COLUMBIA CLASS
U.S. Navy’s Next Generation SSBN

INSIDE
Here’s why no U.S. diesel subs
Hows & why’s of sub leadership
2016 JO0Ys visit U.S. capitol
Training videos now available underway
Greetings from Norfolk! Times are changing fast. The first decade of the 21st century saw our Navy primarily focused on a land war against Middle Eastern regional threats. Our emphasis was on power projection ashore and fighting from relatively uncontested littorals. Since then we have clearly shifted our emphasis toward high-end combat in contested blue water against near-peer competitors. With the increased capability and capacity of our challengers both individually and collectively, the Submarine Force must likewise concentrate on its overall lethality including each submarine’s high-end combat effectiveness.

Let me give you a few examples of what the Submarine Force is doing to meet these new challenges. We’ve reimagined submarine tactical development by establishing a new Undersea Warfare Development Center in Groton, Conn. The Center is leading new lines of effort, reorganizing and rekindling our Tactical Analysis Group; and significantly increasing the quantity and quality of tactical development exercises. Beyond new tactics, we’re working to increase the amount of sub-on-sub experience our crews get.

We’ve better “tuned” our Fleet Response Training Plan to both support our emphasis on the high-end fight and, more basically, to ensure we are working on the right things at the right times in the pre-deployment ramp-up. We eliminated a low-payoff basic training period for crews coming off a deployment vice coming out of a shipyard. We’ve eliminated duplication and focused the Tactical Readiness Evaluation on high-end warfighting and focused the pre-deployment evaluation on our challenging peace-time missions that the unit is about to go do. We’ve expanded the Pre-Overseas Movement period and right-sized the spacing of focused Intermediate and Advanced Tactical Readiness Evaluation.

Beyond that, we are looking at our foundational crew competencies in new ways. The Force Improvement and Operational Safety, or FIOS, program is the linchpin of this effort. This program was the source of our 2015 policy shifting all submarines to a 24-hour sleep cycle to reduce crew fatigue and mishap risk. We implemented an Operational Safety Officer aboard each submarine in 2016. Last year, we established a new Operational Fundamentals Core Competency, with emphasis on Operational Planning, Communication and Dialogue, and Assessment and Improvement, and integrated human factors science into our training and doctrine for the first time.

We’re also improving missile, torpedo, and electronic warfare capability and capacity, servicing targets in all domains. Finally, as discussed in the last issue, we are working to achieve a family of unmanned vehicles to complement each submarine’s reach and capability. These systems allow a CO to be in multiple places at once. The unmanned vehicles can do the “dull, dirty, and dangerous” missions to help meet our capacity requirements while the manned platform takes on the high-end capability missions that only a professionally crewed submarine can do.

So that’s a quick summary of what the Submarine Force is doing to adapt to our new threat environment. But one thing certainly hasn’t changed; your Submarine Force remains “on scene, unseen” all over the world today, providing unequalled access with influence because we have the finest Officers and Sailors in the world. It is only through the continuous self-improvement and leadership of each of us individually and collectively as a team that we will meet the challenges of the future.

Thank you for all you do – keep charging!
The official magazine of the U.S. Submarine Force

Letter 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.

Please include pertinent contact information with submissions.

The President of the United States in the name of The Congress presented the Medal of Honor to Torpedoman Second Class Henry Breault, USN for service as set forth in the following Citation:

“For heroism and devotion to duty while serving on board the U.S. Submarine 0-5 at the time of the sinking of that vessel. On the morning of 28 October 1923, the 0-5 collided with the steamship Abanazar and sank in less than a minute. When the collision occurred, BREAutL was in the torpedo room. Upon reaching the hatch, he saw that the boat was rapidly sinking. Instead of jumping overboard to save his own life, he returned to the torpedo room to rescue a shipmate whom he knew was trapped in the boat, closing the torpe-
door hatch on himself. Breault and Brown remained trapped in that compartment until rescued by the salvage party 31 hours later.”

Henry Breault was born in Putnam, Conn., on October 14, 1900. He en-
listed in the British Royal Navy at 16 years of age and, after serving under the White Ensign for four years, joined the U.S. Navy. On October 28, 1923, Torpedoman 2nd Class Breault was a member of the crew of US Submarine 0-5 (SS-66) when that submarine was sunk in collision. Though he could have escaped, Breault chose to assist a shipmate, and remained inside the sunken submarine until both were rescued more than 31 hours later. For his “heroism and devotion to duty” on this occasion, Henry Breault was awarded the Medal of Honor. Following 20 years of U.S. Navy service, Henry Breault became ill with a heart condition. He died at the Naval Hospital at Newport, R.I., on December 4, 1941.

UNDERSEA WARFARE WINTER 2018

J. W. Tammem, Jr.

Letters to the Editor

Vice Adm. Charles L. Munns, Commander, Naval Submarine Forces

Vice Adm. Joseph E. Teela, Commander, Submarine Force Commanders, Submarine Force Atlantic

Rear Adm. Daryl Castle, Deputy Commander, Submarine Force, Submarine Force U.S. Pacific Fleet

Rear Adm. John W. Tammem, Jr., Director, Undersea Warfare Division (N97)

Master Chief Petty Officer John J. Perryan, COMSUBPAC Force Master Chief

Master Chief Petty Officer Steven S. Giordano, COMSUBPAC Force Master Chief

Lt. Cmdr. Tommy Croesty, COMSUBPAC Public Affairs Officer

Lt. Cmdr. David W. Hill, COMSUBPAC Deputy Public Affairs Officer

Military Editor:

Lt. Cmdr. P. Brent Shrubler

Senior Editor:

Danne & Dye

Managing Editor:

Thomas Lee

Charter

UNDERSEA WARFARE is the professional magazine of the U.S. Submarine Warfare Community. It is published six times a year by the U.S. Submarine Warfare Association, a non-profit, non-government organization with a particular focus on U.S. submarines. This journal will also draw upon the Submarine Warfare Association’s historical legacy to instill a sense of pride and professionalism among community members dedicated to the profession of undersea warfare for the 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 views of the U.S. Submarine Warfare Association.

Contributions and Feedback Welcome

Send all editorial correspondence, photographs, manuscripts, and feedback to:

Military Editor, Undersea Warfare CNO N97
E-Mail: underseawarfare@hotmail.com
Phone: (703) 614-9572 Fax: (703) 659-9247

For subscription information, please contact:

The subscribers of the Superintendence of Documents, PO Box 97900, St. Louis, MO 63197 or call (866) 552-8000 or fax (210) 342-2104, http://bookstore.gpo.gov

Annual subscription price: $28.00 Foreign: $59.00

Authorization

UNDERSEA WARFARE (ISSN 1553-0606) is published quarterly by the U.S. Submarine Warfare Association in accordance with NPPR (P-3). The Secretary of the Navy has determined that this publication is necessary in the transaction of business required by law of the Department of the Navy. This publication is not printed for sale by the Department of the Navy. Rights of reproduction in whole or in part have been approved by the Navy Publications and Printing Policy Committee. Reprints are encouraged with proper citation. Controlled circulation.

The United States must remain over-match—the combination of capabilities in sufficient scale to prevent enemy success and to ensure that America’s sons and daughters will never be in a fair fight.”

Undersea Warfare Team,

I recently relieved as the Director of Undersea Warfare (N97), and I am very impressed with the acceleration of capability development for the Undersea Domain over the past few years. As the new Director, my focus is to ensure the Undersea Domain is appropriately resourced to be ready and lethal today while pursuing capabilities to ensure our nation’s success in any potential future conflict.

I would like to acknowledge our progress over the last year in the two primary warfighting missions: Strategic Deterrence and Theater Undersea Warfare (TUSW).

On the Strategic Deterrent front, DoD’s number one priority is to ensure the most effective leg of the nuclear deterrent triad is sustained and modernized to support the requirements of 10 operational SSBs. We have performed remarkable work to extend the 30-year service life of the Ohio-class submarine to 42 years, and we are committed to modernizing this platform with the sensors and systems similar to the newest fast attack submarines. We have no margin for delay in the delivery of the Columbia-class and there are scopes of personnel working tirelessly to ensure the successful class transition while achieving all STRATCOM requirements. The Columbia detailed design contract has been awarded to Electric Boat; construction of the lead ship will start in FY21, and at-sea testing in FY27. The Columbia-class first patrol is scheduled for FY31.

Shifting now to the TUSW—one of our priorities for undersea warfare is ensuring we have sufficient forces to meet our Combatant Commander needs, both in peace and war. The most recent Force Structure Assessment, published in early 2017, requires 66 submarines. We are committed to building at least two Virginia-class boats per year, even while construction starts on the Columbia. Today’s global environment is evolving and the Virginia class is evolving with it. Block III introduced the Virginia payload tubes and Block V will introduce the Virginia Payload Module (VPM) and other capabilities. The first VPM boat will start construction in FY19 and will commission in 2024. This will be the first step in preserving our undersea strike capability, reconstituting SOF capability on Virginia class and providing the capacity to carry innovative payloads and unmanned systems. Another investment priority is accelerating delivery of unmanned systems to the Fleet. Capable UUVs, effectively employed by capable warfighters, will enhance platform performance and increase the Navy’s area of reach and influence.

Our National Strategy is clear. “The United States must remain over-match—the combination of capabilities in sufficient scale to prevent enemy success and to ensure that America’s sons and daughters will never be in a fair fight.” I don’t want our submarines to ever be in a fair fight. My job is to expand our portfolio of lethal options so submarine crews can always kick the enemy up the 30-year service life of the Ohio-class submarine to 42 years, and we are committed to modernizing this platform with the sensors and systems similar to the newest fast attack submarines. We have no margin for delay in the delivery of the Columbia-class and there are scopes of personnel working tirelessly to ensure the successful class transition while achieving all STRATCOM requirements. The Columbia detailed design contract has been awarded to Electric Boat; construction of the lead ship will start in FY21, and at-sea testing in FY27. The Columbia-class first patrol is scheduled for FY31.

