unique and challenging mission requirements. The NSF's motto and mission focus is "One Island, One Team, One Mission."

Commands

As a British Territory, all civilian and military personnel residing on the island come under British Indian Ocean Territory (BIOT) law and administration. Members of the Royal Navy, Royal Marines, and British Army provide security, customs and policing for the island and the Chagos Archipelago. They are led by a Royal Navy Commander, also known as the British Representative, who represents the British Foreign Commonwealth Office for this territory and is home to several commands, including the U.S. Navy Support Facility, which functions as the host command.

The partner commands on Diego Garcia include:

- ▶ U.S. Naval Computer and Telecommunications Station Far East Detachment (NCTSFE DET)
- ▶ Military Sealift Command Office (MSCO)
- ▶ Maritime Pre-positioning Ship Squadron (COMPSON) TWO
- ▶ Branch Health Clinic (BHC)
- ▶ American Forces Network (AFN)
- ▶ Public Works Department (PWD)
- ▶ Naval Facilities Engineering Command Far East (NAVFAC FE)
- ▶ Personnel Support Activity Detachment (PSD)
- ▶ Fleet Logistic Center (FLC), Diego Garcia Detachment.

In addition to Navy commands, the Air Force has a significant presence on Diego Garcia to including a Pacific Air Force Mission Support Group detachment, the Automated Remote Tracking Station (ARTS) and the Ground-based Electro Optical Deep Space Surveillance (GEODSS). The island consists of more than 900 service members and nearly 1,800 civilian contractors.

Housing

Personnel are normally assigned permanent rooms at the unaccompanied personnel housing upon arrival; in some cases, temporary rooms are assigned. All personnel are assigned private quarters.

All BEQs have a common lounge with a TV, pool table and kitchenette. The BEQs also have a common laundry room with an adequate amount of washers and dryers. There are no cooking facilities in the rooms; however, personal microwave ovens and coffee pots are authorized. All rooms are equipped with a television and a VCR/DVD combo.

Play

Facilities/Activities: Diego Garcia's Morale, Welfare and Recreation (MWR) department is the "best in the Navy" and offers a variety of activities and facilities for the residents of Diego Garcia. MWR hosts events daily, ranging from physical activities and sports tournaments to board game and card tournaments. MWR also hosts various



▶ Personnel on board U.S. Navy Support Facility Diego Garcia take time to unwind on Sunday afternoon by windsurfing at the Marina. The Marina offers a variety of aquatic activities for Sailors on the island.



◀ Edwin McCain, a rock artist best known for his song, "I'll Be," performs at U.S. Navy Support Facility, Diego Garcia, Aug. 10. McCain, as well as singer, Erick Baker, and the band *Major League Eaters* performed for residents of Diego Garcia as part of a Navy Entertainment-sponsored tour throughout Asia and various locations in the area. (MCSN Eric A. Pastor/USN)

▼ Earl Murray, U.S. Navy Support Facility (NAVSUPPFAC), Diego Garcia, Morale, Welfare and Recreation (MWR) director, right, and Scott Abell, DG-21 MWR director, left, guide Vice Adm. William French, Commander, Navy Installations Command, on a tour of the NAVSUPPFAC Physical Readiness Center Sept. 8. (MCSN Eric A. Pastor/USN)



▲▲ Coconut crabs are one of many species found on the island.



intramural sports leagues throughout the year.

Several times a year, performers with Armed Forces Entertainment, Navy Entertainment and MWR visit Diego Garcia. Each event and entertainment group is unique and is a welcome addition to the MWR program.

MWR also runs the physical readiness center (PRC) as well as a base swimming pool. The PRC has free weights, strength training machines, a cardio room with elliptical machines, treadmills, bikes and Jacob's ladder machines, two gymnasiums for various athletic and exercise activities, locker rooms with saunas, massage services, racquet ball courts, tennis courts, horseshoe pits, softball fields, and soccer fields.

There are several clubs and dining establishments, as well as an outdoor movie theater that plays the latest movies every evening with free popcorn.

Diego Garcia also has its share of beautiful beaches, amazing views and off-road bike/ running trails for those

who enjoy being outside in the tropical environment. For those who enjoy fishing and water sports, MWR also offers various rental services at the Marina. The Marina offers lessons in basic sailing and power boating and provides a full range of services ranging from windsurfing, paddle boarding, wakeboarding, water skiing, canoes, kayaks, snorkeling, fishing boat rentals, and more.

Food on Base

NSF Diego Garcia operates the 7 Degrees South Café for all of its personnel. For those wanting something different, there is a food court as well as other dining facilities. Certain nights throughout the week, each MWR club will offer special themed nights. Among the most popular are Wing Night and Build-Your-Own- Pizza Night.

Interesting Facts

▶ Diego Garcia is a great island get away with great weather and many aquatic activities.

- ▶ MWR hosts an event every day, providing recreational services that contribute to the retention, readiness, mental, physical, and emotional well-being of Sailors.
- ▶ The most popular MWR event, the Tip-to-Tip Bike Ride, is held twice a year and gives personnel a chance to see the entire island from one tip to another during a bicycle ride totaling 36 miles.

According to Personnel Specialist 2nd Class Jed Bantugan, although isolated, Diego Garcia keeps you busy.

"There are things to do every day, from working out to participating in daily MWR events, there is never a dull moment on the island," he said. "Everyone is dedicated to making sure you are taken care of both personally and professionally. Duty in Diego Garcia keeps you busy.

is nothing compared to anywhere else, it's an island paradise with lots to offer." *SW*



Warrior Transition Program Takes on PTSD

By MC1(SCW) Demetrius Kennon, *Surface Warfare*

Imagine being deployed to a country of civil unrest where gunshots and explosions are the natural background noise to every scene; where each day you embark on missions in which the likelihood of your return is slim to none. All around you there's fear, suffering and death... Then, imagine returning home to a spouse and your two small children and be expected to pick up where you left off. You want to share the things you've seen but, because of the sensitive nature of the missions you were a part of, you can't.

