



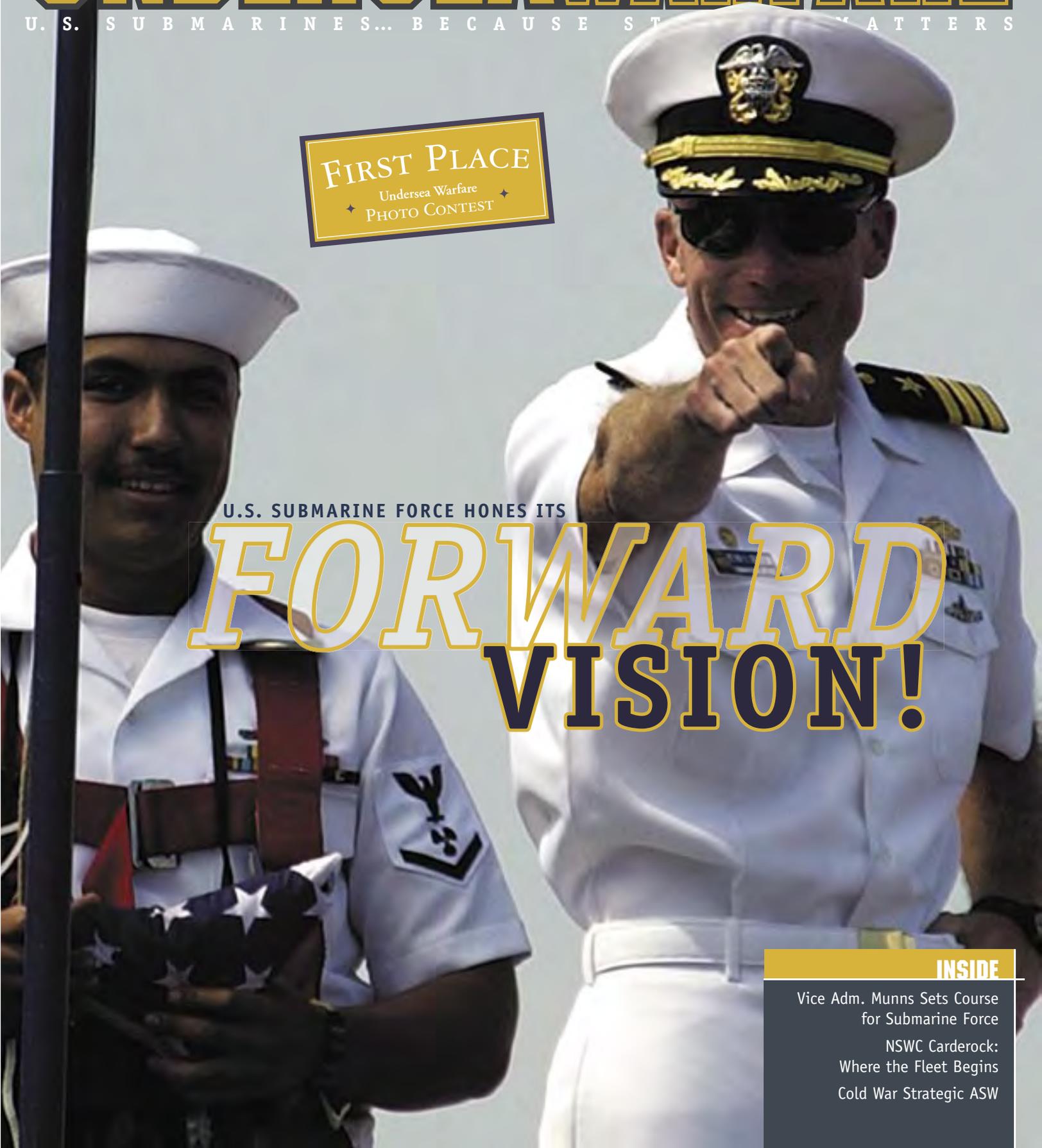
# UNDERSEAWARFARE

U. S. S U B M A R I N E S... B E C A U S E S T... M A T T E R S

**FIRST PLACE**  
Undersea Warfare  
PHOTO CONTEST

U.S. SUBMARINE FORCE HONES ITS

# FORWARD VISION!



**INSIDE**

Vice Adm. Munns Sets Course for Submarine Force  
NSWC Carderock: Where the Fleet Begins  
Cold War Strategic ASW



4



8

6



20

U.S. SUBMARINE FORCE HONES ITS

# FORWARD VISION!

## Features

- 4 | **Submarine Force Commander Plots Course for Future**  
by Chief Petty Officer (SW/AW) Mark Piggott, USN
- 6 | **Submarine Force Tests UAV Technology to Enhance Force Protection**  
by Petty Officer 2nd Class Christina M. Shaw, USN
- 8 | **The Health of Stealth**  
NSWC's Carderock Division at Forefront of Naval Innovation  
by Mike Smith
- 12 | **What Makes a Good CO?**
- 16 | **Naval Post Graduate School Pushes USW Envelope**  
by Barbara Honegger
- 20 | **Cold War Strategic ASW**  
U.S. Submarines Keep Vigilant Watch on Soviet Strategic Missile Submarines  
by Norman Polmar and Kenneth J. Moore
- 25 | **Junior Officers of the Year Storm Washington D.C.**  
by Jen Zeldis
- 28 | **Between Fleet Scouts and Commerce Raiders**  
Submarine Warfare Theories and Doctrines in the German and U.S. Navies, 1935-1945  
by Dr. Randy Papadopoulos
- 34 | **Cassias relieves Sullivan**  
as Commander Submarine Force, U.S. Pacific Fleet  
by Chief Petty Officer (SW/AW) David Rush, USN

## Departments

- 1 | Washington Watch
- 2 | Letters to the Editor
- 35 | Downlink
- 40 | Operational Depth

**UNDERSEAWARFARE** is online at:  
[www.chinfo.navy.mil/navpalib/cno/n87/mag.html](http://www.chinfo.navy.mil/navpalib/cno/n87/mag.html)

## On The Cover



Cmdr. Kevin Brenton and Petty Officer 3rd Class Adan Rodriguez of USS *Portsmouth* (SSN-707), during her final cruise to their new homeport, Norfolk, Va. where *Portsmouth* is scheduled for decommissioning in October of 2005.

This photo is the winner of UNDERSEA WARFARE's 7th Annual Photo Contest.

Photo by Petty Officer 1st Class (AW/SW) David Levy



“Continuing education programs are a vital – and yet to be fully exploited – asset for the Submarine Force and a critical pillar of our HCS. Worthwhile programs for career-minded officers are plentiful, one of which is the Naval Postgraduate School’s (NPS) Executive Master of Business Administration (EMBA) program.”

Rear Adm. Joseph A. Walsh, USN, Director, Submarine Warfare

The summer of 2005 finds the world’s best Submarine Force on watch, supporting the global war on terrorism and ensuring that our Force will meet future threats. To facilitate this, we stand poised to usher in a new submarine, the converted *Ohio*-class SSGN, and continually place new submarines to sea with technologies that previous undersea warriors could only imagine. Additionally, we continue to refine our Human Capital Strategy (HCS), our comprehensive plan to build rewarding careers for every member of the Submarine Force.

Continuing education programs are a vital – and yet to be fully exploited – asset for the Submarine Force and a critical pillar of our HCS. Worthwhile programs for career-minded officers are plentiful, one of which is the Naval Postgraduate School’s (NPS) Executive Master of Business Administration (EMBA) program. The EMBA program is available to those of you who will be on shore duty in Norfolk, San Diego, or the Washington, D.C. area. This and other fully funded programs are a key component of an officer’s resume and help to build a better balanced Submarine Force. The EMBA program is administered remotely by video teleconference. The two-year span coincides well with a nominal shore tour. As exceptional an opportunity as this programs is, we are underutilizing it. Of the more than 100 naval officers who participate in the NPS course annually, we only fill 3 of the 14 billets allotted to the Submarine Force. To learn more about the EMBA program, visit the website at [www.nps.navy.mil/gsbpp/emba/index.htm](http://www.nps.navy.mil/gsbpp/emba/index.htm). For more about other education programs, see our article, “Naval Postgraduate School Pushes USW Envelope” on page 16 of this issue.

In other people news, this issue contains guidance and vision from senior leaders of the Submarine Force. On page 4, Vice Adm. Munns lays out his vision for the near future of our Force and reflects back on some of the great strides made by submariners. In the “Operational Depth” section of this issue, the Submarine Force Master Chiefs, COMSUBFOR Master Chief Petty Officer Dean Irwin and COMSUBPAC Master Chief Petty Officer Michael Benko set forth the standards and tones that Chief Petty Officers should model and reinforce with their Sailors.

I cannot complete my discussion of people news without some words of farewell and welcome. The Submarine Force said a heartfelt goodbye to Rear Adm. Paul Sullivan, former Commander, Submarine Force, Pacific Fleet on April 20 as he retired after 35 years of distinguished service. Rear Adm. Jeff Cassias now has the helm of the Pacific Fleet Submarine Force. Rear Adm. Cassias previously served as Commander, Submarine Groups 2 and 10, and Commander, Navy Region Northeast.

I wish fair winds and following seas to Lt. Cmdr. Scott Young, our outgoing military editor. Scott, who was dual-hatted as our N77 congressional liaison, is returning to the fleet as Executive Officer of USS *Henry M. Jackson* (SSBN-730). And finally, I welcome aboard Scott’s relief, Lt. Cmdr. Wayne Grasdock. Wayne comes to us from USS *Philadelphia* (SSN-690), where he served as navigator.

Moving on to the hardware aspects of our business, Unmanned Aerial Vehicles (UAVs) are contributing to the global war on terrorism by providing surveillance and force protection for our troops. Using this technology for the photographic surveillance of submarines in port is an option being explored by the Naval Research Laboratory (NRL). To learn more about this, see the article on page 6.

To fully appreciate the work that goes on behind the scenes to support our Navy, on page 8 we learn about the Naval Surface Warfare Center’s Carderock Division, one of the most advanced research, design, and testing facilities in the world. Carderock evaluates and hones all our platforms, both current and future, to make them as stealthy and lethal as possible.

Finally, I wish to thank the Naval Submarine League for their support of our 7<sup>TH</sup> Annual Photo Contest (see centerfold). As one can see from the photos, the pride for all who serve in the Silent Service runs deep. BZ to all who submitted photos.



*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.*

Send submissions to:

**Military Editor**  
**Undersea Warfare CNO N77**  
**2000 Navy Pentagon**  
**Washington, DC 20350-2000**  
 or  
**underseawarfare@navy.mil**

## dear EDITOR,

Dr. Edward Whitman's article about SOSUS in the winter issue ["SOSUS: "The Secret Weapon" of Undersea Surveillance," UNDERSEA WARFARE, Winter 2005] mentions the development of the bathythermograph, but as far as submarine installations were concerned it was still pretty primitive as late as 1945. My boat, USS *Lamprey* (SS-372), was commissioned in November 1944 but as I recall, our bathythermograph was not installed until we stopped at Pearl Harbor in early 1945.

The device consisted of a rather flimsy appearing metal frame to hold the cards, on which a stylus, connected to the sea through a small tube with a stop valve, traced a graph of water temperature versus depth. The cards were very delicate, and a coating of soot had to be applied before a trace could be made. The kit that came with the instrument included candles for smoking the cards. Only a few smoked cards could be safely stored, so one of my jobs was to smoke new cards ahead of time. The used cards had to be lacquered to preserve the trace and turned in at the end of the patrol. I know that this was done because it is noted in the report of our first patrol.

I don't know when a more refined version of the instrument was developed and installed on the boats, but I do know that BT cards no longer had to be smoked on the boat I served on in 1949. Of course we knew nothing in those years about such phenomena as the deep sound channel and convergence zones.

Sincerely,  
 D. Alden  
 Cmdr., USN (Ret.)

Cmdr. Alden,

*Thank you for your insightful letter. Early bathythermographs did indeed use a sooted recording plate (actually carbon black from a candle) early on, but it was a detail cut from the article due to space constraints. WWII submarines had begun to use knowledge of the ocean's thermal structure for tactical purposes somewhat before BTs were actually deployed. The most important thing they had to know about was the depth of the warm-water layer near the surface, which they could determine with a few water-temperature measurements as they went up and down. The BT was intended to give a detailed temperature profile, necessary for more sophisticated ray-tracing methods. Most of the research described in the article used surface-ship deployed BT's with cables.*

## dear EDITOR,

In a Letter to the Editor in the Winter 2005 edition of UNDERSEA WARFARE Magazine, Norman Cook wondered about the whereabouts of USS *Canopus* during the first Japanese air raid of Dec. 10, 1941.

The USS *Canopus* Association maintains a web page which has historical information on the first ship named *Canopus*. After his evacuation in USS *Spearfish* (SS-190), the last submarine to take passengers from Corregidor, Cmdr. Earl Sackett, commanding officer of AS-9, prepared a detailed account of the ship which was sent to family members and may be read on [www.shill-family.org/canopusstart.html](http://www.shill-family.org/canopusstart.html). Both accounts are in agreement.

*Canopus* had completed an overhaul at the naval base at Cavite the first week in December and was anchored off Cavite on the night of December 9 when Japanese planes struck Nichols Field across the bay. The ship got underway and moored, the following day, alongside a dock in the post area of Manila. For the next two weeks, *Canopus* assisted in repair of damaged ships and servicing submarines proceeding on or returning from war patrol.

With the decision that Manila was to be declared an open city, *Canopus* got underway the night of December 24 and steamed to Mariveles Bay on the southern tip of Bataan peninsula. There she stayed until April 8, when she was backed in the bay and scuttled. Her crew moved to Corregidor where they were captured when the island surrendered.

Sincerely,  
 Robert D. Rawlins  
 Capt., USN (Ret)

Capt. Rawlins,

*Thank you very much for your letter. We appreciate you setting the record straight.*

## dear EDITOR,

First of all, we very much applaud the U.S. Navy's efforts at maintaining maximum performance as it regards the current and future status of our Navy and most particularly, our vaunted Submarine Forces. Bravo and triple Bravo to the Navy's enlisted men and women and to Submarine Force officers for their efforts on our behalf. May God protect them in all their endeavors.

We very much enjoyed reading John Whipple's article about the ASDS program ["ASDS - The Future of Submarine-Based Special Operations," Winter/Spring 2002] and fully support the program in all aspects. Best of luck and may our God watch over you and your families.

Respectfully,  
Mr. & Mrs. Roland Amnott

## dear EDITOR,

When USS *Jimmy Carter* (SSN-23) was recently commissioned, President Carter handed over a "long glass". What is exactly is a "long glass"?

Len Teitzell  
Ventura, Calif.

*Thank you for your interest in UNDERSEA WARFARE Magazine.*

*The "long glass" – essentially a large, single-tube, telescope is an important part of naval tradition. It has been – for centuries – the symbol of office for the Officer-of-the-Deck (OOD), particularly when a ship is in port. Normally, when a ship is tied up to a pier – or moored out in a harbor – the "official" entrance to the ship is called the "quarterdeck" – generally where the brow reaches the main deck. When a ship is not underway, the quarterdeck watch is headed up by the OOD, generally in full uniform, and he holds under his arm the "long glass" as a badge of office. He's the Sailor you salute when you reach the top of the brow and say "Request permission to come aboard, Sir."*

*In relation to submarines, the long glass is used only ceremonially. As submarines do not have a traditional quarterdeck, the watch is kept "topside" by an enlisted Sailor, who does not carry a long glass and is there mainly for security reasons. However, long glasses are used during commissionings – as was the case with Jimmy Carter – as a way to carry on Naval tradition. Generally, the long glass will be presented to the Officer-of-the-Deck during his ceremonial first watch.*

*I hope my explanation answered your question. Again, thank you for taking an interest in the Submarine Force and UNDERSEA WARFARE Magazine.*

### Vice Adm. Charles L. Munns

Commander, Naval Submarine Forces  
Commander, Submarine Force, U.S. Atlantic Fleet

### Rear Adm. Jeffrey Cassias

Deputy Commander, Naval Submarine Forces  
Commander, Submarine Force, U.S. Pacific Fleet

### Rear Adm. Joe Walsh

Director, Submarine Warfare

### Master Chief Petty Officer Dean Irwin

COMNAVSUBFOR Force Master Chief

### Master Chief Petty Officer Michael Benko

COMSUBPAC Force Master Chief

### Capt. D.J. Kern

Commander, Undersea Surveillance

### Lt. Cmdr. Jensin Sommer

COMNAVSUBFOR Public Affairs Officer

### Lt. Cmdr. Jeff Davis

COMSUBPAC Public Affairs Officer

Military Editor: Lt. Cmdr. Scott Young (D)

Lt. Cmdr. Wayne Graddock (R)

Senior Editor: Jen Zeldis

Managing Editor: Mike Smith

Layout & Design: BlueWater Agency

Web Design: Lakisha Ferebee

### Charter

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

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

### Contributions and Feedback Welcome

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

Military Editor Undersea Warfare CNO N77  
2000 Navy Pentagon, Washington, DC 20350-2000  
E-Mail: [underseawarfare@navy.mil](mailto:underseawarfare@navy.mil)  
Phone: 703-614-9372 Fax: 703-695-9247

### Subscriptions for sale by the Superintendent of Documents,

P.O. Box 371954, Pittsburgh, PA 15250-7954  
or call (866) 512-1800 or fax (202) 512-2104.  
<http://bookstore.gpo.gov>  
Annual cost: \$25 U.S.; \$35 Foreign

### Authorization

**UNDERSEA WARFARE** (ISSN 1554-0146) is published quarterly from appropriated funds by authority of the Chief of Naval Operations in accordance with NPPR P-35. 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. Use of funds for printing this publication has been approved by the Navy Publications and Printing Policy Committee. Reproductions are encouraged. Controlled circulation.