Shifting now to the TUSW—one of our priorities for undersea warfare is ensuring we have sufficient forces to meet our Combatant Commander needs, both in peace and war. The most recent Force Structure Assessment, published in early 2017, requires 66 submarines. We are committed to building at least two Virginia-class boats per year, even while construction starts on the Columbia. Today’s global environment is evolving and the Virginia class is evolving with it. Block III introduced the Virginia payload tubes and Block V will introduce the Virginia Payload Module (VPM) and other capabilities. The first VPM boat will start construction in FY19 and will commission in 2024. This will be the first step in preserving our undersea strike capability, reconstituting SOF capability on Virginia class and providing the capacity to carry innovative payloads and unmanned systems. Another investment priority is accelerating delivery of unmanned systems to the Fleet. Capable UUVs, effectively employed by capable warfighters, will enhance platform performance and increase the Navy’s area of reach and influence.

Our National Strategy is clear. “The United States must remain over-match—the combination of capabilities in sufficient scale to prevent enemy success and to ensure that America’s sons and daughters will never be in a fair fight.” I don’t want our submarines to ever be in a fair fight. My job is to expand our portfolio of lethal options so submarine crews can always kick the enemy up the...
**U.S. DIESEL BOATS? NEVER AGAIN!**

To properly address why the U.S. Navy doesn’t buy diesel submarines, it is worthwhile to review the purpose of the Navy. From the CNO’s “Design for Maintaining Maritime Superiority.” The Navy is a global, forward-deployed force capable of power projection “from the sea floor to space, from deep water to the littorals, and in the information domain.” This strategic guidance is consistent with our 240-year history of enabling sea control and power projection from the sea around the world to further our national interests. There are several characteristics that make nuclear-powered submarines uniquely capable to meet these global requirements. They are: speed, endurance, weapons volume and diversity, sensor capacity, stealth, sustainability, and cost.

**Speed**

Sun Tzu said in “The Art of War,” “Speed is the essence of war. Take advantage of the enemy’s unpreparedness; travel by unexpected routes and strike him where he has taken no precautions.” A submarine’s ability to maneuver at high speeds is the key to repositioning within a theater of interest and for maintaining the initiative in peacetime or wartime engagements. Speed is vital.

Speed gives U.S. submarines the agility to respond to contingencies worldwide. For diesel submarines, the fastest transit posture would be on the surface—an operationally unsatisfactory approach. The best submerged transit speed for a diesel submarine is around 7 knots and depends to some degree on the weather and adversary surface surveillance, which can complicate snorkeling operations to recharge the batteries. In addition, diesel submarines need to manage a safety margin for reserve battery capacity or fuel to accommodate unexpected circumstances. Nuclear-powered submarines do not have these operational limitations; long transits are quick, there is no need to create snorkel windows, there is no need for fuel or battery safety margin management, and there is no need to budget fuel for the return transit.

**Weapon Volume and Diversity**

Because submarines operate alone far forward without logistical support, it is vital that they carry enough ordnance to make the risk involved in getting in and out worth the impact the submarine makes on station. Modern diesel submarines carry from 8 to 24 weapons, almost all of which are launched from the torpedo tubes. Nuclear-powered fast attack submarines, in contrast, carry 56 weapons that are a combination of 12 vertical and 24 horizontal weapons. Virginia-class submarines equipped with the Virginia Payload Module will be able to carry an additional 28 Tomahawk-sized missiles or an equivalent volume of other payloads for a total ordnance load of 64 torpedoes/missiles. On Los-Angeles-class submarines and the Virginia-class Block I and II submarines, the vertical payload volume is 12.217 cubic feet. Only on the Block III Virginia-class submarines and beyond submarines does an 87-inch payload volume exist. Therefore, a nuclear submarine can carry a payload that is about three times as large as a diesel submarine payload, depending on the diesel submarine in the comparison, and can carry a much more flexible range of payloads able to support a wider range of missions.

**Endurance**

Submarine endurance is the ability to transit far from home and then operate unsupported in a mission posture for an extended period. For diesel submarines, endurance “on station” is limited by the fuel capacity that remains after the transit, the duration of the operation, and the transit distance required to reach a place to refuel. Endurance in a stealthy “mission posture” is limited by the need to find an opportunity to securely snorkel to recharge batteries. In addition, diesel submarines need to manage a safety margin of reserve battery capacity or fuel.

**Sensor Capacity—Space, Weight, Power, and Cooling**

In addition to weapons, submarine payloads include sensor systems such as sound navigation and ranging (SONAR), periscopes, and electromagnetic warfare systems. Each of these systems imposes a structural footprint—the SONAR array, the mast arrangement, and ranging (SONAR), periscopes, and electromagnetic warfare systems. Each of these systems imposes a structural footprint—the SONAR array, the mast arrangement, and ranging (SONAR), periscopes, and electromagnetic warfare systems. Each of these systems imposes a structural footprint—the SONAR array, the mast arrangement, and ranging (SONAR), periscopes, and electromagnetic warfare systems. Each of these systems imposes a structural footprint—the SONAR array, the mast arrangement, and ranging (SONAR), periscopes, and electromagnetic warfare systems. Each of these systems imposes a structural footprint—the SONAR array, the mast arrangement, and ranging (SONAR), periscopes, and electromagnetic warfare systems. Each of these systems imposes a structural footprint—the SONAR array, the mast arrangement, and ranging (SONAR), periscopes, and electromagnetic warfare systems.

“A submarine’s ability to maneuver at high speeds is the key to repositioning within a theater of interest and for maintaining the initiative in peacetime or wartime engagements. Speed is vital.”

**“Never Again!”**

By Cmdr. Cameron Aljilani, Undersea Warfare Division (OPNAV N97)
submarines are smaller and therefore necessarily must constrain the size of the sensors they can carry. Large acoustic arrays, for example, are problematic. The design and operation of a diesel submarine necessitates the limiting or constraining of power and cooling demands, which often means shutting down systems or system components. Nuclear submarines are much less constrained on structure, power, and cooling. They are able to carry large arrays, large processing banks, long towed arrays, robust display consoles, and the necessary parts and logistic support. Nuclear submarine crews do not have to decide whether they want all of the systems operating or just some of the systems in reserve necessary for a prolonged mission posture until the next snorkel opportunity. In summary, nuclear submarines have larger and more capable sensors, more flexibility on sensor options, and are able to fully employ those sensors without compromise.

Stealth and Vulnerability
A well-designed diesel submarine that is professionally operated, submerged and running on the battery, and living in ambush is perhaps the stealthiest and most capable maritime threat today. This particular posture plays directly to the strengths of diesel submarine. U.S. Navy submarines have other missions to carry out that are not so well suited to diesel submarines as is the above scenario. And even in this ideal ambush mission, there are other phases of the operation that must be performed, and in those phases the weaknesses in stealth and vulnerability of diesel submarines come into play. The submarine must transit to its ambush location, it must periodically recharge while lying in wait, and it must return home. In general, these are not strengths of a diesel submarine.

That said, there are countries whose only submarine mission is local defense. For such countries, there would be no transit and the mission location would be in home waters. This also means that there would be no surface or air threats to the diesel submarine while recharging. These countries always need to have nuclear submarines in the Pacific. U.S. diesel submarines have other missions to perform, and in those phases the weaknesses in stealth and vulnerability of diesel submarines come into play. The submarine must transit to its ambush location, it must periodically recharge while lying in wait, and it must return home. In general, these are not strengths of a diesel submarine.

For nuclear submarines, the ability to produce essentially unlimited electricity and propulsion while submerged enables limiting exposure to the bare minimum needed for sensor effectiveness. When a nuclear submarine accepts detectability risk to gain flexibility or operating an operation—for example, exposing a periscope or launching a missile—it is a deliberate choice made as a calculated risk in pursuit of an operational gain. It is not a step imposed on the crew due to a limitation in the platform's performance, as is the case with a diesel submarine forced to snorkel.

Sustainability
Sustainability refers to how effectively the Navy's support infrastructure is able to provide for the needs of the submarine. This includes food, repair parts, repair equipment and training, crew training, and the availability of fuel and water. As a forward-deployed Navy, our surface and air forces have mature supply lines and a developed expeditionary sustainment capability. Some of our sustainment capability comes from allied and partner-nation support. In a contested environment, this regional support may be unavailable due to political sensitivities. U.S. diesel submarines support would be challenging. To compensate for this possibility and to add operational flexibility, Military Sea Logistics Command has a fleet of ships that provide recharging service. In the area of fuel, we would have two support ships to keep the submarine running.

Comparative Analysis at a Glance

<table>
<thead>
<tr>
<th>Diezel Submarine</th>
<th>Nuclear Submarine</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Speed</strong></td>
<td></td>
</tr>
<tr>
<td>Surface: 17 knots</td>
<td>Surface: &lt;15 knots</td>
</tr>
<tr>
<td>Submerged: ~20 knots (max)</td>
<td>Submerged: &gt;25 knots (max)</td>
</tr>
<tr>
<td>Transit: 7 knots</td>
<td>Transit: &gt;25</td>
</tr>
<tr>
<td><strong>Endurance</strong></td>
<td>Unlimited</td>
</tr>
<tr>
<td>Limited by fuel capacity</td>
<td></td>
</tr>
<tr>
<td><strong>Weapons</strong></td>
<td></td>
</tr>
<tr>
<td>Torpedoes: Cruise missiles</td>
<td>Ballistic missiles, torpedoes, SEAL Delivery Vehicle</td>
</tr>
<tr>
<td>Cruise missiles</td>
<td>Torpedoes</td>
</tr>
<tr>
<td><strong>Sensors</strong></td>
<td>Full array</td>
</tr>
<tr>
<td>Limited due to space</td>
<td></td>
</tr>
<tr>
<td><strong>Power</strong></td>
<td>Unlimited</td>
</tr>
<tr>
<td>Limited</td>
<td></td>
</tr>
<tr>
<td><strong>Cooling</strong></td>
<td>No limitations</td>
</tr>
<tr>
<td>Limited</td>
<td></td>
</tr>
<tr>
<td><strong>Stealth</strong></td>
<td>No limitations</td>
</tr>
<tr>
<td>Limited by battery</td>
<td></td>
</tr>
<tr>
<td><strong>Sustainability</strong></td>
<td>Self-sustaining &amp; existing global infrastructure</td>
</tr>
<tr>
<td>No infrastructure for support</td>
<td></td>
</tr>
<tr>
<td><strong>Cost</strong></td>
<td>$450M</td>
</tr>
</tbody>
</table>
David Goggins’ career began as a Submariner aboard USS Tecumseh (SSBN 628) where he served as the Electrical Assistant, Reactor Controls Assistant, Sonar Officer, and Assistant Operations Officer. He was then selected into the Engineering Duty Officer Community and reported to the Supervisor of Shipbuilding, Conversion and Repair (SUPSHIP) in Groton, Conn. At this command, he was the Lead Ship Coordinator for FWC Connecticut (SSN 22) from initial hull construction to the initial stages of post-shakedown availability planning. Subsequent shore duty tours included serving as the Assistant Repair Officer at Naval Submarine Support Facility in New London, Conn.; SeaWolf Class Project Officer and Program Manager’s Representative at SUPSHIP Groton; SSGN Conversion Project Officer and Program Manager’s Representative at SUPSHIP Groton; Virginia Class Submarine Assistant Program Manager (APM) for Post Delivery and APM for New Construction; and a staff assignment within the Office of Chief of Naval Operations, Undersea Warfare Division (N97).

