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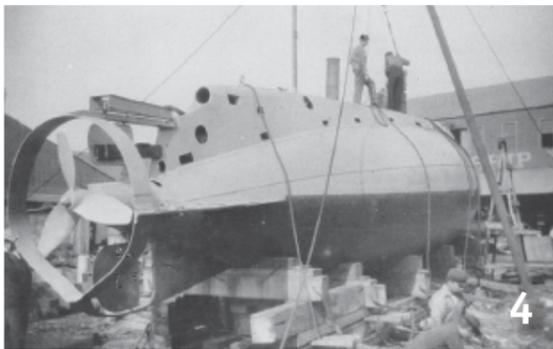
The Planned Maintenance System:

Modernizing Procedures to Sustain the Navy's Biggest Assets



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Electronics Technician Seaman Lee Adler, right, hands a tool bag to Electronics Technician 3rd Class Daniel Trahan prior to repairing the stern light aboard the Los Angeles-class attack submarine USS Newport News (SSN 750).

Photo by Mass Communication Specialist 1st Class Todd A. Schaffer

UNDERSEAWARFARE

THE OFFICIAL MAGAZINE OF THE U.S. SUBMARINE FORCE

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Modernizing Procedures to Sustain the Navy's Assets

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FORCE COMMANDER'S CORNER

Vice Adm. Michael J. Connor, USN
Commander, Submarine Forces



Submariners,

This edition of *UNDERSEA WARFARE* Magazine highlights a few of the foundational principles that underpin our success as a force: understanding and celebrating our heritage as Submariners, identifying and developing future Submarine Force leaders, and continuously improving the way we do our day-to-day business on the deckplate.

In the past two decades, we have seen incredible advances in sensors, autonomous control systems, and information technology. Interestingly, many of these advances have been driven by industry, and most were actually developed not for military application but for commercial use. This represents a significant departure from how we have identified, developed, and integrated new technology in the past, and it demands a fresh look at how we do business and maintain our technological advantage moving forward.

The Submarine Force is on the forefront in this area. The Undersea Domain Campaign Plan articulates a vision for the future of Undersea Warfare in 2025 and describes the capabilities and partnerships we are pursuing to make this vision a reality. Many of those capabilities are being prototyped today in our Undersea Rapid Capabilities Initiative program. The next big challenge is streamlining the transition of mature capabilities to funded programs of record to achieve integration with existing systems, training, technical support, and logistics sustainment.

Equally important to our future is how we approach the challenge of operating and maintaining new technology. On submarines, we don't have the luxury of simply adding another operator or maintenance technician to do this—there's no room and no more racks. Instead, we demand that our crews continuously embrace, adapt, and integrate new tools, systems, and operating equipment in our day-to-day operations, in our maintenance management systems, and in our qualifications and training practices. To do this successfully, I expect our leaders to relentlessly resist counterproductive demands on our Sailors' time and carefully manage the pace of integration of new technology. In short, we need to find ways to develop and use technology in a manner that simplifies and improves our ability to do the job of submarining. If we get this right, I am confident that the talented Sailors we bring in to the Submarine Force will readily match technological advances with operational performance improvement and keep us at the forefront of global undersea dominance.

The preventive maintenance system has undergone a major overhaul over the last 20 years from a paper-based system to a digital-based product facilitating easier use and execution. These changes have improved the management of the system to a large degree but have lagged in technological and societal changes in the way we learn and the way we manage systems across multiple diverse platforms. William Kelly's article on modernizing the Navy's Planned Maintenance System addresses how our Fleet Commanders, in partnership with NAVSEA, are addressing this challenge head on.

In May, we showcased some of the Submarine Force's best young leadership talent when 18 of our junior officers traveled to Washington, D.C. for the Junior Officer of the Year recognition ceremony. These young men, each with stellar records of performance at sea, represented the Submarine Force with great dignity as they toured key sights in the Capitol area, met the Navy's top leaders, including the CNO, Admiral Jonathan Greenert, and the Director of Naval Reactors, Admiral John Richardson, and toured the Lockheed Martin "Area 51" facility to get a glimpse of what the future of submarining will look like. The 2015 JOOY competition starts again this fall with nominations due by December 15.

The Submarine Force is performing well, and I am immensely proud of the accomplishments that Submariners have achieved over the last two years in operations, maintenance, training, and force development. As I look to the future, there is no doubt in my mind that the positive trajectory of our crew training, our innovation, and our readiness will improve even further as we transition to the next generation of Submarine Force leaders. It has been an honor and a pleasure to serve as your commander. I wish you all the best and know that you will continue to do the incredible job our nation has come to expect of you.

"I expect our leaders to relentlessly resist counterproductive demands on our Sailors' time and carefully manage the pace of integration of new technology."


M J Connor



DIVISION DIRECTOR'S CORNER

Rear Adm. Joseph E. Tofalo, USN
Director, Undersea Warfare Division

“Numerous undersea stakeholders contributed to these major accomplishments, and I congratulate you all on a job extremely well done!”

Undersea Warriors,

It has been a very busy and exciting summer in the Submarine Force. This month, PCU *John Warner* (SSN 785) was delivered to the fleet under budget, more than two months earlier than its contractual delivery date, and with the highest quality ever as rated by the INSURV board of inspectors. She is the 8th consecutive *Virginia*-class to deliver ahead of schedule, culminating five years of work by the *Virginia*-class Program Office, the shipbuilders, Supervisors of Shipbuilding, and the rest of the Navy team including a crew of more than 135 Sailors. Named after the five-term U.S. Senator from Virginia and former Secretary of the Navy, she will be the first of the *Virginia*-class to be homeported in Virginia.

Also this month, the Chief of Naval Personnel announced the names of the first enlisted women who will convert to submarine ratings and report for duty on the blue and gold crews of USS *Michigan* (SSGN 727). Following the same successful model of female officer integration, these women represent the first phase of enlisted women integration into the Submarine Force. You can read the complete list on page 22 of this issue.

It has also been busy here in the Pentagon as we finalize our budget submission for Fiscal Year 2017 and continue to engage Congress during their passage of the Fiscal Year 2016 National Defense Authorization Act and Defense Appropriations Act.

This will be my last update as the Director for Undersea Warfare, and I'm extremely proud of the submarine enterprise's many accomplishments during the past 20 months. Ohio Replacement requirements have been approved by the CNO, and the program remains on track. *Virginia*-class two-per-year construction is going strong. The Virginia Payload Module has been accelerated, now coming online starting with Block V in 2019. The Heavy Weight Torpedo restart initiative remains funded, and we continue to protect modernization and sonar/fire-control installations despite tremendous fiscal pressures. The Nuclear Defense Enterprise Review resulted in significant investments in shipyards and infrastructure. The Acoustic Superiority Program, with the goal of new sonar sensors and hull coatings, has picked up significant momentum. Unmanned systems, both underwater and airborne, have become realities. Numerous undersea stakeholders contributed to these major accomplishments, and I congratulate you all on a job extremely well done!

This is a very exciting time for the Submarine Force, but also one of many challenges. I am confident that working together we will continue to be the greatest submarine force on the planet. Thank you for all you do!

J. E. Tofalo

UNDERSEAWARFARE

The Official Magazine of the U.S. Submarine Force

Vice Adm. Michael J. Connor
Commander, Submarine Forces
Commander, Submarine Force Atlantic

Rear Adm. Phillip G. Sawyer
Deputy Commander, Submarine Forces
Commander, Submarine Force U.S. Pacific Fleet

Rear Adm. Joseph E. Tofalo
Director, Undersea Warfare Division (N97)

Master Chief Petty Officer Wes Koshoffer
COMSUBLANT Force Master Chief

Master Chief Petty Officer Russ Mason
COMSUBPAC Force Master Chief

Lt. Cmdr. Tommy Crosby
COMSUBLANT Public Affairs Officer

Cmdr. Brook DeWalt
COMSUBPAC Public Affairs Officer

Military Editor: **Lt. Cmdr. Jeffrey Gammon**

Senior Editor,
Design & Layout: **Rick Johnston**

Managing Editor: **Thomas Lee**

Charter

UNDERSEA WARFARE is the professional magazine of the undersea warfare community. Its purpose is to educate its readers on undersea warfare missions and programs, with a particular focus on U.S. submarines. This journal will also draw upon the Submarine Force's rich historical legacy to instill a sense of pride and professionalism among community members and to enhance reader awareness of the increasing relevance of undersea warfare for our nation's defense.

The opinions and assertions herein are the personal views of the authors and do not necessarily reflect the official views of the U.S. Government, the Department of Defense, or the Department of the Navy.

Contributions and Feedback Welcome

Send articles, photographs (min. 300 dpi electronic), and feedback to:

Military Editor, Undersea Warfare CNO N97
2000 Navy Pentagon, Washington, DC 20350-2000
E-Mail: underseawarfare@hotmail.com
Phone: (703) 614-9372 Fax: (703) 695-9247

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CHINFO Merit Award Winner



Silver Inkwell Award Winner

LETTERS TO THE EDITOR

In keeping with *UNDERSEA WARFARE* Magazine's charter as the Official Magazine of the U.S. Submarine Force, we welcome letters to the editor, questions relating to articles that have appeared in previous issues, and insights and "lessons learned" from the fleet.

UNDERSEA WARFARE Magazine reserves the right to edit submissions for length, clarity, and accuracy. All submissions become the property of *UNDERSEA WARFARE* Magazine and may be published in all media.

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Send submissions to:
Military Editor
Undersea Warfare CNO N97
2000 Navy Pentagon
Washington, DC 20350-2000 or
underseawarfare@hotmail.com

FROM THE EDITOR

Undersea Warfare would like to congratulate Admiral John Richardson, Director of Naval Nuclear Propulsion Program, for his nomination as the next Chief of Naval Operations

and

Rear Adm. Joseph E. Tofalo, Director of Undersea Warfare Division, for appointment to the rank of vice admiral and for assignment as Commander, Naval Submarine Forces.



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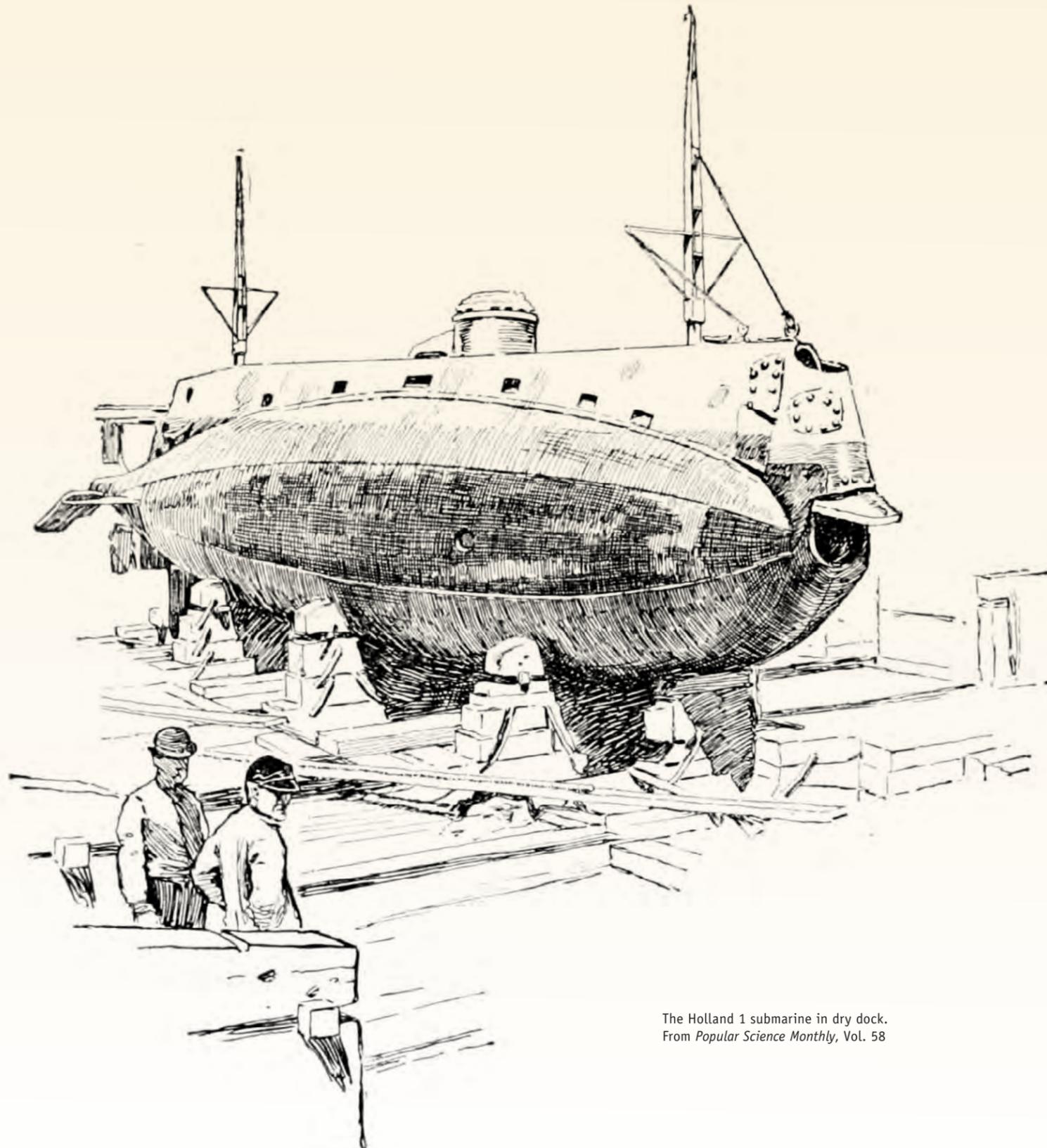