This is just a glimpse into the multifaceted world of post-traumatic stress disorder (PTSD). "PTSD occurs when the mind and body are forced to respond to an overwhelming stress – a stress that by its very nature threatens the life or the body integrity of the affected individual," said Cmdr. Curt West, psychiatrist and assistant

deputy commander for Behavioral Health, Walter Reed National Military Medical Center, in an interview with the U.S. Navy Bureau of Medicine and Surgery in 2011. "The disorder breaks down into three parts: re-experiencing, arousal, and avoidance. Conceptually, I teach patients that it is the first two that lead to the third group of symptoms."

In the Navy, many of the service members diagnosed with PTSD work in the medical field such as hospital corpsmen, physicians and nurses. They experience firsthand some of the most traumatic events on deployment, but there are many others in fields unrelated who suffer as well. The Warrior Transition Program, which was implemented in 2007, was designed to combat PTSD and ease the reintegration of Sailors back into their families, commands and society after deployment to a war zone.

The Warrior Transition Program (WTP) is a five-day program where Sailors first turn in their gear and weapons then participate in redeployment workshops and decompress. This is also an opportunity for Sailors to discuss their "in-theater" experiences with the staff chaplains and nurses, and/or talk about redeployment plans.

The program is available to active duty and Reserve component Sailors serving in Navy units, joint commands or individual augmentee assignments.

In an effort to improve the program, the WTP is moving. Previously centralized at Camp Arifjan in Kuwait, the program is now relocating to Sembach Kaserne in Kaiserslautern, Germany, and is expected to hold its first class in December 2012.

Contractors are in the final refurbishing stages of the new WTP facilities at Sembach, marking an end to the dusty living quarters and trailers in Kuwait. The facilities contain barracks rooms with adjoined bathrooms, a computer lab, gaming and exercise rooms, and a media room that will also serve as a movie theater.

"Shifting WTP from Kuwait to Germany will provide a clear break from the operational mission, helping Sailors reintegrate back to the Navy and their families," said Capt. Ron Greiff, officer-in-charge of WTP in Kuwait. [SW](#)



▲▲ Chief Petty Officer Michael Johnson, from Navy Expeditionary Logistics Support Group, relaxes by playing guitar in his room after work at Camp Arifjan, Kuwait.

(PR2 Aric Mueller/USN)



◀◀ During the Warrior Transition Program in the Expeditionary Combat Readiness Center (ECRC), Navy individual augmentees have their inventory sheets verified to show that all of their combat gear has been turned in after completing their tour of duty.

(MC1(SW/AW) Sandra M. Palumbo/USN)



Celebrating African American/Black Heritage Month

By Lt. Deirdre Collins, Navy Office of Diversity and Inclusion

Every February, we honor African American cultures and contributions made to our Nation throughout history during African American/Black History Month. Established in 1926 as Negro History Week, President Gerald R. Ford expanded the celebration in 1976 to include the entire month of February. This year we celebrate the theme, "At the Crossroads of Freedom and Equality: The Emancipation Proclamation and the March on Washington."

African American Sailors have a legacy of honorable service that permeates our Naval history through every major armed conflict since the Revolutionary War. African Americans continue to serve with distinction, now comprising over 17 percent of our active duty Navy total force end-strength.

Striving for equality at home and blazing a trail for future African American Sailors, Wesley A. Brown became the first African American graduate of the United States Naval Academy in 1949, joining the Navy's Civil Engineer Corps and retiring at the rank of lieutenant commander. He passed away on May 22, 2012 after a distinguished career both in the Navy and in the civilian workforce.

In 2012, Vice Adm. Michelle Janine Howard became the first African-American woman to receive a third star in flag rank within the Department of Defense when she was promoted Aug. 24. Howard is currently Deputy Commander for U.S. Fleet Forces Command.

Immediately following this year's celebration of African American/Black

History Month, Force Master Chief April Beldo, currently the Naval Education and Training Command Force Master Chief, will make history as the Navy's first female African American Fleet Master Chief. Beldo will become the Manpower, Personnel, Training & Education (MPT&E) Fleet Master Chief in March 2013.

Sailors and their commands are encouraged to use this month to celebrate and recognize the exceptional and distinctive contributions and the unique histories and cultures that our African American shipmates bring to our Navy.

For more resources on African American/Black History Month, visit <http://www.public.navy.mil/BUPERS-NPC/SUPPORT/DIVERSITY/Pages/DiversityObservances.aspx>



▲ Naval Education and Training Command Force Master Chief April Beldo thanks Seaman Josie Walters, a student at the Center for Information Dominance Unit (CIDU) Monterey and the command's president of the Coalition of Sailors Against Destructive Decisions (CSADD), for everything she has done with the program.

(MC1(SW/AW) Nathan L. Guimont/USN)

▶▶ Vice Adm. Michelle Janine Howard, center, has her shoulder boards replaced by her husband, Wayne Cowles and her sister, Lisa Teitleman, during a promotion ceremony at Naval Support Activity Hampton Roads. Howard is the first African-American woman to receive a third star in flag rank. She assumes the duties as deputy commander of U.S. Fleet Forces Command and commander of Task Force 20.

(MC1(SW/AW) Rafael Martie/USN)



◀◀ Retired Lt. Cmdr. Wesley Brown reflects upon his challenge coin that displays his U.S. Naval Academy photo while at the historic Tingey House at the Washington Navy Yard for a luncheon with the Chief of Naval Operations. Brown was the first African-American to graduate from the U.S. Naval Academy on June 3, 1949.