How long have you been the Columbia Program Manager?
I took the job in June of 2015.

Prior to Columbia, I served as the Virginia Class Submarine Program Manager.

How does Columbia compare or differ with Ohio?
Columbia and Ohio are approximately the same size (approximately 560’ long and 43’ diameter compared to approximately 560’ and 42’ diameter) although there are eight fewer missile tubes on Columbia.

Rather than develop a new missile system, Navy assessments determined it to be more cost-effective to extend the life of the current Trident D5 missile and use the existing Strategic Weapon System design. A key benefit of life extension is that the Navy can avoid the cost and schedule risk of developing an upgraded or new weapon system at the same time it is building a new class of submarine.

Columbia will also share systems and components from Virginia class such as the ship control system, sonar, torpedo fire control, radio, universal modular masts, sanitary system, pumps, and valves. This commonality will result in significantly reduced logistics costs in addition to the savings incurred from leveraging existing technology.

The Columbia design incorporates a life-of-ship reactor that will not require the mid-life refueling performed on Ohio-class submarines, enabling the planned force of 12 Columbia SSBNs to provide the same at-sea presence as the current force of 14 Ohio SSBNs.

Columbia also integrates an electric drive propulsion train along with other mission-essential technologies to ensure the platform remains survivable through the 2080s.

What is your assessment of the Columbia-class program status?
Columbia is on track to commence long lead time material procurement for the lead ship next year, commence construction in FY21, and to deliver the first Columbia-class submarine to the Fleet in FY28 with initial deployments in FY31. To ensure we are on track, we have established a key program metric to achieve 83% design completion at construction start, and today we are right on our goal. The push for a high design maturity (>80%) complete as of construction start comes from lessons learned during the construction of previous classes of submarines to minimize design changes that result in increased costs and prolonged delivery schedules. Maintaining 83% design completion and the Integrated Enterprise Plan (IEP) are two of many factors positioning the Columbia-class submarine program to providing needed capability at an affordable price on the timeline needed to meet national strategic deterrence requirements.

What is the Integrated Enterprise Plan?
We are challenging our industrial partners to determine the optimal build plan for the Columbia-class across three facilities—Quonset Point, Groton, and Newport News—while not interrupting the current build plan to the Virginia and Ford programs. The IEP is a comprehensive, government-informed industry initiative evaluating shipbuilder capability and capacities to ensure readiness to construct and deliver the Columbia-class in concert with the other ships. The IEP provides the overall framework of the required facility investments, manning, hiring requirements, and trade school demands, as well as the strategy to prepare the vendor base for the significant increase in workload.

Columbia and Dreadnought Construction teams during a tour of Electric Boat Facilitites at Quonset Point.

What milestones have been achieved to date?
The Columbia Program completed the Defense Acquisition Board (DAB) review for Milestone B approval on November 4, 2016. An Acquisition Decision Memorandum (ADM) granted Milestone B approval on January 4, 2017. Milestone B is the Milestone Decision Authority (MDA) to enter into the Engineering & Manufacturing Development (EMD) phase of acquisition. In its simplest form, it is the transition from preliminary design to detailed design efforts. During the EMD phase, Columbia will complete all needed hardware and software detailed design, component development, and engineering integration efforts in addition to conducting developmental testing and evaluation to prepare for production.

On September 21, 2017, the Navy awarded the Detail Design and Construction Readiness contract to General Dynamics - Electric Boat (GDEB).

What does the Detail Design and Construction Readiness contract include?
The scope of the Detail Design and Construction Readiness contract includes completion of detail design, Missile Tube Module
(MTM) prototyping, component and technology development, cost reduction efforts, and United Kingdom (UK)-unique design and manufacturing efforts for the Dreadnought-class SSBN Common Missile Compartment.

What is the next major milestone?

Our next milestone will be in 2020 with the Lead Ship Authorization DAB. At this DAB, we will gain authorization from the MDA to commence construction on Columbia. Prior to our Lead Ship Authorization decision point in 2020, the program will verify the maturity of its design through the Critical Design Review and its readiness to commence construction through the conduct of a Production Readiness Review.

What, if anything, is already being built?

We have begun construction of the lead ship MTM first article prototype. The MTM is composed of four quad packs, with each quad pack consisting of four missile tubes and their associated hardware support equipment. This prototype has validated our vendor base for missile tube construction and our Integrated Tube & Hull robotic construction process. Our first quad pack efforts also support the UK construction and our Integrated Tube & Hull robotic construction process. Our first quad pack efforts also support the UK construction and our Integrated Tube & Hull robotic construction process.

Why 12 Columbus?

SSBN force structure is dependent on the number of submarines required to be maintained operationally ready, not the number of warheads or missiles carried by the SSBNs. The submarines must be continuously posture across large areas in two oceans. The Force is sized to keep the required number of SSBNs en route and to ensure that at least 10 operational SSBNs are available, even when some are offline conducting mid-life overhauls. A minimum of 10 operational SSBNs are required to continuously meet this requirement. A force of 12 total Columbia SSBNs ensures that at least 10 operational SSBNs are always available, even when some are offline conducting mid-life overhauls.

Why the Columbia-class submarine be built?

GDEB in Groton is the prime contractor and is responsible for the design, construction, and delivery of the 12 Columbia-class submarines. Huntington Ingalls Industries (HI) - Newport News Shipbuilding (NNS) in Newport News, Va., will participate in the design and construction of major assemblies and modules, leveraging their experience on Virginia-class submarines. The estimated construction split is 78:22 between GDEB and HI-NNS.

Both shipbuilders will continue to deliver Virginia-class submarines with some future shift in deliveries toward HI-NNS in recognition of Columbia Program priority.

When do the first crewmembers of the Columbia report?

The first crewmembers of Columbia will report in June of 2024. The crewmembers report in six increments aligned to key construction events and crew certification for the Blue and Gold crews. All crewmembers will arrive by January 2027 for a complement of 155 personnel per crew. Initial crew certification will occur in May 2027 to support sea trials.

What about Columbia excites you the most?

I am truly most excited to be part of the team that transitions the design from paper to steel. As we begin the new phase of acquisition for the program, it is time to prepare for construction start in FY21. To make sure we deliver on time, our focus for the next three years is construction readiness regarding our design products, facilities, resources, material, and integrated schedules.

In addition to validating our construction techniques, early production of the MTM will provide the program much needed schedule margin to ensure we deliver Columbia on time.

What challenges lay ahead?

The biggest challenges are vendor base readiness and program affordability. For Columbia, we established a Design for Affordability program early in the acquisition process as well as the IEP discussed earlier. We have challenged each member of the team, both government and contractor, to seek opportunities to drive cost savings while maintaining requirements. This has certainly reaped its benefits as specifically cited in the Milestone B Acquisition Decision Memorandum as the total reduction from the original procurement cost estimate has been nearly 40%, approximately $50B in 2017. We aggressively pursue cost reduction opportunities, which allows for a more affordable fleet.

Another significant challenge is executability. We must execute the design products and construction process on time. Just as we plan other elements of the project, we are challenging our team to drive the project into the schedule because in our business, if you are on schedule, you are behind. Our team is answering that challenge by driving opportunities to create schedule margin in component development and advance construction opportunities. We are also conducting deep dives into the construction process, ensuring we can execute from a workforce, facilities, and assembly standpoint.

We will deliver an on-time and affordable platform.

Where will the Columbia-class submarine be built?

GDEB in Groton is the prime contractor and is responsible for the design, construction, and delivery of the 12 Columbia-class submarines. Huntington Ingalls Industries (HI) - Newport News Shipbuilding (NNS) in Newport News, Va., will participate in the design and construction of major assemblies and modules, leveraging their experience on Virginia-class submarines. The estimated construction split is 78:22 between GDEB and HI-NNS.

Both shipbuilders will continue to deliver Virginia-class submarines with some future shift in deliveries toward HI-NNS in recognition of Columbia Program priority.

When do the first crewmembers of the Columbia report?

The first crewmembers of Columbia will report in June of 2024. The crewmembers report in six increments aligned to key construction events and crew certification for the Blue and Gold crews. All crewmembers will arrive by January 2027 for a complement of 155 personnel per crew. Initial crew certification will occur in May 2027 to support sea trials.

What about Columbia excites you the most?

I am truly most excited to be part of the team that transitions the design from paper to steel. As we begin the new phase of acquisition for the program, it is time to prepare for construction start in FY21. To make sure we deliver on time, our focus for the next three years is construction readiness regarding our design products, facilities, resources, material, and integrated schedules.

In addition to validating our construction techniques, early production of the MTM will provide the program much needed schedule margin to ensure we deliver Columbia on time.

What challenges lay ahead?