CHINFO Merit Award Winner

# SUBMARINE FORCE COMMANDER *Plots Course* FOR *Future*



In a message to his commanders and commanding officers, Vice Adm. Chuck Munns, Commander Naval Submarine Forces, in Norfolk, Va., reflected on the future of the force and looked back at the great strides made by submariners.

"We are 21st-century American submariners," Munns said. "The past year has been one of successfully employing submarines in all corners of the globe to combat the global war on terrorism, to conduct intelligence, surveillance, and reconnaissance, to deliver special operations forces, and to 'walk the field' in our key forward operating areas."

With submarines responsible for over one third of the Tomahawk strikes delivered during Operation Iraqi Freedom, Vice Adm. Munns sees the force as an added bonus to strike commanders in forward-deployed operations. "Our ever-smaller

and better-connected world is often driven by what seems small and insignificant," he said. "But small, local, and tactical actions can have large, enterprise-wide, strategic effects."

"The capability that we bring to our national defense is more relevant today than ever. Our ships and crews bring unique value in forward areas and in the pre-hostility phase of combat."

Munns noted that a major part of that capability is the ability to support joint, interagency, and coalition operations and introducing systems that achieve interoperability with these warfighters. "We can ill afford isolated, stand-alone systems, unable to connect directly to other forces at the tactical and operational level," he stated. "These systems will quite simply drive us out of business. "They invariably will force us to speak a language not understood by our partners - rendering

(left) Vice Adm. Chuck Munns delivers remarks after assuming command of COMNAVSUBFOR.

**"The capability that we bring to our national defense is more relevant today than ever. Our ships and crews bring unique value in forward areas and in the pre-hostility phase of combat."**

us irrelevant. Anything new we put on a submarine must be conceived and born in a joint context and must be open and interoperable.”

At the same time, Vice Adm. Munns is mindful of the inherent dangers faced by today’s submariners in maintaining mission-essential capabilities during day-to-day operations. “Our purpose is to take timely, effective, and efficient actions that enhance our national interests,” he explained. “The environment in which we operate is inherently dangerous. We make it safe only by properly maintaining and understanding our equipment, respecting accepted procedures, and applying the genius and initiative of properly-trained American Sailors.”

The Submarine Force continues to grow and change, notably with the addition of the newly-commissioned USS *Virginia*-class fast-attack submarine and the conversion of four former ballistic missile submarines to guided missile boats.

“Technology has reached a point that enables a submarine crew to expand their area of regard significantly and at the same time to become a much more connected and collaborative participant of the Joint Force,” Munns said. “Each submarine is a node in the force-wide network, and eventually each sensor and weapon will be also.”

The new technologies being developed for SSNs and SSGNs will greatly enhance the dominance of the Submarine Force in today’s force equation. “With the SSGN coming online very soon and with new options under consideration for our SSNs, we need to take full advantage of increasing payload volumes to expand the reach of our boats,” he explained. “Operating undetected for long periods in the littorals, we will deploy unmanned vehicles and sensors. Our ears will be open, and our reach will be extensive. We will be able to assess and prepare the environment continually and then – when directed – decisively influence events.”

A key emphasis is communication among submarines and joint commanders across the entire spectrum of our many missions. “During a future coordinated ASW engagement, the Theater ASW Commander will be able to communicate – on demand – concepts and desired actions to a CO on a submerged submarine within the span of a few minutes,” Munns predicted.

“If they can coordinate contact and targeting data, effect real time waterspace management, and carry out prosecutions, then we will have achieved initial success. Moving forward, we will build toward higher data rates, greater communications security, more operational flexibility, and more extensive, ubiquitous reach.”

Even with the significant technological changes taking place on today’s submarines, it is our ongoing traditions that make the Submarine Force a powerful player. “We have a reputation for excellence around the world,” Vice Adm. Munns said. “Even as we drive significant change throughout the force, we must at the same time nurture the proud, important, and relevant traditions that brought us to where we are today.”

Munns noted that his officers must not only lead their Sailors, but assess their talents, skills, and abilities continually so that they can be assigned to the best job available. “Effective assessment is what differentiates average and great crews,” he added. “We have much to learn from each other and those who have gone before. We need to learn from them and their experiences.”

In closing his remarks, Munns identified service to country as the most important driver for today’s submariners. “The Submarine Force is needed more today than ever before,” Munns said. “I expect that every submariner, like me, will do whatever it takes, whenever it’s needed, to defend this great nation and its people.”

“We will exercise undersea superiority in every portion of the globe.”

Chief Petty Officer (SW/AW) Piggott serves in the Public Affairs Office for Commander, Submarine Forces Atlantic.



U.S. Navy photo by Ray F. Longaker Jr.

# Submarine Force Tests UAV Technology to Enhance Force Protection



Two Marines prepare to launch a Dragon Eye, the Marine variant of the Naval Research Laboratory's ATR UAV.

U.S. Marine Corps photo

In February, the Submarine Force conducted a demonstration at Naval Submarine Base Kings Bay, Ga. to test the utility of a new type of Unmanned Aerial Vehicle (UAV) in supporting force protection. Based on the success of that trial, submariners are excited about the potential advantages of UAVs in force protection and the significant cost savings offered by this technology.

According to Cmdr. Tom Armstrong, the anti-terrorism force protection officer on the staff of Commander, Naval Submarine Forces (COMNAVSUBFOR), flying UAVs to enhance situational awareness has been going on for quite some time. "The Marines have a version of the UAV called 'Dragon Eye' that's been used very successfully in Iraq," he said. "As our submarines often have to transit in and out of port through restricted waters, the ability to foresee any problems would be very beneficial from a force-protection standpoint."

During the demonstration at Kings Bay, a prototype UAV was launched and controlled by force-protection personnel ashore to search out the waters ahead of a submarine as it entered port. The small airplane, weighing in at approximately five pounds, can be disassembled into five pieces and be stored in a small suitcase, thus making it portable and easy to take anywhere it's needed.

“The beauty of UAVs – as other military users have found – is that they are economical, portable, and reliable,” said Armstrong. “Having a small, low-cost, and easy-to-operate platform that can provide an escort commander, submarine commander, or security forces a heads-up before potential trouble is very attractive.”

Developed by the Naval Research Laboratory (NRL), the Advanced Tactical Recce (ATR) aircraft can fly at altitudes ranging from 50 to 10,000 feet over a range of 40 kilometers – approximately 50 minutes flying time – on a single battery charge.

UAV’s can be used in a number of different ways, but their primary role for the Submarine Force would be for reconnaissance and photographic surveillance in support of force protection. “In addition to using UAVs for over-flight of waterways, they can survey fence lines on large bases,” Armstrong explained. “Places like Bangor and Kings Bay have extensive fence lines in the woods. A UAV equipped with thermal or night vision capabilities could be used to

check those fence lines much quicker and cheaper than driving a car around.”

Because of its ultra-quiet electric motor and small size, the new UAV is very stealthy. Another advantage is the versatility of the vehicle. According to Armstrong, it can be flown in all kinds of weather and can be launched easily by hand. “Moreover, it can be flown under the guidance of the global positioning system (GPS),” he said. “We just program what route we want it to fly, and it doesn’t matter if it’s night or day, good weather or bad. We can also launch the UAV from a submarine at sea or from land depending upon the available range.”

Formally acquiring UAVs for submarine force protection is still under study, but Armstrong is optimistic that this technology

will find a large role in the future fleet. “This affordable surveillance tool offers great potential benefits and savings to the Submarine Force, and I hope we’ll be able to take full advantage of this new technology very soon.”

Petty Officer 2nd Class Shaw serves in the Public Affairs office for COMNAVSUBFOR.

(below) A Marine prepares to launch the Dragon Eye.



U.S. Marine Corps Photo

U.S. Navy photo

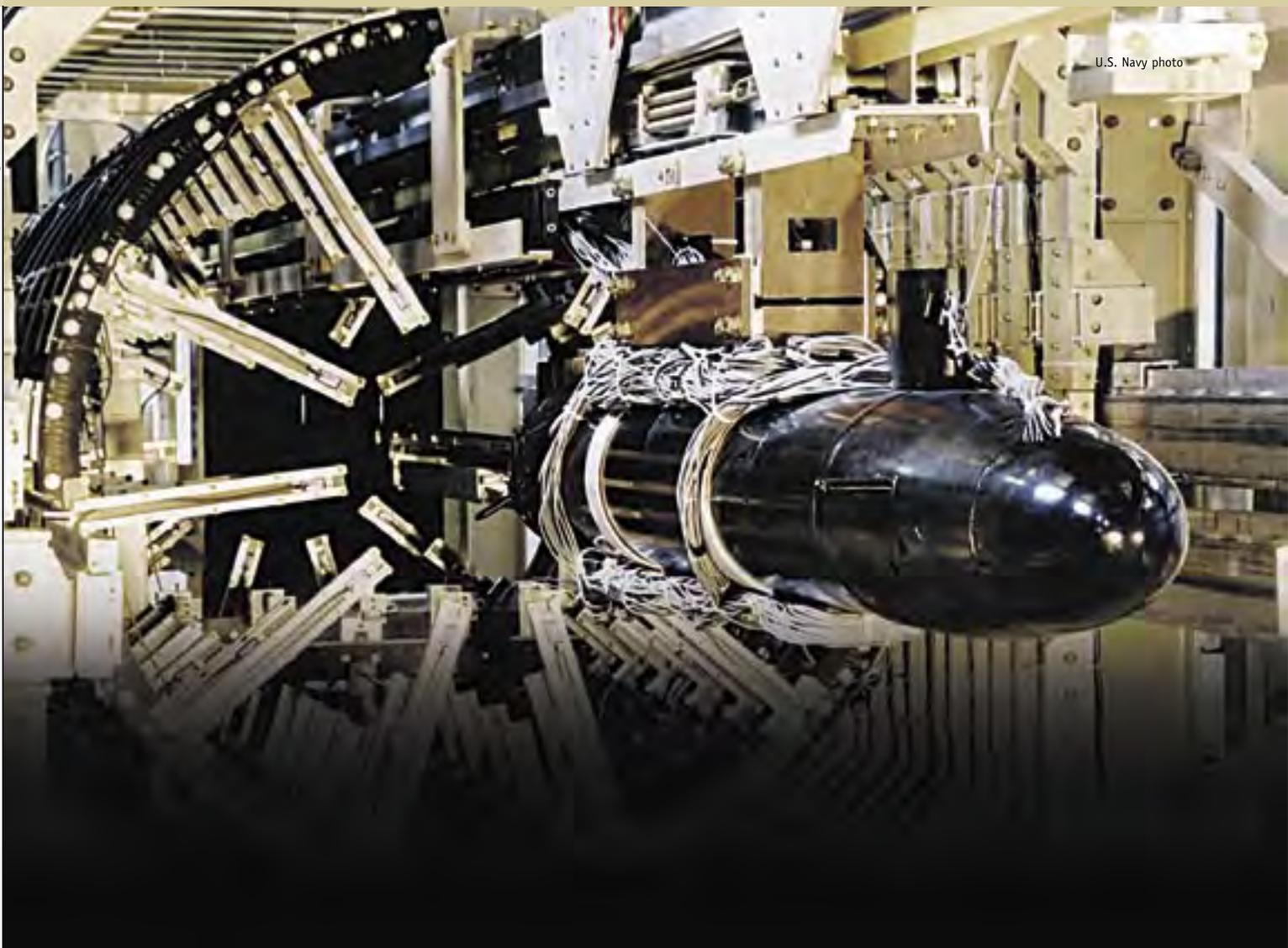


(above) A view of Naval Submarine Base Kings Bay, Ga., from an unmanned aerial vehicle (UAV) flown in February 2005 during an operational field test of the small aircraft’s surveillance capabilities. UAVs are being considered for possible force protection uses at bases like Kings Bay and for their potential to scout ahead for possible threats to submarines entering and leaving port.

(right) Seen from a UAV overhead, USS Newport News (SSN-750) comes pierside at Naval Submarine Base Kings Bay, Ga., during a demonstration of the aircraft’s performance capabilities.

U.S. Navy photo





# The Health *of* **Stealth**

NSWC's Carderock Division  
at Forefront of Naval Innovation

**“Mission-critical”** is a phrase often used and – more often than not – *overused*, in the defense community. However, one capability that is indeed “mission critical” to the Navy of the future is the ability to function effectively in the littorals. Assuring access to the littorals and then operating there safely and successfully despite the threats inherent in shallow water and nearby coastlines is a key objective of the research and development programs at the Naval Sea Systems Command’s (NAVSEA’s), Naval Surface Warfare Center (NSWC) and their flagship facilities at its Carderock Division.

Located just outside the Capital Beltway – but a world away from the political wrangling of Washington, D.C. – NSWC’s Carderock Division is one of the world’s most advanced design, engineering, and test facilities for the technologies that underlie modern warships, protect the fleet from underwater mines, and make our platforms the most stealthy and undetectable in history.

Established almost 100 years ago at the Washington Navy Yard and now sited in Bethesda, Md., the Carderock Division and its subordinate branches boast a vast array of capabilities and technical knowledge at the forefront of naval technology. Carderock is one of six major divisions that compose NSWC – at Corona, Calif.; Crane, Ind.; Dahlgren, Va.; Indian Head, Md.; and Port Hueneme, Calif. – as well as several other stations and detachments in the United States and other countries. Whereas the Crane, Dahlgren, and Port Hueneme Divisions provide engineering and software support for older but essential combat systems, and the Indian Head Division develops naval ordnance, it is Carderock that is charged with conceiving and planning for the Navy of tomorrow.

With “Transformation” the watchword for creating the 21st century Navy and Carderock at the forefront of naval innovation, it is no surprise that many of the developments on the leading edge of today’s technology are coming from Carderock Division. “Not invented here” is a phrase seldom uttered by its staff, and they are involved in most every aspect of the “cradle-to-grave” lifecycle of Navy ships.

In his “Framework for Action” white paper, CNO Adm. Vern Clark set forth five priorities that will fundamentally shape the Navy to come – manpower, current readiness, future readiness, quality of service,

and service-wide policy alignment. NSWC’s capabilities address each one of these issues and Carderock Division’s program of research and development is integral to future readiness. “We work on the Navy of tomorrow,” said Tom Warring, NSWC Carderock Division’s public affairs officer.

Many describe Carderock as “where the fleet begins,” and, indeed, the Carderock Division is the Navy’s most capable research, engineering, modeling, and test center for submarines, ships, and supporting systems. Its mission and capabilities encompass the full spectrum of maritime science, from theory and concept development, and design and acquisition, to implementation and post-delivery engineering. Carderock’s responsibilities extend not only to the U.S. Navy, but also to naval allies and many commercial maritime industries. Carderock is, in fact, chartered by Congress to support the entire maritime community in seven core engineering competencies – signatures and silencing, hull forms and propulsors, machinery systems and components, structures and materials, vulnerability

and survivability, environmental quality, and design and integration technology. Ultimately, the end results of Carderock’s efforts are enhanced ship performance and survivability at sea.

Stealth – a vital attribute for almost all Navy platforms – is a subject area of particular expertise at Carderock Division. Its engineers and scientists are the world’s leaders in developing superior stealth technologies for steady improvement in silencing and reducing ship signatures. Particularly important to the stealth of submarines is the work done at Carderock’s Underwater Electromagnetic Signatures and Technology Division.

Imagine you are embarked on a *Virginia*-class submarine conducting a mission in the littoral waters of a potential foe. How safe will you be from the threat of underwater electromagnetic mines or hidden electromagnetic detection devices? You can breathe a little easier knowing that all submarines from the now-decommissioned *Sturgeon*-class to USS *Virginia* (SSN-774) and subsequent sister ships have had their electromagnetic signatures rigorously tested in Carderock’s underwater

U.S. Navy photo



(above) An aerial view of a portion of NSWC Carderock Division’s campus. The long towing building is the David Taylor Model Basin, a 1,886 foot long basin designed for the hydrodynamic testing of ship models.

(left) A scale model of a submarine is poised to slip into an array of electromagnetic sensors at Carderock’s Magnetic Fields Laboratory.

electromagnetic signatures test facilities.