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Check out the inside back cover for info on the 17th Annual Photo Contest

Last year's first-place submission by ETC(SS) Michael A. Dlabaj

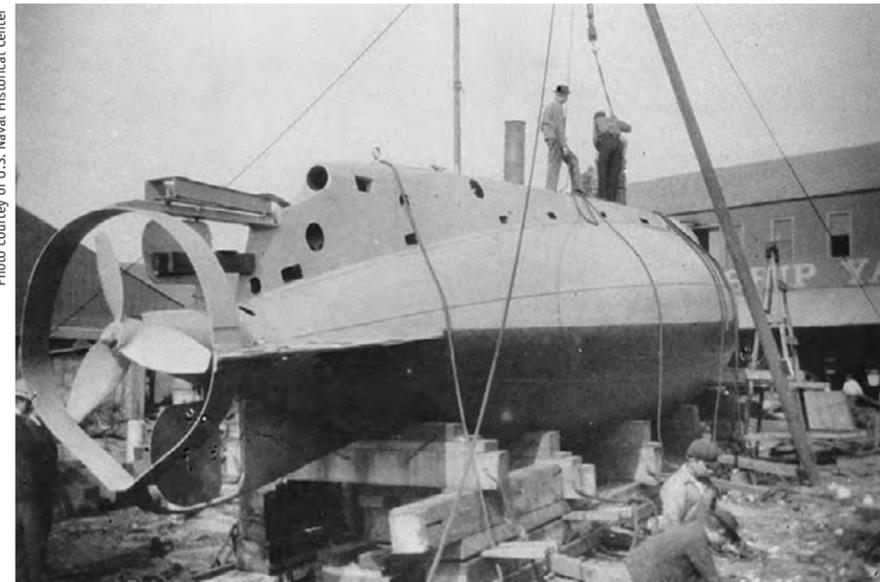


The Holland 1 submarine in dry dock.
From *Popular Science Monthly*, Vol. 58

What Does a Cat, a Rooster, a Rabbit and a Dove have to do with the Navy's First Submarine?

In August of 1893, Congress appropriated funds to build an experimental submarine and invited interested parties to submit plans for the construction of the vessel.

At the time, John Phillip Holland, one of the best-known submarine proponents in the United States, was financially strapped. He needed about \$350 to prepare and submit the plans to the Navy. Lunching with a young lawyer he explained his financial difficulties—telling the attorney he needed \$347.19 [\$11,700 in 2015 dollars]. The lawyer, intrigued with the exactness of Holland's needs, asked him what the 19¢ was for and “quick as a flash [Holland told him it was] needed to pay for a particular type of ruler necessary to draw the required plans.” Holland was known for his exactness. The lawyer put up the money, for which he received “a good sized block of stock in the Holland Boat Company which in later years made him a multi-millionaire.” John Holland's plans won the award and the Navy appropriated \$200,000 to build a sub.



Preparing submarine *Holland* for launching at Elizabeth Port, N.J.

Photo courtesy of U.S. Naval Historical Center

In an interview in 1900, Holland related that he was born in 1841 in Cork, Ireland, where he grew up to become a school teacher. As a young teacher, he was captivated by the newspaper reports of the battles between the *Monitor* and *Virginia* (i.e. *Merrimac*) during the American Civil War. The battles so inspired him that he “thought it ought to be possible that a boat could be made that would go underwater... [A]t first I thought it absurd and impossible... [finally] I completed a design that embodied most of the principles developed later in the present boat.” Still living in Ireland, he placed the plans in an envelope and “thought little more of them” until he came to the United States in 1873.

At the time of the 1893 naval appropriation, Holland was 52 years old and had been designing and building submarines for 20 years. In 1875 he had submitted a set of submarine plans to the Navy that were rejected because in the judgment of the Navy, “... men could not be found to risk their lives in such a perilous experiment.” Commenting on the plan’s rejection, Holland remembered that Capt. (later Adm.) Simpson “praised their ingenuity... but rejected them [because] the boat could not be steered underwater; that it would be like a man trying to navigate a vessel in a fog.” Capt. Simpson further advised him to “drop the whole matter, assuring me it was very uphill work to put anything through in Washington.”

Disregarding Simpson’s advice, he continued to fantasize about the potential of submarines. He built the first effective submarine five years later in New Jersey for Irish

revolutionaries. The *Fenian Ram*, though, was “laughed at by incredulous experts.” Even so, it did capture the attention of several foreign powers whose naval representatives witnessed its water acrobatics in New Jersey’s Passaic River. A dispute arose between John Holland and the Irish revolutionaries who had funded the design and construction of the submarine and the partnership ended. In 1886 a new company was formed by Capt. Edmund Zalinski, inventor of the dynamite torpedo gun, to further Holland’s ideas. A submarine was built but was accidentally destroyed at its launching. The following year he was approached by three officers of the Naval Ordnance Department who had asked then-Navy Secretary William C. Whitney to appropriate discretionary funds to construct a submarine. An appropriation was awarded but a change in political parties diverted the funds. Finally, in 1893, after several setbacks, an appropriation was again made, and in 1895 John Holland finally contracted with the Navy to construct the SS *Plunger*.

One interesting obstacle that he needed to overcome was the concern of Secretary of the Navy Hilary Herbert who “feared a disaster like that of the Civil War [Confederate submarine] *Hunley*, [believing that] any underwater vessel surely would be endangered by the explosion of its weapon.” Herbert had served as a Colonel in the Confederate Army and later chaired the U.S. House of Representatives Committee on Naval Affairs. He served as Navy Secretary under President Grover Cleveland.

In order to address Hebert’s concerns, a watertight tank with a cat, a rooster, a dove, and a rabbit was submerged “and charges of guncotton were exploded at decreasing distances, down to 100 feet... [T]he cat and rooster survived apparently unharmed; the rabbit and dove died.” The experiment assuaged the secretary’s concerns and the project went forward. According to Holland, as he built the *Plunger*, “numerous difficulties were encountered, due partly to the Navy Department’s requirements... [to which] he proposed alterations that were not accepted... [K]nowing that at best the *Plunger* would be but an imperfect vessel... I advised my company to build another vessel at its own expense, in which I should be left absolutely untrammelled by any conditions prescribed by the Navy Department.” According to Holland, it would be this second vessel that would emerge as the first working submarine of the U.S. Navy. Abbot asserts that Holland actually built three subs during the time period. The first *Plunger* was designed with a “steam engine for surface navigation and electric motor for underwater navigation.” He found this first boat had serious engine problems and he “persuaded the government to permit his company to build a new boat, and to return to the government all the money so far expended.” This boat also proved to be unsatisfactory and Holland went ahead and built a third submarine, the *Holland No. 9* (a.k.a. *Plunger*).

The *Holland No. 9* was launched in 1898 at Elizabethport, N.J. Before the sub was formally accepted, the Spanish-American War erupted. John Holland went to Washington and offered to run his submarine into Cuba’s *Santiago de Cuba* harbor to take out the Spanish fleet anchored there. He was “willing... to proceed [submerged] into the harbor, destroy the [harbor entrance] mines planted there... and deal a few blows to [the Spanish warships].” The Navy declined his offer. There was still internal Naval bickering as to whether or not the vessel should be formally acquired. For example, the Naval Board of Construction held that the vessel was “too dangerous and that only a reckless man would volunteer to operate her... that such men should not be intrusted [sic] with her management.”

The Navy formally purchased the boat in April of 1900 for \$150,000, which was \$86,000 less than it cost Holland to build her. Abbot writes: “Holland could well afford to take this loss because his first sale

resulted a few months later... in an order for six additional submarines.” This was quickly followed by the British Admiralty ordering five with the “navy of almost every power interested in submarines [following]... submarines of the *Holland* type were either ordered outright” or arrangements permitting the use of Holland patents under assign-

ment were concluded. By 1904 both Russia and Japan had purchased Holland subs for use in the 1904-1905 Russo-Japanese War, although the war ended before either side could use them in battle. They were, as one era naval contractor said: “a steel fish, with human brains and incalculable power to inflict damage.”

Like Moses who never saw the Promised Land, John Holland never witnessed the actual combat use of his invention. John Holland died on August 12, 1914, two weeks after the start of WWI. He was 74 years old.

You may view more of Daniel Demers’ writings at www.danieldemers.com

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New Submarine Junior Officers of the Year Vist Washington, D.C.



Even with more than 10,000 service men and women working in the D.C. area, it is still unusual to spot a group of submarine lieutenants walking the halls of the Pentagon and streets of the capital in Service Dress Blues! In April, seven Submariners (and one lonely Surface Warfare Officer) and their families made their

way to Washington, D.C. to be recognized as the 2014 Junior Officers of the Year (JOOY), an honor reserved for only the best junior officers each submarine squadron and sub tender has to offer. The JOOY program recognizes junior officers of the Submarine Force who demonstrate superior seamanship, management, leadership, and tactical and technical knowledge. Submarine candidates are nominated by their boats' junior officers and commanding officers and selected by the squadron commanders. Submarine tender candidates are selected by the ship's commanding officer.

Aerial photo of Washington, D.C. by Tech. Sgt. Andy Dunaway



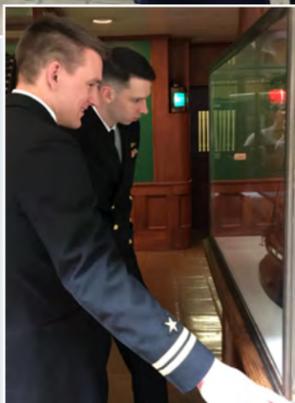
Some of the JOOYs said selection for the award came as a bit of a shock, citing the strong competition from other junior officers on the waterfront. "At first I thought it was a mistake," said the Submarine Squadron 16 JOOY, Lt. Brian Bink. "I had been in the shipyard for the last two years, competing against JOs who had just returned from successful SSGN deployments." For the spouses, they shared in the excitement of the news that their spouses were selected. "He is very humble, so he won't say it," Mrs. Gretchen Normand said of her husband Lt. Mitch Normand from Submarine Squadron 20, "but it is a huge honor, and I am very proud of him and what he was able to accomplish."

The annual trip provides an opportunity for the junior officers to sit down with senior leadership to discuss the current challenges and the future of the Submarine Force. They also get a well-deserved break from their hectic schedules on their boats to tour the Pentagon and other historic landmarks in D.C. with their families. This year's trip included personal guided tours of the Pentagon, Library of Congress, the Naval History and Heritage Museum, and the Naval Observatory.



Junior Officers of the Year and their spouses at the National Museum of the US Navy. The JOOY had the opportunity to visit several historic sites in the D.C. area.

(On previous page) Junior Officers of the Year and their spouses stand in front of the Library of Congress.



Photos by LCDR Jeff Gammon



Lt. Aaron Kalfus and his wife Sarah at the Naval History and Heritage Museum.

For some, the trip was a unique behind-the-curtain look at how major programs are developed start to finish. The group had the opportunity to sit down with Rear Adm. Joe Tofalo, Director of Undersea Warfare Division (OPNAV N97) and the undersea warfare requirements officers to discuss priorities, and current and future submarine programs. Rear Adm. Tofalo stressed how each person at every level contributes to the success of the Submarine Force and programs. "The hard work and dedication each of you put in on a daily basis to complete availabilities on time and keep our boats at sea gives Congress and the American people confidence and demonstrates the Submarine Force's high return on investment," he said. "Nothing breeds success like success."

The junior officers also toured Lockheed Martin's facility in Manassas, Va. Here they got a first-hand look at how the next generation Acoustic Rapid Commercial Off the Shelf Insertion (A-RCI) systems are developed, tested, installed, and supported through their lifecycles. Here they also had a rare opportunity to tour Lockheed Martin's peculiarly named "Area 51." Inspired by the TANG project (see *UNDERSEA WARFARE* Magazine's Summer 2013 edition), Area 51 provides a test bay that allows developers and fleet customers to try out a variety of commercial technology in the physical constraints of a *Los Angeles*-class and *Virginia*-class submarine control room, wardroom, and bridge.

"It was impressive to see what we have the potential to do, and I hope to see those innovations in the fleet soon," said Lt. Ben Reed, JOOY for Submarine Squadron 4. Some successful programs to already transition from Area 51 to the fleet include the touchscreen wardroom table and replacing the photonics periscope handgrip and control panel with an Xbox controller starting with PCU *Colorado* (SSN 788).

The trip to D.C. allowed each JOOY to share experiences with one another to gain insight on common challenges of being a junior officer. "You tend to get tunnel vision being on the submarine," said Lt. Normand. "Talking to and seeing other aspects of the Submarine Force was eye opening."

A common theme shared between the JOOYs was the demand on their time on a daily basis and being able to learn all the different aspects of their jobs in such a short period of time. "The most challenging aspect of my JO tour was learning how to work with such a variety of people in a plethora of different situations," said Lt. Aaron Kalfus, JOOY from Submarine Squadron 7. "Just when you learn what to do and get comfortable, you are moved to a different job," added Lt. Normand.

The week was also the first time the JOOYs were brought together for an official forum to discuss specific fleet issues ranging from JO retention, sea-shore rotation lengths, and family stability. Hosted by OPNAV N133, which oversees personnel plans and policy for the Naval Nuclear Propulsion Program, the JOOYs talked openly and frankly about the hard issues that affect the junior officers and offered a range of possible solutions to explore.