The biggest challenges are vendor base readiness and program affordability. For Columbia, we established a Design for Affordability program early in the acquisition process as well as the IEP discussed earlier. We have challenged each member of the team, both government and contractor, to seek opportunities to drive cost savings while maintaining requirements. This has certainly reaped its benefits as specifically cited in the Milestone B Acquisition Decision Memorandum as the total reduction from the original procurement cost estimate has been nearly 40%, approximately $50B in 2017. We aggressively pursue cost reduction opportunities, which allows for a more affordable fleet.

Another significant challenge is executability. We must execute the design products and construction process on time. Just as we plan other elements of the project, we are challenging our team to drive the project into the schedule because in our business, if you are on schedule, you are behind. Our team is answering that challenge by driving opportunities to create schedule margin in component development and advance construction opportunities. We are also conducting deep dives into the construction process, ensuring we can execute from a workforce, facilities, and assembly standpoint.

We will deliver an on-time and affordable platform.

Where will the Columbia-class submarine be built?

GDEB in Groton is the prime contractor and is responsible for the design, construction, and delivery of the 12 Columbia-class submarines. Huntington Ingalls Industries (HI) - Newport News Shipbuilding (NNS) in Newport News, Va., will participate in the design and construction of major assemblies and modules, leveraging their experience on Virginia-class submarines. The estimated construction split is 78:22 between GDEB and HI-NNS.

Both shipbuilders will continue to deliver Virginia-class submarines with some future shift in deliveries toward HI-NNS in recognition of Columbia Program priority.

When do the first crewmembers of the Columbia report?

The first crewmembers of Columbia will report in June of 2024. The crewmembers report in six increments aligned to key construction events and crew certification for the Blue and Gold crews. All crewmembers will arrive by January 2027 for a complement of 155 personnel per crew. Initial crew certification will occur in May 2027 to support sea trials.

What about Columbia excites you the most?

I am truly most excited to be part of the team that transitions the design from paper to steel. As we begin the new phase of acquisition for the program, it is time to prepare for construction start in FY21. To make sure we deliver on time, our focus for the next three years is construction readiness regarding our design products, facilities, resources, material, and integrated schedules.

In addition to validating our construction techniques, early production of the MTM will provide the program much needed schedule margin to ensure we deliver Columbia on time.

What challenges lay ahead?

The biggest challenges are vendor base readiness and program affordability. For Columbia, we established a Design for Affordability program early in the acquisition process as well as the IEP discussed earlier. We have challenged each member of the team, both government and contractor, to seek opportunities to drive cost savings while maintaining requirements. This has certainly reaped its benefits as specifically cited in the Milestone B Acquisition Decision Memorandum as the total reduction from the original procurement cost estimate has been nearly 40%, approximately $50B in 2017. We aggressively pursue cost reduction opportunities, which allows for a more affordable fleet.

Another significant challenge is executability. We must execute the design products and construction process on time. Just as we plan other elements of the project, we are challenging our team to drive the project into the schedule because in our business, if you are on schedule, you are behind. Our team is answering that challenge by driving opportunities to create schedule margin in component development and advance construction opportunities. We are also conducting deep dives into the construction process, ensuring we can execute from a workforce, facilities, and assembly standpoint.

We will deliver an on-time and affordable platform.

Where will the Columbia-class submarine be built?

GDEB in Groton is the prime contractor and is responsible for the design, construction, and delivery of the 12 Columbia-class submarines. Huntington Ingalls Industries (HI) - Newport News Shipbuilding (NNS) in Newport News, Va., will participate in the design and construction of major assemblies and modules, leveraging their experience on Virginia-class submarines. The estimated construction split is 78:22 between GDEB and HI-NNS.

Both shipbuilders will continue to deliver Virginia-class submarines with some future shift in deliveries toward HI-NNS in recognition of Columbia Program priority.

When do the first crewmembers of the Columbia report?

The first crewmembers of Columbia will report in June of 2024. The crewmembers report in six increments aligned to key construction events and crew certification for the Blue and Gold crews. All crewmembers will arrive by January 2027 for a complement of 155 personnel per crew. Initial crew certification will occur in May 2027 to support sea trials.

What about Columbia excites you the most?

I am truly most excited to be part of the team that transitions the design from paper to steel. As we begin the new phase of acquisition for the program, it is time to prepare for construction start in FY21. To make sure we deliver on time, our focus for the next three years is construction readiness regarding our design products, facilities, resources, material, and integrated schedules.
You say the words, “I relieve you” and report your relief to the Commodore, “Commodore, I have properly relieved as Commanding Officer.” So now what?

You say the words, “I relieve you” and report your relief to the Commodore, “Commodore, I have properly relieved as Commanding Officer.” So now what?

Most likely for the year prior to your command you were thinking about what you would want to do in command; were you also thinking about your command tour for the prior 15 years? If not, then maybe you were focused on your next tour as executive officer (XO) or department head. Although it is logical to focus on the upcoming milestone, this short-term focus may not result in the type of deep self-reflection the Navy requires in its command ing officers (COs). Leadership styles are definitely different for different billets, but if we are to develop the best COs, command leadership should be started as a junior officer and should be a priority during your command.

Today is the day to properly prioritize leadership training in your wardroom. While COs tend to focus on all the necessary day-to-day requirements, we, may fall short in long-term personnel development while in command. Following your tour in command, however, you will relish the successes of your people and quickly forget the small casualties of your command’s day-to-day submarine life. If you had 15 years of formal preparation for command, how well thought out would your first day in command be?

This article should serve as a reminder that training your relief as a CO starts with formal leadership training of the entire wardroom. If you have not started leadership training with your team, start today by asking them to read this. Then review it with them and listen to their feedback. There doesn’t need to be a Navy program or requirement; this is an implied duty for any captain, and as each CO is different, your style of leadership training will be different, but no less effective. Formal leadership training coming from the captain is the most influential way you can make a positive impact on your wardroom, ship and Navy.

Responsibilities of command

So, what do you actually do as CO? There are abundant examples and rich tradition depicting your role. There are naval regulations that precisely define your responsibilities, but you set the priorities and the pace for executing those responsibilities. How you outline, communicate, and execute your priorities is important.

You are the role model for your crew, and especially for your wardroom. Your actions will define what acceptable leadership looks like. No single person will have a larger impact on your team’s leadership future than you, and, if done properly, your example alone will have a positive effect on your team.

Leadership, however, takes constant effort, discipline, learning, and practice. If you believe you are a leader because you are in charge of people, are you then a pianist for owning a piano? How did you learn to lead? What did the Navy invest in you that gave the Navy confidence and trust in your ability to command? If you can’t answer this, or if you can only point to the formal schools that the Navy provided or on-the-job training, then you may not have been provided with the best possible tools.

While it is incumbent on you to continue your self-education as CO, there is really no time to grow into the job. Every day you did not spend preparing for the leadership challenges ahead is a day of lost preparation, from which your current team cannot benefit. Start today by thinking of your team as prospective COs and treating them that way. Discuss with them the challenges of command and provide them with the tools you have acquired over your years in the Navy.

**TEACHING SUBMARINE LEADERSHIP:**

A Commanding Officer’s Responsibility

by Cdr. Scott McGinnis, USN

You say the words, “I relieve you” and report your relief to the Commodore, “Commodore, I have properly relieved as Commanding Officer.” So now what?
The Limit of Time

Why don’t COs make formal leadership training a higher priority? There are a lot of tasks competing for our time onboard a submarine. We have important engineering, operational, and maintenance tasks but, if you make leadership training an equally high priority, you will see improvement across those areas. Your team will increase its efficiency, improve proper delegation, and free up more time to allocate to other tasks. We perceive time as the primary restricting factor when it comes to giving leadership training a low priority, but time may be the best reason to give it a higher priority.

Since time is a zero-sum game, what’s the benefit of taking the time to do this? By teaching leadership, you are preventing problems in the future that will take your time when it is least convenient. You will eventually have a negative counseling session with someone on your team, and you are committing now to spend that time in a productive manner, vice a reactive one later.

Here are the rationalizations, mostly subconscious, that we use to give formal leadership training a low priority:

• “I want to be seen as a natural born leader. Leadership is an innate ability that cannot be taught.” Leadership is a taught skill, and it requires practice, feedback, and self-evaluation to improve. No great athletes or musicians, despite whatever natural talents they may have, improved their performance without a coach or teacher. Who is better suited to coach your team in leadership than you?

• “I don’t want to be seen as prescriptive. If I tell my team I consciously stop typing when they are talking to me, they will think I am cookie cutter instead of genuine.” Perhaps, but isn’t the benefit of having incredible leaders in the future outweighed by this risk of perception? Doesn’t it say something to your team that you make the effort to consciously think about your own leadership and work hard to improve it?

• “I don’t want to be held accountable for the leadership traits that we discuss because I might involuntary or voluntarily violate them at some future time.” Are you not already held accountable? The fear of being judged sometimes can be palatable. This is natural, but it is a trap. If you are in a position of authority, you are judged every moment. Now is the time to understand this and get past it. You will be judged poorly, in time, if you do not take the opportunity to develop your team.

• “My team doesn’t want something else added to their plate. There is enough to spend our time on, and by adding this topic to it, they will either do not do the preparation or resent the fact.” Once you engage your team members at this level, they will be clear about your intentions, and you and your crew will be using a common leadership lexicon, making communications and counseling easier. By investing time now in preparing your wardroom for command, you will gain larger, future returns on your time than you originally invested.

Start now, though. Make that down payment on the future.

Prioritizing leadership training

Your priorities are laid out daily by the plan of the day. If you have scheduled your day with maintenance meetings, then clearly maintenance is your priority. If you are scheduled to be at the trainer all day, that is your priority. Your presence is the single most non-verbal indicator of your priorities, and your schedule shows where you are. By having a formal leadership training schedule, you will be demonstrating that this is a priority for you.

Teaching leadership has the additional benefit of requiring you to continue to grow and improve. Because of numerous competing priorities, it is easy to push self-development aside. If you do not continue to work to improve your own leadership, you will become stale, similar to resting on the fact that you have a great one-mile running time. If you do not continue to train, you will soon find that your ability to improve has atrophied. By scheduling required leadership training, you are holding yourself accountable to your team to allocate the time in pursuit of leadership improvement. This requires discipline. By voicing your priority to conduct leadership training, you are spreading this discipline burden across your team.