(MC1 Peter D. Lawlor/USN)

CHOOSE YOUR

RATE

LMC1

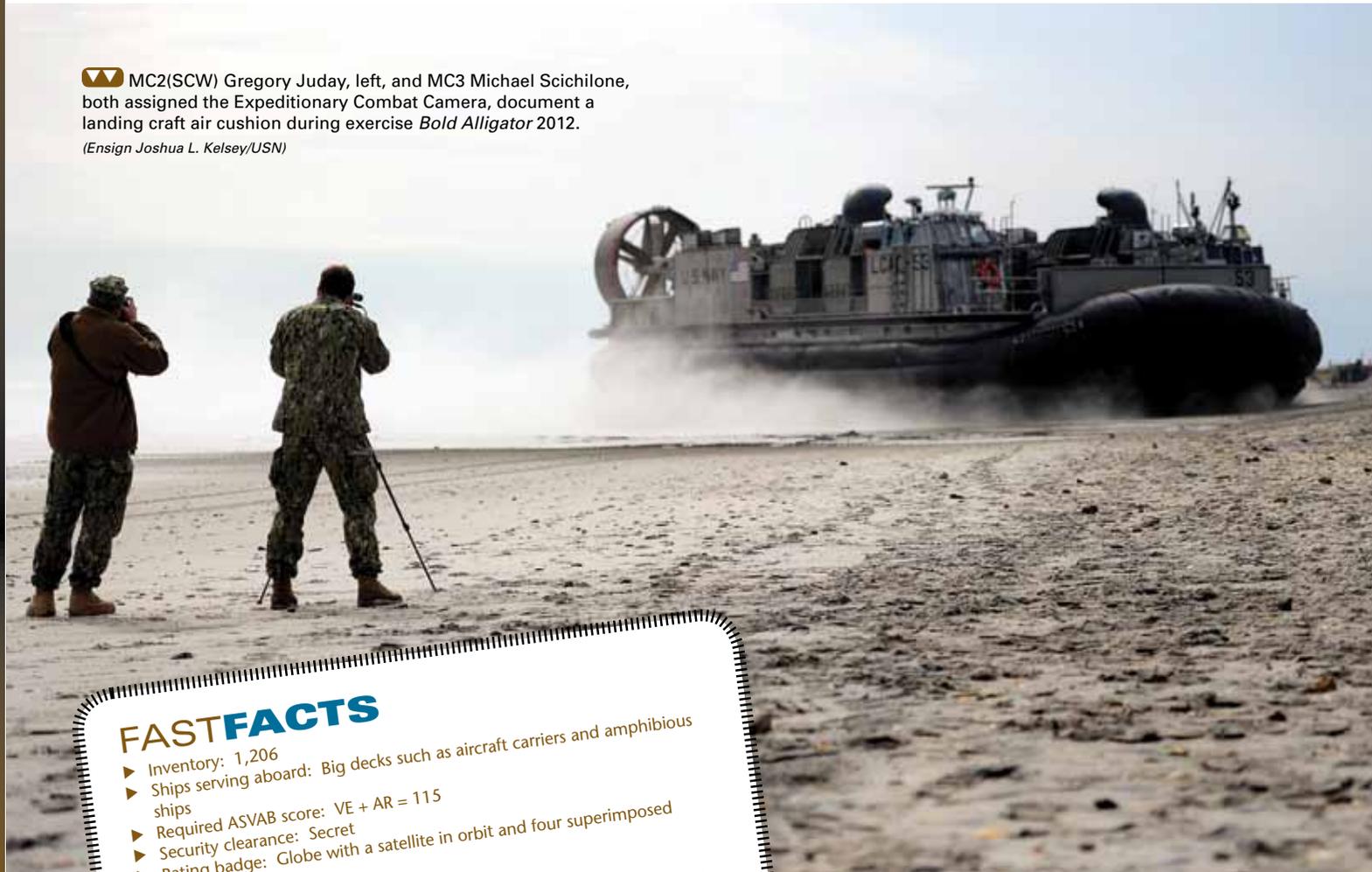
Mass Communication Specialist

By MC1(SCW) Demetrius Kennon, *Surface Warfare*



▼▼ MC2(SCW) Gregory Juday, left, and MC3 Michael Scichilone, both assigned the Expeditionary Combat Camera, document a landing craft air cushion during exercise *Bold Alligator 2012*.

(Ensign Joshua L. Kelsey/USN)



FASTFACTS

- ▶ Inventory: 1,206
- ▶ Ships serving aboard: Big decks such as aircraft carriers and amphibious ships
- ▶ Required ASVAB score: VE + AR = 115
- ▶ Security clearance: Secret
- ▶ Rating badge: Globe with a satellite in orbit and four superimposed lightning bolts.

History:

The mass communication specialist (MC) rating was established, on July 1, 2006, as the result of the merging of four ratings: photographer's mate (PH), journalist (JO), illustrator/draftsman (DM) and lithographer (LI).

"I think the biggest challenge is just the need to know everything when it comes to mass communication," said MC1(SW/AW) Arif Patani, assigned to the CHINFO Navy Media Content division. "I'm a prior JO, and as an E-6 MC, when I check into a command, I'm expected to be an expert in graphics, photojournalism, writing, public affairs...the list goes on. You have to continually make sure to stay on top of your game and keep up on all aspects of the MC rate."

Famous in the Community:

Retired Senior Chief Journalist Russ Egnor served on active duty from 1954 to 1969 in various public affairs billets around the Fleet, including as a member of the Chief of Information Office (CHINFO) at the Pentagon and Combat Camera in Vietnam. The formerly called CHINFO Merit Awards program has been renamed in his honor.