The spouses also had an opportunity to share their experiences with one another. The time dedicated to the submarine often comes at the expense of your family life. "It's all about balance," said Mrs. Jenna Hartsfield, whose husband, Lt. Jacob Hartsfield, is the Submarine Development Squadron 5 JOOY. Most of the spouses agree that one of the most difficult parts of the job is often the lack of communication while being underway. "Going from the old Family Gram system where you are limited to a few lines to actual email has helped," said Jenna, "but even that is sporadic at times." For others, "no news is good news." All did agree that having a good support system such as family or a strong spouse group makes all the difference.

For the JOOYs and spouses, all agreed that the rewards of a submarine career far outweigh the challenges. "The most rewarding thing for me is getting to meet and work with some of the most motivated and intelligent people in this country," said Lt. Kalfus. "Whether I stay in and make it a career or get out at some point, the experience I gain being a junior officer in the Submarine Force is immeasurable," said Lt. Bink.

The week-long festivities culminated with the D.C.-area Submarine Birthday Ball. Here the JOOYs were recognized for their accomplishments and mingled among the Submarine Force's top leadership. Also in attendance was Adm. Jonathan Greenert, Chief of Naval Operations; Adm. John Richardson, Director of Naval Reactors; Vice Adm. Mike Connor, Commander, Submarine Forces; and Rear Adm. Joe Tofalo, Director of Undersea Warfare Division.

The 2015 JOOY competition will begin at the individual squadron level this fall with final nomination packages due to COMSUBFOR N10 by December 15th.



(Above) Admiral Jonathon Greenert and Director of Naval Reactors, Admiral Jon Richardson. (At right) Lt. Mitch Normand and his wife Gretchen pose with the Chief of Naval Operations.

2014 Junior Officers of the Year

Brian Bink	USS <i>Maryland</i> (CSS16)
Brett Campbell	USS <i>Boise</i> (CSS6)
Matthew Divittore	USS <i>Louisiana</i> (CSS17) (G)
Jacob Hartsfield	USS <i>Jimmy Carter</i> (CSDS5)
Sean Heenan	USS <i>Albuquerque</i> (CSS11)
Neal Hutsell	USS <i>Jacksonville</i> (CSS1)
Aaron Kalfus	USS <i>Santa Fe</i> (CSS7)
Scott MacAdams	USS <i>Michigan</i> (CSS19) (G)
Mitchel Normand	USS <i>Alaska</i> (CSS20) (B)
Zachary Prefontaine	USS <i>San Juan</i> (CSDS12)
Benjamin Reed	USS <i>Springfield</i> (CSS4)
Jason Vedder	USS <i>Emory S. Land</i> (AS-39)



What Really Happened to the Hunley and its Crew?

On February 17, 1864, the Confederate submarine *H.L. Hunley* attacked USS *Housatonic*, a federal sloop of war participating in the blockade of Charleston, South Carolina. The explosion resulting from the *Hunley's* torpedo sank the 1,240-ton ship in a matter of minutes, securing *Hunley's* place in history as the first submarine to sink an enemy combatant. Although the attack on *Housatonic* was successful, *Hunley* was lost at sea due to unknown circumstances with no survivors. Though various theories about the cause of *Hunley's* loss have existed for some time, the sequence of events during and after the attack remains a mystery.

In 1995, marine archaeologists sponsored by author Clive Cussler located *Hunley's* wreck off the coast of Charleston approximately 1,000 feet from the wreck of *Housatonic*. Five years later, *Hunley* was raised from the sea bottom and moved to a specially prepared tank facility at the Warren Lasch Conservation Center (WLCC), located at the Charleston Navy Yard. Once there, a team of archaeologists and conservators from Clemson University began working on studying and preserving the submarine.

What Happened?

Motivated by recent archaeological findings made at the WLCC, engineers in the Naval Surface Warfare Center Carderock Division's Survivability and Weapons Effects Department hope to shed light on what may have happened to *Hunley* and her crew using the Navy's most advanced modeling and simulation software and computational capabilities.

Recently, archaeologists at the WLCC uncovered a long iron pole of a spar torpedo weapon system. It had been previously thought that *Hunley* used a line-operated torpedo system—one that was operated from a distance using a trigger to set off its explosive charge. In contrast, Civil War-era spar torpedoes usually consisted of an explosive charge fastened to a fixed-length spar and initiated by a contact fuse. Thus, *Hunley* would have been separated from the explosive charge only by the spar's length, 16 feet, thus generating a more severe loading environment than that from a line-operated system. The Confederacy's largest spar torpedo, Singer's torpedo, consisted of 135 pounds of black powder. In this current study, the use of Singer torpedo is assumed; while it is possible a different design was used, the largest available spar torpedo was selected to bound possible outcomes.

The Team and the Tools

Realizing the significance of this finding, researchers at the WLCC, together with Dr. Robert Neyland, head of the Underwater Archaeology Branch at the Navy History and Heritage Command, contacted the Naval Surface Warfare Carderock Division (NSWCCD) for assistance in interpreting the implications of this finding on *Hunley*. Fortunately, Carderock's Survivability and Weapons Effects Division—which performs analyses, testing, and vulnerability

assessments of underwater and air-delivered threats on Navy ships, Marine Corps vehicles, and other structures—possesses the necessary computational capabilities to evaluate *Hunley's* attack on *Housatonic* using advanced modeling and simulation tools.

With financial support from both the Office of Naval Research (ONR) and the internal NSWCCD research funds, engineers began applying a newly developed high-fidelity modeling and simulation tool, Navy Enhanced Sierra Mechanics (NESM). This tool, developed jointly by Sandia National Labs and Carderock, consists of a structural simulation Finite Element code, Sierra Mechanics, fully coupled to a computational fluid dynamics shock-physics code for underwater explosions, DYSMAS/FD, developed by the Naval Surface Warfare Center Indian Head EOD Technology Division (NSWCEODTD). Using NESM, the fully

coupled interactions between explosive products, water, and the responding structure can be captured. These features are critical to obtaining the correct response of a floating or submerged structure to an underwater explosion event.

To perform numerical analysis of a ship, submarine, or other platform in NESM, an appropriate numerical description, in the form of a finite element model (FEM), is required. The FEM consists of a numerical description that includes both geometric and material properties. Archeologists at the WLCC were able to provide the necessary details to develop the FEM including photos, drawings, and geometric point-cloud scans of *Hunley* generated using both structured light and laser scan techniques. The scans provided the submarine's shape and dimensions and were used to generate an FEM of *Hunley*.

In addition to the FEM, the project

H.L. Hunley

The design and construction of the Confederate "secret weapon" was based on earlier prototypes from plans by Horace L. Hunley, James McClintock, and Baxter Watson.

The vessel tapered sharply at the bow and stern and was constructed of 3/8-inch-thick riveted iron plates that were tapered fore and aft to provide "streamlining," allowing her to move fairly easily beneath the water's surface. The final configuration was about 40 feet long, 3.5 feet wide, and 4 feet high amidships. The vessel was powered by seven men turning an offset hand crank that ran most of the length of the interior and turned a single screw propeller. The vessel was steered with a tiller-like rod that controlled the rudder and a second rod that controlled the outside diving planes. Ballast consisted of 4,000 pounds of iron blocks bolted to the bottom of the hull. Tanks at either end could be flooded manually with seacocks allowing *Hunley* to submerge. Hand-operated pumps were used to expel water to allow her to surface. Depth was indicated by a mercury gauge, lit by a single candle. Two conning towers, some 16 feet apart, were fashioned with a number of small viewing ports. Each tower was capped by a 20 inch hatchway sealed with rubber gaskets.

Her sole armament was a torpedo (also known as a mine) at the end of a 16-foot spar extending from the bow. The *Hunley* rammed its spar torpedo into the starboard stern of the USS *Housatonic* hull, setting off the explosive.

Originally called "Fish Torpedo" or "Fish Boat," the *Hunley* was built in Mobile, Alabama, and loaded on railcars for the journey from Mobile, Ala. to Charleston in August 1863 for anti-blockade duty.

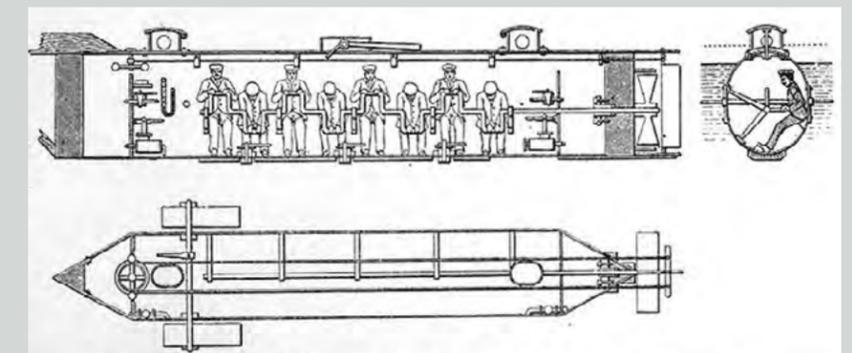


FIG. 175 à 177. — Le David de Hunley reconstitué d'après les dessins de M. William-A. Alexander (1863).

USS Housatonic

In February 1864, the Union naval blockade was strangling the Confederacy and, as a major port, Charleston, S.C. was a primary point of embarkation and debarkation for the Southern blockade runners.

Among the blockading ships was the USS *Housatonic*, a steam and sail driven *Ossipee*-class sloop of war built by Boston Navy Yard and launched in 1861 with a crew of 160, commanded by Cmdr. William Rogers Taylor. She weighed 1,240 tons with a length of 207 feet, a beam of 38 feet, and a draft of 9 feet 7 inches loaded. She carried two main boilers and one auxiliary, all three of which were based on the Martin Tubular patent. Its steam propulsion system comprised two horizontal 42-inch cylinder direct-action engines that generated approximately 1,150 horsepower combined, providing a top speed of 9 knots. *Housatonic's* armament consisted of one 100-pounder Parrott rifle, three 30-pounder Parrott rifles, one 11-inch Dahlgren smoothbore, two 32-pounders, two 24-pounder howitzers, one 12-pounder howitzer, and one 12-pounder rifle.

Capt. Charles W. Pickering assumed command of *Housatonic* shortly after the vessel was commissioned in Boston on August 29, 1862. *Housatonic* departed Boston on September 11, 1862, arrived in South Carolina waters nine days later, and joined the naval blockade against Charleston.

During the *Housatonic's* tour of duty with the Union blockade, she participated in shore bombardment of a number of Confederate installations and received credit for capturing some Southern blockade runners and assisting in the capture or destruction of several others. *Housatonic's* war record was a credit to her officers and crew, but her place in history was confirmed when she became the first ship ever sunk by submarine action.

Analysis

Initial analysis results indicate the presence of a long-duration, elevated pressure loading near the explosive charge. This is a direct result of black powder's slow-burning nature. In contrast to a high explosive, however, the observed pressures were found to be modest and result in a steady heaving motion of *Hunley*. Furthermore, simulations indicated that the hull would not exhibit structural damage. This finding is consistent with the lack of structural damage observed on *Hunley's* hull but not intuitive given the submarine's close proximity to the explosion.

In contrast, the bubble resulting from the explosion's reaction products was found to be in direct and sustained contact with *Housatonic's* hull, providing a long-duration, loading that would be more than capable of rupturing the ship's hull. Interestingly, the standoff of the torpedo's spar was just long enough to prevent direct bubble loading on *Hunley*.

Despite the apparent lack of hull damage to *Hunley*, these heaving motions may have injured or incapacitated the submarine's crew, caused failure on seals and other openings resulting in rapid flooding, or resulted in an unrecoverable trim state. Interestingly, WLCC archaeologists have not found any evidence suggesting an escape attempt by the crew—all crew member remains were found in their battle stations, all hatches were in a closed configuration, and all detachable ballast weights were found to be attached.

Current analysis efforts are focused on evaluating the potential for crew injury, particularly blunt trauma.

To capture the crew response to the explosion and resulting motions, an FEM of an

automotive anthropomorphic test device, commonly known as a "crash-dummy," is being used. The device is close in size to the average *Hunley* crew member as estimated by the discovered human remains.

In addition to Carderock's effort, a separate ONR-funded effort being performed by Dr. Matthew Collette of the University of Michigan Department of Marine Engineering and Naval Architecture is examining the weights and stability of *Hunley's* design, as well as paths in which the boat may have sunk to its final resting place.

This effort already has found that even a small inflow of water or an unstable trim state resulting from the heaving motions during the attack could have resulted in *Hunley's* sinking.

Once the current analysis efforts are completed, Carderock engineers should be able to help uncover the mystery of why *Hunley* sank. In addition, the continued development of modeling and simulation capabilities to perform advanced analyses such as those described above will facilitate an ever-increasing ability to design against or evaluate future threats to the Navy.

Dr. Nahshon, Jamie Cruce, and Michael Miraglia serve in the Hull Response and Protection Branch at the Naval Surface Warfare Center Carderock Division. Dr. Paul Hess III is the Ship Systems and Engineering program manager at the Office of Naval Research.