Execution

Now that you prioritized leadership training, how is it executed? How often should you be training? Let’s assume you are conducting formal leadership training with your wardroom quarterly, chief’s quarters semi-annually, and crew annually. This can also include sub-groups: department heads and XO quarterly and the chief of the boat with the chief’s quarters quarterly. Chiefs and division officers can work with their teams on a regular basis. You can use existing structures such as CP0365 or a standard time slot on a given day while underway.

Leadership topics should include ethics. There are numerous ethics case studies from the Navy Leadership and Ethics Course, the Naval Academy, and the various military professional universities. While these case studies are great in the classroom, there is nothing more powerful than using these with your team and making them relevant to the leadership decisions they are currently making. In addition to using case studies, ask your team members to write down three leadership traits they valued prior to joining the Navy. A powerful example of a leader they admire, three worst leadership traits, or a time they were inadequately prepared for a leadership challenge and what, if anything, makes them ready now to handle such a challenge.

Conclusion

All professions require study and effort for improvement and not just on-the-job training and experience. The leadership style you used and were comfortable with as an engineer may not serve you well as a CO. As your responsibilities grow, your ability to communicate and delegate must also grow. Each leadership opportunity presents unique challenges that will require different leadership tools just as different maintenance jobs require different tools, even though the same person is accomplishing the task. You, as CO, need to address the different leadership demands and tools with your team members now so they are better prepared for the challenges they are to face.

I hope that reading this article has energized you to make regular leadership training an appropriately high priority on your boat and discuss your teaching methods with others on the waterfront. If we believe our greatest asset is our people, and if we define what “taking care of our people” really means, then we will quickly come to the conclusion that, by investing the time to formally teach leadership to our teams, we are investing in our futures as well as theirs. By talking about it and socializing new ideas, we become better as a force. Don’t rationalize away your most important tool—your direct involvement. Make the time investment today and formally train your teams on leadership.

Below are 10 submarine-centric topics you may want to discuss with your team to get started.

• How do leaders purposely change themselves to meet their perception of what is expected of them? For example, would you decide to not drink alcohol because you believe that is the best role-model? Would you drink alcohol to fit-in, even though you wouldn’t normally? How should alcohol be treated in our organization? How do we treat people who come in to work intoxicated?

• How do you invite contrariness into a team? Is it always warranted? When wouldn’t you want a different opinion? Who should be able to say “no” in your team?

• How much sleep should we get to perform our jobs? Do we do a good job of protecting sleep? How should decisions be made while underway when someone is asleep?

• Is a leave a right or a privilege? If we support an aggressive leave plan, does that hurt or help the organization? How? Should leave be taken during an underway?

• How do you perform formal, negative counseling? What are the tools of discipline? How do we reward excellent work? What are the leaders each chief or officer has in discipline and reward? How do you perform mid-term counseling? Why is it important?

• What part of your team does physical fitness play? Should there be command PT? What are the command’s responsibilities toward its team regarding physical fitness? How do you set the example and what is the balance required?

• What are your responsibilities as a leader off the boat? What is expected of you from your team?

• How do you use social media with crew members? Do you have a private facebook account? Do you tweet? Should you? Should you have a “friend” who is on the boat? How do you handle a negative comment on the ship’s facebook page? How do you handle an inappropriate comment?

• How does your leadership need to change from department head to XO? How did you prepare for your next challenge?

• Can you be vocal about your political thoughts? What can you post on social media? What should you post on social media? What are your duties in your online life?
I never thought that, nearly five years after graduating from the United States Naval Academy, anything could make me feel like a Midshipman again. It turns out that rank and experience have very little to do with thwarting that feeling. When you are standing in a group of lieutenants, dazed and lost in the halls of the Pentagon wearing Service uniforms, only whetted our appetites. Here, in epaulettes, ribbons, medals, and myriad visitors. The tour of the Pentagon, awash with efficiency of seasoned Pentagon guardsmen, made us cringe. The outcome of this discussion was surprising in an important way—it brought a new excitement to what we did, opening channels of discussion that we had never considered the many different styles of leadership, mission sets, and exercises that exist outside the sphere of my own squadron. The outcome of this discussion was surprising in an important way—it brought a new excitement to what we did, opening channels of discussion that we were all equally capable of contributing to and offering a certain significance to the roles we played individually.

The Junior Officer of the Year (JOOY) program is an incredibly rewarding recognition of junior officers in the Submarine Force who have demonstrated superior skills in leadership and management, operational planning, technical prowess, and overall seamanship. Each boat in the fleet nominates a junior officer for this award, and each squadron is tasked with picking one from among all of the boats in the squadron. Submarine tender candidates are also submitted and chosen by the ship’s commanding officers.

The tremendous distinction that accompanies this award is one that catches most of its winners by surprise. Submarine wardrooms are brimming with motivated, intelligent junior officers, but there was a distinct sense of humility that could be seen in all of the JOOY winners present. When congratulated, it was not uncommon to hear “I don’t know what I did differently. I was just doing my job.”

The visit to Washington D.C. provides JOOYs the opportunity to meet with senior officials to discuss current fleet challenges and possible solutions. Our trip began with us quietly introducing spouses and reuniting with friends we’d not seen since our nuclear training pipeline. Many of us were simply glad for the break from our respective boats.

Meetings with Navy Leaders
The first afternoon consisted of watching our group of naval officers frantically attempting to gather on the same subway car en route to the Pentagon. Later, these same officers were clumsily making their way through Pentagon security to gather in the tour waiting area (in stark contrast to the practiced efficiency of seasoned Pentagon visitors). The tour of the Pentagon, awash in epaulettes, ribbons, medals, and myriad uniforms, only whetted our appetites. Here, I offer advice to the ladies who attend this trip in the future: if you wear heels, make sure they are short heels. We came at last to the kickoff of our weekend trip: a meeting with Vice Adm. James Foggo, Director, Navy Staff. Surrounded by the highly decorated walls of Adm. Foggo’s Pentagon office, we began to more fully appreciate the unique opportunities that were presented by this trip.

The JOOY program is an incredibly rewarding recognition of junior officers in the Submarine Force who have demonstrated superior skills in leadership and management, operational planning, technical prowess, and overall seamanship. Each boat in the fleet nominates a junior officer for this award, and each squadron is tasked with picking one from among all of the boats in the squadron. Submarine tender candidates are also submitted and chosen by the ship’s commanding officers.

The tremendous distinction that accompanies this award is one that catches most of its winners by surprise. Submarine wardrooms are brimming with motivated, intelligent junior officers, but there was a distinct sense of humility that could be seen in all of the JOOY winners present. When congratulated, it was not uncommon to hear “I don’t know what I did differently. I was just doing my job.”

The visit to Washington D.C. provides JOOYs the opportunity to meet with senior officials to discuss current fleet challenges and possible solutions. Our trip began with us quietly introducing spouses and reuniting with friends we’d not seen since our nuclear training pipeline. Many of us were simply glad for the break from our respective boats.

Meetings with Navy Leaders
The first afternoon consisted of watching our group of naval officers frantically attempting to gather on the same subway car en route to the Pentagon. Later, these same officers were clumsily making their way through Pentagon security to gather in the tour waiting area (in stark contrast to the practiced efficiency of seasoned Pentagon visitors). The tour of the Pentagon, awash in epaulettes, ribbons, medals, and myriad uniforms, only whetted our appetites. Here, I offer advice to the ladies who attend this trip in the future: if you wear heels, make sure they are short heels. We came at last to the kickoff of our weekend trip: a meeting with Vice Adm. James Foggo, Director, Navy Staff. Surrounded by the highly decorated walls of Adm. Foggo’s Pentagon office, we began to more fully appreciate the unique opportunities that were presented by this trip.

The following morning, we met with Rear Adm. William Merz, Director of Undersea Warfare Division (N97). The open discussion we had about our concerns affecting our skills and warfighting abilities was refreshing and enlightening. It was the first opportunity for us to share our unique experiences aboard our respective submarines, and I realized that I had never considered the many different styles of leadership, mission sets, and exercises that exist outside the sphere of my own squadron. The outcome of this discussion was surprising in an important way—it brought a new excitement to what we did, opening channels of discussion that we were all equally capable of contributing to and offering a certain significance to the roles we played individually.

The following morning, we met with Rear Adm. William Merz, Director of Undersea Warfare Division (N97). The open discussion we had about our concerns affecting our skills and warfighting abilities was refreshing and enlightening. It was the first opportunity for us to share our unique experiences aboard our respective submarines, and I realized that I had never considered the many different styles of leadership, mission sets, and exercises that exist outside the sphere of my own squadron. The outcome of this discussion was surprising in an important way—it brought a new excitement to what we did, opening channels of discussion that we were all equally capable of contributing to and offering a certain significance to the roles we played individually.

Among the host of influential individuals we were invited to speak with were Adm. James Caldwell, Director, Naval Nuclear Propulsion Program and Adm. John Richardson, Chief of Naval Operations. These two prestigious gentlemen as well as Adm. Caldwell’s lovely wife, Kim, shared with us personal stories about their own failures and successes, philosophical insights on leadership, and the road ahead for the Submarine Force that we were paving. That future, as later events would emphasize, includes the Columbia-class submarine, the size of our force in the years to come, and the evolving threats we were only beginning to see in the world.

Mrs. Caldwell directly addressed our significant others, recognizing their particular challenges, and offered invaluable advice from her many years of experience. The recognition of our significant others was important. I certainly could not have made it through the past years without the support of my fiancé. They are not always in the spotlight, but they should be. The emotional stress they must overcome, the lives they continue to support at home while we are away, and the long hours and temperature extremes they must endure are the sacrifices we ask them to pay. They are the driving force behind the entire submarine community. Lt. Hans Nowak II, Squadron 20, and Nicole Nowak: "The sacrifices Nicole has made overshadow anything I have done.”