“We work to prevent the detection of submarines by sensor barriers or magnetically actuated ordnance by reducing the submarine’s overall electromagnetic signature,” said Jim Miller, Systems and Measurements Branch Manager in the Underwater Electromagnetic Signatures and Technology Division. “We do the same thing for surface ships and other Navy platforms. The key objective is stealth.”

Located in Building 81 on the Bethesda campus, the new Magnetic Fields Laboratory provides a magnetically clean environment in which the magnetic field intensity of specific submarine or surface ship classes can be modeled and measured. One unique feature of this facility is the ability to create a remotely controlled magnetic background field that simulates any geomagnetic location on the globe.

For example, Miller’s group has the ability to determine what the magnetic signature of a *Seawolf*-class submarine would be in – say – the Persian Gulf or the

Mediterranean. This is also the only facility in the United States capable of testing equipment for magnetic signature changes while operating under load. The facility itself is made with nonmagnetic construction materials – the rebar, concrete walls, and wood floors are all nonmagnetic – virtually all the materials in the building are nonferrous.

“We can replicate the magnetic field of any location on earth or in space,” said Miller. “Along with testing submarines and ships, we can also measure the magnetic signatures of large shipboard equipment, and particularly mine countermeasures (MCM) vehicles. Naturally, you want your MCM hardware to have a very low magnetic field so that they have minimal susceptibility to underwater mines.”

However, the main focus of Miller’s division is on “the health of stealth.” “In the last ten years, our work has been more oriented to ship and submarine research and development and coming up with new ways to implement magnetic countermeasures,” he noted. “Our primary mission is

trying to improve signature stealth and thus assure safer littoral access for our fleet.”

Testing of this nature is accomplished by building scale models of submarines or ships and testing them in the Magnetic Model Test Facility. “We construct a physically-scaled magnetic model typically at 1:48 or 1:60 scale, which while not particularly good looking, is magnetically very accurate,” Miller explained. “We don’t worry about the nonferrous parts of the submarine or ship, just those that affect the electromagnetic signature. In constructing the model, we incorporate current-carrying wires throughout the model to compensate the overall magnetic signature. The model allows us to validate the performance of the magnetic compensation system and to modify its characteristics if necessary to insure that the system meets the requirements without costly overdesign.”

While the vast majority of the Underwater Electromagnetic Signatures and Technology Division’s work supports the future Navy, the Division is also the

U.S. Navy photo





Photo by Petty Officer 2nd Class Bob Houlihan

(above) Disarmed Iraqi Manta mines (right) and contact mines (left) gathered during mine sweeping and interdiction operations during the early phases of Operation Iraqi Freedom. The Manta is a bottom laid, magnetically or acoustically actuated mine with a 170 kilogram warhead.

(left) Engineers at Carderock prepare equipment for a test. In the foreground is the heavy item test floor, capable of testing equipment up to 44 tons. The facility is made from nonferrous materials.

In-Service Engineering Agent (ISEA) for the fleet magnetic silencing facilities that test the magnetic field signatures of ships already in service.

“For the forward deployed MCMs, the Carderock Division has a team that will actually measure a ship’s magnetic and acoustic signature on site and determine whether it meets certain magnetic and acoustic signature control limits,” said Miller. “Essentially, we deploy a ‘drive-over’ facility that the ship can sail through with its magnetic compensation system turned on, so that we can evaluate it and adjust it for maximum stealth.”

The work of Carderock’s magnetic stealth experts offers enormous potential payoffs to the Navy and the fleet of tomorrow. “The current cost to the Navy for a magnetic compensation system is less than one percent of the total cost of the platform,” said Miller wryly. “And it could save the whole ship some day, and may be lighter and cost less with future technologies,” he added.

With decreasing budgets and increasing demands placed on the fleet, facilities such as Carderock provide the high-yield payoffs in stealth and safety required to keep the Submarine Force forward deployed and surge ready for years to come.

Mr. Smith is the Managing Editor of UNDERSEA WARFARE Magazine and an analyst with Anteon Corporation in Washington, D.C.

## Carderock’s Environmental Quality Program

helps the U.S. Navy’s submarines and surface ships protect the ocean and harbor environment, and is involved in research and development in ship pollution abatement systems.

**Signatures and Silencing** - This division addresses the emerging threats faced as a result of operating in the littoral region, while maintaining “blue water” stealth in the open ocean. Signature control – reducing the signature emitted by a ship caused by noise, infrared radiation, and electromagnetic pulses – has been a priority of the U.S. Navy since World War II. To achieve this control, measurements are taken of signature characteristics and then a physics-based model of signature sources and mechanisms is developed. These measurements are derived from full-scale trials on submarines and ships.

**Hull Forms and Propulsors** - The hydrodynamic expertise of the Hull Forms and Propulsors Division allows for complex and diverse ship systems such as the hull, propulsor, control surfaces, and appendages to be matched – not treated as separate entities – allowing for superior ship design. An example of this is Computational Fluid Dynamics (CFD) – a computer-based application that allows researchers and engineers to evaluate hydrodynamic materials and designs without physical tests. A combination of CFD and physical testing in Carderock’s David Taylor Model Basin were used to help design the advanced sail for the *Virginia*-class submarine.

**Machinery Systems and Components** - More complex and interconnected than the systems and machinery of submarines and ships decades ago, today’s modern systems are the most diverse equipment installed on a warship. All new machinery systems must meet stringent requirements, including interconnectibility and compatibility with other systems and components. Working towards the future of the all-electric Navy ships, Carderock is conducting research and development of a wide array of projects.

**Structures and Materials** - “Fighting hurt” – the ability to resist combat air and underwater explosions – is a key requirement for U.S. Navy ships. This is achieved through the use of relatively light yet strong materials able to survive the stresses of operations. Since the 1930s, Carderock has worked on submarine analysis tools, design procedures, model tests, and sea trials. Several ongoing investigative areas are being pursued at Carderock, including the use of High-Strength Low-Alloy (HSLA) steel to replace the use of HY-80/HY-100 steel in today’s submarine hulls.

**Vulnerability and Survivability** - Vulnerability describes the likelihood that a vessel will lose some of its capabilities or sink when it is hit. A survivable vessel integrates features that make it difficult to detect, difficult to hit if detected, able to fight hurt if hit, and remain repairable.

U.S. Navy photo



Carderock’s Explosive Test Pond is the only facility in the U.S. capable of performing precision-scaled experiments to study underwater weapon effects.

Carderock has historically supported ship and submarine shock hardening by developing standards and test procedures, conducting shock tests of equipment and full ships, and developing shock isolation systems. Carderock has been involved in every Navy shock trial since the 1960s.

**Environmental Quality** - Carderock’s Environmental Quality Program helps the U.S. Navy’s submarines and surface ships protect the ocean and harbor environment, and is involved in research and development in ship pollution abatement systems.

**Design and Integration Technology** - Carderock’s design and integration technology (D&IT) covers a vessel’s full life cycle, from initial design concepts to final disposal. Carderock is also the lead Navy R&D laboratory for logistics support technology; developing and maintaining Integrated Logistics Support (ILS) products for all HM&E equipment and systems in the fleet.

# What Makes a GOOD CO?

**F**orce readiness depends fundamentally on the superb judgment of our submarine Commanding Officers, and consequently, CO decision-making is one of the primary product lines of the Undersea Enterprise. Our PCO Instructors are charged with developing submarine COs who are both bold and confident. They refine their decisiveness, teach them the art of effective execution and follow-through, and challenge their capacity to decide the best course of action in the face of uncertainty and ambiguity.

*In that spirit, I am happy to reprint a recent U.S. Naval Institute Proceedings article, "Qualities of Successful Commanding Officers" in our Undersea Warfare magazine. It is an excellent summary of some of the most important characteristics we need in our COs. For many of you, it may provide insight for your own character development, and most importantly, for the development of these qualities for those preparing for command.*

*There is another aspect of the article I want to point out: the collaborative way it was written. "Qualities of Successful Commanding Officers" was the product of close work between our Submarine Force PCOIs and the Perisher Teachers from the United Kingdom, The Netherlands, and Norway, as well as submarine training officers from Canada and Australia. It represents the collective wisdom of many years of expert instruction. Great things result when we pool our resources and talent.*

Vice Adm. Chuck Munns  
COMNAVSUBFOR

**by: Captain Emil Casciano, U.S. Navy, Commander Marc Elsensohn, Royal Netherlands Navy, Commander Øistein Jensen, Royal Norwegian Navy, Commander Dermot Mulholland, Royal Canadian Navy, Captain John Richardson, U.S. Navy, Commander Ian Salter, Royal Australian Navy, Captain Ron Steed, U.S. Navy, and Commander Mike Walliker, Royal Navy**

Recently, submarine command course instructors from the United States, Great Britain, The Netherlands, and Norway, as well as senior submarine training officers from Australia and Canada (who have submarine forces but currently have no independent submarine command course) met for three days in Pearl Harbor, Hawaii. While there has been a lot of beneficial engagement between the courses' students and teachers in the past, this landmark opportunity brought all the teachers together to compare and contrast their courses, and to discuss the benefits and nature of future collaboration. The following questions were discussed:

Based on the accumulated assessment of the students you taught during your assignments, what are the common threads and characteristics that distinguish the best prospective commanding officers from the worst? What is different about those who 'get it' from those who don't?

Submarine command courses prepare officers for submarine command through a process of both teaching and assessment. The price of failure can be high, and while success allows assignment to command, it does not guarantee a successful command. The Submarine Command Course is neither a warfare course nor an academic exercise. It tests leadership,



professional knowledge, the desire for excellence, aggressiveness, and a hunger for submarine command. The central focus of the Submarine Command Course is to teach future commanding officers to make good command decisions. Generally there are two types of decisions: analytical and intuitive.

To make analytical decisions one weighs options, balancing risk and gain. This type of decision-making is well understood, and is used often by submarine commanding officers. While this is a necessary strength for command, it is neither sufficient, nor a good predictor of tactical or leadership performance.

Intuitive decisions are made after one detects cues and patterns that emerge from complex situations, and then chooses a course of action that likely will be successful. The action chosen is based on experience—the person has seen similar situations and draws on a “library” of responses (mental models). Based on recognizing the situation that faces him, the decider quickly converges on a course of action and runs a mental simulation of the action. If the simulation ends with success, he executes that option.

If the simulation is not successful, he quickly makes adjustments to correct the difficulty or tries another model, running through the process again, until he finds a successful course of action to take. It is important to realize intuitive decisions are made quickly compared to analytical decisions, and the decider is not comparing options. If the first projected course of action works, he executes.

Knowledge of intuitive decision-making is not well understood, but has applications in most tactical and seamanship scenarios. As a simple example, a CO may recognize the patterns emerging from a crossing situation. (“That contact has a zero bearing rate and port angle on the bow, and will collide with me if nothing is done.”) He then projects a mental simulation of his action based on the “mental models” he has developed through his experience. (“I should turn to starboard now.”) If the projection results in a satisfactory result (“I will get off his track

by 2,000 yds, and he will pass safely down my port side”), he executes his decision. If the projection does not have a happy ending (“I will run aground”), he chooses another option to consider (“I should slow and let the contact pass ahead.”). Even in this simple example, one can see that there are several correct courses of action. The CO, by virtue of his experience, quickly can converge on a mental model that will work. We have borrowed this model for intuitive decisions from Dr. Gary Klein<sup>1</sup>, which serves to provide a useful structure in enhancing intuitive decision-making.



Using the situation facing the student in the Submarine Command Course, we can identify some elements of success:

### 1 Good COs can process a lot of data, prioritize important cues, and recognize patterns—they have good situational awareness.

- They can sift the valuable and pertinent cues from the chaff, and maintain their focus.
- They can then recognize patterns emerging from those important cues. This applies to concrete and abstract situations.

– The arrival angle is getting lower; the noise-to-sound ratio is going up; I can hear him on the underwater telephone. This is a closing contact.

– There is nobody giving clear orders, the officer of the deck and junior officer of the deck are not agreeing on contact solutions; the fire control technician of the

watch keeps asking for more observations; and the sonar supervisor is reassigning trackers to all contacts. My control room party is not certain of the contact situation.

– For the last six months, I have had to intervene personally during the execution of too many evolutions throughout the ship. My teams are not properly preparing themselves for the tasks at hand.

- The combination of prioritizing the cues and recognizing the patterns is situational awareness.

### 2 Good COs have a rich library of mental models from which to choose, evaluate, and then decide.

- They can quickly converge on a successful response – a course of action that will work.

- Their mental simulation process is robust—anticipating the complexity of the scenario—they do not oversimplify and miss important aspects of the problem.

- Their mental models, and hence their decisions, are based on technical expertise and experience. Their “gut”

is actually a finely tuned pattern-recognition instrument; they “sense” things are wrong based on very subtle cues. (This is another idea that Klein discusses well.)

### 3 Good COs look for “decision-rich” opportunities. They want to be challenged and to make decisions. They are ambitious and enthusiastic.

- They make the most of every situation and are not content to sit on the sidelines. Thus, their pattern-recognition ability and library of mental models grow at faster rates than more passive officers.

- In clutch situations, they want the ball. They want to be leading, making decisions, learning, and advancing. This applies to personal development and team leadership.

- This enthusiasm is infectious, and this spirit spreads to their entire crew.

- Many prospective commanding officers

who struggle with the course, on the face of it, have had very “rich” career histories—i.e., good commands and good operations. Our conclusion is that they struggle because they did not make the most of their tours and did not seek out experience. Things ran relatively well under good leadership, and thus it was possible to avoid making decisions. These officers have little “actual experience” and are not well suited for command.

#### **4 Good COs are honest about evaluating themselves relative to the situation. They constantly look to improve their position in the scenario. They are natural “assessors” and “learners.”**

- They must be brutally honest about acknowledging their own limitations and capabilities.
- They are able to take criticism-of themselves and their ship. This ability is founded on a solid self-image and a confidence that they can overcome any situation, once they honestly face the truth. They are secure and confident, not arrogant.
- They are fully aware of the limitations of the process-incomplete information, uncertainty, perceptual differences, and personal and team weaknesses.
- They look for any input for improvement, but pride themselves on being the most aggressive hunter of good observations. They want to improve.
- They are passionate about collaboration inside and outside the lifelines. They look to share best practices and achieve synergies of effort. Going beyond compromise, they collaborate to find the optimum position. Once the “best solution” is found, it is quickly captured and fed back into the process to eliminate bad practices and to formalize good ones.
- They focus on actual performance not personalities.

#### **5 Good COs have strong command presence—a quiet self-confidence.**

- They pass on their knowledge and experience to their operational teams in terms that the team will understand.
- Their “briefs” are to the point and

enhance decisions and effective, efficient execution. These briefs are “to” their team, not “at” their subordinates.

- This ability to communicate, in combination with the situational awareness, honesty, and confidence mentioned above, forms command presence.

#### **6 Good COs possess endurance and fortitude.**

- They know the most important changes require tremendous investments of personal time and energy and can take months or years. Short- and long-term fatigue are anticipated and accommodated.
- They know that even in this environment, there will be times when things go wrong—even badly wrong. Only an eternal optimist believes that everything always will run smoothly. Good COs know that a plan is complete only if it recognizes it may go all wrong.
- They must bounce back when things go wrong. It is in these situations that

### **Only an eternal optimist believes that everything always will run smoothly. Good COs know that a plan is complete only if it recognizes it may go all wrong.**

commanding officers’ assessment skills and fortitude will be most brutally tested. These qualities are absolutely non-negotiable if the commanding officers are to retain their positions because if they fail to inspire their crews in the aftermath of a disaster, they will lose their sailors’ trust immediately and irrevocably.

Many of those who struggle in the Submarine Command Course demonstrate a clear pattern of characteristics. They include the following:

- They cannot see the way ahead in complex situations. They do not prioritize cues, recognize patterns, or develop responses. They appear to be overwhelmed.
- They are intolerant of uncertainty and are unable to act without “all” the information. These officers are often solid analytical decision-makers, because there is perceived “certainty” with methodology. These officers tend to look for “checklists”

even in situations in which checklists do not cover all the bases.

- They are unable to apply past experiences to new situations. This is a form of low pattern recognition, because they cannot see the similarities with past situations and have a small “library” of mental models from which to draw.
- They have weak assessment abilities. We have found the insecure prospective commanding officers are defensive and resistant to inputs. Thus, a downward spiral emerges: the individual is weak, therefore insecure, therefore resistant to input, therefore becomes weaker. . . .
- They tend to go it alone when challenged to produce answers. Collaboration is unnatural to them.
- They have no passion for command. We have asked students who are struggling: “Do you want to command?” Even at this late juncture, many answered “no.” Clearly in these officers there is no drive to get the experience required to command.

This is an incomplete list of some qualities of successful commanding officers. These qualities are inherent in some more than in others. It is possible, by having a structured understanding of intuitive decision-making, to detect natural command potential and to foster it in all junior officers (even those without strong natural abilities). We believe professional development and training that focus on building confident decision-makers can grow these qualities where they are weak, more quickly identify those officers who may not have what it takes to command, and help the naturally gifted officers to soar.