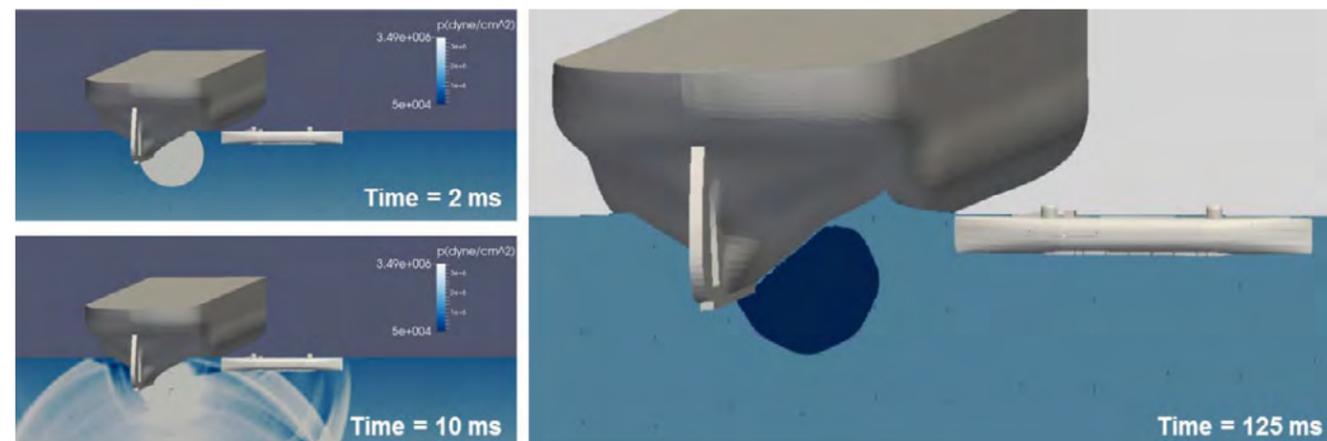


During its initial conservation treatment the *Hunley* slowly released an accumulation of salt that would have destroyed the vessel were it left exposed to air. After it was treated with a mild solution of caustic chemicals, the sub became stable enough for the conservation team to begin removing the concretions that covered its surface.

developed a numerical description of the loading generated by a Singer torpedo. In contrast to modern mines or torpedoes filled with high explosives, Singer's torpedo was filled with black powder, a propellant. Unlike high explosives, propellants do not readily detonate, meaning the conversion of explosive to reaction products occurs on a relatively slow timescale. In addition, black powder is known to burn, or deflagrate, in a manner highly dependent on pressure and powder grain size. To capture the appropriate physical phenomena, Carderock engineers

developed a suitable burn model using a gas-injection feature originally developed and implemented in DYSMAS/FD to capture the behavior of underwater air guns.

With a model to capture the loading implemented and an FEM ready to be exercised, Carderock engineers began their analysis of the response of *Hunley* and its crew to the torpedo explosion using NESM on a supercomputer, Kilrain, located at the Navy's Department of Defense Supercomputing Resource Center (DSRC) at Stennis Space Center, Mississippi.



This simulation of the explosion that rocked USS *Housatonic* shows the contours of pressure indicating the elevated pressure regions in white (left) and a view of the bubble created by the explosion, in dark blue, at its maximum size (right).

About the third crew of the H.L. Hunley

Eight men were aboard the *Hunley* when it sank for the third and final time. The submarine was raised in 2000 and the crewmembers were reinterred with the first two *Hunley* crews in Magnolia Cemetery, Charleston S.C. on April 17, 2004.

Seaman Arnold Becker, at 5'5" and around 20 years old, was perhaps the smallest and youngest crewmember of the *HL Hunley*. He was seated directly behind Lt. Dixon and was most likely 3rd in command of the sub. Seaman Becker operated the bellows and snorkel tubes, which were the *HL Hunley's* air circulation system that enabled the crew to replenish the air supply.

Corporal J.F. Carlsen was assigned to the fourth crank handle on the *HL Hunley*, a dangerous spot in case of an emergency evacuation. Based on documents found to date, Carlsen's official military records indicate he did, in fact, die on the *Hunley*.

Seaman Frank G. Collins, Confederate Sailor from Virginia manned the third crank.

Lt. George E. Dixon met Horace Hunley and James McClintock in Mobile, Ala. Their dream of building a submarine became his dream and he helped build and pilot two of these vessels. The second, became known as the "*H.L. Hunley*."

Seaman C. Lumpkin was probably around 40 years old making him one of the oldest crewmembers of the *H.L. Hunley*. He held the second crank position. Currently, little is known about him except the strenuous lifestyle the forensic analysis points to.

Miller was one of the smaller and one of the two oldest members of the crew. He was from Europe and had been in America for a short period of time before he volunteered as a crewman for the *Hunley*. His only duty was to operate the fifth crank position.

Quartermaster Joseph Ridgeway was second in command. He was responsible for securing the aft hatch, manning the seventh crank, operating the aft pump and the ballast tank seacock.

Boatswain's Mate James A. Wicks was assigned to man the *Hunley's* sixth crank position. Wicks' responsibilities included operating the crank and, in case of emergency, he was to release the aft keel block. During excavation, a keel release mechanism was found below the station manned by Wicks.

THE TEST OF TIME



In 1963, the Beatles recorded their first album, a gallon of gas was 29 cents, and...

the U.S. Navy established the Planned Maintenance System (PMS). PMS was a plan formulated to keep the seafaring branch of the U.S. Armed Forces operating smoothly. According to A.J. Ruffini's article from Bureau of Ships Journal, Nov. 1963, previous maintenance programs were "non-uniform... resulting in over maintenance, under maintenance or improper maintenance that often contributed to rather than prevented casualties." Also, "Myriad reports were so unrealistic and unmanageable" and "varying and conflicting maintenance documentation resulted in confusion." A change was needed, and PMS was born.

The need for a more robust approach

PMS manages organizational-level (O-level) maintenance for the Navy's ships and shore-based systems. It was created at a time when Navy leadership recognized that locally managed preventive maintenance was not robust enough as system complexity increased and the Navy's investment in technical schools and training decreased. Equipment readiness was potentially compromised as each ship's



crew searched through various technical manuals to figure out what preventive maintenance should be performed. Over time, PMS added tools and procedures to manage preventive maintenance more effectively.

The PMS program introduced maintenance requirements, standard procedures, a standard organizational maintenance structure for ships and a common practice to manage work center schedules—all facets that are still a part of PMS today. Leadership was also able to determine the amount of time needed to perform the maintenance and estimate the man hours based on a ship's total manpower. This made work centers more accountable for PMS and allowed fleet commanders to monitor and manage the program. Information technology (IT) was still new when the PMS program rolled out, so, to accomplish maintenance, shore support had to rely on labor-intensive



processes like a punch card data processing system to develop and distribute the initial PMS documents as well as make changes to requirements and procedures. As IT advanced, these PMS processes improved and costs were reduced. Some of these improvements included:

- In the early 1980s, the PMS program started using an early version of word processing to better manage maintenance

procedures that had frequent changes. The structure of PMS documents has remained essentially unchanged.

- In the early 1990s, high-speed printers became available allowing the program to adopt the idea of "print-on-demand" maintenance procedures. This enabled the program to switch from print-to-stock and warehousing to distribution with digital media.
- Over the course of the 1990s, the program developed new databases for managing the maintenance requirements and accompanying procedures.
- In the early 2000s, the program developed and enhanced the process of shipboard scheduling by creating a standardized electronic shipboard scheduling program, also known as SKED.

One thing to note about all of these enhancements is that each one was focused on one area of improvement and not the entire maintenance process. PMS is still executing ship-implemented, paper-based maintenance that causes scheduling inconsistencies across the fleet.

Feedback to NAVSEA is being implemented

There are certainly more areas that need improvement, and Naval Sea Systems Command (NAVSEA) is listening to the needs of Sailors. After receiving feedback from the CNO Reduce Administrative Distractions (RAD) initiative of 2013 and the Commander Naval Surface-Force Pacific (CNSP) Maintenance and Material Management (3-M) Summit Survey of 2014, as well as years of interactions with maintainers, three large issues have been confirmed



with the current PMS program: it's complex and burdensome, IT infrastructure and tools are dated, and policy is outdated.

Optimizing PMS to reduce burdensome processes for Sailors is one of the goals of NAVSEA, U.S. Fleet Forces Command, and Commander Pacific Fleet. Improvements such as Fleet Maintenance Effectiveness Review (FLEETMER) and SKED have been highly successful. In the late '90s, the

20/20 Vision— Why We Need the "Future of PMS"

by Jeffrey Baur, U.S. Fleet Forces Command (USFF) Fleet Maintenance Division

Have you ever driven your car and thought that something wasn't right? No warning lights are coming on. You just changed the oil. The tires are new. Still, you know something's wrong. You take it to your favorite mechanic and he finds several issues. Maybe individually they're no big deal, but put them together and you know it was only a matter of time before this car was going to leave you stranded somewhere. Good thing you had that uneasy feeling.

Well, U.S. Fleet Forces Command had that same uneasy feeling in 2010 about the Navy's Planned Maintenance System (PMS). Sure, on the surface everything seemed fine, but a closer look revealed a number of problems. Excessive work for Sailors, equipment not reaching its expected service life, and degraded readiness of ships, if left uncorrected, would eventually lead to an unsustainable fleet.

At the Fleet Maintenance and Material Management (3-M) Conference in the fall of 2010, attendees were challenged to envision what they thought shipboard maintenance should look like in the year 2020. This 2020 Vision project team proceeded to identify the critical attributes of an effective maintenance program and then compared it to what we have today. Of course, the Navy, and society as a whole, has changed in many ways since PMS was first established in 1963. The way people learn and communicate has certainly evolved since the 1960s, as well as a Sailor's expectations toward technical products. What may have worked 50 years ago or even five years ago may not be the

best way to do things today. For example, years ago, when a kid wanted to know how to change the brakes on his car, he bought a book and read about it. If he was lucky, there may have been pictures of the steps to show how to perform the task. Now, when you need to know how to do something, just type in a search on "YouTube" and there'll be no shortage of videos to watch. Shouldn't Sailors be able to do something similar with shipboard procedures? Updates to technology and our processes were just two of the many items we determined the program must address now and for the future.

At the conclusion of the 2020 Vision project, a series of suggested courses of action were identified. The entire PMS process needed improvement, from the way the Navy authors Maintenance Requirement Cards to how the maintenance is actually performed. In addition, the project team recognized the need for a single set of governing requirements for the PMS program. Right now, Type Commander-specific requirements are often being addressed individually for surface, submarine, carrier, expeditionary, information dominance, and installations instead of as part of a larger total Navy solution. The project team established a Fleet 3-M Requirements Management Board (RMB) to minimize these different and often conflicting requirements. This enabled NAVSEA personnel to focus their efforts on a unified and comprehensive list of fleet requirements. With standard requirements, Sailors would not have to re-learn a new program when transferring to different commands.

At the core of our efforts are three governing principles:

- Make it easy for every person involved in PMS to do the right thing and, conversely, make it hard to do the wrong thing.
- Do something once and re-use it for the remainder of the maintenance process.
- Eliminate process steps that don't add direct value to maintenance effectiveness.

Out of the 2020 Vision project came the current "Future of PMS" (FoPMS) project. Guided by these principles, FoPMS is bringing the much needed improvements to PMS. The development is funded by OPNAV beginning in FY16 and will take six years to complete the full rollout to the fleet. Due to the sweeping nature of this initiative, several key components will require development in conjunction to the PMS program we are currently executing. Other parts of the project, like SKED 3.2 and Tailored Force Revision (TFR) are already in use, and additional elements, such as changes to Maintenance Requirement Card content, will be delivered during the development as they become available for distribution.

As mentioned before, using the latest technology to improve PMS is critical. Enabling the use of emerging technology when it becomes available is a key component of the FoPMS project's mission. Currently, we are participating in the Navy Mobility working groups and providing functional system requirements to those responsible for delivering mobile technology to the fleet. In addition, we are ready to support Item Unique Identification (IUID) to enable scanning items to bring up applicable technical

documents and allow deficiency reporting.

In 2013, Commander, Naval Sea Systems Command (NAVSEA), approved FoPMS as the way ahead in contributing to NAVSEA's strategic goal of reinvigorating shipboard maintenance. Later in 2013, Commander, U.S. Fleet Forces Command (USFF), was briefed regarding FoPMS, and his direction was simple: "Execute and accelerate." The Future of PMS is now getting the approved funding to achieve success.

Before defining the details of the FoPMS project, it's important to know a few things. First, we are doing this to improve the efficiency and effectiveness of the Navy's PMS. Our ultimate goal is to improve warfighting readiness by allowing Sailors to focus on what is really required in PMS and to provide some flexibility in how it is executed.

Now comes the hard part. We need your help. Several experienced people with years of PMS expertise have identified what needs to be done. Dozens more have developed the FoPMS plan. To make this program happen and be successful, however, we need you to review their work and provide your input. We recognize that you, the active duty Sailors, are the ultimate judges on whether or not we got it right. We are standing by for you to tell us what you think and, more important, what you need. There are many ways to have your voice heard. First, we've opened a milBook page where you can check out the latest updates, watch videos, take surveys, and open up discussions. It takes about 30 seconds to register. Just go to <https://www.milsuite.mil> and search for "Reinvigorating Shipboard PMS." If milBook isn't your thing, just send an e-mail to pms@navy.mil and tell us what's on your mind.