The sacrifice Nicole has said it best when he said of his civilian wife, community. Lt. Hans Nowak II, Squadron 20, and Nicole Nowak: "The sacrifices Nicole has made overshadow anything I have done.”
The JOOY’s high point
But the week was not over yet. While “White House Visit” had always been the last item on our itinerary, the details of what the White House visit would actually entail had been (in true Submariner fashion) written in mud. Though we reminded ourselves not to get our hopes up, it’s difficult to simply ignore the possibility that you might come face to face with the President of the United States of America.

Standing in the Roosevelt Room, the White House staff informed us that the President was in an adjacent room signing an executive order on trade. Unfortunately his schedule was running just a little too tight to meet with us. We were, however, afforded the opportunity to meet Vice President Pence, and there was no loss of excitement in that honor. When he walked in, the excitement in the room was palpable. His smile was big and genuine. After welcoming our group, he immediately showed his Hoosier pride by calling out the Indiana natives in our group—Lt. Hans Nowak and his wife, Nicole. “It was an honor meeting Vice President Pence. He was extremely welcoming,” Lt. Nowak commented. In true millennial fashion, we took a group selfie that he tweeted instantly.

The Vice President then gestured to the door we had all been eyeing since we had walked in the room, the one leading to the Oval Office. He informed us that President Trump had made time to meet our group of submarine officers.

We could hear him before we could see him, the voice I’d heard on the television and radio countless times in the last year. With tempered expectancy we entered the room and there he was, the leader of the free world, my boss. As Lt. Buonaccorso recalls it, “Sitting behind the Resolute Desk, the President welcomed us in and showed us his genuine appreciation for our service and for the sacrifices that our spouses make. We are all grateful to Rear Adm. Kreite of the National Security Council for setting the visit up.” As we filed out of the office, the President congratulated us and shook hands with each of us. It’s not every day that you receive an “ata-boy” in the Submarine Force; it’s rarer still to receive that from the very top of your chain of command.

Unanticipated Benefits
That short week rekindled an excitement and love for the challenges I am able to face in this unique career. Being able to have discussions with other officers about our contributions on our own boats and hear the perspectives of the people who delegate the orders that we carry out was beneficial in a way I could not have imagined. “It was amazing...the extent to which the senior leaders we engaged with were interested in our opinions; soliciting feedback from our group as to what challenges we face as young leaders serving in today’s Submarine Force,” said Lt. James Halsell of Squadron 7. “The interactions during our trip left me excited about the path ahead for our force and our Navy as a whole.”

I hope that the submarine community will consider instituting frequent small-group gatherings of geographically diverse junior officers in more casual forums. I cannot quite capture the significance of being able to meet with other officers across the globe to simply talk about what makes us the same and what makes us different. Where our frustrations were similar, we discussed solutions to what could be force-wide issues. When our frustrations differed, I was able to reconsider what about my command was driving the difference and reflect on whether I could promote change. I would love for other officers to be able to share the same kind of rejuvenation and community-building offered by the JOOY trip.

None of us could have imagined the opportunities and memories afforded by winning JOOY. It’s not really an award that you seek to win. It’s not even an award that you singularly win. Lt. Nowak offered sentiments that echoed those from all in our group: “I would not be where I am without the Sailors I have been honored to lead. They are the foundation for all my accomplishments...my Sailors are amazing.” On behalf of our entire group of JOOY’s, I sincerely thank all of the officials who met with us and restructured our perspective of this force. I also want to thank all of the amazing crews who work tirelessly and shape the impressive people who make up our community.

Cutting-edge Navy contractor work
Near the end of our week, we took a step into the civilian aspects that influence our force. A long and rainy drive found us at Lockheed Martin “Area 51” in Manassas, Va. Meeting the people who develop the technology we use to execute missions and keep our nation safe was an incredible experience. We were even given sneak-peeks of future projects and current developments (which were, to be frank, very cool). Lt. Joseph Buonaccorso, Squadron 1, commented, “Through this visit we gained a firsthand appreciation for our country’s defense contractors, who are tirelessly working to ensure our Navy maintains its tactical superiority for years to come.”

Here, we saw the physical evidence behind an emerging submarine doctrine: a call for a return to warfighting—its principles, its creativity, and its technological innovation. This theme would carry on for the Capitol, where we had the incredible opportunity to meet Representative Joe Courtney of Connecticut’s 2nd Congressional District. “Two Sub Joe,” as he is known, was the driving force behind Electric Boat’s increased Virginia-class submarine annual output.

If we had ended our trip there, it would have already been a tremendous experience. Despite the gray weather, we had all indulged in D.C.’s cherry blossom season, which was in full bloom throughout our stay. Many of us were determined to pack in as many sights as we could.

Needless to say, D.C. alone provided an incredible experience for our JOOY group, and love for the challenges I am able to face in this unique career. Being able to have discussions with other officers about our contributions on our own boats and hear the perspectives of the people who delegate the orders that we carry out was beneficial in a way I could not have imagined. “It was amazing...the extent to which the senior leaders we engaged with were interested in our opinions; soliciting feedback from our group as to what challenges we face as young leaders serving in today’s Submarine Force,” said Lt. James Halsell of Squadron 7. “The interactions during our trip left me excited about the path ahead for our force and our Navy as a whole.”

I hope that the submarine community will consider instituting frequent small-group gatherings of geographically diverse junior officers in more casual forums. I cannot quite capture the significance of being able to meet with other officers across the globe to simply talk about what makes us the same and what makes us different. Where our frustrations were similar, we discussed solutions to what could be force-wide issues. When our frustrations differed, I was able to reconsider what about my command was driving the difference and reflect on whether I could promote change. I would love for other officers to be able to share the same kind of rejuvenation and community-building offered by the JOOY trip.

None of us could have imagined the opportunities and memories afforded by winning JOOY. It’s not really an award that you seek to win. It’s not even an award that you singularly win. Lt. Nowak offered sentiments that echoed those from all in our group: “I would not be where I am without the Sailors I have been honored to lead. They are the foundation for all my accomplishments...my Sailors are amazing.” On behalf of our entire group of JOOY’s, I sincerely thank all of the officials who met with us and restructured our perspective of this force. I also want to thank all of the amazing crews who work tirelessly and shape the impressive people who make up our community.

2017 Submarine Force Junior Officers of the Year (JOOY)
Lt. Joseph Buonaccorso
Rochester, N.Y.
USS New Mexico (SSN 775)
Lt. Anthony Testino
Pepannock, N.J.
USS Springfield (SSN 761)
Lt. Adam Garferick
Florance, Ala.
USS Jimmy Carter (SSN 23)
Lt. Luke Talbot
St. Joseph, Mo.
USS Newport News (SSN 750)
Lt. James Halsell
Anderson, Ind.
USS Columbus (SSN 771)
Lt. Bryan Keck
Spearfish, S.D.
USS Pasadena (SSN 752)
Lt. Brent Shawcross
Fairfax, Va.
USS Antietam (SSN 760)
Lt. Peter Pappalardo
Allentown, Pa.
USS Toledo (SSN 754)
Lt. Krisandra Hardy
Okinawa, Japan
USS Abilene (SSN 728) (B)
Lt. Martin Schneider
Monongahela, W.Va.
USS Louisiana (SSBN 743) (B)
Lt. Katherine Castro
Huntington, Fla.
USS Michigan (SSGN 727) (B)
Lt. Hans Nowak
Terre Haute, Ind.
USS Nebraska (SSBN 734) (G)
Ens. Jace Waller
Concord, N.C.
USS Emory S. Land (AS 39)
In the age of information, looking up a “how to” on nearly any subject conceivable can mean a visit to YouTube. Now, thanks to Submarine Learning Center’s (SLC) Submarine on Board Training (SOBT), even with the loss of connectivity “how to” videos are readily available in every afloat submariner’s work space.

The Submarine Learning Channel Surfaces

For Navigation Electronics Technician Senior Chief Petty Officer Rafael Arriaga, training “on demand” is an achievable reality even submerged on a submarine. Arriaga coordinates the SLC’s, Submarine Learning Channel (SUBLC).

“SUBLC,” says Arriaga, “is a ‘You-Tube’ like video series available on every submarine’s Local Area Network (LAN) using the SEAWARE application designed and maintained by Division 2532, Under Sea Warfare (USW) Combat Systems Trainer Technology Development Branch of the Naval Undersea Warfare Center (NUWC).

“SEAWARE is on every afloat submariner’s desktop and is the interface to SOBT’s library of interactive courseware (ICW) Submarine Learning Channel videos, Fleet Lessons Learned messages, and at the end of 2017 over 75 Undersea Warfighting Development Center (UWDC) publications in an E-Library format. It’s more than one-stop shopping. It is bringing training to the Sailor when they’re ready to learn it.”

“Division 2532, Under Sea Warfare (USW) Combat Systems Trainer Technology Development Branch at NUWC, Newport, our strategic partner, distributes all SOBT and SUBLC products via a hard drive biannually to every submarine crew.”

“Now that we’re continuing to expand our library, with over 130 videos of varying lengths and subjects, we’re expanding...”
our distribution beyond submarines to include every homeport school house technical library." SOBT has been the onboard training resource for the Submarine Force since 1983, evolving along with both the delivery technology and fleet requirements for applied knowledge. In a sense, SUBLC was a logical next step for a Submarine Force driven by technological innovations.

Arriaga explains, “SUBLC addresses training deficiencies that a standard “click next” PowerPoint presentation just can’t. Specifically, when a Sailor asks us “How do I…,” a video demonstration is often a lot more intuitive than a slide presentation.”

This aligns with the environment on a submarine, which involves as much doing as knowing. But, he concedes, that’s not the most significant difference.

“We are primarily using Sailors to give the training rather than contracting a professional narrator to read a script. The intention is to have someone talking to the camera and making the video whom the Sailor recognizes as experienced and whom the Sailor can better relate to.”

“The turn-around on a finalized video is about three times faster than interactive ICW or classroom to with a three- to five-minute video. And we’re hearing from the Sailor that subject matter taught by a fellow Sailor tends to be better received.”

Large ICW or classroom tends to absorb much more quickly than through ICW.

Sailors prefer being assigned a series of videos to review because the information gets absorbed far more quickly than through ICW.

And making the video whom the Sailor recognizes as experienced and whom the Sailor can better relate to.