*Editor’s Note: All these officers are submarine officers involved in the training of prospective submarine commanding officers and executive officers.*

Reprinted from *Proceedings* with permission; Copyright (c) April 2005 U.S. Naval Institute/www.navalinstitute.org.

1.) Klein, Gary. *The Power of Intuition: How to Use Your Gut Feelings to Make Better Decisions at Work*. New York: Currency, Doubleday, 2003.

# Naval Post Graduate School *Pushes USW Envelope*

“The USW curriculum ensures that we **fulfill our mission** to **increase the combat effectiveness** of the Navy, while providing our students with a Master’s Degree in engineering acoustics, physical oceanography, operations research, electrical engineering (acoustical signal processing), or applied science.”

Rear Adm. Patrick W. Dunne, USN  
President, Naval Postgraduate School

U.S. Navy photo



(right) (Left to right) Naval Postgraduate School undersea warfare students Lt. Scott Cullen, Lt. James Von St. Paul, and Lt. Joseph Moore. Submariner Cullen and surface warfare officer Von St. Paul are specializing in operations research, and submariner Moore is in applied physics.

(left) Aerial view of the Naval Postgraduate School (NPS) in Monterey, California.



**F**uture naval battles in the littoral and defense of the Sea Base, carriers, and other high value assets may rely on mission-critical undersea warfare (USW) expertise gained by USW students at the Naval Postgraduate School (NPS).

Take NPS operations research student Lt. James Von St. Paul and his thesis research on an undersea “Star Wars,” for example: When the Applied Research Laboratory at Pennsylvania State University needed quick-turnaround research assistance on the first anti-torpedo torpedo, they turned to interdisciplinary USW faculty-student teams at NPS in Monterey, Calif.

Previously an ASW officer onboard the guided missile cruiser USS *Antietam* (CG-54) and a reactor mechanical division officer on USS *Theodore Roosevelt* (CVN-71), Von St. Paul was tapped to assist with a mission identified by the Office of Naval Research. “I was able to bring all of my fleet experience as an ASW officer to the anti-torpedo torpedo project,” Von St. Paul said. “My thesis research was already focused on optimizing decisions for Tomahawk target matching, which had crossover applications to the torpedo targeting problem.” Von St. Paul’s master’s thesis research addresses one of the Chief of Naval Operations’ near-term ASW transformation priorities – torpedo countermeasures – directly.

Another USW student, submariner Lt. Joseph Moore, also found his NPS thesis research redirected to meet a pressing Department of Defense (DoD) need. “My main interest is in computer simulation for designing underwater shaped-charge warheads and constructing their prototypes – basically how to get more bang from the explosives,” said Moore, an applied physics degree candidate and former engineering department junior officer on USS *Springfield* (SSN-761). “When we learned that CENTCOM (U.S. Central Command) needed better ways to counter insurgent and terrorist threats in Iraq,

“Investment in the education of Submarine Force officers has never been more important than it is today. **FY05 presents a golden opportunity** to afford some of the force leaders of tomorrow an opportunity for dedicated graduate study at the Naval Postgraduate School in Monterey. NPS is the primary path for dedicated, full-time study leading to both a master’s degree and a subspecialty code. At this year’s (2004) Executive Officer Screening Board, YG 93 officers with a master’s degree screened at a rate over 15 percent higher than those without, and one in three of those with master’s degrees earned them at the Naval Postgraduate School. **NPS offers the best opportunity for relevant education** and exposure in fields critically important to the future of our Navy. Attending NPS is a win-win scenario for an individual officer, his family, the Submarine Force, and the Navy. Take full advantage of this opportunity today.”

Adm. Kirkland H. Donald, Director, Naval Reactors;  
Rear Adm. Admiral Paul F. Sullivan, Commander,  
Submarine Force, U.S. Pacific Fleet

I applied what I knew from my shaped-charge research to developing advanced lightweight armor to protect against improvised explosive devices (IEDs).”

“One of the great things about being a student at NPS is that you’re on a win-win fast track,” Moore noted. “You take an idea that really matters to the Navy or DoD and develop it in just 18 months.”

TRIDENT submariner Lt. Scott Cullen, an operations research student who had served as a junior officer on USS *Rhode Island* (SSBN-740), stressed the uniqueness of the NPS USW curriculum. “What’s most valuable about the USW program is its unique defense focus, the wide range of USW-related scientific disciplines integrated into its rigorous core courses, and the application portion of the classes specifically addressing DoD and Navy challenges,”

Mediterranean, and a carrier battle group, Bacon served as Assistant Chief of Naval Operations for undersea warfare, overseeing the entire U.S. Submarine Force. One of his major roles as USW chair, established by a memorandum of understanding between NPS and the Naval Undersea Warfare Center in 2003, is to maintain liaison with operational commands, Navy laboratories, acquisition program managers, and program sponsors to link identified, prioritized Navy needs with USW student thesis topics.

“Our distinct advantages lie not only in the unique NPS USW course material,” Bacon continued, “but in the understanding developed from working side by side with active duty colleagues and international officers.” (Approximately one quarter of the nearly 1,600 officer students in

warfare – especially following the release of the CNO’s ASW Concept of Operations guidance in January.

“The Naval Postgraduate School has responded to this resurgence of USW emphasis with a series of robust, interconnected initiatives,” Bacon noted. “First and foremost is the traditional two-year in-residence USW curriculum, which began in 1973 and results in an accredited master’s degree in one of the specialization tracks – engineering acoustics, physical oceanography, operations research, electrical engineering (acoustical signal processing), or applied science. In addition, last July we added an Anti-Submarine Warfare Certificate Program by means of distance learning, which includes each of these core competencies.” The first students to earn an ASW distance-learning certificate, whose credits apply toward a full NPS master’s degree, graduate in June. All active-duty and reserve naval officers, government-laboratory engineers, afloat and ashore Navy civilians, and Navy enlisted personnel with ASW backgrounds are eligible to enroll in the ASW Certificate Program.

For recent graduates of the U. S. Naval Academy, R.O.T.C. programs, and other qualified curricula, NPS also has an in-residence, one-year Immediate Graduate Education Program (IGEP). Each year’s program typically begins in July and ends the following June. IGEP graduates earn a Master of Science degree in applied science, with a major in one of the USW core academic areas.

Central to the NPS USW master’s degree program is the thesis requirement. Each student performs the underlying research and then writes an independent master’s thesis on a topic of direct scientific and technological interest to the Navy’s technical programs, DoD, and the scientific community. Students are directly involved in cutting-edge research with world-class faculty and support staff, tackling many of the most important scientific problems facing the Navy today and preparing for future assignments as key military decision makers.

In addition to these alternatives, future NPS USW warfare students will now have another exciting new option. “Following the recent USW curriculum review by Rear Adm. Raymond Michael (‘Mike’) Klein, Deputy Director of CNO’s Submarine Warfare Division, NPS has just received

## “The Naval Postgraduate School Undersea Warfare curriculum is a **crown jewel** and absolutely unique.”

Vice Adm. Roger R. Bacon, USN (Ret.)  
Inaugural Chair Professor for Undersea Warfare,  
Naval Postgraduate School, and former  
Assistant Chief of Naval Operations for Undersea Warfare

Cullen said. “Fundamental knowledge of the four basic disciplines taught in the NPS USW program is vital to the success of underwater operations, and everyone who graduates from the program learns how to exploit the undersea environment to our best advantage.”

“The Naval Postgraduate School USW curriculum is a crown jewel and absolutely unique,” stressed retired Navy Vice Adm. Roger R. Bacon, inaugural chair professor for undersea warfare at NPS, who is himself an NPS alumnus in computer science and also directs the school’s USW Research Center. “You can’t get the defense-focused education in key USW core concepts – taught by world-class professors familiar with the military applications of these disciplines – at any other U.S. institution. No other university has this much faculty talent – the 24 members of our USW Academic Committee – in one place.”

Before retiring from 34 years of active duty during which he commanded two nuclear-powered submarines in the Pacific, a submarine squadron in Pearl Harbor, U.S. and NATO submarine groups in the

residence at NPS are from as many as 60 allied nations.)

“Response by students and faculty to the NPS USW program continues to be enthusiastic,” said Dr. Don Brutzman, former submarine officer and Chair of the USW Academic Committee. The committee is composed of 24 faculty members who teach and advise thesis research in one or more of the USW-related academic disciplines. “Perhaps our biggest value is that all our students earn accredited degrees in traditional scientific disciplines while learning about the interdisciplinary nature of these ongoing at-sea challenges. This is unique among universities and perhaps more necessary than ever, as other fields become more and more tightly specialized.”

During the Cold War, ASW was essentially a blue-water, sub-on-sub mission, in contrast to today’s focus on the littorals. With the recent proliferation of quiet diesel submarines operating in noisy, near-shore environments and posing a growing anti-access threat, there is heightened interest and concern about USW as a vital component of littoral and expeditionary

the green light for a new curriculum in unmanned systems,” said Brutzman. Students graduating from the proposed new program, which is now under review, will receive a Master of Science in Engineering Science degree (M.S.E.S.) in mechanical engineering. “For almost 20 years, NPS has had an active research program in autonomous underwater vehicles, graduating 125 thesis students under Distinguished Professor Anthony Healey, director of the NPS Center for Autonomous Underwater Vehicle Research. So we’re very excited about seeing this elevated to a new curriculum. The first unmanned systems courses – including autonomous underwater vehicles (AUVs), unmanned sensors, underwater robots, unmanned surface vehicles, and unmanned airborne vehicles – are expected to begin in January 2006. We are accepting applications now.”

“Unmanned systems, such as unmanned underwater and surface robots, are rapidly gaining prominence as near-term, rapid-response capabilities in Navy tactical planning, which in turn raises tactical oceanography to an even more critical warfare specialty,” said Brutzman. “Recent special presentations by Rear Adm. Tim McGee, Commander, Naval Meteorology and Oceanography Command, and Rear Adm. Bill Landay, Program Executive Officer for Littoral and Mine Warfare, both stressed the importance of interlocking capabilities and expertise in each of these critical areas for USW. The focus now is on new naval capabilities that emerge from net-capable

## “ASW is a Navy-unique core competency which we must further develop to ensure our undersea supremacy.”

Rear Adm. John J. Waickwicz, Commander  
Fleet Anti-Submarine Warfare Command

forces not restricted by the limitations that long hindered past systems.”

In addition to engineering acoustics, physical oceanography, operations research, and acoustical signal processing, the NPS USW curriculum includes anti-mine warfare topics taught and overseen by the NPS Chair of Mine Warfare, retired Navy Rear Adm. Richard D. Williams III, also assistant director of the school’s USW Research Center.

“Mines are the ultimate terror weapons at sea,” reflected Lt. Moore. “The mine warfare area is definitely covered in the NPS USW program, and you can choose to specialize in it as well.” This will especially be the case with the new unmanned systems curriculum, because counter-mine operations are a high-priority UAV mission.

Another highlight of the NPS USW program is the weekly Menneken Lecture Series, featuring distinguished visiting experts in mine warfare, mine countermeasures (MCM), ASW and USW. Topics in the series have included “Offensive Anti-Submarine Warfare” by retired Rear Adm. Jerry Holland, and “The Littoral Challenge”, by Rear Adm. Bill Landay, Program Executive Officer for Littoral and Mine Warfare.

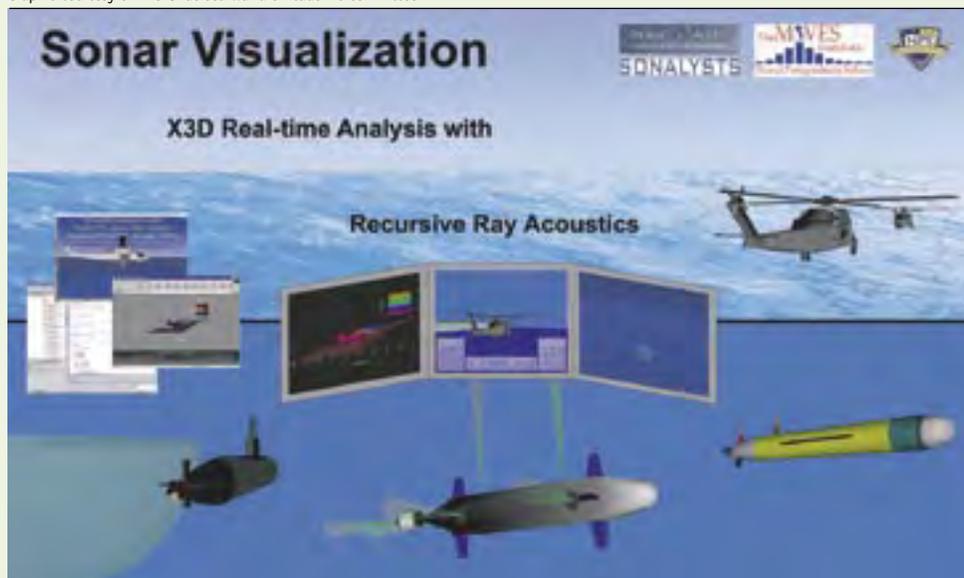
“ASW is a team mission, and naval officers of every community are enrolled in the NPS USW curriculum,” said Cmdr. John E. Joseph, program officer for undersea warfare and meteorology/oceanography. “Of the 28 naval officers currently enrolled in the in-residence program, 17 are surface warfare, five are submariners, and three are aviators. In addition, three are international naval officers – two from Turkey and one from Taiwan.”

“The NPS USW program is looking in all warfare communities for the best and brightest officers who want to make a difference in this long-standing, critical mission area of the Navy. We enthusiastically invite all eligible applicants to enroll in the master’s degree, distance-learning certificate, and IGEP programs,” says Brutzman. “Challenge us, and we’ll challenge you.”

For more information about the Naval Postgraduate School and all of its academic programs, go to [www.nps.edu](http://www.nps.edu).

Ms. Honegger is with the Naval Postgraduate School Public Affairs Office.

Graphic courtesy of NPS Undersea Warfare Academic Committee



(left) The SonarVisualizationRRA (recursive ray acoustics) extension of the NPS-developed “AUVWorkbench” 3-D vehicle simulation planning tool uses the Internet to query supercomputers for data inputs to sonar signal simulations.



An Echo II missile submarine with four of her eight Shaddock missile canisters in the raised, launch position.

# Cold War Strategic ASW

Photos courtesy of U.S. Naval Historical Center

**S**oviet strategic missile submarines were the greatest naval threat to the United States during the Cold War. Accordingly, strategic antisubmarine warfare (ASW) became a major role of the U.S. Navy, especially the attack submarines. This excerpt from *Cold War Submarines: The Design and Construction of U.S. and Soviet Submarines* by Norman Polmar and Kenneth J. Moore briefly describes the development of strategic ASW. *Cold War Submarines* was written in collaboration with the Rubin and Malachite design bureaus, which developed most of the Soviet submarine projects of the Cold War, as well as other Russian agencies. Mr. Polmar is a leading naval author, analyst, and historian; Mr. Moore, president of the Cortana Corporation, is a submarine technologist.

The appearance of the Project 667A/ Yankee (SSBN) strategic missile submarine had a profound impact on the U.S. Navy's antisubmarine strategy.<sup>1</sup> Heretofore Western naval strategists looked at the Soviet submarine force as a reincarnation of the U-boat threat of two world wars to Anglo-American merchant shipping.

From the late 1940s, for two decades, the U.S. Navy contemplated an Anti-Submarine Warfare (ASW) campaign in which, in wartime, Soviet submarines would transit through "barriers" en route to attack Allied convoys in the North Atlantic and then return through those same barriers to rearm and refuel at their Arctic bases. These barriers – composed of maritime patrol aircraft and hunter-killer submarines guided or cued by the seafloor Sound Surveillance System (SOSUS) – would sink Soviet submarines as they transited, both going to sea and returning to their bases.<sup>2</sup> Also, when attacking

Allied convoys, the Soviet submarines would be subjected to the ASW efforts of the convoy escorts.

In reality, by the mid-1950s the Soviets had discarded any intention of waging an anti-shipping campaign in a new Battle of the Atlantic. The U.S. Navy's development of a carrier-based nuclear strike capability in the early 1950s and the deployment of Polaris missile submarines in the early 1960s had led to defense against nuclear strikes from the sea becoming the Soviet Navy's highest priority mission. New surface ship and submarine construction as well as land-based naval and, subsequently, Soviet *Air Forces* aircraft were justified on the basis of destroying U.S. aircraft carriers and missile submarines as they approached the Soviet homeland.