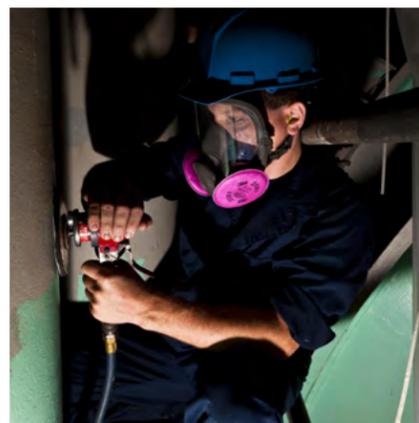
FLEETMER process was developed and used to review the PMS maintenance card deck. These technical reviews helped to reduce unnecessary O-level PMS procedures by 30% and ensured that maintenance that Sailors

work. As SKED was refined, version 3.1 became mandatory to use across the fleet in 2004. SKED 3.2, introduced in 2008, was developed and deployed to provide a modern, configuration-centric process. Recent updates to SKED include leadership dashboards, equipment-based schedules, true interval scheduling, situational maintenance scheduling improvements, and electronic line-outs, approvals, and workflows. Future versions of SKED will continue to improve with features like custom views and reports, flexible PMS checks, accomplishment rating enhancements, and managing Advance Change Notices within SKED.

Another toolset whose data will be incorporated into FoPMS is the Tailored Force

has pre-processed FR data that a WCS can import into SKED. It also shows document/schedule changes and flags inconsistent items for review. TFR packages are currently for surface ships only but will be made for air and submarine communities in 2018.

PMS Change Indicators and PMS Templates have been developed as a result of Tailored Force Revisions. Both will be assimilated into FoPMS. PMS Change Indicators appeared in 2013 and are used to highlight



changes on Maintenance Index Page (MIP) and Maintenance Requirement Card (MRC) documents since the last FR, thus eliminating the need to print and manually compare old documents with new documents. PMS templates will simplify MIPs by grouping MRCs to one kind of equipment or system, essentially building equipment maintenance plans from shore and reducing line-outs. PMS templates are the foundation for tying

Revision (TFR). Deployed in 2010, TFR packages reduce the administrative burden of implementing PMS changes by performing up to 70% of the work ashore before being sent to the ship. It's an enhanced Force Revision (FR) package tailored to each work center supervisor (WCS). The TFR

“This modernized system is an evolution of existing programs that will transform PMS from a paper-based system to digitally enabled with enhanced workflows, data reporting, and near-real-time distribution of technical requirements.”

were performing was applicable and effective. Today's FLEETMER process includes a review of the entire maintenance plan. Other initiatives included SKED, which received positive feedback from the fleet.

Modernizing PMS

In the past year, NAVSEA and the fleets kicked off a multi-year project to modernize and improve the PMS program. It's called the Future of PMS (FoPMS) and its ultimate goal is to form a cohesive PMS program that leverages automation and process streamlining to reduce administrative burden and support Sailors in effectively maintaining the fleet. This modernized system is an evolution of existing programs that will transform PMS from a paper-based system to digitally enabled with enhanced workflows, data reporting, and near-real-time distribution of technical requirements.

SKED, the Navy's PMS scheduling software, was born in the late '90s when ships began to be outfitted with personal computers. The earliest versions were a bit clunky to use but did alleviate some of the paper



requirements to configuration. Pilot tests are occurring in 2015 starting with Guided Missile Destroyers with a plan to distribute to the entire surface fleet in 2016.

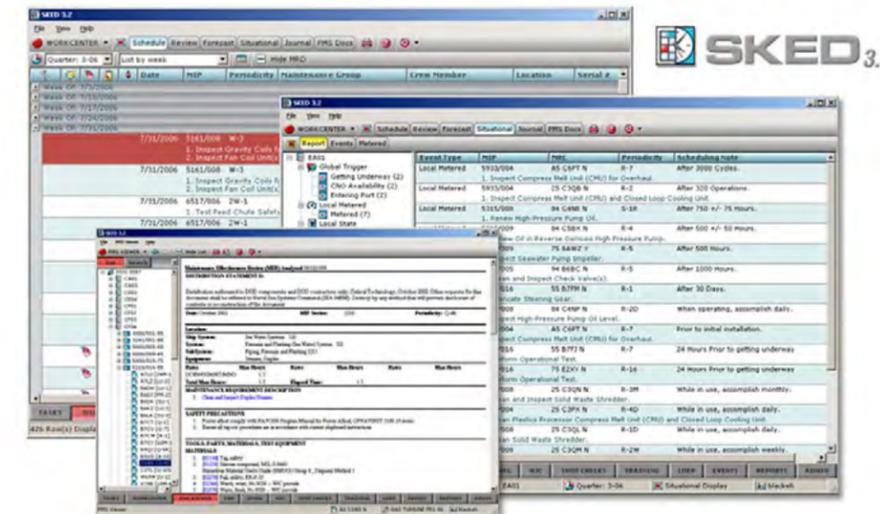
Configuration-based maintenance means simplified documentation

One of the major goals for the FoPMS is Configuration-Based Maintenance. Right now, a WCS has to sort through MIPs to line-out procedures on equipment that does not apply to them. Started in 2012, the configuration-based maintenance project breaks complex PMS documents into equipment-specific versions and eliminates the need for MIP and MRC procedure step line-outs and pen-and-ink line-outs. Configuration-specific PMS documents are gradually being implemented and delivered to the fleet with each FR.

All of these programs lead to the future of PMS. FoPMS takes the best ideas and concepts from the past and melds them with new ideas and technologies. For example, FoPMS will see a modernization of SKED. Configuration-based O-level maintenance plans will be provided from ashore with maintenance schedules that allow the WCS to easily assign resources and dates. Future versions of SKED will also provide optimal workload balancing tools, 3-M inspection tools, and the ability to consume the collection of material condition data.

From paper to tablets and real-time updates

To truly modernize PMS, it is necessary to take the current paper-based system and digitize it. Right now, Sailors read instructions on paper. With FoPMS, procedures will have the ability to be read on mobile devices like tablets. To make the most of these mobile tools, the modernized system will have enhanced PMS data content and



“FoPMS is real. However, it couldn't happen without the programs that came before it and the current initiatives that are building toward its creation.”

features with near-real-time updates to keep procedures current and eliminate the need to make pen-and-ink changes. Not only will their procedures be the most current, but they will support point-of-performance tools like videos that demonstrate exactly how a maintenance step is done.

Updating policy is key to the FoPMS project. In 2014, two important entities were created to evaluate and approve policy changes that will shape FoPMS: the U.S. Fleet Forces Command 3-M Requirements Management Board (RMB) and NAVSEA's 3M Configuration Control Board (CCB). Basically, the RMB will identify and recommend policy changes to the CCB, which will then review and approve the changes. This establishes a governing body for FoPMS and benefits Sailors in a number of ways:

- Policy changes are made more quickly
- All 3-M policy will be standardized and aligned
- Administrative burdens such as printing requirements are reduced

- Communication with Sailors is increased

Your part in shaping FoPMS

FoPMS is real. However, it couldn't happen without the programs that came before it and the current initiatives that are building toward its creation. It is a six-year mission in progress that won't stop until all the goals are accomplished. Of course, 50 years of Navy PMS couldn't have happened without the guidance, hard work, and input from the many men and women who served.

This holds true today. As we look toward the modernization of PMS, we want to hear from the many Sailors whose opinions are so vital. While this was just a quick look at FoPMS, more information can be found at a devoted PMS milSuite site where you can see updates and videos and provide your thoughts. Just go to <https://www.milsuite.mil> and search for Reinvigorating Shipboard PMS. You can also email your ideas to pms@navy.mil. Your perspective will keep FoPMS headed in the right direction.

Enlisted Women Selected for Assignment to Submarine *Michigan*

The first enlisted women to serve aboard a submarine have been selected, the Navy announced June 22. The interest in the program was strong, and selection was competitive.

Congratulations to the following sailors who were selected to be assigned to the ballistic missile submarine *Michigan*.

CURRENT RATE	NAME	CONVERSION RATE	CURRENT COMMAND
PSCS	Cassie Clark	YNCS	DON/AA
LSC	Desma Bishun	LTSC	USS <i>Lawrence</i> DDG 110
ITC	Heather Jurek	ITSC	COMOPTEVFOR DT NORV
HMC	Amanda McDevitt	HMC	NAVMCPUHLHCEN
FC2	Shereen A. Allen	FT2	USS <i>Eisenhower</i> CVN 69
YN2	Nicole K. Arnold	YN2	VAQ 133
IT1	Meghan A. Beaufort	ITS1	USS <i>Bataan</i> LHD 5
PACT	Galina Blagova	ETSN(NAV)	USS <i>Rushmore</i> LSD 47
AD2	Sara R. Brookshier	MM2(AUX)	Pittsburgh Pa. NRD
IT2	Jin Choe	ET2(COMMS)	NCTS FE DET SING
STG2	Nicole R. Cimino	STS2	USS <i>Laboon</i> DDG 58
STG3	Abbey L. Cordell	MM3(WEPS)	USS <i>Momsen</i> DDG 92
ICSN	Katie Cutrer	MMFN(AUX)	USS <i>Vella Gulf</i> CG 72
YN1	Yolanda Daniels	YN1	San Diego TSC
CS2	Ileene G. Davis	CS2	Norfolk Va. NS
AT3	Ashley J. Edwards	ET3(NAV)	VFA 81
STG2	Toteana Frazier	STS2	USNS <i>Impeccable</i> (G)
IC3	Megan H. Greenan	MM3(WEPS)	USS <i>Mt. Whitney</i> LCC 20
IC2	Zaquavius J. Grissom	ITS2	USS <i>Cable M/SC</i> AS 40
CS2	Peta-Gaye S. Hylton	CS2USS	<i>Harpers Ferry</i> LSD 49
IT2	Jasmine Isaac	ITS2	NCTS PDET PG/TSC
STG3	Crystal F. Kirk	MM3 (WEPS)	Oceana Va. NAS
LS2	Emily I. Marien	LS2	Oceana ASD
YN1	Suraya Mattocks	YN1	WTFRNT REDI CNSP
AME3	Connie Monroy	CS3	Souda Bay NR NSA
ETSW3	Marica M. Morse	ET3(COMMS)	Bahrain NCTS
AE1	Christiane C. Punzalan	ET1(NAV)	VFA 86
AD3	Rissory Radjouki	ET3(NAV)	HSC 28
FC2	Lisa M. Reaux	FT2	USS <i>Essex</i> LHD 2
MMSW1	Thelma E. Ruiz	MM1(AUX)	RTC Great Lakes
CS1	Dominique Saavedra	CS1	USS <i>Murphy</i> DDG 112
ETSW1	Sarah A. Sanders	ET1(COMMS)	Pendleton NH CP
FC1	Jennifer N. Schaffer	FT1	RTC Great Lakes
OS2	Jalissa M. Thornton	MM2(WEPS)	USS <i>Enterprise</i> CVN 65
IT1	Jasmine L. Underwood	ITS1	Bahrain NCTS
LS1	Kayla M. Williamson	LS1	USS <i>America</i> LHA 6
ABHAN	Aleeyah C. Wyche	LSSN	USS <i>Kearsarge</i> LHD 3
STG2	Terah J. Ziv-Wynn	STS2	USS <i>Howard</i> DDG 83

The following Sailors may be contacted to convert to submarines if a primary selectee is unable to report as assigned:

RATE	NAME	COMMAND
YNC	Rachel Castillo	COMSTRIKFORNATO
YNC	Benedicta Clark	VAQ 136
PSC	Jenn Fullem	NAVSEASYSKOM
HMC	Joezette Julien	CONRIVRON 3
ITC	Angela Koogler	COMNBEACHGRU 1
PSC	Zsuzsanna Lazar	Knoxville NOSC
PSC	Stephanie Moore	Millington Tenn. CNRC
YNC	Heather Pittman	VFA 25
LSC	Wankeisha Ross	CHAS NAVCONBRIG
ITC	Nikita Shiller	Millington, Tenn. CNRC