The Job

MCs are public affairs and visual information experts. They use a variety of media to present the Navy story to audiences in the Navy and the rest of the world. MCs write and produce print and broadcast journalism news and feature stories for military and civilian newspapers, magazines, television and radio broadcast stations. They record still photography and motion video of military operations, exercises, and other Navy events.

"I take photos, shoot videos, write stories, create graphics, and manage social media for

▶▶ School children watch a video recording of themselves singing during a *Continuing Promise* 2011 community service project at Trenchtown Primary School in Kingston, Jamaica. *Continuing Promise* is a five-month humanitarian assistance mission to the Caribbean, Central and South America. (MC2(AW/SW) Jonathen E. Davis/USN)



▲▲ MC2(EXW/DV/PJ/SW) Kori Melvin descends from the surface to document diving operations in the harbor of Guantanamo Bay, Cuba. Expeditionary CombatCamera's Underwater Photo Team conducts semi-annual training to hone its divers' specialized skill set and ensure valuable support of Department of Defense activities worldwide. (MC1(EXW/DV/SW/AW) Jayme Pastorico/USN)



a job. Not too bad a way to earn a living, if you ask me," said MC2 Thomas Rosprim, official photographer for the Master Chief Petty Officer of the Navy (MCPON).

MCs also prepare material for broadcast use. They serve on the staff of Armed Forces Radio and Television Service (AFRTS) detachments. They operate and schedule command internal information and programming for Shipboard Information, Training, and Entertainment (SITE) systems. MCs troubleshoot mechanical and digital reprographic and photographic equipment; perform color management; and supervise shipboard and Sea Operations (SEAOP) detachments in support of the Navy public affairs mission.

MC "A" school, located Fort George G. Meade, Md., is approximately 25 weeks long.

The Navy-wide advancement rate for the last exam cycle was 94.4% for E-4; 50% for E-5; and 18.7% for E-6.

Restrictions

Per COMNAVCRUITCOM INST 1130.8J (Ch. 2); effective May 1, 2012, the Mass

Communication Specialist rating no longer requires a typing test for entrance. However, the MC rating does require a five-year enlistment obligation.

MCs must be a U.S. citizen and be eligible for a security clearance as a condition of entry. In addition, entry into the MC rating will require normal color perception and vision correctable to 20/20. "A" School is required for the MC rating. The rating accepts qualified lateral conversions through "A" School, but will not accept direct conversions or strikers.

MCs are trained to communicate professionally with people and tell their stories in a creative way. They have above

▲▲ MC1 Brett Cote, of Defense Media Activity, lights PRC(AW) Maria Johnson, Chief of Naval Operations (CNO) Sailor of the Year, for a video interview. (MC2 Thomas L. Rosprim/USN)

average writing and speaking skills, creativity, curiosity, and a keen interest in people, ideas, information and current events. It is also essential for MCs to work on developing a good memory, maturity, and good personal appearance. Though they have a good sense of teamwork, most MCs work on projects alone or with small teams, normally with little supervision. Their work is primarily mental and artistic.



▲▲ Sailors representing the four media ratings that officially became the mass communication specialist rating join together to celebrate their rating merger during a cake-cutting ceremony held at the Defense Information School. As of July 1, 2006, photographer's mate, lithographer, journalist, and illustrator/draftsman ratings merged into the Mass Communication Specialist (MC) rating. (MCC(AW/SW) Lori A. Steenstra/USN)

"My proudest moment as an MC is classified. In fact, this moment is the proudest I have achieved professionally, and I would wager it will never be surpassed," said Rosprim. "I hope someday the story is

made public. Until then I can appreciate that my job takes me to places where I can be a part of significant moments in history and experience them first hand."

Billet

MCs serve on combat camera deployable teams, research, develop, and write speeches using Navy talking points and messages, and fulfill duties of senior enlisted advisor for public affairs on select Fleet, Numbered

Fleet, Type Commander (TYCOM) staffs, aircraft carriers, and large-deck amphibious ships. They implement public affairs guidance and messages from higher public affairs authority, and serve as independent duty Public Affairs Officers (PAO) at small commands. In this capacity, MCs can also be found overseas, on ships, and at stateside commands as photographers, public affairs specialists, newspaper and magazine staff, and TV and radio station staff and talent.

"My current role in MCPON's office is the most interesting I've been assigned to," Rosprim said. "I get to visit commands throughout the world and hear their stories, see their situations. If I want to determine

where I want to go in my career, I need only reflect on my experiences in this job."