When the Project 667A/Yankee SSBNs went to sea in the late 1960s, the Soviet Navy was given another high-priority mission: Strategic (nuclear) strike against the United States *and* the protection of its own missile submarines by naval forces. The

Efforts to counter these submarines required the U.S. Navy to undertake a new approach to ASW. A variety of intelligence sources were developed to detect Soviet submarines leaving port, especially from their bases on the Kola Peninsula. These included High-Frequency Direction Finding (HF/DF) facilities in several countries, Electronic Intelligence (ELINT) intercept stations in Norway and, beginning in the 1950s, Norwegian intelligence collection ships (AGI) operating in the Barents Sea.<sup>3</sup> Commenting on the AGI *Godoynes*, which operated under the code name Sunshine in 1955, Ernst Jacobsen of the Norwegian Defense Research Establishment, who designed some of the monitoring equipment in the ship, said that the *Godoynes* – a converted sealer – was “bursting at the seams with modern American searching equipment, operated by American specialists.”<sup>4</sup> The Central Intelligence Agency sponsored the ship and other Norwegian ELINT activities. The Norwegians



The nuclear-propelled icebreaker ROSSIYA, as completed, with weapons and military electronics. Nuclear icebreakers may have provided a link between Soviet communication nets and submerged submarines.

the late 1970s were not referred to, in even top secret U.S. Navy documents. Navy planning publications – highly classified – began to discuss trailing operations at that time as the U.S. understanding of the Soviet submarine roles in wartime began to change.

Beginning in the late 1960s, the Soviet Union gained an intelligence source in the U.S. Navy that could provide details

## U.S. Submarines Keep Vigilant Watch on Soviet Strategic Missile Submarines

Yankee SSBNs severely reduced the effectiveness of the U.S. Navy's concept of the barrier/convoy escort ASW campaign. These missile submarines – which could carry out nuclear strikes against the United States – would be able to pass through the barriers in peacetime and become lost in the ocean depths, for perhaps two months at a time. Like the U.S. Polaris SSBNs, by going slow, not transmitting radio messages, and avoiding

Allied warships and shipping, they might remain undetected once they reached the open sea.

If the Soviets maintained continuous SSBN patrols at sea (as did the U.S. Navy) there would always be some ballistic missile submarines at sea. During a period of crisis, additional Soviet SSBNs would go to sea, passing through the barriers without Allied ASW forces being able to attack them.

operated a series of AGIs in the ELINT role in the Barents Sea from 1952 to 1976. In the Pacific, there was collaboration with Japanese intelligence activities as well as U.S. HF/DF and ELINT stations in Japan to listen for indications of Soviet submarine sorties.

From the early 1960s U.S. reconnaissance satellites also could identify Soviet submarines being prepared for sea. Once cued by such sources, SOSUS networks emplaced off the northern coast of Norway and in the Greenland-Iceland-United Kingdom (GIUK) gaps would track Soviet SSBNs going to sea. Presumably, SOSUS networks in the Far East were cued by similar ELINT and other intelligence sources.

Directed to possible targets by SOSUS, U.S. attack submarines would attempt to trail the ballistic missile submarines during their patrols. These SSBN trailing operations were highly sensitive and until

of U.S. submarine operations, war plans, communications, and the SOSUS program. This source was John A. Walker; a Navy communications specialist who had extensive access to highly classified U.S. submarine material. Based on Walker's data and other intelligence sources, the Soviets restructured their own naval war plans. The previous American perception was that the U.S. Navy would win “easily, overwhelmingly,” according to a senior U.S. intelligence official.<sup>5</sup> “From the late 1970s . . . we obtained special intelligence sources. They were available for about five years, until destroyed by [Aldrich] Ames and others.” Based on those sources, “we learned that there would be more holes in our submarines than we originally thought-we had to rewrite the war plan.”<sup>6</sup>

In the mid-1980s U.S. officials began to publicly discuss the Western anti-SSBN strategy. Probably the first official

pronouncement of this strategy was a 1985 statement by Secretary of the Navy John Lehman, who declared that U.S. SSNs would attack Soviet ballistic missile submarines “in the first five minutes of the war.”<sup>7</sup> In January 1986, the Chief of Naval Operations, Adm. James D. Watkins, wrote that “we will wage an aggressive

operations were released: the trail of a Yankee SSBN in the Atlantic,<sup>10</sup> and that of a Project 675/Echo II SSGN in the Pacific by SSNs.<sup>11</sup> This particular Yankee trailing operation – given the code name Evening Star – began on March 17, 1978 when USS *Batfish* (SSN-681) intercepted a Yankee SSBN in the Norwegian Sea.

**“In January 1986, the Chief of Naval Operations, Adm. James D. Watkins, wrote that we will wage an aggressive campaign against all Soviet submarines including ballistic missile submarines.”**

campaign against all Soviet submarines, including ballistic missile submarines.”<sup>8</sup> Earlier Watkins had observed that the shallow, ice-covered waters of the Soviet coastal seas were “a beautiful place to hide” for Soviet SSBNs.<sup>9</sup>

Only in 2000 would the U.S. Navy reveal some of the details of trailing Soviet SSBNs. In conjunction with an exhibit at the Smithsonian Institution’s Museum of American History commemorating one hundred years of U.S. Navy submarines, heavily censored reports of two U.S. trailing

*Batfish*, towing a 1,100-foot sonar array, had been sent out from Norfolk specifically to intercept the SSBN, U.S. intelligence having been alerted to her probable departure from the Kola Peninsula by the CIA-sponsored Norwegian intelligence activities and U.S. spy satellites. These sources, in turn, cued the Norway-based SOSUS array as the Soviet missile submarine sailed around Norway’s North Cape.

After trailing the Soviet submarine for 51 hours while she traveled 350 nautical miles, *Batfish* lost contact during a severe

storm on March 19. A U.S. Navy P-3 Orion maritime patrol aircraft was dispatched from Reykjavik, Iceland, to seek out the evasive quarry. There was intermittent contact with the submarine the next day and firm contact was reestablished late on March 21 in the Iceland-Faeroes gap.

The trail of the SSBN was then maintained by *Batfish* for 44 continuous days, the longest trail of a Yankee conducted to that time by a U.S. submarine.<sup>12</sup> During that period the Yankee traveled 8,870 nautical miles, including a 19-day “alert” phase, much of it some 1,600 nautical miles from the U.S. coast, little more than the range of the submarine’s 16 RSM-25/R-27U missiles. The *Batfish* report provides day-to-day details of the Yankee’s patrol and the trailing procedures. Significantly, the SSBN frequently used her MGK-100 Kerch active sonar (NATO designation Blocks of Wood).<sup>13</sup> This sonar use and rigidly scheduled maneuvers by the Soviet submarine, for example, to clear the “baffles,” that is, the area behind the submarine, and to operate at periscope depth twice a day continuously revealed her position to the trailing SSN.<sup>14</sup> *Batfish* ended her trailing operation as the Yankee SSBN reentered the Norwegian Sea.

The routine repetitiveness of the “target” was used to considerable advantage by *Batfish*. Certain maneuvers indicated

A Soviet Delta I SSBN on patrol.



a major track change or impending periscope depth operations. But would such predictable maneuvers have been used in wartime? The repeated use of her sonar in the *Batfish* operation was highly unusual for a Yankee SSBN on patrol. Would the missile submarine have employed counter-measures and counter-tactics to shake off the trailing submarine during a crisis or in wartime? "You bet they would change their tactics and procedures," said the commanding officer of the *Batfish*, Cmdr. Thomas Evans.<sup>15</sup>

There are examples of tactics being employed by Soviet submarines to avoid U.S.-NATO detection. Among them have been transiting in the proximity of large merchant ships or warships in an attempt to hide their signatures from Western sensors, and reducing noise sources below their normal level when transiting in areas of high probability of SOSUS detection.<sup>16</sup> When the Russian cruise missile submarine *Kursk* was destroyed in August 2000, a Russian SSBN, believed to be a Project 667BDRM/Delta IV, may have been using the fleet exercise as a cover for taking up a patrol station without being detected by U.S. attack submarines in the area. (Another Delta IV, the *Kareliya* [K-18], was participating in the exercise at the time.)

Not all U.S. trailing operations were successful. Periodically Soviet SSBNs entered the Atlantic and Pacific without being detected; sometimes the trail was lost. A noteworthy incident occurred in October 1986 when the U.S. attack submarine *Augusta* (SSN-710) was trailing a Soviet SSN in the North Atlantic. *Augusta* is reported to have collided with a Soviet Delta I SSBN that the U.S. submarine had failed to detect. *Augusta* was able to return to port, but she suffered \$2.7 million in damage. The larger Soviet SSBN suffered only minor damage and continued her patrol.

(U.S. and Soviet submarines occasionally collided during this phase of the Cold War, many of the incidents undoubtedly taking place during trail operations. Unofficial estimates place the number of such collisions involving nuclear submarines at some 20 to 40.)

The limited range of the Yankee's RSM-25/SS-N-6 missile forced these submarines to operate relatively close to the coasts of the United States. Under these conditions, and upon the start of hostilities, the trailing U.S. submarines would attempt to sink



(top) A Soviet Yankee SSBN transiting on the surface. Yankees, designed for high speeds while submerged, could reach 25 knots

(bottom) An Echo II sail with radio antenna raised at the after end of the fairwater structure.

the Soviet SSBNs as they released their first missiles (or, under some proposals, when their missile tube covers were heard opening). If feasible, the U.S. submarines would call in ASW aircraft or surface ships, and there were proposals for U.S. surface ships to try to shoot down the initial missiles being launched, which would reveal the location of the submarine to ASW forces. These SLBM shoot-down proposals were not pursued.<sup>17</sup>

U.S. anti-SSBN efforts again were set back in 1972 when the first Project 667B/Delta I ballistic missile submarine went to sea. This was an enlarged Yankee design

carrying the RSM-40/R-29 (NATO SS-N-8 Sawfly) missile with a range of 4,210 nautical miles. This missile range enabled Delta I SSBNs to target virtually all of the United States while remaining in Arctic waters and in the Sea of Okhotsk. In those waters the SSBNs could be defended by land-based naval aircraft as well as submarines and (in ice-free waters) surface warships. These SSBNs were equipped with a buoy-type surfacing antenna that could receive radio communications, target designations, and satellite navigational data when the ship was at a considerable depth.

Further, communications with submarines in Arctic waters were simplified because of their proximity to Soviet territory. The use of surface ships and submarines for communications relay were also possible. It was possible that *civilian* nuclear-propelled icebreakers – which were armed on their sea trials – were intended to provide such support to submarines in wartime.<sup>18</sup>

Also, having long-range missiles that would enable SSBNs to target the United States from their bases or after short transits, fit into the Soviet Navy's procedure of normally keeping only a small portion of the submarine fleet at sea, with a majority of their undersea craft held in port at a relatively high state of readiness. These submarines – of all types – would be “surged” during a crisis.

This procedure was radically different than that of the U.S. Navy, which, for most of the Cold War, saw up to one-third of the surface fleet and many SSNs forward deployed. More than one-half of the SSBN force was continuously at sea – nautical at a cost of more personnel and more wear-and-tear on the ships.

The Soviet SSBN operating areas in the Arctic and Sea of Okhotsk-referred to a “sanctuaries” and “bastions” by Western intelligence-were covered by ice for much of the year and created new challenges for Western ASW forces. U.S. attack submarines of the *Sturgeon* (SSN-637)-class were well suited for operating in those areas, being relatively quiet and having an under-ice capability.<sup>19</sup> However, the Arctic environment is not “ASW friendly”: communications – even reception – are extremely difficult under ice; passive sonar is degraded by the sounds of ice movement and marine life; and under-ice acoustic phenomena interfere with passive (homing) torpedo guidance. Also, the Arctic environment, even in ice-free areas, is difficult if not impossible for Allied ASW aircraft and surface ship operations.

The Soviet SSBN force thus became an increasingly effective strategic strike/deterrent weapon, especially when operating in the sanctuaries or bastions.

(c) 2003 N. Polmar and K. J. Moore, *Cold War Submarines* (Dulles, VA: Brassey's - Potomac Books).

## Bibliography

- 1) The first major studies of this subject to appear in public were Donald C. Daniel, *Anti-Submarine Warfare and Superpower Strategic Stability* (Urbana: University of Illinois Press, 1986), and Tom Stefanick, *Strategic Anti-Submarine Warfare and Naval Strategy* (Lexington, Mass.: Lexington Books, 1987).
- 2) The term SOSUS, believed to have been coined in 1952, was itself classified until about 1967; the unclassified code name Caesar was used as a cover name for production and installation of the arrays.
- 3) HF/DF - known as “huff-duff” - sought to detect Soviet submarine-to-shore communication to determine the location of submarines. The U.S. name for these facilities was *Wallenweber*, the name as well as the equipment being copied from the Germans; the Soviets had similar facilities to detect U.S. naval forces. HF/DF of submarine communications was a major factor in the Anglo-American victory over German U-boats in World War II.
- 4) Riste, *The Norwegian Intelligence Service*, p. 147.
- 5) Confidential source A discussion with N. Polmar, Washington, D.C., Aug. 22, 1997.
- 6) Ibid. Ames was a CIA counterintelligence officer who spied for the Soviets and, after the fall of the USSR, for Russia. When Ames was arrested in 1994, federal officials said that he had perpetrated the most costly break of security in CIA history. During at least nine years as a Soviet agent, he had revealed more than 100 covert operations and betrayed more than 30 operatives spying for the CIA and other Western Intelligence services.
- 7) Quoted in Melissa Healy, “Lehman: We'll Sink Their Subs,” *Defense Week* (May 13, 1985), p. 18. One of the first meaningful public discussions of this subject was Capt. John L. Byron, USN, “No Quarter for Their Boomers,” U.S. Naval Institute *Proceedings* (April 1989), pp. 49-52.
- 8) Adm. James D. Watkins, “The Maritime Strategy,” supplement to the U.S. Naval Institute *Proceedings* (January 1986), p. 11.
- 9) George C. Wilson, “Navy Is Preparing for Submarine Warfare beneath Coastal Ice,” *The Washington Post* (May 19, 1983), p. A5.
- 10) From Commanding Officer USS *Batfish* (SSN-681), to Chief of Naval Operations (Op-095), Subj: Report of Mission LS-26, March 2-May 17, 1978; May 17, 1978, ser LS-26-D-0006-T-78. Also see Thomas B. Allen, “Run Silent, Run Deep,” *Smithsonian Magazine* (March 2001), pp. 51-61.
- 11) From Commanding Officer USS *Guardfish* (SSN-612), to Commander in Chief U.S. Pacific Fleet, Subj: Trail of Echo II nuclear submarine (Case Papa 07) during the period May 12-June 6, 1972; June 10, 1972, ser 00015-72.
- 12) USS *Batfish* report, Enclosure (1) “Abstract,” p. 1.
- 13) The active sonar was used every one to three hours through the Yankee's transit to patrol area and while in the alert area; there was one three-day period when the sonar was not intercepted after the Yankee began the home transit; USS *Batfish*, Enclosure (1) “Abstract,” p. 7. The NATO term is derived from the “ping” of the active sonar, said to sound like the sharp clapping together of two blocks of wood.
- 14) Such baffle-clearing maneuvers at high speeds, sometimes involving a rapid descent to a deeper depth, are referred to as “crazy Ivan turns” by U.S. submarines.
- 15) Rear Adm. Thomas Evans, USN (Ret.), discussion with N. Polmar, Washington, D.C., Jan. 26, 2001.
- 16) See, for example, Milan Vego, *Soviet Naval Tactics* (Annapolis, Md.: Naval Institute Press, 1992), pp. 163-164, and B. N. Makeyev, *Voyenno-morskije aspekty national bezopasnosti* (Naval Aspects of National Security) (Moscow: Nonproliferation and Critical Technologies Committee, 1997), pp.63-67.
- 17) As part of the U.S. Navy's SSBN security program, the Anti-Launch phase Ballistic missile Intercept System (ALBIS) project culminated with the live firing of a Terrier surface-to-air missile against a submerged-launched Polaris A-2, reflecting a belief that the Soviets could employ a tactic. The attempted Polaris intercept failed.
- 18) One of the few discussions of these activities is N. Polmar and Raymond Robinson, “The Soviet Non-naval Force Multiplier,” U.S. Naval Institute *Proceedings* (December 1987), pp. 66-69. The large nuclear icebreakers *Arktika* and *Rossiya* were armed on their trials; the KGB Border Guard icebreakers were armed and other naval icebreakers had provisions for weapons and naval electronics.
- 19) The first 39 submarines of the subsequent *Los Angeles* (SSN-688)-class were not configured for under-ice operations.



2004 Submarine Force Junior Officers of the Year on the west steps of the U.S. Capitol.

# Junior Officers of the Year Storm Washington, D.C.

**W**ith visits to the Capitol, the White House, and the Pentagon, you might think the pack of 18 submariners who came to Washington, Mar. 2 was just a standard group of tourists. However, these were VIPs, here for a series of insider tours and meetings with top-level officers in recognition of their designation as the Submarine Force's 2004 Junior Officers of the Year (JOOY). Using a series of professional boards and competitions, each squadron and submarine tender selected its own JOOY based on shiphandling, tactical, navigation, and casualty-control skills.