RATE	NAME	COMMAND
YNC	Ebony Smith	HSC 3
PSC	Bethany Woodman	CNPC RESERVE SPT
YNC	Kristin Zimmer	USS <i>John C. Stennis</i> CVN 74
IC3	Denisha Allen	USS <i>Hue City</i> CG 66
SWCA	Elizabeth Auten	NMCB 5
LSSN	Janae Baldivia	New London SUBASE
ICSN	Athena Barber	USS <i>Nimitz</i> CVN 68
LS3	Jeanette Barraza	VFA 122
MN3	Brooke Bauer	NMC EAD UNIT GU
QM1	Susan Bodnar	USS <i>Stout</i> DDG 55
MNSN	Katherine Boyd	NMC UNIT CHTN SC
AT1	Kelly Bruner	CNATTU LS MIRAMR
PS2	Tiffany Burckhardt	NRPS Milwaukee
AD2	Danielle Burroughs	VP 9
FC1	Rae Burton	COMLCRON ONE
YNSN	Lauren Camarata	USS <i>Nimitz</i> CVN 68
BU3	Jennifer Casey	NMCB 4
BU3	Ashley Casimir	NMCB 3
IC2	Jennifer Casavos	USS <i>Nimitz</i> CVN 68
STG3	Haven Cofer	NOPF OPCONCEN WI
IT2	Brittany Conway	NCTS SD CA
AT2	Holli Corcoran	USS <i>Iwo Jima</i> LHD 7
BMSN	Ashley Crawford	USS <i>John C. Stennis</i> CVN 74
YN2	Ashli Defraties	NAVHOSP Bremerton
GSEFN	Elizabeth Denney	USS <i>Murphy</i> DDG 112
YN1	Alison Dunn	SEAL TEAM TEN
STG3	Regina Fatigati	USS <i>Wayne E. Meyer</i> DDG 108
IT1	Carrie Fournier	SEATTLE WA NRD
FC2	Ariana Friedrichs	USS <i>Mason</i> DDG 87
ET2	Maryam Gaskin	CID DET FT GORD
YN2	Southern Gaytan	COMPACFLT
GSM2	Brittany Haley	NAS Oceana Va.
FC3	April Harris	USS <i>Halsey</i> DDG 97
YN1	Tanisha Harris	NMC EAD UNIT
YN1	Courtney Hart	JTF-GTMO/CE
IT2	Kassandra Henderson	NIOC SAN DIEGO
LSSN	Katherine Hickey	NAVSUP FLC SIG
CS3	Tracie Hildebrandt	NAS Oceana Va.
YN3	Ulaiane JeanBaptiste	COMNAVSURFLANT
MA3	Deasia Johnson	CRG 1 DET GUAM
ICSN	Laura Lystedt,	USS <i>Nimitz</i> CVN 68
HT2	Salena Maxwell,	MARMC NORVA FMS
STGSN	Margarita Meza	NOSC San Diego
PS1	Stephanie Perry	NSWU THREE
CSSN	Catherine Peters	JAL FHCC GLAKES
GSM3	Paige Phillips	ONNPTCDE PERS BK
STG1	Kirsten Piliste	TSC San Diego
HT3	Janai Pirrello	USS <i>Ashland</i> LSD 48
MMFN	Isabelle Pollack	VAW 120
AMEAN	Mary Rison	VAQ 139
ET3	Kaitlyn Smith	NCTS NAPLES IT
FC2	Jessica Staley	USS <i>Nitze</i> DDG 94
CS2	Shantia Syphore	USS <i>Gettysburg</i> CG 64
MM3	Mydung Tran	USS <i>George Washington</i> CVN 73
LS1	Marlene Walton	CTF 63
GMSN	Brittney Westbrook	NMC DET ROTA
GSMFN	Takesha Williams	USS <i>Farragut</i> DDG 99
IS3	Stephanie Young	VP 4
HN	Rosa Zhu	USS <i>Kearsarge</i> LHD 3

Photo by MCI (SW/AW) Bill Larned



Sailors push through foul weather to complete SUBASE Corpsman Challenge

Despite sporadic rainfall and unusually muddy obstacle courses, three teams from Naval Branch Health Clinic Groton (NBHC) competed in the 2015 Corpsman Challenge at Naval Submarine Base New London (SUBASE), June 1.

The teams, consisting of five members each, sprinted up and down a three mile course and used critical medical knowledge and skills to treat mock injuries ranging from minor burns to life-threatening puncture wounds at several stations along Perimeter Road and Rock Lake at SUBASE.

Teams were challenged in the several areas of mass casualty response, including splinting, litter carry, administering intravenous needles (IV); low crawling; and medical evacuation knowledge. The challenge is a timed event and incentives are given for speed and accuracy. Team efforts at each station are scored. Teams are also awarded points according to their finish times.

"The Corpsman Challenge is an annual event that is held during the month of June in order to honor the Hospital Corps' Birthday," said Master Chief Hospital Corpsman (SS/FMF) Andre Carpentier.

Team "Corpsmen United" claimed victory in the competition and went on to represent the command at the Naval Health Clinic New England (NHCNE) Corpsman Challenge in East Greenwich, R.I., June 5. The Sailors competed against hospital corpsmen assigned to Navy medical activities at Newport, Portsmouth and Saratoga Springs, June 5.

SailorsFirst

SUBASE Sailors participate in ESPN shoutout to deployed troops

In a Memorial Day tribute, Sailors assigned to Naval Submarine Base New London (SUBASE) and *Virginia*-class fast attack submarine USS *Missouri* (SSN 780) joined ESPN SportsCenter to honor the fallen and to give a shout out to service members deployed around the world, May 24.

"To thank those who have served and are serving our country this Memorial Day weekend, we invited military personnel to join us on ESPN SportsCenter," said Senior Coordinating Producer Don Skwar. "We reached out to the different military services in the state of Connecticut and SUBASE answered our call."

Representing Navy Team New London at ESPN were the following Sailors: Sonar Technician, (Submarines) 1st Class Ryan Smit, Sonar Technician (Submarines) 1st Class Christopher Goss, Seaman Reginald Pettway, Culinary Specialist 1st Class Jose A. RosaRivas, Machinist's Mate 1st Class Maxwell Gray, and Lt. j.g. Christopher Burns.

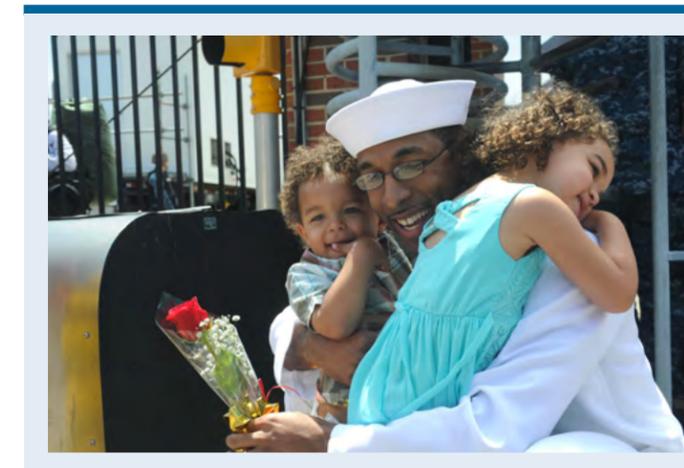
Retiring or Separating: Ensure Medical Records are Turned in for Future Care

Sailors are being reminded to personally ensure that their medical and dental records are available to the Department of Veterans Affairs (VA) by returning them to their medical treatment facility at retirement or separation, Navy leaders said May 26.

"A benefit of service is a lifetime of support from the VA," said Ann Stewart, director, Pay and Personnel Management. "To make sure Sailors can get the best level of support possible, they need to make sure their medical records have been turned in to the appropriate medical facility when they separate or retire from the Navy. A copy of medical and dental records will be provided to separating or retiring Sailors."

Before a Sailor separates or retires, commanding officers (COs) and officers in charge (OICs) are responsible for ensuring that the medical department or medical treatment facility knows the Sailor is separating or retiring, and that their Service Treatment Records (STR), medical and dental records, are at the appropriate medical and dental facilities. This guarantees that the records will be available to the VA. Medical departments or medical treatment facilities annotate on command/organization check-out sheets the disposition of the STR (per NAVADMIN 187/14).

"There may come a time when you need to file a claim with the VA in the future, and they will check to verify your period of service in the Navy," Stewart said. "Making sure your record is left at the appropriate medical or dental facility when you leave the Navy means that the VA will have immediate access to your records and can expedite care."



Welcome Home!

Machinist's Mate 1st Class Freddie Jones hugs his children during a homecoming celebration on the pier after returning from deployment aboard the *Los Angeles*-class attack submarine USS *Helena* (SSN 725). Helena returned to homeport at Naval Station Norfolk from a scheduled deployment in the European Command and Central Command areas of responsibility.

Photo by Mass Communication Specialist 3rd Class Laura Hoover

SailorsFirst

6 Things to Know About 2015 Selective Reenlistment Bonus

The Selective Reenlistment Bonus plan has been updated. Here are six things Sailors should know about the new plan.

1. NAVADMIN 106/15 contains the updated SRB eligibility and award level. Go read it at www.npc.navy.mil to see if you are eligible for a reenlistment bonus.
2. The increased award levels are effective immediately, and decreased levels are effective 30 days from the release of the NAVADMIN.
3. Changes to award levels from the SRB plan released last April include: 26 award level increases, 25 reductions, 15 skills added, and five skills eliminated. An additional two skills were removed, but there is no loss of eligibility for Sailors since these skills were rolled into another existing SRB skill.
4. SRB provides incentives to Sailors with critical skills and experience to stay Navy. It rewards Sailors who attain special training in skills most needed in the fleet and helps meet critical skill reenlistment benchmarks and enhance Navy's ability to size, shape and stabilize manning. Award levels are adjusted as reenlistment requirements for specific ratings and skill sets are met.
5. Sailors eligible for an SRB reenlistment are encouraged to work with their command career counselors, command master chiefs, and chain of command to discuss timing of reenlistment and procedures well before their EAOS.
6. SRB policy can be found at <http://www.public.navy.mil/bupers-npc/career/enlistedcareeradmin/pages/srb.aspx>

For more news from Chief of Naval Personnel, visit www.navy.mil/cnp or www.navy.mil/local/cnp/.

CNRMA Releases uniform shift dates

Commander, Navy Region, Mid-Atlantic (CNRMA) is responsible for controlling uniforms and the appearance of Navy personnel ashore within the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, Vermont; Virginia (less the Northern Virginia area assigned to Commandant, Naval District Washington, DC), and West Virginia.

Due to the large area of the Mid-Atlantic region, two zones have been established for the shifts:

Zone 1: Includes the states of North Carolina and Virginia

Zone 2: Includes the states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and West Virginia.

Winter uniform shift will take effect as follows:

Zone 1: Will change to the winter uniforms at 12:01 a.m., the third Monday of October (Oct. 21).

Zone 2: Will change to the winter uniforms at 12:01 a.m., the first Monday of October (Oct. 7).

Uniform Of The Day will be:

E1 to E6: Prescribed Service Dress Blue, Alternate Service Uniform or Navy Working Uniform.

Evening official (Protocol) and social occasions:

Male and female enlisted (E1 to E9) Dinner Dress Blue.

Formal military ceremonies:

E1 to E6: Full Dress Blue. Special note: Non-participants/guests are authorized to wear Service Dress Blue.

Navy Announces Mrs. Sybil Stockdale Ombudsman of the Year Award 2015

The Navy announced the Mrs. Sybil Stockdale Ombudsman Award to formally recognize the dedication and contributions of ombudsmen across the fleet May 18.

The award honors Mrs. Sybil Stockdale's support to families of other POWs during her husband's - Vice Adm. James Bond Stockdale - seven-year internment in Southeast Asia during the Vietnam War. The award recognizes four of the Navy's top ombudsmen who have served their command and families with selfless dedication and commitment to family readiness in three areas: Afloat commands (Fleet Forces Command, both Atlantic and Pacific), Ashore commands under Navy Installations Command, and Navy Reserve Force commands. A Navy administrative message (NAVADMIN) informing the Navy about this new award was also released today.

The Ombudsman of the Year Award criteria include:

- * Demonstrating the ability to effectively communicate between the Navy family and the command.
- * Maintaining the highest standards of professionalism and confidentiality while providing a positive role model for command members and families.
- * Facilitating and promoting a healthy sense of community among command families by assisting and supporting Navy families to include emergencies, mobilization or deployment.
- * Demonstrating consistent compliance with training and required reports according to OPNAVINST 1750.1G (located at www.cnic.navy.mil/OmbudsmanOfTheYear).

To be eligible for the award, ombudsmen must be registered in the Ombudsman Registry, located at <https://ombudsmanregistry.org>, and have distinguished themselves in supporting Navy families, served as an ombudsman in good standing for at least 1 year, and embody the core values of the Ombudsman Program.

"We are pleased to have the opportunity to honor Mrs. Stockdale," said Matt Straughan, director for the Navy's family support programs for Navy Installations Command. "This award allows us to formally recognize the hard work and sacrifices made by our ombudsmen who support our sailors and their families world-wide."

The Navy Family Ombudsman Program was created in 1970 by Admiral E.R. Zumwalt Jr., then Chief of Naval Operations (CNO), to improve communication between commands and the families of Sailors who served in them.

In 2006, CNO Admiral Michael G. Mullen re-emphasized the importance of the program and signed an updated instruction, highlighting the requirement that all Navy families have access to a Navy Family Ombudsman.

The Ombudsman is a volunteer, appointed by the commanding officer, to serve as an information link between command leadership and Navy families. Ombudsmen are trained to disseminate information both up and down the chain of command, including official Department of the Navy and command information, command climate issues, quality-of-life improvement opportunities and community resources. Ombudsmen provide resource referrals to families when needed and are instrumental in resolving family issues before the issues require extensive command attention.

Undersea Warfare magazine has created this new section in recognition of the enlisted Submariner—but we want you to get involved in the success of this effort. We would like you to send us "Community Outreach," or "Liberty" photos, and/or "Homecoming" photos of families being re-united as the crews return.

Send your submissions to the Military Editor via email to: underseawarfare@hotmail.com

Selected to Flag Officer

Capt. Michael P. Holland
Capt. Thomas E. Ishee
Capt. Jeffrey E. Trussler

Changes of Command

Undersea Surveillance Command
Capt. Kevin S. Mooney relieved
Capt. Scott Rauch

Trident Refit Facility, Kings Bay
Capt. Gunter Braun relieved
Capt. Larry Hill

NOPF Dam Neck, Va.
Cmdr. Robert S. Trepeta relieved
Cmdr. Jeff Jacoby

COMSUBRON 21
Capt. Michael A. Fisher assumes
command

RSG GROTON/NSSF NLON
Capt. Gerhard Somlai relieved
Capt. Richard Verbeke

USS *Alaska* (SSBN 732) (B)
Cmdr. David Forman relieved
Cmdr. Todd Figenbaum

USS *Annapolis* (SSN 760)
Cmdr. Kurt Balagna relieved
Cmdr. Chester Parks

USS *California* (SSN 781)
Cmdr. Eric Sager relieved
Cmdr. Shawn Huey

USS *Columbia* (SSN 771)
Cmdr. David Edgerton relieved
Cmdr. John Patrick Friedman

USS *Florida* (SSGN 728) (G)
Capt. Bill McKinney relieved
Capt. Louis Mayer



Cmdr. David Forman, commanding officer of the *Ohio*-class ballistic-missile submarine USS *Alaska* (SSBN 732) Blue crew, speaks with NATO Secretary General Jens Stoltenberg during a tour of the ship. Stoltenberg toured the *Alaska* while visiting commands throughout the southeast region.