And while SUBLC is still new, Arriaga has a sense of what’s next.

“I see us working on 360-degree videos,” he says. “For instance, I see us producing a video for a ship traveling inbound to a selected port or harbor, integrating videos into ICW to replace slides, and reaching out to non-submarine training pipelines to share our products that apply to any Sailor or other branches of service. Putting the service members back into computer-based training, products is crucial in order for them to buy into the relevancy of what they are learning.

“That same SEWARE application we use to push products to the fleet will have the capability to upload videos produced by afloat commands to share with SOBT for potential re-use and distribution to better integrate and collaborate.”

“SLC and SOBT are gaining momentum, and it’s a great time to be in an organization where we can identify a fleet-wide problem and then most importantly be able to provide a fleet-wide solution.”
Welcome Home!
A Sailor assigned to the sub- marine tender USS Coke (AS 40) reunites with his family during his homecoming to Apra Harbor, Guam. FamilyCole de- parted Guam March 7, 2017 sup- porting maritime expeditionary operations in the U.S. 3rd Fleet area of operations and underwent a dry-dock phased maintenance availability at Vigor Industrial shipyard in Portland, Ore.

Navy Sets New Physical Fitness Standard to Start Boot Camp
Beginning Jan. 1, Recruit Training Command, the Navy’s only boot camp, will require recruits to pass an initial run standard before they can begin basic military training.

The initial run standard is evaluated on the 1.5 mile run of the first Physical Fitness Assessment (PFA) at boot camp. The initial run standard for male recruits will be 16 minutes 10 seconds and 18 min- utes 7 seconds for female recruits.
To graduate boot camp, all recruits must score a satisfactory me- dium on the official Navy PFA. To ensure recruits advance toward this goal over their eight weeks of training, the initial run standard sets the minimum run time at which recruits must start training in order to meet their expected level of progress. Recruits that fail to meet the initial run standard will have one chance to retest within 48 hours. If they fail the retest, recruits will be discharged from the Navy with an entry-level separation, which allows them to reapply at a later date with a waiver from Navy Recruit Command.

For recruits who prove they are serious about physical fitness by achieving an outstanding high on their final PFA at boot camp, they will be meritoriously advanced to the next pay grade upon graduation. Navy Recruit Command provides recruits with a fitness and nu- trition guide, which they can follow on their own or with the help of their recruiting office. Using the fitness and nutrition guide to prepare for the initial run standard, more recruits will report to boot camp physically fit due to PFA failures and raising the quality of Sailors that reach the fleet.

Navy e-Learning Updates Web Address
Direct access to the online Navy e-Learning (Nel) management system website became available Oct. 23, 2017 at a new web ad- dress.

The direct Nel link of https:// learning.nel.navy.mil is available 24/7 and will take Sailors directly to the ‘My Learning’ and ‘Course Catalog’ tabs of the Nel learning management system after log- ging on.
Although direct access to Nel is available through the Inter- net, a Common Access Card (CAC) is still required for Nel login. Courses on Nel have been stand- ardized to run using the Intern- et Explorer browser.
Trainees using Nel complete over five million online courses a year, from a comprehensive cata- log of 12,500 distance learning courses. The Naval Education and Training Command relies on Nel for use in schoolhouses for in- dividual skills and skill refresher training.
To access Nel through a link on a Navy M portal (MMP), select the “Professional Resources” drop-down menu, then “Navy e- learning Online Courses.”

Users will need to update their saved bookmark to the new Nel URL:

Changes of Command
COMSUBPAC
Rear Adm. Daryl Caudle relieved Cmdr. Toshido Brandon relieved
Rear Adm. Fredrick ‘Fritz’ Rogge relieved Cmdr. Leland McCown relieved
COMSUBGRU 9
Rear Adm. Marie Corriveau relieved Cmdr. John Schimming relieved
Rear Adm. Michael Holland relieved Cmdr. John Manrier relieved
COMSUBRON 4
Capt. Brian Suttle relieved Capt. John McIvor relieved
COMSUBRON 5
Capt. Christopher Casanovas relieved Capt. Brian Dias relieved
COMSUBRON 11
Capt. Christopher Casanovas relieved Capt. Brian Dias relieved
COMSUBRON 16
Capt. Eric Nash relieved Capt. Adam Palmer relieved
COMSUBRON 17
Capt. Nicholas Thilthorpe relieved Capt. Mark Schnall relieved
COMSUBRON 19
Capt. Michael Lewis relieved Capt. Brian Harris relieved
COMSUBRON 28
Capt. Bob Wirth relieved Capt. Thomas Buchanan relieved
NNSC Pearl Harbor
Chief Christopher C. Landburg relieved Cmdr. Michael D. Hetherton relieved
Trident Rafa Facility,
King Bay
Capt. Paul Daniel relieved Capt. Garrett Beaud relieved
USN Aloha (SSBN 731) (B)
Cmdr. Jeff Vacchetti relieved Cmdr. Paul Reinhardt relieved
USN Aloha (SSBN 731) (G)
Cmdr. Dave Brooks relieved Cmdr. Paul Reinhardt relieved
USN Buffalo (SSN 715) (B)
Cmdr. Paul Lee relieved Cmdr. Micah Maxwell relieved
USN Gulfstream (SSN 781) (B)
Cmdr. Dean Parlee relieved Cmdr. Eric Seger relieved
USN Cheyenne (SSN 778) (B)
USN Colorado (PCU 798) (B)
Cmdr. Reid Koepf relieved Cmdr. Paul Daniel relieved
USN Honolulu (SSN 762) (B)
Capt. Peter French relieved Capt. Albert Albroon relieved
USN Constellation (SS 22) (B)
Cmdr. Joe Schaff relieved Cmdr. Brian Taddiken relieved
USN Florida (SSGN 720) (G)
Capt. Gabe Cusato relieved Capt. Bill McKenny relieved
USN George (SSN 729) (G)
Capt. Doug Jordan relieved Capt. Bill McKenny relieved
USN Groveswell (SSN 772) (G)
Capt. Terry A. Nieme relieved Capt. Paul Reinhardt relieved
USN Monterey (SSBN 737) (B)
Capt. John Kral relieved Capt. Jeff Roulston relieved
USN Minnesota (SSN 743) (B)
Capt. John Hake relieved Capt. Jeff Roulston relieved
USN Oregon (SSN 743) (B)
Capt. John Hake relieved Capt. John Kral relieved
USN Pennsylvania (SSBN 735) (B)
Capt. Brian Frank relieved Capt. John Kral relieved
USN Wisconsin (SSBN 734) (G)
Capt. Mark Sari relieved Capt. Brian Frank relieved
USN Wisconsin (SSBN 734) (G)
Capt. Mark Sari relieved Capt. Brian Frank relieved
USN USS Wisconsin (SSBN 734) (G)
Capt. Jeff Roulston relieved Capt. Jeff Roulston relieved
USN USS Wisconsin (SSBN 734) (G)
Capt. Jeff Roulston relieved Capt. Jeff Roulston relieved
USN USS Wisconsin (SSBN 734) (G)
Capt. Jeff Roulston relieved Capt. Jeff Roulston relieved
USN USS Wisconsin (SSBN 734) (G)
Capt. Jeff Roulston relieved Capt. Jeff Roulston relieved
USN USS Wisconsin (SSBN 734) (G)
Capt. Jeff Roulston relieved Capt. Jeff Roulston relieved

Qualiﬁed for Command
Lt. Cmdr. Christopher Alpastrup Narsal Submarine School Cameron
Lt. Cmdr. Richul Ahl USS North Dakota (SSBN 753) (G)
Lt. Cmdr. Garrett Allen USS Tucson (SSN 770) (G)
Lt. Cmdr. David Bean USSSt. Louis (SSN 756) (G)
Lt. Cmdr. Vincent Bow DF 69
Lt. Cmdr. Matthew Brader COMSUBGRU 7
Lt. Cmdr. Patrick Bray COMSUBRON 31
Lt. Cmdr. Burman Brown COMSUBRON 1
Lt. Cmdr. Kyle Calton USS Coral Sea (SSN 751) (B)
Lt. Cmdr. David Campbell USS Pennsylvania (SSBN 735) (G)
Lt. Cmdr. Bane Cato DNDSSS NIS
Lt. Cmdr. Patrick Carlon USS Missouri (SSBN 741) (B)
Lt. Cmdr. Timothy Chadwick USS San Jose (SSN 751) (B)
Lt. Cmdr. Amanda Cooper USS Honolulu (SSBN 736) (B)
Lt. Cmdr. Jerry Cavallaro NSTCP SITE FFT
Lt. Cmdr. Dennis Crump CTF 69
Lt. Cmdr. Scott Edmiston NPTF Charlie BOS
Lt. Cmdr. Edo Ferreira USS Honolulu (SSBN 698)
Lt. Cmdr. Daniel Fickling NFN STUDENTS & TT
Lt. Cmdr. Joe Coleman USS Wisconsin (SSBN 734) (G)
Lt. Cmdr. Michael Frist CPEFT NSEP
Lt. Cmdr. Jeffrey Fugan COMSUBRON 12
Lt. Cmdr. Jeffrey Garrison USS Maryland (SSBN 734) (B)
Lt. Cmdr. Daniel Garcia USS Pueblo (SSBN 720)
Lat. Cmdr. Sean Gost USS Arizona (SSBN 698)
Lt. Cmdr. Preston Gilmour USS Glenn Iselin (SSBN 780)
Lt. Cmdr. Jason Goeller USS Pennsylvania (SSBN 735) (G)
Lt. Cmdr. Chad Galbraith USS Nebraska (SSBN 774) (G)
Lt. Cmdr. John Harmon USS Florida (SSBN 728) (G)
Lt. Cmdr. Ryan Haul USS Louisiana (SSBN 743) (B)
Lt. Cmdr. Ryan Hill LGNO DD
Lt. Cmdr. Michael Hammar USS Colorado (SSBN 774) (G)
Lt. Cmdr. Towney Kenneard FFC Nuclear Propulsion Exam Board
Lt. Cmdr. Janis Kerikpatrick Presidents Board of Inspection & Safe
Lt. Cmdr. Joshua Lai FFC Nuclear Propulsion Exam Board
Lt. Cmdr. Andrew Lawrence USS Ohio (SSBN 698) (G)
Lt. Cmdr. Matthew Leda USS Virginia (SSBN 774) (G)
Lt. Cmdr. Joseph Lopiccolo Trident Training Facility Ranger
Lt. Cmdr. Joshua Ludwig USS Georgia (SSBN 743) (G)
Lt. Cmdr. Craig Mayer FFC Nuclear Propulsion Exam Board
Lt. Cmdr. Jonathan Martin USS Wyoming (SSBN 742) (G)
Lt. Cmdr. Gregory McCarthy CENPACFLT
Submarine Learning Facility Officer Awarded IOY for 2017

Navy Education and Training Command (NETC) announced its 2017 Military Instructors of the Year (IOY) during a ceremony at the National Naval Aviation Museum aboard Naval Air Station Pensacola on Dec. 14.