During their three-day visit to the nation's capital, the young officers met and discussed the future of the Submarine Force with Senator Richard Burr (R-N.C.); Adm. John B. Nathman, Commander, U.S. Fleet Forces Command (then Vice Chief of Naval Operations); Adm. Kirkland H. Donald, Director, Naval Nuclear Reactors; and Rear Adm. Joseph A. Walsh, Director, Submarine Warfare Division (OPNAV N77). They also had an evening tour of the White House, a chance to explore the halls of the Pentagon, and time to rub elbows with members of Congress at the U.S. Capitol.

Selection to this elite group marks each individual as an officer whose career will be subject to high expectations for years to come, according to Lt. Cmdr. Scott Young, the N77 Congressional Liaison and the JOOY liaison in D.C. However, he believes these Sailors can handle the publicity and the Submarine Force is more than proud to identify its 2004 Junior Officers of the Year. (See sidebar.)

UNDERSEA WARFARE Magazine had the opportunity to sit down with these junior officers while they were in the D.C. area to talk about their visit, their careers, and their perspective on the future of the Submarine Force.

**USW: Tell us about your visit to D.C.**

**Lt. Eric Hardisty:** Going to the White House was a once-in-a-lifetime opportunity. We were allowed to go into the West Wing and see the Cabinet Room and the Oval Office. These are places I wouldn't normally get to see if it weren't for the JOOY program. So I really appreciate our hosts [retired Navy Capt. Bruce Miller, USN, Deputy Assistant for Homeland Security, Office of the Vice President, and Capt. Jim Howe, USCG, Office of the Vice President] for taking the trouble to show us around at 10 o'clock at night on their own time. It was a humbling experience.

**Lt. Robert Rose:** I think my favorite part of the trip was being able to learn a little more about the workings of the Navy as a whole, especially seeing the White House and Capitol Hill with two retired Navy captains. Sometimes on the boat it seems that we've got blinders on and all we see is our little submarine world. Now, I've seen a lot more about how the Navy works and can understand it all better.

**Lt. Aaron Peterson:** I would say one of my favorite parts was realizing just how small our community is. I think every one of us ran into somebody here that we had known before. We ran into our old commodores. The retired captain that gave us the White House tour was the guy who interviewed me when I was a Midshipman!

**Lt. William Wiley:** I did graduate work at Georgetown and did my internship on

the Hill, so I know this area. What I liked best was just being able to hang out with all the guys. We had known each other a little bit in the pipeline, but we haven't seen much of each other in the last three years. A lot of us hadn't met since we graduated from the Naval Academy! It was a great opportunity to hear different opinions and learn about experiences on other boats.

**Lt. Travis Haire:** I'm from *Parche*, which is decommissioning and will no longer go to sea, so it's been great to talk to these guys and see what everyone else is doing in the Navy.

**Lt. Thomas O'Donnell:** Something that intrigued me while we were here was seeing the financial aspects of keeping the Submarine Force viable into the future. We talked with several admirals who have a few years left in their career – they've probably already done more than 25 – and they were talking about the future of the force. They seemed to say that at our level, we don't really need to worry about stuff that's way down the road. But we started looking at some time lines and realized that if we were in their shoes 20 years from now, it is going to affect us. Some of us are going to be COs in 15 years; some of us will be admirals in 20. The stuff that we're talking about today is really what we're going to be working with in the future. Not all of us will stay in – but those who do have seen a snapshot of what our future will look like and what the possibilities are.



(left to right) Lt. Tom Jones, Lt. Alex Baerg, Lt. Pratik Joshi, and Lt. Ben Britt during a presentation at the Pentagon.

**USW: Looking toward your future in the Navy, what do you see as your career path?**

**Lt Wiley:** It doesn't matter where you do your JO tour. You just have to get a lot of good experience, a lot of time learning how to drive the boat, learning how to do your job, and learning how a submarine runs. But for your department head tour, I've been told you want to be an engineer on a boomer or a fast-attack – or a navigator on a fast-attack. You need that to be competitive for XO and CO.

**Lt. Thomas Jones:** The detailers try to spread your experience over fast-attacks and SSBNs. They don't want separate SSN and SSBN navies, so throughout your tours, they intentionally try to give you experience on both platforms. Also, it doesn't matter on your department-head tour if you're the weapons officer, the navigator, or the engineer, as far as making XO or CO is concerned. My last CO had been "weps." There are very good weapons officers and very good navigators. Often, good guys are deliberately made weapons officers and navigators – so it's not just the best guy who gets to be an engineer.

**Lt. John Augenblick:** Think about what's important to the officer corps. You can know every step, point, and procedure, but if you don't understand the human and social dynamics that underlie submarining – you don't know anything at all. And that's not specific to the boomer or the fast-attack. That is the crux of what a JO tour is supposed to teach you to understand.

**Lt. Kevin Millsagle:** I just want to add to the discussion here that there are certain jobs that are more sought after because they provide a better opportunity to excel.

**Lt. Ronald Ibbetson:** I see too many people in the Navy going after their career.



Lt. Will Wiley and Lt. Travis Haire listen to a presentation given by Lt. Cmdr. Scott Young, Plans Assistant and Congressional Liaison, N77.

We're warfighters, and as warfighters, we have a specific mission to accomplish. Sometimes what really turns me off are people who are in the Navy only for themselves and their careers. I can't say I'm entirely innocent – because I enjoy the money and the leadership experience, too. But I will say I'm doing it for a lot of other reasons and that's why I came back into the service. I think you are going to be successful as a CO if you care about your people and care about the mission you are performing. You should want to be the best CO, because you want to be a successful submarine warfighter, and not because you want to make admiral someday or be the next commodore.

**Lt. Jones:** I've been in the Navy for 17 years – and this may sound like a cliché – but when people are willing to do the tougher jobs and do them well, their careers take care of themselves. You may not be ecstatic about the job opportunities you're presented with, but the detailers are making a concerted effort to put you in the best position to excel, so you screen for O-4 on the first look, you screen for O-5, and then you screen for command. If you're willing to accept those things and move on, your career takes care of itself. You don't have to be out seeking opportunities to make your career, because there are people looking out for you.

**Ens. Donovan Ayer:** I think he's absolutely right. We're all here to do our jobs. We all enjoy pay raises, but you have to take the hard jobs, too. Most of us are type "A" personalities, so we're the guys that want to do the hard jobs the best we can and be as successful as we can. That's what causes your career to progress. In a natural career progression as JOs of the Year, next you will go to shore tour – maybe some to post-graduate school – then on to a department-head tour, sprinkle another shore tour in there, and then you screen for XO and CO.

**USW:** Tell us about what you, as junior officers, are looking forward to in the future of the Submarine Force.

**Lt. Timothy Newberry:** I'm a little biased toward one new possibility – the SSGN. *Ohio* is the first of these, and it's supposed to be done later this year. I would like to get into that program, because there's no other ship like it. There's the capability to do all kinds of stuff like Tomahawk missions and special operations.

**Lt. Joseph Root:** I'm very interested in making every platform the most capable it can be. We see the numbers of submarines drawing down, but we're facing higher numerical odds against us from potential advisories. So what do we do? We have to increase the capabilities of each of our own platforms to counter that threat. Every time I read something about numbers I think: How are we going to accomplish the mission with fewer platforms? The expanding capabilities introduced by new technology, especially with UUVs and the SSGN, will make every submarine even more devastating against numerically superior foes.

**Lt. Alexander Baerg:** During exercise Silent Hammer, it was really amazing – particularly in performing the SSGN mission. The exercise gave us a bit of an SSN mission and extended that to what the SSGN is going to do. We embarked over 150 riders in addition to ship's crew. Fifty of those people were SEALs. We launched SEALs at least once a day. We were simulating Tomahawk missions. We were controlling UAVs [Unmanned Aerial Vehicles] and UUVs [Unmanned Undersea Vehicles] and all these brand new technologies. It was really exciting. Right now, I work with the ASDS [Advanced

*continued on page 35*



## 2004 Submarine Force Junior Officers of the Year

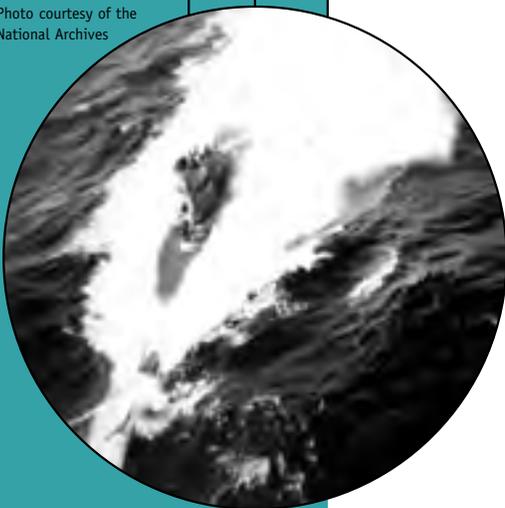
- Lt. Matthew S. Valle, USS *Philadelphia* (SSN-690)
- Lt. Robert W. Rose, USS *Miami* (SSN-755)
- Lt. Kevin J. Millsagle, USS *Alexandria* (SSN-757)
- Lt. Aaron C. Peterson, USS *Springfield* (SSN-761)
- Lt. William H. Wiley, USS *Providence* (SSN-719)
- Lt. Thomas M. Jones, USS *Scranton* (SSN-756)
- Lt. Eric A. Hardisty, USS *Newport News* (SSN-750)
- Lt. John R. Augenblick, USS *Maine* (SSBN-741) (BLUE)
- Lt. Thomas P. O'Donnell, USS *Maryland* (SSBN-738) (GOLD)
- Lt. Daniel D. Maloney, USS *Emory S. Land* (AS-39)
- Lt. Pratik Joshi, USS *La Jolla* (SSN-701)
- Lt. Joseph A. Root, USS *Columbia* (SSN-771)
- Lt. Travis W. Haire, USS *Parche* (SSN-683)
- Lt. j.g. Christopher A. Hedrick, USS *Cheyenne* (SSN-773)
- Lt. Ronald M. Ibbetson, USS *Jefferson City* (SSN-759)
- Lt. Charles F. Centore, USS *City of Corpus Christi* (SSN-705)
- Ens. Donovan J. Ayer, USS *Frank Cable* (AS-40)
- Lt. Benjamin N. Britt, USS *Pennsylvania* (SSBN-735) (BLUE)
- Lt. Alexander T. Baerg, USS *Georgia* (SSGN-729)
- Lt. Timothy W. Newberry, USS *Ohio* (SSGN-726)

# Between Fleet Scouts & Commerce Raiders

## Submarine Warfare Theories and Doctrines in the German and U.S. Navies, 1935-1945

Writing in late 1942, Rear Admiral Kurt Aßmann, head of the German *Kriegsmarine's* Historical Office, authored an article entitled “Transformations in the Conduct of War at Sea” (“Wandlungen der Seekriegsführung”). In that piece, Aßmann argued the naval power of Germany had finally overcome Allied maritime superiority by pursuing its new strategy of economic warfare, called cruiser warfare (*Kreuzerkrieg*). The prime agent for the execution of that transformation of naval warfare would be the German submarine force, its U-boats. Responding to the German experiences of the First World War, Aßmann argued that the National Socialist state would win the Second World War by better using its naval technology, in spite of its overall naval weakness.<sup>1</sup> Since the U-boats of the Second World War were essentially improvements of their First World War predecessors, the prime change in German warfare would be in its methods, in this case its submarine doctrine.<sup>2</sup> But the U-boat force would neither transform naval warfare nor win the Second World War. Instead it would be up to the United States Navy’s submarine force, at first trained to play a junior role in its own service, to revolutionize naval warfare by demonstrating the full potential of what a subsurface force could do.

Photo courtesy of the National Archives



The German Type VIIC submarine U-569 is shown here under attack by a plane from the USS *Bogue* (CVE-9) in the mid-Atlantic in May of 1943.

To understand this result, a better understanding of the submarine campaigns waged by both Germany and the United States can be achieved by examining how the war was conducted at the operational level. In minimizing a recounting of convoys attacked, tonnages sunk and submarines lost, however, this article will suggest the way German and American naval leaders planned to fight at the operational level fundamentally shaped the course of the Second World War at sea. As such it will relate how respective ideas of naval warfare came to be practiced – and then modified – by the ultimate arbiter of military success, combat.

Before the Second World War two competing interpretations of submarine doctrine vied for authority among those planning Germany's U-boat actions. These visions foresaw submarines employed in a fleet support role, or else as an economic warfare arm of their own. The first of these saw the U-boat as an adjunct to the German surface ship fleet, one operating as a scout for the service's heavier warships, or as a way to erode an opposing battlefleet's strength. Such a use largely mirrored the Imperial German Navy's use of U-boats during the battle of Jutland in 1916.<sup>3</sup> While integral to the German operation, U-boats failed in that engagement, proving unable to attack the relatively fast moving British Royal Navy warships—specifically the battle cruisers of British Admiral David Beatty—successfully. But several elements of the deployment at Jutland played themselves out in the U-boat doctrine of the German Navy from that time onward.

After the First World War, German naval doctrine continued to consider using submarines to support surface ship operations. Against the superior British Royal Navy, submarines could provide an advantage by either detecting the enemy early or else by acting as a sort of mobile minefield to wear away the superior numbers of enemy surface warships. In the interwar exercises of the German Navy, and as late as its 1940 operations off Norway against Allied warships and convoys bound for the USSR in 1942, U-boats and surface warships tried to cooperate as teams to enhance the impact of both the surface and subsurface warships.<sup>4</sup> German doctrine admitted a mutually supporting function, for both submarines and surface warships, to magnify the power of both against enemy

combatants and merchant vessels.

An example of the fleet support doctrine to combine surface and submarine forces arose in the German Navy's 1938 winter wargame, which posited a war against France and the USSR in 1940. In the exercise, U-boats were deployed in the Baltic Sea to serve as a reconnaissance force and act as a barrier against the Soviet Navy. In particular, multiple submarines established a picket line in the western Baltic to cover the western end of the German coast, others covered the entrance to the Gulf of Finland, and still another group formed a similar picket line in the North Sea and English Channel against the French Navy. These were anti-warship operations,



designed to block any attacks on Germany or its merchant shipping in the Baltic Sea. Thus the pre-Second World War German Navy projected a need to establish U-boat reconnaissance lines to search for enemy surface warships in case of a conflict. In contrast, during the 1938 exercise, only one U-boat sailed to the Atlantic, along with several *Panzerschiffe* or “pocket” battleships, to attack commercial French shipping.<sup>5</sup>

The second thread in inter-war German submarine doctrine was economic warfare. The main proponent of the competing U-boat doctrine employed in the Second World War would be Karl Dönitz, from 1935 the senior submarine leader in the German Navy. Dönitz set out a limited sketch of these theories in a book first published in 1938, *Die U-Bootswaffe*, and distributed in two more editions by 1940.<sup>6</sup> Dönitz planned to employ his part of the German Navy for the actions he called “cruiser warfare.” Plainly put, Dönitz specifically sought to target enemy merchant shipping in convoys, although in his inter-

war writing, he always considered such tactics in the light of the so-called “Prize Rules” which mandated the stopping and searching of merchant ships.

Several tactical considerations figured prominently in Karl Dönitz's doctrinal calculations. Submerged invisibility constituted the prime advantage of the submarine as a weapon, argued Dönitz, but one obtained at the cost of certain liabilities as well. In particular submerged submarines would be slower and therefore less likely to gain a successful firing position on their targets. Submerged submarines also suffered from a limited view through their periscopes, and would stand a better chance of detecting targets by using observers on the boats' conning towers. Dönitz's solution to these drawbacks lay in operating U-boats on the surface as much as possible. Additionally, Dönitz's doctrine was specifically crafted to take advantage of several technical developments in German submarines and weapons, such as wakeless torpedoes and a better command and control system.

Two problems remained for the U-boat force. First, submarines possessed only a limited scouting capability due to limited visibility from the conning tower of a surfaced submarine – about 20 kilometers unless smoke from a potential target could be seen. To ameliorate that problem, Dönitz resolved to employ U-boats in picket lines, *Vorpostenstreifen*, just as the submariners had practiced in combating surface warships.<sup>7</sup> U-boats in these reconnaissance lines would sail along parallel courses in the Atlantic, roughly 22 kilometers apart, in the hope that one of their number would spot enemy shipping in the sweep.

The second problem faced by Dönitz proved tactical and more fundamental, but its solution also drew upon the Imperial German Navy's First World War convoy experience. In that conflict the Allied response to U-boats seeking to attack merchant shipping, grouped into a convoy, presented submarines with a difficult challenge. Not only did the U-boats face the prospect of fewer, if bigger, targets, but Allied convoys would be fairly well defended. For Dönitz, the solution to overcoming convoy defenses was simple: overwhelm them with more attacking U-boats. Dönitz labeled these methods “*Gruppentaktik*,” group tactics, and since then they have

commonly been referred to as “*Rudeltaktik*,” or “Wolf Packs.”<sup>8</sup> A U-boat on a picket line, after spotting a convoy, would refrain from attacking, and instead turn to follow, maintain contact, and broadcast a locator signal to allow the other submarines in its patrol line to close and attack. This much is generally well known.