USS *Helena* (SSN 725)
Cmdr. Jason Pittman relieved
Cmdr. Jeffrey Lamphear

USS *Jimmy Carter* (SSN 23)
Cmdr. Melvin Smith Jr. relieved
Capt. Brian Elkowitz

USS *Louisville* (SSN 724)
Cmdr. David S. Cox relieved
Cmdr. Robert D. Figgs

USS *Mississippi* (SSN 782)
Cmdr. Eric J. Rozek relieved
Cmdr. Tory Swanson

USS *New Hampshire* (SSN 778)
Cmdr. Jason Weed relieved
Cmdr. Sean Fujimoto

USS *Tennessee* (SSBN 734) (B)
Cmdr. Charles McLenithan relieved
Cmdr. John Howerly

Qualified for Command

Lt. Cmdr. Kevin Behm
COMSUBRON 16

Lt. Matthew Brouillard
USS *Nevada* (SSBN 733) (B)

Lt. Michael Huber
USS *North Dakota* (SSN 784)

Lt. Cmdr. Seth Krueger
USS *Chicago* (SSN 721)

Lt. Jeremy Medlin
USS *Maine* (SSBN 741) (B)

Lt. Cmdr. Michael Mowry
COMSUBRON 11

Lt. Scotty Murphy
USS *Chicago* (SSN 721)

Lt. Cmdr. Andrew Pyle
COMSUBRON 20

Lt. Vincent Ragona
COMSUBGRU 10

Lt. Christian Rivera
COMSUBDEVRON 5

Lt. Cmdr. Jeffrey Roberts
COMSUBRON 16

Lt. Michael Rodriquez
USS *Alabama* (SSBN 731)

Lt. Cmdr. Christopher Rose
COMSUBRON 1

Lt. Cmdr. Michael Siedsma
USS *North Dakota* (SSN 784)

Lt. Cmdr. Andrew Simmons
COMSUBRON 16

Lt. David Stroman
USS *Virginia* (SSN 774)

Qualified in Submarines

Lt. j.g. Scott Adams
USS *North Carolina* (SSN 777)

Lt. j.g. Jarrod Alford
USS *Tennessee* (SSBN 734) (B)

Lt. j.g. Robert Alvarado
USS *Wyoming* (SSBN 742) (B)

Lt. j.g. Samuel Amazeen
USS *Alexandria* (SSN 757)

Lt. j.g. Ojevwe Avworo
USS *West Virginia* (SSBN 736)

Lt. j.g. Mark Baker
USS *Hawaii* (SSN 776)

Lt. j.g. Matthew Barnes
USS *Alaska* (SSBN 732) (B)

Lt. j.g. Sinon Bennett
USS *Hawaii* (SSN 776)

- Lt. j.g. Casey Burgener
USS *North Carolina* (SSN 777)
- Lt. j.g. Austin Carney
USS *Tennessee* (SSBN 734) (B)
- Lt. j.g. Paul Carpenter
USS *Hampton* (SSN 767)
- Lt. j.g. Patrick Cassidy
USS *Toledo* (SSN 769)
- Lt. j.g. David Chucoski
USS *Boise* (SSN 764)
- Lt. j.g. Peter Cramer
USS *North Carolina* (SSN 777)
- Lt. j.g. Matthew Drewnowski
USS *Henry M. Jackson* (SSBN 730) (B)
- Lt. j.g. Geoffrey Fastabend
USS *Kentucky* (SSBN 737) (G)

- Lt. j.g. Matthew Ferrier
USS *Nevada* (SSBN 733) (B)
- Lt. j.g. Alexander Ford
USS *Newport News* (SSN 750)
- Lt. j.g. Phillip Freidhoff
USS *West Virginia* (SSBN 736) (G)
- Lt. j.g. Martin Galley
USS *Toledo* (SSN 769)
- Lt. j.g. Matthew Geddings
USS *Tennessee* (SSBN 734) (B)
- Lt. j.g. James Golden
USS *Nevada* (SSBN 733) (B)
- Lt. j.g. John Grace
USS *Bremerton* (SSN 698)
- Lt. j.g. Chase Hansen
USS *Seawolf* (SSN 21)

- Lt. j.g. Eric Jimenez
USS *Santa Fe* (SSN 763)
- Lt. j.g. Daniel Jordan
USS *Springfield* (SSN 761)
- Lt. j.g. Bryan Keck
USS *Pasadena* (SSN 752)
- Lt. j.g. Zachary Landaal
USS *Nevada* (SSBN 733)
- Lt. j.g. Mark Lasater
USS *West Virginia* (SSBN 736) (G)
- Lt. j.g. Christopher Malone
USS *Henry M. Jackson* (SSBN 730) (B)
- Lt. j.g. Erick Meckle
USS *Springfield* (SSN 761)
- Lt. j.g. John Minahan
USS *Alaska* (SSBN 732) (B)

- Lt. j.g. Patrick Snow
USS *West Virginia* (SSBN 736) (B)
- Lt. j.g. Tyler Sordelet
USS *Louisville* (SSN 724)
- Lt. j.g. Keith Wilson
USS *North Carolina* (SSN 777)
- Lt. j.g. Tarik Yameen
USS *Rhode Island* (SSBN 740) (B)
- Lt. j.g. Brett Zimmerman
USS *North Carolina* (SSN 777)
- Lt. j.g. Joseph Alessandria
USS *Cheyenne* (SSN 773)
- Lt. j.g. James Allen
USS *Key West* (SSN 722)
- Lt. j.g. Auguste Anderson
USS *Florida* (SSGN 728) (B)

Qualified Nuclear Engineering Officer

- Lt. j.g. Alex Angelillo
USS *Kentucky* (SSBN 737) (B)
- Lt. j.g. Tyler Arp
USS *Hampton* (SSN 767)
- Lt. j.g. Noah Baker
USS *Greenville* (SSN 772)
- Lt. j.g. Tyler Bartels
USS *Topeka* (SSN 754)
- Lt. j.g. Christopher Blevens
USS *Tennessee* (SSBN 734) (B)
- Lt. j.g. Bryan Boldon
USS *Cheyenne* (SSN 773)
- Lt. j.g. Brett Bonds
USS *Annapolis* (SSN 760)
- Lt. j.g. Andrew Borland
USS *North Carolina* (SSN 777)
- Lt. j.g. Justin Branley
USS *Alexandria* (SSN 757)
- Lt. Cory Brown
USS *Montpelier* (SSN 765)
- Lt. j.g. Joseph Buckley
USS *Alaska* (SSBN 732) (G)
- Lt. j.g. Matthew Buechner
USS *Oklahoma City* (SSN 723)
- Lt. j.g. Joshua Calton
USS *San Juan* (SSN 751)
- Lt. Jacob Cates
USS *Columbia* (SSN 771)
- Lt. j.g. Chase Chapman
USS *Alaska* (SSBN 732) (B)
- Lt. j.g. Alexander Coker
USS *Scranton* (SSN 756)

- Lt. j.g. Kevin Neumeister
USS *Chicago* (SSN 721)
- Lt. j.g. Daniel Newby
USS *Tennessee* (SSBN 734) (G)
- Lt. j.g. Colin O’Kane
USS *Seawolf* (SSN 21)
- Lt. j.g. Peter Poppalardo
USS *Topeka* (SSN 754)
- Lt. j.g. Patrick Quealy
USS *Columbus* (SSN 762)
- Lt. j.g. David Rezzo
USS *Charlotte* (SSN 766)
- Lt. j.g. William Richardson
USS *Nevada* (SSBN 733)
- Lt. j.g. Jacob S. Richert
USS *Seawolf* (SSN 21)
- Lt. Matthew Roberts
USS *Hawaii* (SSN 776)
- Lt. j.g. James Rowe
USS *Toledo* (SSN 769)
- Lt. Karl Royston
COMSUBRON 17
- Lt. j.g. Alex Scaperotto
USS *North Carolina* (SSN 777)
- Lt. j.g. Matthew Schweers
USS *Tennessee* (SSBN 734) (G)
- Lt. j.g. Joshua Seagrave
USS *Providence* (SSN 719)
- Lt. j.g. Noah Singer
USS *Nevada* (SSBN 733)
- Lt. j.g. Aaron Smith
USS *West Virginia* (SSBN 736) (B)
- Lt. j.g. Dallas Smith
USS *Rhode Island* (SSBN 740) (B)
- Lt. j.g. Jero Smith
USS *North Carolina* (SSN 777)



USS Pittsburgh Returns from Deployment

The *Los Angeles*-class attack submarine USS *Pittsburgh* (SSN 720) returned from a six-month deployment to its homeport at U.S. Naval Submarine Base, New London, Connecticut, May 12.

Under the command of Cmdr. Bill Solomon III, *Pittsburgh* returned from the U.S. European Command area of responsibility where the crew executed the Chief of Naval Operation’s maritime strategy while conducting maritime security operations supporting national security interests.

During the deployment *Pittsburgh* steamed more than 30,000 nautical miles. Port visits were conducted in Haakonsværn, Norway; Rota, Spain; and Faslane, Scotland.

“We conducted operations in the Atlantic Ocean within the European Command area of responsibility, and also conducted three missions vital to national security,” said Solomon. “The *Pittsburgh* crew performed extremely well during the deployment. Despite facing severe weather in port and at-sea, they completed all evolutions without incident.”

Crew members missed significant holidays while deploying in November 2014, but many of them will be returning wearing additional “hardware” on their chests—20 enlisted Sailors and three officers completed their submarine warfare qualifications to earn their silver and gold dolphins.

- Lt. j.g. Christopher Dematteo
USS *Norfolk* (SSN 714)
- Lt. Justin Devillar
USS *Jimmy Carter* (SSN 23)
- Lt. j.g. Preston Dickson
USS *Georgia* (SSGN 729) (B)
- Lt. James Dorman
USS *Hampton* (SSN 767)
- Lt. j.g. Connor Dunlop
USS *Buffalo* (SSN 715)
- Lt. j.g. Christopher Fackrell
USS *Alabama* (SSBN 731) (B)
- Lt. j.g. Jon Faile
USS *West Virginia* (SSBN 736)
- Lt. j.g. Geoffrey Fastabend
USS *Kentucky* (SSBN 737) (G)
- Lt. j.g. Luke Fellin
USS *Hartford* (SSN 768)
- Lt. j.g. Sean Fitzmaurice
USS *Montpelier* (SSN 765)
- Lt. j.g. Anthony Ford
USS *North Dakota* (SSN 784)
- Lt. j.g. Paul Gale
USS *City of Corpus Christi* (SSN 705)
- Lt. j.g. Kyle Gayle
USS *Newport News* (SSN 750)
- Lt. j.g. Anthony Giampa
USS *Houston* (SSN 713)
- Lt. j.g. Taylor Goode
USS *Chicago* (SSN 721)
- Lt. j.g. Michael Guibas
USS *Albuquerque* (SSN 706)
- Lt. j.g. Joel Harding
USS *Montpelier* (SSN 765)
- Lt. j.g. Randolph Harlan
USS *La Jolla* (SSN 701)
- Lt. j.g. Matthew Harmon
USS *Topeka* (SSN 754)
- Lt. j.g. Matthew Herber
USS *Asheville* (SSN 758)
- Lt. Ryan Hoffman
USS *Missouri* (SSN 780)
- Lt. j.g. John Horgan
USS *North Dakota* (SSN 784)
- Lt. j.g. Edward Horn
USS *La Jolla* (SSN 701)
- Lt. j.g. John Huschilt
USS *Albany* (SSN 753)
- Lt. j.g. Maxx Irelan
USS *Maryland* (SSBN 738) (B)
- Lt. j.g. Michael Jarboe
USS *Nevada* (SSBN 733) (B)

- Lt. j.g. Spencer Jurkiewicz
USS *San Francisco* (SSN 711)
- Lt. j.g. James Kelly
USS *North Dakota* (SSN 784)
- Lt. j.g. Cletus Ketter
USS *Dallas* (SSN 700)
- Lt. j.g. Jordan Landauer
USS *Nebraska* (SSBN 739)
- Lt. j.g. Charles Lane
USS *La Jolla* (SSN 701)
- Lt. j.g. Michael Lassiter
USS *Miami* (SSN 755)
- Lt. Joseph Latta
USS *Missouri* (SSN 780)
- Lt. j.g. Richard Lauber
USS *Connecticut* (SSN 23)
- Lt. j.g. Jasmine Lee
USS *Wyoming* (SSBN 742) (B)
- Lt. j.g. Mark Maliniak
USS *Alaska* (SSBN 732) (G)
- Lt. j.g. Christopher Malone
USS *Henry M. Jackson* (SSBN 730) (B)
- Lt. j.g. Megan Maloney
USS *Florida* (SSGN 728) (G)
- Lt. j.g. Thomas Mansfield
USS *Alaska* (SSBN 732) (B)
- Lt. j.g. Kyle Martin
USS *Bremerton* (SSN 698)
- Lt. j.g. Emma McCarthy
USS *Georgia* (SSGN 729) (B)
- Lt. j.g. Timothy Mendoza
USS *Toledo* (SSN 769)
- Lt. j.g. Elizabeth Minahan
USS *Florida* (SSGN 728) (B)
- Lt. j.g. Benjamin Mooney
USS *San Juan* (SSN 751)
- Lt. j.g. Jared Mosier
USS *Nevada* (SSBN 733) (B)
- Lt. j.g. Megan Moyette
USS *Louisiana* (SSBN 743) (B)
- Lt. j.g. Nicholas Neinsvold
USS *Columbus* (SSN 762)
- Lt. j.g. Daniel Newhouse
USS *Alaska* (SSBN 732) (G)
- Lt. j.g. Travis Nicks
USS *Santa Fe* (SSN 763)
- Lt. Nicholas Nussbaum
USS *Rhode Island* (SSBN 740) (B)
- Lt. Chris Odom
USS *Rhode Island* (SSBN 740) (G)
- Lt. j.g. Michael Overton
USS *Alabama* (SSBN 731) (G)



Former president Attends Change of Command

Cmdr. Melvin Smith relieved Cmdr. Brian Elkowitz as commanding officer of the *Seawolf*-class attack submarine USS *Jimmy Carter* (SSN 23) during a ceremony May 29 at Deterrent Park aboard Naval Base Kitsap - Bangor.