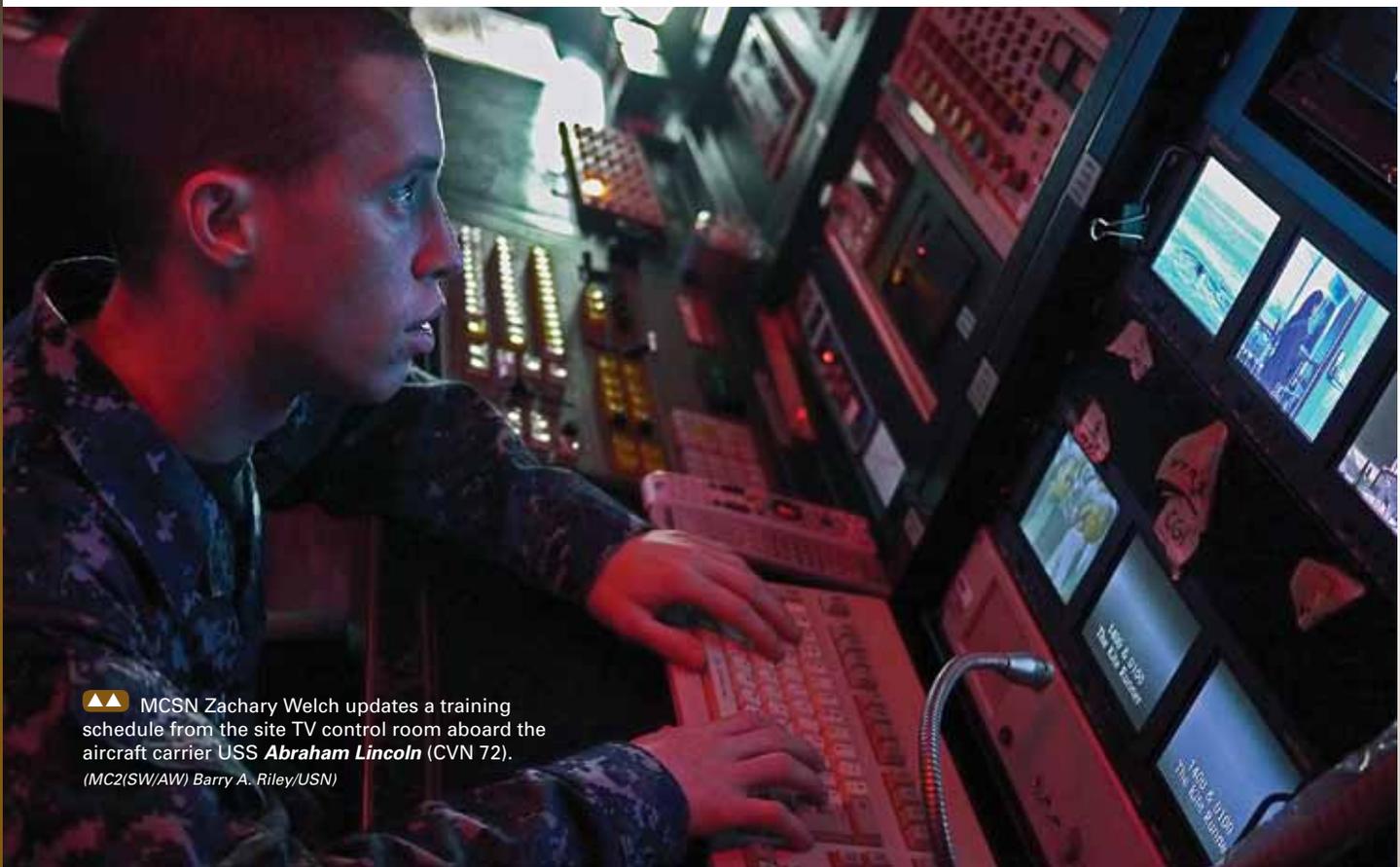
Additional Training:

Below are the NECs for the MASS COMMUNICATION community area:

- ▶ MC 8133 EH 38 Photographic Quality Control Technician (APPLIES TO: MC)
- ▶ MC 8143 Motion Media Cameraman (APPLIES TO: MC)
- ▶ MC 8144 Motion Media Director/Editor (APPLIES TO: MC)
- ▶ MC-8147 Photojournalism Specialist (APPLIES TO: MC)
- ▶ MC 8148 Photojournalist (APPLIES TO: MC)
- ▶ MC 8192 Photographic Equipment Maintenance Technician (APPLIES TO: MC)
- ▶ MC-8193 Electronic Imaging Systems Specialist (APPLIES TO: MC, IT)

Personal

Best thing about being an MC:
 "As an MC, I get to see all aspects of the Navy," said Patani. "One day I could be on the flight deck watching planes take off, the next day I could be in a helicopter over Pearl Harbor, or the next I could be with an expeditionary command doing small boat operation. Many rates are stuck in one environment, but as an MC, I get to see the whole Navy." *SW*



▲▲ MCSN Zachary Welch updates a training schedule from the site TV control room aboard the aircraft carrier USS *Abraham Lincoln* (CVN 72). (MC2(SW/AW) Barry A. Riley/USN)

Insight into an Incomparable Era

Brave Men

By Ernie Pyle

Review by: MCCA(SW/AW) Janet M. Davis, *Surface Warfare*
493 Pages ISBN 978-0-8032-8768-6

The views expressed are those of the reviewing author. The publication of this review does not imply DoD endorsement of the reviewing author or the work reviewed and its author.

In a world where we see the war through the eyes of political media, social media, and news media, one finds it difficult to understand all the trials and triumphs that go on during a single day in the field through the serviceperson's eyes.

During World War II, Soldiers and Sailors alike had someone to speak for them, about them, and to them during times of toil and unthinkable revelations. This person was journalist Ernie Pyle, famous war correspondent who didn't report on the blood that was spilled and the guns that were fired, but the people who were affected and the people who were killed and those who survived.

"Brave Men" is a compilation of columns he wrote about the American service men and women during 1944. Most importantly in his columns, he reached out into America and spoke to the hearts and mind of those at home wondering what was going on "over there." Here is a small sample of the prose Pyle uses describing the men the night before the first time their ship will see battle.