But one other element needs mentioning – the German response to the threat posed by improved anti-submarine detection devices. Technical improvements in passive sonar allowed identification of submerged submarines, traveling at moderate speeds, at distances of up to 700 meters, while slower-moving U-boats were undetectable.<sup>9</sup> Surfaced submarines operating with diesel engines could be heard much further away, at up to 4,000 meters. Active sonar sets could detect a submerged submarine at up to 8,000 meters, if the searching vessel were steaming slowly. Most importantly, however, a U-boat on the surface could only be spotted by active sonar at a range of just 1,000 meters and stood less of a chance of detection than did a submerged one. A skillful U-boat approach on a convoy, attacking on the surface at short range, especially at night, offered the potential for impressive success against a superior opponent. While risky, such tactics took advantage of the adequate speed, low silhouette, and relatively small wake of surfaced U-boats to sneak into the midst of a convoy, achieve surprise, and escape in the ensuing confusion.

At least initially, both of these competing doctrines were exercised successfully during the Second World War, and U-boats played a supporting role for the invasion of Norway in April 1940. The Germans’ coastal deployment patterns duplicated those of the 1916 Jutland operation, dividing their attention to locations up and down the coast and striving to attack Allied warships. For Norway, almost every U-boat in the German Navy, including training craft, participated in the operation, and six vessels were lost.<sup>10</sup> Thus, U-boats supported the German Navy’s most successful large-scale undertaking of the war in the face of Allied, especially British, superiority.

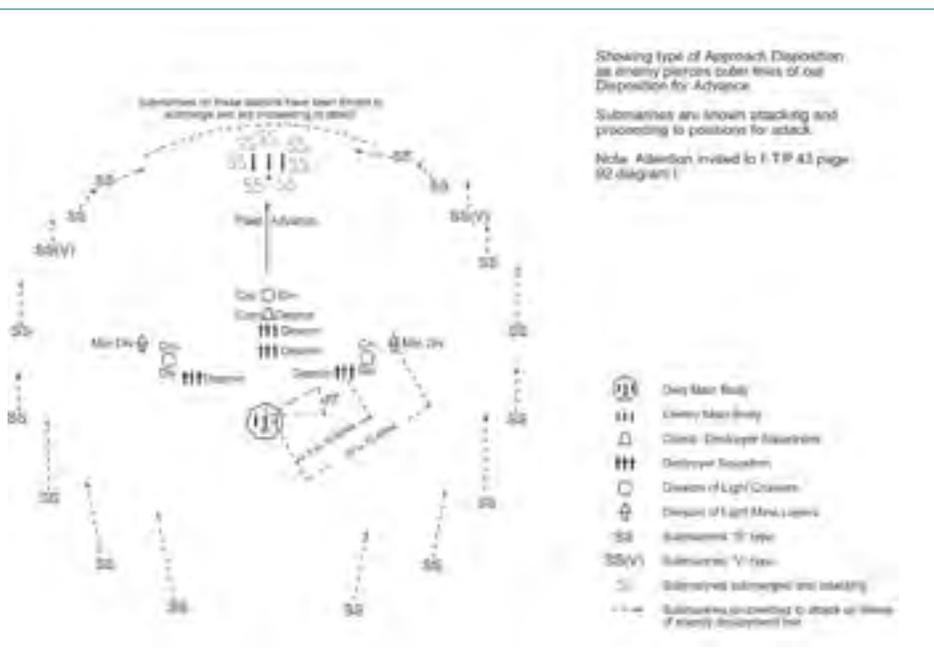
But the grievous German surface vessel losses in the Norway operation essentially eliminated the chances for their further cooperation with submarines. Virtually nothing came of the German Navy’s further attempts to coordinate attacks on merchant shipping by U-boats and surface vessels. German submarines and surface ships only twice succeeded in cooperating to attack British merchant shipping in February and March 1941. In May 1941 the U-boat force deployed eight submarines, half its strength, to support the *Bismarck* and heavy cruiser *Prinz Eugen*, but failed to save the battleship and achieved no success against Allied shipping.<sup>11</sup> The lack of German surface warship operations precluded further submarine-surface warship cooperation, except on a small scale off Norway against Murmansk-convoy.

Thereafter, German submarines would be on their own in fighting Allied shipping.

As the Battle of the Atlantic transpired over the course of the Second World War, German group-tactics at first managed to score some significant successes. Using the group tactics in October 1940 operations against the convoys SC 7 and HX 79, in the Bay of Biscay, nine U-boats sank 33 merchant ships of 155,000 tons. This was the period when the German doctrine of commerce war proved ascendant. But the Achilles heel of the force, of course, was its over-reliance upon radio communications. Over time, these would be exploited by the Allies, who employed signals intelligence, code-breaking, and High Frequency Direction-Finding, or HF/DF, to thwart the avoid U-boat campaign. Moreover, the Allies strengthened convoy escorts by including small aircraft carriers and land-based airplanes, and together, these measures could fend off attacks by a dozen or more U-boats. The grim spring and summer of 1943 saw the end of the U-boats’ group tactics. In the new, more hostile environment, the force’s only resurgence, the so-called “inshore” offensive of late 1944 and 1945, proved the value of employing single submarines close to shore and not in the mid-Atlantic.<sup>12</sup>

For Kurt Aßmann, the “transformation” of naval warfare suggested by the seeming success of the German U-boat experience up to October 1942, would be ephemeral. Bereft of surface ships with which to exercise combined operations and employing an outmoded U-boat doctrine in the face of Allied material, technical, intelligence, German U-boats not only failed to strangle Allied shipping and win the Second World War, but suffered enormous losses in ships and personnel.

American submarine doctrine differed fundamentally from German thinking, most notably in its initial refusal to consider merchant shipping as legitimate targets for U.S. Navy submersibles. In large measure, the American attitude stemmed from an assumption that the Navy’s opponents would be nearly equal in strength to our own. In such a conflict, the surface fleet was expected to win a large-scale battle, then employ an economic blockade on the lines of Britain’s during the First World War. Under this vision, American submarines would fight other warships and – under the strictures of the 1930 London



Naval Conference – attack merchant vessels only in ways that obviated the submarine’s advantage of concealment.

Admittedly at the highest levels, senior naval leaders faced the possibility that “the character of the war may change,” and discussed the possible commitment of American submarines to an unrestricted submarine campaign before the Japanese attack on Pearl Harbor.<sup>13</sup> But lower down, in its operational and tactical preparations, the service held a consistent view: the U.S. Navy would not allow its submarine captains to attack merchant shipping without warning.

The May 1941 *Tentative Instructions for the Navy of the United States Governing Maritime and Aerial Warfare* went to great lengths to describe the rules for dealing with enemy and neutral shipping in time of war. This document, for example, specified the rules for searches of neutral or private shipping, requiring that:

*“except in the case of persistent refusal to stop on being duly summoned, or of active resistance to visit or search, a warship, whether surface vessel or submarine, may not sink or render incapable of navigation a merchant vessel without first having placed passengers, crew and ship’s papers in place of safety.”*<sup>14</sup>

Manuals written on the 1930s clinched the more restricted form of U.S. Navy submarine doctrine. Key was USF 25, *Current Doctrine, Submarines*, of 1 April 1935, a then-confidential document, of which one copy was placed on board every submarine.<sup>15</sup> *Current Doctrine, Submarines* explicitly laid out the limits under which American submariners could operate: non-warships could only be attacked under the “limitations imposed by the laws of war,” meaning after having been stopped and searched first. In the manual’s own words those methods meant “submarines cannot be used effectively against merchant ships without running undue risk of destruction.” Only enemy warships could be attacked and sunk by U.S. submarines without warning. Immediately following the start of the Second World War these rules of war were actually tightened. A Sept. 25, 1939 change to *Current Doctrine, Submarines* mandated: “The primary task of the submarine is to attack enemy heavy ships. A heavy ship is defined as a battleship, a battle cruiser, or an aircraft carrier.”<sup>16</sup>

U.S. Navy submarine doctrine placed merchant shipping “off-limits” as targets.

Thus, there followed a set of tactical assumptions further constraining U.S. Navy submarine operations during the early days of the Second World War. First among these was the belief that because their primary wartime targets would be



Crewmen in the conning tower of U-664 preparing to abandon ship after it was crippled by attacks by planes from USS *Card* (CVE-11) near the Azores on Aug. 9, 1943.

Photo courtesy of the National Archives

warships, U.S. submarines would be disadvantaged in their ability to attack preferred targets and vulnerable to attack themselves. The tactical bulletin specified the measures American submariners should take:

*“submerge before being sighted . . . it may be desirable to submerge and await developments upon the first appearance of smoke, although the masts or stacks of the prospective target are not visible. . . [or] it may be desirable to remain on the surface with the periscope extended and manned until the tops of the target are visible through the periscope.”*<sup>17</sup>

Worse still, American torpedoes, unlike their German counterparts, produced an easily visible track leading back to the firing submarine. To counteract the threat posed by enemy surface ships and aircraft, which in 1930s exercises could visually identify submerged targets down to 125 feet, U.S. Navy submarines in exercises had little choice but to remain submerged and move slowly to hide their positions. Consequently, maintaining concealment became the foremost concern of submariners, and they typically cruised at 140-foot depth and moved at just two knots when at periscope depth. In 1940, even using the boats’ active sonar to gain target range and bearing was considered an unacceptable risk as well, so U.S. Navy boats had to rely upon less accurate passive sonar instead.<sup>18</sup> Successfully executing

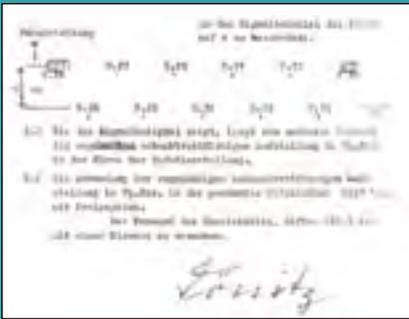
such attacks in the Second World War indeed proved quite difficult.

The pre-war doctrine of the U.S. Navy’s submarine forces has some interesting parallels to German practice. If attached to a surface force, a scouting line of six or more submarines would precede the heavier warships for reconnaissance purposes.<sup>19</sup>

If one of the boats spotted an enemy surface group, it would report their position, submerge immediately, and then close with the rest of the scouting line in a coordinated attack. The direction of this attack would come from the scouting submarines’ commander, with precise lanes of advance on the enemy position specified by the service’s *Current Doctrine, Submarines*.<sup>20</sup> These tactics clearly paralleled the methods specified by Karl Dönitz for German U-boats.

However, the U.S. Navy’s pre-war conceptions reflected a vision of the submarine very different from that of the Germans. The 1935 version of *Current Doctrine, Submarines* presented the problem bluntly, when it stated that a submarine’s surface protection was “None. Very vulnerable to any form of attack.” That vulnerability was why, in a November 1938 exercise, the U.S.S. *Permit*, operating against an “enemy” battle force, was declared out of action when it surfaced within main battery range of the opposing fleet.<sup>21</sup> The exercise reports do not indicate whether or not the enemy warships had even spotted the surfaced *Permit*, but that didn’t matter; cautious approaches were the rule in the pre-war U.S. Submarine Force.

Other American instructions and exercises of the pre-Second World War period reiterated this same view. Even when six submarines practiced attacking a convoy off San Diego in January 1940, it was hardly an exercise in commerce warfare.



This diagram illustrates U-boat deployments for a pre-WWII exercise. The checkerboard pattern would allow a group of submarines to comb the ocean in search of enemy convoy, before converging on the target and attacking it. The signature of famed German U-boat commander Karl Doenitz appears at the bottom.

The problem took place under less than ideal circumstances from the boats' perspective, with the attackers operated submerged, and the merchant ships' destroyer and aircraft escorts imposing a high degree of caution on the submariners' part.<sup>22</sup> Worse still, the convoy sailed at either 12 or 17 knots, at the high end of most merchant vessels' capabilities, making them harder to "torpedo." This hostile environment gave little confidence in the submarine's ability to strike a more lightly defended merchant convoy.

Worse still, this same convoy exercise was the service's sole anti-merchant convoy practice in 1940 and 1941. The other 35 submarine attack exercises of the 1940/41 period pitted the submarine force against the ships of the United States Fleet playing themselves.<sup>23</sup> With this type of doctrine under the belts of U.S. Navy submariners, American admirals' consideration of unleashing an unrestricted campaign against Japan before Pearl Harbor did not matter: their crews had not practiced for such combat. The action for which they had prepared, fighting against enemy warships, required them to take sensible precautions to avoid operating on the surface.

Thus, the conservative submarine doctrine practiced early in the war was not the product of "overcaution" among American submarine commanders. The senior American submariner at the outbreak of the Pacific War, Rear Admiral Thomas Withers, argued that he "preached aggressiveness but warned against rashness."<sup>24</sup> American submariners would

attack aggressively when they spotted the targets that they had trained to attack. To its advocates, the doctrine represented a reasonable representation of what the U.S. Navy's approach to naval warfare would be if war broke out.

These rules had important and long-standing consequences once Second World War reached the Pacific. Immediately after the Japanese attack on Pearl Harbor, U.S. Navy Chief of Naval Operations Admiral Harold Stark, ordered the service to "Execute against Japan unrestricted air and submarine warfare." But the meaning of Stark's order was not apparent to its recipients even in light of German practice in the First World War. After decoding this message, one submarine communications officer inquired of his boat's commander just what "unrestricted" meant, and received the response "I don't know." Moreover the existing practice of attacking warships was still firmly in place, even reinforced by the first wartime revision of Current Doctrine, Submarines, published in January 1942.<sup>25</sup> In the first six months of the Second World War, U.S. Navy submarines in the Pacific attacked 28 Imperial Japanese Navy warships and 123 Japanese merchant ships.<sup>26</sup> Of the merchant vessels targeted, however, 18 ships were troop transports engaged in amphibious landing operations and a type of ship explicitly permitted under the early-war version of Current Doctrine, Submarines. These numbers suggest that over 30 percent of American submarine attacks in the early days of the Second World War were against harder-to-hit warships. Thus, American doctrine discouraged the sinking of Japanese merchant shipping by U.S. Navy submariners, compelling them to make unprofitable attacks in the war that developed.

The pre-Second World War doctrine of using submarines for fleet reconnaissance persisted into mid-1942. An examination of U.S. Navy submarine deployments before the battle of Midway in June 1942 shows 26 submarines deployed to protect the Atoll. As a consequence, there was a clear drop in the tonnage claimed sunk by American submariners at that time. While one could argue that the Americans had their backs against the wall at Midway, justifying the commitment of half of the U.S. submarine force in the Pacific to the battle, submarines subsequently played only a tangential role in the action. Their

contribution to the American success at Midway matched the lack of results scored 26 months earlier by German U-boats off Norway.

But a transformation in submarine warfare did come to pass in the Pacific during the Second World War. Individual American submarines began to score impressive successes in mid-1943, with commanders and crews attuned to the needs of commerce warfare and armed with more effective torpedoes. Key to changing the American submarine doctrine were a series of "Tactical Information Bulletins," first published in late 1942, explaining the need to attack Japanese merchant shipping. Also, beginning in 1943, America submariners conducted "pack" operations, in which collections of boats, usually in groups of three, hunted Japanese shipping.<sup>27</sup> These attacks on convoys, while not as individually successful as the German group operations in 1940-43, began to devastate Japanese merchant shipping and cripple the Japanese escort force as well. U.S. Navy submarines sank 1.5 million tons of shipping in 1943 alone, a sum exceeding the total Japanese merchant shipping production in the first two years of the conflict, and they eliminated a further 2 million tons in 1944. American submarine doctrine had changed - the list of priorities for attacking ships by early 1945 included both warships and merchant vessels, and one operations plan admonished that "no worthwhile target should be passed up in the hope of securing a better one."<sup>28</sup>

So effective was the U.S. Submarine Force that it could, in October 1944, deploy 49 Fleet boats to support the landings at Leyte Gulf, and they played a key role in determining the outcome. Better still this joint operation with the surface navy did not seriously detract from submarine attacks on Japanese commerce. While this largest of all naval battles was taking place, U.S. submarines sank 18 merchant ships and a small escort vessel as well.<sup>29</sup> By the end of 1944 the Japanese merchant marine would essentially cease to exist. Here was a truly revolutionary submarine force at work.

### Tentative Conclusions and Observations

In both the German and U.S. navies, initial ideas about the use of submarines - some dating back to at least 1916 - persisted long into the Second World War. Both services favored joint submarine-surface

ship operations but found such missions more difficult to execute than anticipated. When it came to employing submarines against commerce, the German Navy had already planned to wage economic warfare before 1939. In light of the surface navy's inferior numbers against its most likely opponent, especially after the Norwegian experience, reliance on a long submarine campaign made sense. Conversely the U.S. Navy planned to wage a shorter war with its submarines, building a force to support a decisive action between more symmetrical battlefleets. When the surface fleet action did not develop in the Pacific, American submariners adapted their methods to the needs of commerce warfare.