The ship’s namesake, former President Jimmy Carter, and ship’s sponsor, former first lady Rosalynn Carter, also attended the event.

“What makes me so proud is to have been the only submariner to have served as commander in chief and also to have a submarine named after me,” said Carter. “Of all the honors I have ever received, I’ve never had anything of greater honor than the chance to be the namesake of USS *Jimmy Carter*.”

During Elkowitz’s command tour, which began in March 2012, USS *Jimmy Carter* completed five missions vital to national security and underwent a 17-month-long docking phased maintenance availability period.

In addition, *Jimmy Carter* earned the Battle Efficiency Award, or Battle “E,” for 2012 and 2013. The ship was honored with the U.S. Submarine Forces Pacific Retention Excellence Award for 2012 and 2014, as well as the crew being awarded the Presidential Unit Commendation and the Navy Unit Commendation.

- Lt. j.g. Moses Park
USS *Michigan* (SSGN 727) (G)
- Lt. j.g. Torin Phaiach
USS *Virginia* (SSN 774)
- Lt. Kevin Plumer
USS *Columbia* (SSN 771)
- Lt. j.g. Erik Pratt
USS *Tennessee* (SSBN 734) (B)
- Lt. j.g. Jeffrey Reilly
USS *Virginia* (SSN 774)
- Lt. j.g. Jonathan Register
USS *Rhode Island* (SSBN 740) (B)
- Lt. Andrew Riegert
USS *Kentucky* (SSBN 737)
- Lt. j.g. Justin Rogers
USS *Charlotte* (SSN 766)
- Lt. j.g. Andrew Roth
USS *Nebraska* (SSBN 739)

- Lt. j.g. Alexander Samenigo
USS *Maryland* (SSBN 738) (B)
- Lt. j.g. Michael Scardina
USS *Seawolf* (SSN 21)
- Lt. j.g. Dustin Scheinert
USS *Newport News* (SSN 750)
- Lt. j.g. Barret Schlegelmilch
USS *Seawolf* (SSN 21)
- Lt. j.g. Joseph Schmidt
USS *Louisiana* (SSBN 743) (B)
- Lt. j.g. Tyler Siedschlag
USS *Boise* (SSN 764)
- Lt. j.g. Jerrey Skiles
USS *Topeka* (SSN 754)
- Lt. j.g. Aaron Smith
USS *West Virginia* (SSBN 736) (B)
- Lt. j.g. Michael Smith
USS *Kentucky* (SSBN 737) (G)

Mass Communication Specialist 1st Class James Kimber

Photo by Mass Communication Specialist 1st Class Kenneth G. Takada

Lt. j.g. Elmore Smoak
USS *Chicago* (SSN 721)

Lt. j.g. William Smoke
USS *Alabama* (SSBN 731) (B)

Lt. j.g. Patrick Snow
USS *West Virginia* (SSBN 736) (B)

Lt. j.g. Joshua Straka
USS *Alexandria* (SSN 757)

Lt. j.g. Aaron Stroup
USS *Ohio* (SSGN 726) (G)

Lt. j.g. Nathan Sundell
USS *Boise* (SSN 764)

Lt. j.g. Stephanie Treece
USS *Florida* (SSGN 728)

Lt. j.g. Louis Troisi
USS *Toledo* (SSN 769)

Lt. Ryan Turk
USS *Michigan* (SSGN 727) (B)

Lt. j.g. Rafael Vargas
USS *Providence* (SSN 719)

Lt. j.g. Viet Vo
USS *Pennsylvania* (SSBN 735) (B)

Lt. j.g. Samuel Ward
USS *Houston* (SSN 713)

Lt. j.g. Patrick Wiedorn
USS *Oklahoma City* (SSN 723)

Lt. j.g. Tyler Williams
USS *Newport News* (SSN 750)

Lt. j.g. Aaron Wilson
USS *Henry M. Jackson* (SSBN 730) (G)

Lt. Shawn Wilt
USS *Jefferson City* (SSN 759)

Lt. j.g. Joshua Wingfield
USS *Texas* (SSN 775)

Lt. j.g. Blair Woolheater
USS *Annapolis* (SSN 760)

Lt. j.g. Alexander Wunderlich
USS *San Juan* (SSN 751)

Lt. j.g. Brian Yaptinchay
USS *Santa Fe* (SSN 763)

**Supply Corps Qualified
in Submarines**

Lt. j.g. Charles Jamison
USS *Chicago* (SSN 721)

MTs Qualified SWSMC

MTC (SS) Grant Breeding
USS *Ohio* (SSGN 726) (B)

MTC (SS) Gregory Miller
USS *Maine* (SSBN 741) (G)

MTC (SS) Christopher Riddle
Strategic Weapons Facility Pacific

MTC (SS) Kenneth Schmidt
Nuclear Weapons Inspection Det
COMSUBPAC

MTC (SS) Melvin Whaley
USS *Wyoming* (SSBN 742) (B)

**The FY16 Submarine Commanding Officer/Executive Officer Selection Board Convened on May 18, 2015.
The Following Officers were Selected:**

Submarine Commanding Officer

Jason D. Anderson
David P. Brooks
Andrew M. Cain
Jason M. Deichler
Michael R. Dolbec
John R. Dye
Michael D. Fisher
Peter D. French
David W. Grogan
Jesse G. Hill
Roderick L. Hodges
George A. Howell
Heath E. Johnmeyer
Gregory R. Koepf II
Steven C. Lawrence
James E. Mahoney Jr.
Michael V. McLaine
Terry A. Nemeck
Thomas J. Niebel
Thomas P. O'Donnell
Michael A. Paisant
Joshua D. Powers
Mark T. Robinson
Kenneth M. Roman
Sterling St. Jordan
Richard D. Salazar
Jon P. Schaffner
Neil J. Steinhagen
Michael C. Tomon
Carl S. Trask
Jake T. Wadsley
Thomas G. Weiler
Jared W. Wyrick
Jeffrey M. Yacker

**Commanding Officer
(Submarine Support)**

Brian C. Black
Scott M. Cullen
Michael F. Delaney
Matthew T. Freniere
Chad A. Hardt
Anthony J. Harrell
John M. Killila
Joseph G. Lautenslager
Christopher C. Lindberg
Matthew M. Mazat
Brian W. McGuirk
James A. Morrow
Robert I. Patchin IV
Jeremy A. Pelstring
Deryk B. Petersen
Dmitry Poisk
Robert Stansell
David C. Vehon
Glenn K. Washington
Brian A. Young

Submarine Executive Officer

Georag Andrews
Jonathan R. Baugh
Kevin J. Behm
Adam R. Bush
Joseph A. Campbell
Matthew Collinsworth
Jeremy D. Dawson
Thomas E. Digan Jr.
Thomas D. Dotstry
Steven A. Dykstra
Clinton D. Emrich
Jesse B. Feldon

Sean C. Flanagan
Alexander J. Franz
Thomas D. Futch
Jeremy D. Garcia
Shafer B. Gaston
Ryan T. Gielegem
Robert J. Gillis Jr.
Derek M. Goebel
Douglas G. Hagenbuch
David P. Hicks
Joshua J. Hodge
Seth T. Hooper
Michael J. Huber
Jesse H. Humphries
Luke E. Kelvington
Michael L. Kendel
Eric J. Knepper
Dustin T. Kraemer
Seth R. Krueger
Nickolas Lancaster
Randall J. Leslie
Robert A. Low
Kerry M. Major
Barry E. Mark Jr.
Edward J. May Jr.
Matthew E. McCay
Kyle S. McVay
Jeremy C. Medlin
Samuel C. Mills
Robert J. Moreno
Michael N. Mowry
Stephen T. Neuman
Paul G. Pavelin
Joshua D. Peters
Jeffrey W. Ransom
Tad J. Robbins
Michael Rodriguez
Christopher W. Rose

Jeremiah S. Shumway
William E. Sopp
Ryan A. Stewart
Chad T. Tella
Patrick E. Tembreull
Dillon J. Tolmie
Keith P. Turnbull
Shawn M. Vrabel
George B. Watkins

**Executive Officer
(Submarine Support)**

Christian A. Beisel
Todd C. Bowers
Bradley M. Boyd
James R. Brooks
Albert F. Caluag
Randolph David Jr.
Rodney A. Grogan
Clayton J. Hughey
Lewis S. Im
Daniel D. Inbody
Justin E. Ivancic
Carl D. Jappert
Jeffery A. Kahn
Travis A. Larson
Jesse D. Lorenzen
Alex S. Rafal
Joshua N. Ragadio
Brandon L. Rice
Jeffrey R. Roberts Jr.
William R. Sheridan I
Andrew Simmons
Philip D. Sosebee
Aaron M. Stutzman
Joseph S. Turner
Alexander C. Voeller

POINT.
CLICK.
SUBMIT.

Its just that easy to participate in the 17th Annual Naval Submarine League and *Undersea Warfare* magazine Photo Contest. Your submission may just be one of the 4 chosen and recognized at its Annual Symposium and featured in the fall 2015 issue of *Undersea Warfare* magazine.

Note: Entries must be received by August 15, 2015. However time permitting, photos received shortly after the deadline will be considered.

Photos must be at least 5" by 7", at least 300 dots-per-inch (dpi) and previously unpublished in printed media. Each person is limited to five submissions, which can be sent as JPG or other digital photo format to the email address below. Printed photos may also be mailed to the following address:

Military Editor
Undersea Warfare CNO
2000 Navy Pentagon
Washington, D.C. 20350-2000

Cash Prizes for the Top 4 Photos:

1st Place \$500
2nd Place \$250
3rd Place \$200
Honorable Mention \$50

Or email to: underseawarfare@hotmail.com



Submarine Museums and Memorials



USS *Cavalla* (SS 244) Galveston, Tex.

USS *Cavalla*, a *Gato*-class fleet sub, was launched on November 14, 1943 by Electric Boat Co. in Groton Conn. On February 29, 1944, she was commissioned, with Lt. Cmdr. H.J. Kossler in command.

Cavalla departed New London April 11, 1944 and arrived at Pearl Harbor on May 9. En route to her station in the eastern Philippines, she made contact with a large Imperial Japanese Navy (IJN) task force on June 17. *Cavalla* tracked it for several hours and relayed location and heading information that contributed heavily to the U.S. victory scored in the Battle of the Philippine Sea, (the "Marianas Turkey Shoot") on June 19-20, 1944. On June 19, she caught the IJN carrier *Shokaku* landing planes and quickly fired a spread of six torpedoes scoring three hits, sending *Shokaku* to the bottom. After a severe depth charging by three enemy destroyers, *Cavalla* escaped to continue her patrol.

Cavalla's second patrol took her to the Philippine Sea as a member of a wolfpack operating in support of the September 15, 1944 invasion of Peleliu.

On November 25, 1944, during her third patrol, *Cavalla* encountered two IJN destroyers and made a daring surface attack that blew up *Shimotsuki*. The other destroyer began depth charging, but the elusive *Cavalla* escaped. Later in the same patrol, on January 5, 1945, she made a night surface attack on an enemy convoy and sank two converted net tenders.

On her fourth and fifth war patrols, *Cavalla* cruised

the South China and Java Seas. Targets were sparse, but she came to the aid of an ally on May 21. A month into her fifth patrol, her crew sighted HMS *Terrapin* damaged by enemy depth charges and unable to submerge or make full speed. *Cavalla* escorted the wounded submarine to the surface to Fremantle, arriving May 27, 1945.

While lifeguarding off Japan on her sixth war patrol, *Cavalla* received the August 15 cease-fire order. A few minutes later she was bombed by a Japanese plane that apparently had not yet received the cease-fire order. She entered Tokyo Bay on August 31 and remained for the signing of the surrender on September 2. She departed the next day for New London, arriving October 6, 1945. She was placed out of commission in reserve there on March 16, 1946.

Cavalla returned to service in 1953 as a hunter-killer submarine (SSK). She was assigned the experimental designation AGSS in 1963. In 1971 she was transferred to the Texas Submarine Veterans of World War II and delivered to her permanent berth where she serves as a memorial to Submariners lost in WWII at Sea Wolf Park, Galveston Texas.

Cavalla received a Presidential Unit Citation and four battle stars for service in WWII. She is credited with sinking 34,180 tons of enemy shipping.