"I don't believe one of us was afraid of the physical part of dying. That isn't the way it is. The emotion is rather one of almost desperate reluctance to give up the future. I suppose that's splitting hairs and that it really all comes under the heading of fear. Yet somehow there is a difference. These gravely-yearned-for futures of men going into battle include so many things – things such as seeing the "old lady" again,

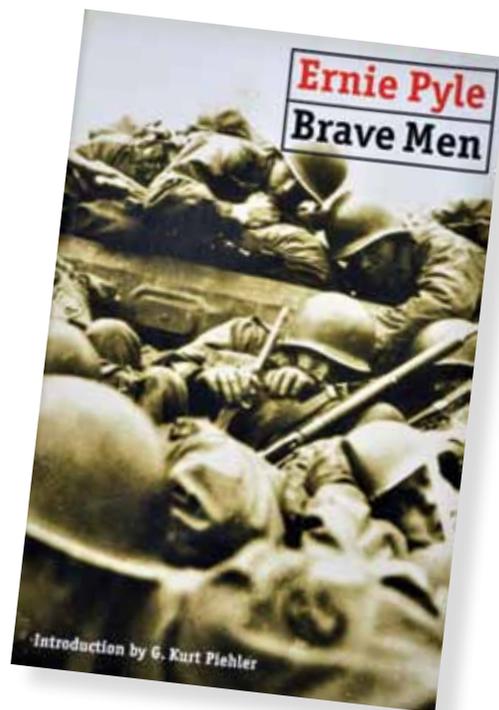
of going to college, of staying in the Navy for a career, of holding on your knee just once your own kid whom you've never seen... and yes even of just sitting in the sun once more on the south side of a house in New Mexico. When we huddled around together on the dark decks, it was these little hopes and ambitions that made up the sum total of our worry at leaving, rather than any visualization of physical agony to come."

This simple, casual way of speaking to ordinary folk about deeply, serious subjects struck a positive chord with the country during the war.

In this book, Pyle takes you with him as he goes along with the Sailors and Soldiers beginning with the invasion of Sicily, through Italy, England and France and describes events in such a way that only someone in that period of time, during that war, with his particular talent could have materialized.

No longer can we be as open as Pyle as when he introduces the Soldiers and their families giving their home addresses and making them instantly reachable to their neighbors and communities. No longer can we talk about the way we handled certain situations during battle for fear of those who collect information to strike against us.

So if you would like to visit a past we can never return to and meet some of Pyle's best friends who did brave and wonderful things for the country in World War II, this book will give you hours of well-spent historical and societal insight.^{SW}



This simple, casual way of speaking to ordinary folk about deeply, serious subjects struck a positive chord with the country during the war.



The History and Hardships of the Surface Warfare Officer

By MCCS(SW/AW) Janet M. Davis, *Surface Warfare*

The first Admiral of the Navy, Adm. David Farragut, was only nine years old when he entered the Navy as a midshipman and went directly to sea. He commanded a Ship which he had overtaken in the War of 1812 when he was just 12 years old. He went on to become a successful Surface Warfare Officer from his experiences at sea.

The Surface Warfare Officer community is filled with a proud history of officers like Farragut who fought the Ship and rose in rank with just the hands-on experience the life of a mariner provided. Generally speaking, before World War II, when an officer entered the Navy, he entered the Surface Navy. The only schooling provided, or needed, for surface warfare officers at that time was the Naval Academy. Most officers during the early years of the Navy earned their commissions at the Naval Academy and that satisfied the need for readying officers for serving at sea.

As the 19th century came to an end, technological influences begin with the steam-driven ship, naval gunnery, and Marconi's wireless telegraph, better known as the radio, began to change the way business was done at sea. Seasoned

officers looked upon this new technology with disdain as an imperfect way to fight a ship. In fact, it took 25 years after the introduction of steam propulsion and an act of Congress for engineers to become commissioned officers in the Navy.

This was the beginning of the divide between generalists and specialists in the Navy. One side, holding on to tradition and knowledge learned by going to sea the same as mariners had for over a millennia and the other side, the engineers, the aviators, the submariners eagerly embracing technology and the potential of dramatic change.

Soon engineering was included as part of the core curriculum at the Naval Academy. This was just the beginning for the 20th century. Adopting new technologies such as aviation, and submarines would continue to influence and reshape the world's navies and the Surface Warfare community. Tactical ways of sailing a ship with regard to the wind soon became obsolete.

It became apparent special training was needed to master the new technologies. Separate schools emerged before the separate communities did. Officers attended these schools before their first assignment in that specialty. Aviation in particular tended

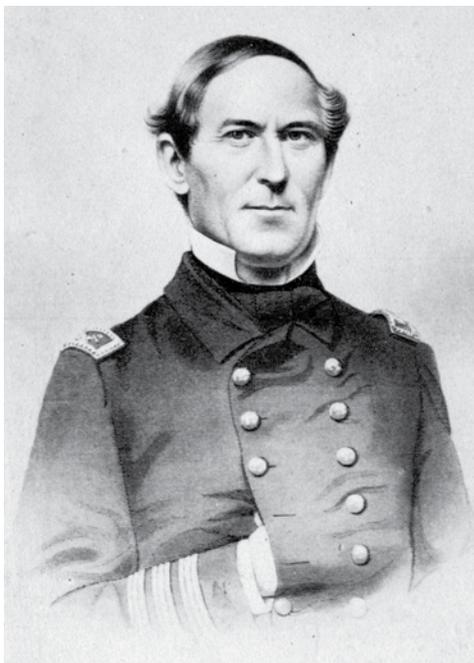
to attract the adventurous types although not quite as many as after World War II.

Post-World War II, the Surface Warfare Officer community was influenced by six main factors such as new technology, expanded operational requirements due to the need to counter Soviet influence and ambition, the establishment of the Naval Reserve Officer Training Corps, competing with other line communities for new officers, the need for professionalism from within the surface warfare community, and the generalist vs. specialist debate.

"World War II produced in a five-year period a technical advance in weapons and the art of naval warfare that might have taken fifty years to produce under peacetime conditions, and the postwar surge of scientific research, spurred forward by Navy-sponsored basic research, produced even greater advancements," Capt. William P. Mack said in 1957.