For one IOY nominee standing before the crowd, the drive to be a better leader started with simply being a better mentor. Lt. Christopher DeMatteo, assigned to Submarine Learning Facility (SLF), Norfolk, understands that teaching is not just measured by how well information is presented but also how relevant that information is and how well his students understand it.

DeMatteo teaches about 25 students a month, which includes junior officers and enlisted Submariners, and attributes his success to his exposure to good and bad instructors and mentors early in his career.

To expand his own knowledge as an instructor, DeMatteo pursued his Master Training Specialist (MTS) qualification. The MTS designation, earned by all instructors, serves to recognize outstanding individual effort and command training professionalism. As an MTS-qualified instructor, no only must DeMatteo demonstrate highly effective teaching skills but also take a leadership role in mentoring, instructing, and evaluating instructors and curriculums.

The NETC Military IOY award program recognizes Navy and Marine Corps instructors and facilitators who exemplify personal excellence and display outstanding instructional and leadership performance.

The program highlights the significant contributions of individuals from throughout the Navy Education and Training enterprise who have been nominated by their commands based on their sustained superior performance, accomplishments, community involvement, and personal and professional growth over the course of the past year.
QUALIFIED ENGINEERING

DEPARTMENT MASTER CHIEF

ETNCSTS Nathaniel Abdul FTB Bangor TT
EMNCN Antonio Aguinaldo PH SMMS
MMNCN Michael Allen USS Javoline (SSN 791)
EMNCN David Blake NRPD Mobile, AL
EMNCN Daniel Hakekus USS Fontainbleau (SSB 210)
EMNCN Robert Blankenship USS Alabama (SSBN 739)
EMNCN Joseph Bradford USS Abraham Lincoln (SSN 782)
EMNCN Richard Blanken USS Florida (SSBN 731)
EMNCN Timothy Coleman USS Colorado (SSN 771)
EMNCN Anthony Conner NRPD PAC
EMNCN Aaron Cook USS Honolulu (SSBN 772)
EMNCN Brian Cooper USS Helena (SSN 772)
EMNCN Jason Cox USS New Orleans (SSBN 784)
EMNCN Matthew Connor USS New York (SSBN 785)
EMNCN Justin Daggert NFB/UPF New London CO
EMNCN John Dagle USS Dumas (SSN 783)
EMNCN Sandy Davis USS Colorado (SSN 772)
EMNCN Joseph Cefalu USS California (SSBN 732)
EMNCN Ronald Germain Dr. Dir. Div. of Naval Reactors DOR
EMNCN Daniel Chapple NFRD USS Gov. gin (SSN 778)
EMNCN Keith Doolen NFB/UPF Charleston
EMNCN Daniel Doolan USS Dumas (SSN 783)
EMNCN Arthur Darrington USS Colorado (SSN 771)
EMNCN William Moures PH NRPD CO
EMNCN Nicholas Francisco COMSUBLANT 4
EMNCN Cory Brayner USS Chicago (SSBN 731)
EMNCN Kevin Frey USS Colorado (SSN 772)
EMNCN John Freink USS Colorado (SSN 772)
EMNCN Victor Fuller USS Alabama (SSBN 772)
EMNCN Bruce Fullner USS Tucson (SSN 772)
EMNCN James Gagnon SUB/SPAC NORFLEET
EMNCN Angelo Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo COMSUBLANT 8
EMNCN Richard Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
EMNCN Michael Galindo USS Colorado (SSN 771)
conspicuous contribution to the improvement of leadership in team and who serve as examples of excellence in leadership and unit, mobile diving and salvage unit, or Navy special clearance team, naval special warfare squadron, SEAL delivery vehicle ship, submarine, aviation squadron, Sea, Air, Land (SEAL) team Five is the Pacific Fleet recipient.

The finalists to receive the award were also eligible for the award, and chosen from among four finalists to receive the award. The two recipients were nominated by their peers, who were also eligible for the award.

The Stockdale Award was established in honor of Vice Adm. Stockdale whose distinguished naval career symbolized the highest standards of excellence in both personal conduct and leadership. It is presented annually to two commissioned officers on active duty in the grade of commander who have demonstrated exceptional leadership and who have served as examples of excellence in leadership and conspicuous contribution to the improvement of leadership in team and who serve as examples of excellence in leadership and unit, mobile diving and salvage unit, or Navy special clearance team, naval special warfare squadron, SEAL delivery vehicle ship, submarine, aviation squadron, Sea, Air, Land (SEAL) team Five is the Pacific Fleet recipient. The two recipients were nominated by their peers, who were also eligible for the award.

The Stockdale Award was established in honor of Vice Adm. Stockdale whose distinguished naval career symbolized the highest standards of excellence in both personal conduct and leadership. It is presented annually to two commissioned officers on active duty in the grade of commander who have demonstrated exceptional leadership and who have served as examples of excellence in leadership and conspicuous contribution to the improvement of leadership in team and who serve as examples of excellence in leadership and unit, mobile diving and salvage unit, or Navy special clearance team, naval special warfare squadron, SEAL delivery vehicle ship, submarine, aviation squadron, Sea, Air, Land (SEAL) team Five is the Pacific Fleet recipient. The two recipients were nominated by their peers, who were also eligible for the award.
**Four Winning Photos Each Year**

With the 19th Annual Photo Contest, we recognize the Naval Submarine League and the Director, SCPO (SS) Greg Foerster, USN. The contest is open to all active-duty and reserve sailors, who may submit up to five entries. Entries must be received by June 15, 2018. Entry forms are found on page 10. Previously unpublished photos can be submitted, and the best of the best will be published in the Summer 2018 edition.

**Established in 1999 and Co-sponsored by**

Naval Submarine League and the Director, Submarine Warfare (OPNAV N97), four winning photos each year with the following cash awards: 1st Place: $500, 2nd Place: $250, 3rd Place: $200 and Honorable Mention: $50.

**Note:** Entries must be received by June 15, 2018. Photos received after the deadline will be considered. Digital submissions must be at least 2” by 2”, at least 300 dpi per-inch (900), 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 Naval Submarine League, Attn: Photo Contest, 1100 North Capitol Street, Suite 900, Washington, D.C. 20001-2000, or email to: underwaterwarfare@hotmail.com.

**Don’t Let the Sun Go Down on Your Chance to Enter the 19th Annual NSL Photo Contest**

---

**SUBMARINE WARFARE Magazine** is looking for your top submarine-related photos for the 19th Annual Photo Contest. Four winning photos each year with the following cash awards: 1st Place: $500, 2nd Place: $250, 3rd Place: $200 and Honorable Mention: $50. Entries must be received by June 15, 2018. Photos received after the deadline will be considered. Digital submissions must be at least 2” by 2”, at least 300 dpi per-inch (900), 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 Naval Submarine League, Attn: Photo Contest, 1100 North Capitol Street, Suite 900, Washington, D.C. 20001-2000, or email to: underwaterwarfare@hotmail.com.
USS Skate (SSN 578) was the U.S. Navy’s third commissioned nuclear-powered submarine. Her keel was laid July 21, 1955 by General Dynamics Corp.’s Electric Boat Division in Groton, Conn. She was launched nearly two years later on May 16, 1957, and she was commissioned December 23, 1957 with Cmdr. James F. Calvert in command.

With the advent of nuclear-powered submarines, the latter half of the 1950s and early 1960s was a time of pushing boundaries and setting records, which began with the Navy’s first nuclear-powered submarine, USS Nautilus (SSN 571), traveling from the Pacific to the Atlantic underneath the polar ice cap in the summer of 1958. Skate did not have to wait long for her own notoriety, however.

In early 1958, Skate left her homeport of New London, Conn. to make the first fully submerged crossing of the Atlantic, arriving in Portsmouth, England. Today this would not be considered much of an accomplishment, but this was just 13 years after the end of WWII when such a capability by Germany’s U-boats could have drastically altered the course of the war.

Less than a year after Nautilus’ famed journey past the North Pole under the arctic ice, Skate departed New London for the North Pole, becoming the second submarine to reach it. Skate, however, on March 17, 1959, was the first submarine to surface there, and she did it during the Arctic’s winter. She didn’t surface in the Arctic just once, but 10 times during that deployment.

While at the North Pole, Skate’s crew deposited there the ashes of famed Arctic explorer Sir Hubert Wilkins. Wilkins was the first Arctic explorer to attempt reaching the North Pole by submarine, using the former USS O-12 (SS 73) converted for the 1931 expedition.

The purpose of this deployment to the Arctic was not to set a record, but to test the boat’s ability to surface through ice even during the region’s coldest time of year. The Navy wanted to know if its submarines could operate in the harshest maritime environment on earth during that region’s harshest time of year.

Skate also tested new technologies for operating under the ice. One such system was a bottom-sounding sonar for detecting and mapping the underside of the ice canopy, which also enabled the crew to avoid ice keels and locate polynyas through which to surface. Another was a buoyant cable that was floated up against the underside of the ice canopy that proved capable of receiving radio messages.

Skate made additional deployments to the Arctic in the following years in addition to deployments to Europe and the Mediterranean. She was the first submarine to complete the new SUBSAFE conversion in 1965. Skate was decommissioned September 12, 1986 after nearly 29 years of active service.