By the late '50s, the young Surface Warfare Officer would not only need to know ship handling, navigation and leadership, they would need to at least understand electronic theory and nuclear propulsion. Anti-air and anti-ship tactics now involved over-the-horizon targeting.





◀ David Glasgow Farragut (July 5, 1801 – Aug. 14, 1870) was a flag officer of the United States Navy during the American Civil War. He was the first rear admiral, vice admiral, and admiral in the United States Navy. He is remembered for his order at the Battle of Mobile Bay, usually paraphrased: “Damn the torpedoes, full speed ahead!”



Anti-submarine tactics relied heavily on employment of helicopters and fixed wing operations as well as increased cooperation with other ships, all linked with radio circuits and aided by computers.

Following World War II, the Cold War called the Soviet Union the enemy however, its strength as a Navy was negligible. The United States need for a strong Navy seemed unnecessary. Yet, in the early '50s, the Soviet Union launched several new ships and designs which reinforced a perceived need for a strong U.S. Navy. A successful attempt at testing the atomic bomb in 1949 made the Soviet Union that much more of a threat and leveled the playing field. Conventional wars were still a

reality. Subsequently, the Surface Warfare community had to focus on conventional tactics as well as the atomic fight.

With a newly formed U.S. Air Force, and the lion's share of the Naval budget going to the aviation and submarine fleets, the surface fleet was struggling to remain in the picture. However, as budgets decreased, operational commitments increased. Lack of funding meant lack of schools to learn to operate the new guns or fire control gear. A new ensign facing a more sophisticated enemy around the globe might only have the experience that his commissioning source gave him. The Naval Academy would be the best source as it would have instructors that would have imparted their collective wisdom. An ensign who received his commissioning from Naval Reserve Officer Training Course (NROTC) or Officers Candidate School (OCS) might have even less knowledge having been trained by civilian professors and his naval training was part time.

Among the other differences of the NROTC commissioned officers to those of the Naval Academy, the NROTC officers were either contract or reserve midshipmen. Contract midshipmen would receive reserve commissions in return for their tuitions being paid and ordered to active duty for a few years with the opportunity to convert their reserve commission to a regular one. Reserve midshipmen constituted a trained pool of officers to be called upon during in an emergency.

That is not to say that good officers did not get their start at NROTC or OCS. Adm. David E. Jeremiah was a graduate of the University of Oregon and commissioned through OCS. Upon commissioning, Ensign Jeremiah would have very little

training in the specifics of surface ship operation, yet he qualified as Officer of the Deck after standing only three watches.

With the center of the Navy's fighting formations changing from the battleships to the aircraft carriers, the traditional path to higher rank changed. Submarine warfare had also proved its worth, so choosing between that or aviation was a favorable asset. Increased chance for promotion and extra pay for those officers qualified in either submarines or naval aviation tipped the scales against the Surface Warfare community. It was even suggested that the surface navy was the best place for a junior officer to get all the experience he needed for modern warfare. The fact that the Surface Warfare community was suggested as being a stepping stone for bigger and better things showed the decline of the Surface Warfare community at the time.

Though poor training was blamed for officers leaving the Navy, Commander Russell S. Crenshaw, author of *Naval Shiphandling*, wrote in 1957 concerning the state of junior officers. “If our fleets are to be the cornerstone of our national defense in the age of guided missiles and nuclear power, they must be manned by competent, aggressive and thoroughly trained officers, and thus manned at the first moment of aggression.” Crenshaw believed in high standards and on-the-job training. He noted, “An individual seldom forgets something he's actually done and the excellence of his knowledge and ability is not increased by any number of reports.”

It became apparent that the training received by junior officers in their commissioning pipeline failed to meet the Cold War needs of the Navy. It was suggested that a destroyer school and technological group be established and a



◀ Founded in 1845 by Secretary of the Navy, George Bancroft, the Naval Academy started as the Naval School on 10 acres of old Fort Severn in Annapolis. Since then, the history of the Naval Academy has reflected the history of the United States. As our country has changed culturally and technologically, so has the Naval Academy. In only a few decades, the Navy has moved from a fleet of sail and steam-powered ships to a high-tech fleet with nuclear-powered submarines and surface ships and supersonic aircraft. The Academy has changed, too, giving midshipmen the up-to-date academic and professional training they need to be effective naval officers in their assignments after graduation.

special insignia be developed to bolster esprit de corps. If professional education were to consist of two phases – first imparting the broad liberal background and second the specialized skills and knowledge of the profession, there was no formal education being provided to Surface Warfare Officers, at the time, to satisfy the second phase.

In 1961, the Naval Destroyer School in Newport, R. I., began with the mission to provide the destroyer forces, through a system of functional education and training, with officers professionally qualified and motivated to function as effective leaders at sea. The school was envisioned to provide practical professional training which was not being provided in undergraduate officer education.

The curriculum gave each student a thorough grounding in the three line departments – weapons, operations, and engineering. Prospective students were expected to have eighteen months destroyer duty, volunteer, possess their commanding officer's recommendation, be career oriented, and have a solid record of performance.

Though not the answer to all the issues posed after World War II, the school quickly became the shortest route to division command and promotion. The school led to better department heads which led to better subordinate officers on the ship which led to a better quality wardroom overall, at least on the destroyers.

It would be a little over ten years for the Surface Warfare Officer School Division Officer Course would begin. It would take one of the more unorthodox Chiefs of Naval Operations, Adm. Elmo R. Zumwalt, Jr., to do it.

Perhaps more than any other person, Zumwalt deserves the credit for bringing surface warfare back as a serious professional specialty in the Navy. Zumwalt was a highly qualified officer with a broad background, which included operational tours during three conflicts as well as extensive service in the Naval bureaucracy. He graduated from the Naval Academy in 1943 and fought in the Pacific campaign during World War II. Zumwalt served as navigator in USS **Wisconsin** (BB 64) in the Korean War College. Tours in Washington at both the Bureau of Naval Personnel and as aide

to Secretary of the Navy, Paul H. Nitze rounded out his professional expertise.

Further knowledge of how the Navy worked within the larger military industrial complex came when Zumwalt stood up the Division of Systems Analysis. He

The desires expressed by the Retention Study Group reflected a growing sense of professionalism in the Surface Warfare community.

gained firsthand experience in bringing emerging technologies to the fleet when he commanded the U.S. Navy's first guided missile destroyer USS **Dewey** (DDG 45). Not all of his operational time was spent with the mainstream of Surface Warfare. Zumwalt commanded U.S. Naval forces in Vietnam from September 1968 to May 1970, where he gained considerable experience in riverine warfare. All of his combined experiences stood him in good stead and explain why the Secretaries of Defense and the Navy chose to select Zumwalt, a three star Admiral for the four star job of CNO. As CNO, Zumwalt changed many things within the Navy, but his influence was particularly felt within the Surface Fleet. Not only did he push hard for technology advances, he worked diligently to improve the personnel of the Navy as well. During his time as CNO he oversaw the shift to an all-volunteer military. Zumwalt realized the nature of how the Navy treated its personnel must change with the ending of the draft.

In one of the more significant acts of his tenure with regards to the Surface Warfare Officer community, Zumwalt established a working group consisting of junior SWOs to report on the retention of SWOs, the Surface Warfare Officer Retention Study Group. In fact, in the first of his Z-grams, Zumwalt laid out a plan to have retention groups, comprised of junior officers from various communities within the Navy, meet in Washington, D.C. Z-grams were messages sent out personally by Zumwalt as CNO. Typically Z-grams instituted immediate changes in regulations or policies. The groups briefed their recommendations to Zumwalt personally.

In 1970, the same year Zumwalt became CNO; the retention rate for SWOs was fourteen percent. The SWO Retention Study Group made many recommendations – nearly one hundred. The most significant

of these were “more rigorous standards, better schooling, and a Surface Warfare pin equivalent to the dolphins worn by submariners or the wings by the aviators.

The desires expressed by the Retention Study Group reflected a growing sense of professionalism in the Surface Warfare community. Professionalism grew significantly in the 1960s, but it was mostly directed at the higher levels of the SWOs. The Naval

Destroyer School advanced the professional standard for department on destroyers but did little to enhance the quality of either entry level SWOs or other classes of ships within the fleet

Formal recognition of Surface Warfare as a separate discipline within the Navy came in April 1970 when the Bureau of Naval Personnel established the SWO designation. One year into his tour, Zumwalt changed the qualification process to make it more stringent. Under the revised guidelines, qualification as both Combat Information Center Watch Officer and Officer of the Deck and a minimum time of service on board ship of one year were required prior to achieving the SWO Designation.

The Retention Study Group also recommended officers who failed flight school or the nuclear power program (which was now a prerequisite for a line officer to serve in submarines) not be sent to the Surface Fleet. They argued that those officers be sent out of the service so as not to reinforce the image of the surface fleet as “second-class citizens.”

CinCPacFlt/CinCLantFlt Instruction 1412.1 laid out the first official requirement for SWO, designator 1110. Issued in 1973, almost two hundred years after the foundation of the U.S. Navy, this instruction became the bedrock document defining the knowledge needed by professional SWOs. [SW](#)

Note: This story is largely paraphrased and excerpted from a thesis written in 2008 by Lt. Cmdr. James T. Robinson and is available in its entirety with attributions at <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA502172>

CHANGES IN COMMAND

O-6 CHANGES OF COMMAND

USS **Boxer** (LHD 4)
Capt. Gumbleton will relieve Capt. Flanagan

COMPHIBRON 3
Capt. Lobree will relieve Capt. Sakaguchi

COMDESRON 15
Capt. Lyons will relieve Capt. Schultz

USS **Mobile Bay** (CG 53)
Capt. Kott will relieve Capt. Halvorson

USS **Bataan** (LHD 5)
Capt. Vassilakis will relieve Capt. Ross

USS **Cape St. George** (CG 71)
Capt. Doran will relieve Capt. Gabrielson

O-5 CHANGES OF COMMAND

USS **Kidd** (DDG 100)
Cmdr. Varela will relieve Cmdr. Ellinger

USS **Fitzgerald** (DDG 62)
Cmdr. Schmitz will relieve Cmdr. Muttu

USS **Shoup** (DDG 86)
Cmdr. Cesari will relieve Cmdr. Acevedo

USS **Halsey** (DDG 97)
Cmdr. McCann will relieve Cmdr. Weeldreyer

USS **Ramage** (DDG 61)
Cmdr. Stoner will relieve Cmdr. Colton

USS **Momsen** (DDG 92)
Cmdr. Collins will relieve Cdmr. Roberts

O-3/O-4 CHANGES OF COMMAND

USS **Avenger** (MCM 1)
Lt. Cmdr. Penrod will relieve Lt. Cmdr. Sullivan

USS **Guardian** (MCM 5)
Lt. Cmdr. Rice will relieve Lt. Cmdr. Carter

MCM Crew **Dominant**
Lt. Cmdr. Laird will relieve Lt. Cmdr. Erdner

PC Crew **Echo**
Lt. Samuelson will relieve Lt. Cmdr. Wijnaldum

PC Crew **Juliet**
Lt. Cmdr. Shannon will relieve Lt. Cmdr. Baggett



SW

Surface Warfare

16
300/150/25

15
300/25