More directly, misconceived doctrine

also cost both forces considerable success. The U.S. Navy limited the results it might have obtained in commerce warfare during the first 18 months of the war in large measure because its submariners attacked other targets. For Germany, facing a superior, multi-faceted opponent, mismatched doctrine cost lives and equipment: between May and July 1943 it lost 95 U-boats, or double the strength of the force on Sept. 1, 1939. These results were not due to the two navies' respective submarine technologies, for even though American submarines ultimately proved more capable than the U-boats, they took longer to hit their stride in terms of sinkings. Existing technology merely enabled the tactics each navy chose in accordance

with their distinct visions, at least until specific circumstances compelled them to change doctrines.

Perhaps most perplexing, the competing visions for submarine doctrine persisted for a long time in both navies, a surprising outcome in what were top-down, responsive organizations. It was not just the younger commanding officers - who underwent the same training as their predecessors in both services - who forced a change in submarine warfare. Ultimately both navies altered their doctrines of war in response to the conditions of the conflict, truly transforming naval operations during the Second World War.

Dr. Papadopoulos is a historian at the U.S. Naval Historical Center in Washington, D.C.

## Footnotes

- 1) K. Aßmann, "Die Wandlungen der Seekriegsführung," in *Nauticus*, Berlin, 1943, especially pp.20-27. Aßmann also emphasized the importance of aircraft in conducting commerce warfare, even though the German Luftwaffe committed fewer and fewer resources to that effort as the war transpired. See also H. Rosinski, "Strategy and Propaganda in German Naval Thought," in B. M. Simpson (ed.), *The Development of Naval Thought: Essays by Herbert Rosinski*, Newport: 1977, pp. 69-101. The term economic warfare, Handelskrieg, also played an important role in German ideas, although not in Aßmann's article. See the minutes of the meeting between Grand Admiral Erich Raeder and Adolph Hitler, 23 September 1939, reproduced in G. Wagner *Lagevorträge des Oberbefehlshabers der Kriegsmarine vor Hitler 1939-1945*, München: 1972, p.24. I am indebted to Dr. Keith Bird for making this last distinction clear.
- 2) One caveat must stand from the outset. "Doctrine," meaning a standardized set of combat methods and practices, did not enter German-language military use until after 1945. Before then German sailors and officers had military doctrine, but did not apply the actual term until they joined NATO ten years later. Since this paper examines the grand tactical or operational levels of the submarine war, and how the German and American navies attempted to standardize them through a set of practices for use in combat, it employs doctrine.
- 3) E. Manthey, *Der Krieg zur See 1914-1918*. Nordsee, Bd.IV, and Nordsee, Bd.V: Karten both Berlin: 1925.
- 4) D. Steury, "The Character of the German Naval Offensive: October 1940-June 1941," in T. Runyan and J. Copes (eds.), *To Die Gallantly: the Battle of the Atlantic*, Boulder, CO: 1994, p.121. and H. Jeschke, *U-Boottaktik: Zur deutschen U-Boottaktik 1900-1945*, Freiburg: 1973, p.70.
- 5) *Der Führer der blauen Partei Gkds. 69/38*, "Kriegsspiel 1937/38," p.2, PG 38655, Roll 2596, T1022, RG 242, NARA and the Kriegsmarine's "Battle Instructions for the Navy," May 1939, translated by the U.S. Navy Office of Naval Intelligence, pp.13-14. Copy in the Navy Department Library. See also 1626/38 "Schlussbesprechung des Kriegsspieles-A- des Oberkommandos der Kriegsmarine 1938," 23 April 1938 p.22. PG 38655, Roll 2596, T1022, RG 242, NARA.
- 6) K. Dönitz, *Die U-Bootschwärme*, Berlin: 1940, pp.44-46, and K. Dönitz, *10 Jahre und 20 Tage*, Frankfurt & Bonn: 1958, p.37, "Battle Instructions for the German Navy," p.5. For Dönitz cooperation between U-boats would rely upon a surface ship's coordination, although when the Second World War opened he quickly shifted to land-based command of the U-boat force.
- 7) E. Terrell, *Admiralty Brief: The Story of the Inventions that contributed to Victory in the Battle of the Atlantic*,

London & Toronto: 1958, pp.169-181. Bundesarchiv/Militärarchiv RM 91/4, *Führer der Unterseeboots G.2250 "An die 1.U-Flotille."* 13 September 1937.

- 8) Dönitz, *10 Jahre und 20 Tage*, ch.3, and Aßmann, "Wandlungen," p.26.
- 9) Vortrag, 978/38 Korvettenkapitän Eberhard Schmidt "Entwicklung der Horch- und Ortungsmittel für U-Bootsabwehr. Voraussichtlicher Stand Ende 1940," 12 February 1938, p.3, PG 38655, Roll 2596, T1022, RG 242, NARA.
- 10) G. Hessler, *The U-boat War in the Atlantic*, London: 1991 p.26. See also U-boat Command 131/40 gkdos. an 1.Skl. "Ubootszahlen und U-Bootsverwendung," 3.3.40, PG 33359, Reel 3965, NARA T1022.
- 11) Steury, p.91, Hessler, chart 11.
- 12) For an account of this action see Dönitz's war diary, the *Kriegstagebuch der Befehlshaber der Unterseeboote*, 20 October 1940, PG 30275, Box 4063, T1022, RG 242, NARA. For the late war see M. Milner, *The U-Boat Hunters: The Royal Canadian Navy and the Offensive against Germany's Submarines*, Toronto, 1994.
- 13) Commander Submarines, Scouting forces to Commander in Chief, U.S. Pacific Fleet, "Subordinate Supporting Plan to U.S. Pacific Fleet Operating Plan-Rainbow Five (Navy Plan O-1 -Rainbow Five)," 12 November 1941, p.e-18, Box 4093, Commander Submarine Force, Pacific Fleet Secret Files, RG 313, NARA. See also J.E. Talbot, "Weapons Development, War Planning and Policy: The U.S. Navy and the Submarine, 1917-1941," in *Naval War College Review*, 37:3, (May-June 1984), pp.53-68, and G.E. Weir, "The Search for an American Strategy and Design, 1916-1936," in *Naval War College Review*, 44:1, (Winter 1991), pp.34-48, J.M. Manson, *Diplomatic Ramifications of Unrestricted Submarine Warfare, 1939-1941*, Westport: 1990, ch.6.
- 14) Navy Department Tentative Instructions for the Navy of the United States Governing Maritime and Aerial Warfare, Washington, DC: 7 May 1941, p.14. This was affirmed by the London Naval Treaty and ratified by act of the U.S. Congress in 1930, see *Ibid.*, p.184.
- 15) USF-25, *Current Doctrine, Submarines*, 1 April 1935, p.2, Box 272, World War II Command Files, Operational Archives, U.S. Naval Historical Center, Washington, DC.
- 16) "Change No.4 to Current Doctrine, Submarines," 25 September 1939, Operational Archives, U.S. Naval Historical Center, Washington, DC.
- 17) *Ibid.*, p.36. See photographs in "Report of Gunnery Exercises, Year 1935-1936," vol.12, *Fleet Problems, Tactical Instructions, Tactical Exercises*, Chief of Naval Operations Records, RG 38, NARA.
- 18) *Ibid.*, pp.28-30, 40, and Commander Submarine Squadron Four to Commander Submarine Force,

"Means and Procedure for Sound Attack," 15 February 1940, Box 4099, Commander Submarines Pacific Secret Correspondence, RG 313, NARA.

- 19) Commander Submarine Force, "Submarine Tactical Bulletin No.1-40: Submarine Characteristics Operating and Tactical Procedures," July 1940, p.120, Box 161, U.S.N. Technical Publications, Chief of Naval Operations, RG 38, NARA.
- 20) *Current Doctrine, Submarines*, p.48.
- 21) *Ibid.*, p.2. Commander Submarine Force, "Submarine Tactical Bulletin No. 6-39: Report of Joint Submarine-Aircraft and Submarine-Aircraft-Destroyer Exercises," May 1939, p.9, U.S.N. Technical Publications, RG 38, NARA.
- 22) United States Fleet, Task Group Twenty Four, "Operation Plan 1-24-40," 3 January 1940, Binder vol. 39, U.S. Fleet, Chief of Naval Operations Confidential Reports, 1917-1940, RG 38, NARA.
- 23) See Operations Plans 1-40 through 10-40, Binder vol. 39, "US Fleet," and Operations Orders 4-41 through 31-41, *US Fleet Tactical Exercises*, Vol. XVI, July 1942," both Chief of Naval Operations Reports, RG 38, NARA.
- 24) "Overcaution" in C. Blair, *Silent Victory: The U.S. Submarine War Against Japan*, Philadelphia and New York: 1975, p.199. On aggressiveness see T. Withers, "The Preparation of Submarines Pacific for War," in *USNI Proceedings*, 76:1 (April 1950), p.392. Clay Blair suggests Withers was disingenuous in his preaching of aggressiveness. See Blair, pp.119-120.
- 25) On unrestricted, as recalled by Captain (ret'd) Edward L. Beach, 17 April 2001. Beach was the submarine communications officer. On the revision see USF 25A, *Current Doctrine Submarines*, January 1942, Box 359, United States Fleet, World War II Command Files, Operational Archives, Naval Historical Center, Washington, DC.
- 26) J.D. Alden, *U.S. Submarine Attacks During World War II*, Annapolis: 1989, pp.1-10. These numbers are derived from what the submariners themselves said they attacked at the time.
- 27) See "Tactical Information Bulletins" nos.1 through 8, dated 1942 and 1943, Box 358, United States Fleet, World War II Command Files, Naval Historical Center, Washington, DC. Commander Training Command, Submarine Force, Pacific Fleet to Submarine Force, Pacific Fleet, "Coordinated Submarine Attack Doctrine," 18 January 1944, p.2, Commander Submarine Force, Pacific Secret Correspondence, RG 313, NARA.
- 28) Commander Task Force Seventeen, Operation Plan No.1-45, in Commander Submarine Force, U.S. Atlantic Fleet, *Administrative History, Submarine Commands*, Washington, DC: 1946, Appendix, p.10.
- 29) R. Cressman, *The Official Chronology of the U.S. Navy in World War II*, Annapolis: 2000, pp.264-268.

# Cassias Assumes SUBPAC Command



Rear Adm. Cassias salutes as he passes through the sideboys after relieving Rear Adm. Sullivan.

Rear Adm. Jeffrey B. Cassias relieved Rear Adm. Paul F. Sullivan as Commander Submarine Force, U.S. Pacific Fleet in a change of command ceremony onboard USS *Pasadena* (SSN-752), April 20, 2005.

Guest speaker, Adm. Walter F. Doran, Commander U.S. Pacific Fleet, said that Cassias is ready to take the helm of COMSUBPAC. "I look forward to working with you. I know that you are the right man to guide this command and this community. There will be challenges, perhaps great challenges, but I have the utmost confidence in your ability to lead this force," said Doran.

Sullivan is retiring after 35 years of naval service. According to Sullivan, the Sailors in the Submarine Force have had a very special place in his life.

Photo by Petty Officer 2nd Class Corwin Colbert



Rear Adm. Jeffrey B. Cassias delivers remarks during his change of command ceremony onboard USS *Pasadena* (SSN-752). Cassias relieved Rear Adm. Paul Sullivan as Commander, Submarine Force, U.S. Pacific Fleet.

"It isn't long before we find ourselves teaching others – passing on to our shipmates what we have been taught, and improving it a little along the way. We continue learning, improving, and passing it on until the day we stand where I stand today... the day we're piped ashore," said Sullivan.

"In that sense we are part of a legacy. A legacy means that you learn from those who came before you, carry on what their traditions of excellence, and then pass them to the next generation. As I leave the Navy today, I leave knowing that this force is in excellent hands, and I leave deeply honored to have been a part of this legacy," Sullivan added.

Shortly before 'going ashore,' Sullivan compared his angst as a junior officer more than three decades ago to the proud and confident fleet commander he became.

Recalling that Pier Sierra 9 was the first place he came ashore in Hawaii on his first submarine, USS *Caiman* (SS-323), he said, "The emotions swirling through my head today are very similar to what I felt over three decades ago. This time I have no thoughts of apprehension, but of only joy. I'm overwhelmed at the responsibility I've had, and I'm deeply proud to be a part of such a great team. I am very honored that I was given such a wonderful opportunity to serve our Nation."

According to Cassias, he is looking forward to taking charge of the Pacific Fleet Submarine Force. "I have been impressed by your professionalism and devotion to duty, and I look forward to working with you. The Submarine Force today is as relevant as it ever has been, particularly here in the Pacific. I have great faith in each and everyone of you and I am confident that you will rise to all of the exciting challenges that you will face during my tour," said Cassias.

As the COMSUBPAC commander, Sullivan was responsible for more than 9,300 Navy and civilian personnel, 25 nuclear-powered attack submarines, seven

ballistic missile submarines, two guided missile (SSGN) submarines, one support ship, and one deep salvage rescue vessel. The homeports include Pearl Harbor, Hawaii, Bangor, Wash., San Diego, Calif., and Guam.

While serving as the Commander Submarine Force, U.S. Pacific Fleet from August 2003, Sullivan was instrumental in implementing the SSGN program. The converted ballistic missile submarines can accommodate up to 60 Special Forces personnel and a weapons payload of more than 150 Tomahawk missiles.

In October 2004, the 'Silent Hammer' exercise off the coast of San Diego demonstrated how a network of ground forces sea-based on an SSGN can fill joint gaps in intelligence, surveillance, and reconnaissance and time-sensitive strike by conducting a large scale clandestine operation using unmanned organic systems (unmanned aerial vehicles and unmanned underwater vehicles) to increase capabilities and reduce risk.

Sullivan was also the guest speaker when Sailors paid tribute to USS *Parche* (SSN-683) and its 30-plus years of service to the U.S. Navy during a decommissioning and change of command ceremony at Puget Sound Naval Shipyard (PSNS) Oct. 19, 2004. Throughout its 30-year career, *Parche* earned numerous accolades, including nine Presidential Unit Citations and 10 Navy Unit Commendations.

Cassias' previous assignment was as Commander Submarine Group TEN, Commander Submarine Group TWO and Commander Navy Region Northeast. His sea tours have included USS *Haddock* (SSN-621), USS *Parche* (SSN-683), USS *Hawkbill* (SSN-666), and USS *Puffer* (SSN-652), and he served as commanding officer, USS *Birmingham* (SSN-695) from April 1992 to November 1994.



## Submariners Honor their Fallen Comrades

by Julie Scrafford

On April 4, the U.S. Navy Memorial Foundation held its annual wreath laying ceremony at the U.S. Navy Memorial in Washington D.C. Ceremonial Guard engaged those in the audience and those passing by to pay tribute to the honor and valor with which submariners carry out their duties, contributing to 105 years of undersea dominance. Amidst the fanfare, “The Lone Sailor” statue stood as a reminder of those currently serving in the silent service and of those on eternal patrol.

This year’s keynote speaker was Rear Adm. Mike Klein, Deputy Director, Submarine Warfare. Klein spoke of how



integral the Submarine Force is in the successes of today. He went on to say that it is the heroism of the submariner that empowers the force. Heroism, he said, is not based on superficialities, but rather on the great sacrifices one makes for an idea greater than the individual. For this reason, a hero is one whose “legacy will transcend generations”.

Klein mentioned such heroes. He honored the Submarine Force of World War II for their triumphs and tragedies, the loss of 129 men aboard USS *Thresher* (SSN-593) on April 10, 1963, the loss of 99 men aboard USS *Scorpion* (SSN-589) on May 22, 1968, and the death of a sailor aboard USS *San Francisco* (SSN-711) on Jan. 8, 2005, amongst others. He called these men, as well as veterans and those serving, the “shield and sword” and the “fighting spirit and nationalism” of the military, prepared to defend their allies and attack their enemies for the greater good.

In the audience was Rear Adm. Winford G. “Jerry” Ellis, Commander, Submarine Force, U.S. Pacific Fleet (Ret.) remembering his shipmates throughout the 36 years he spent as a submariner. His view of the

USS *Arizona* memorial while he worked at SUBPAC was a constant reminder of the sacrifices Sailors made in World War II. Of the ceremony, he said, “It is important to take a brief amount of time of our busy schedules to honor the submariners. It is even better when it is a beautiful day like today.”

Also in the crowd was Jeanine Allen, daughter of “Lloyd Charles McKenzie” a chief petty officer aboard the USS *Triton* (SS-201) when the submarine was lost on March 15, 1943 during her sixth war patrol in World War II. Wearing a dolphin pin and a gold star pin in commemoration, Allen spoke proudly of her father’s service aboard *Triton*. She aspires, through research and writing, to keep the memory of her father and other men who have served the nation well-honored and their stories remembered.

Klein and Rear Adm. Edward K. Walker Jr., (Ret.), Acting President and CEO of the U.S. Navy Memorial Foundation laid the wreath at foot of “The Lone Sailor” statue in memory of those on eternal patrol.

Ms. Scrafford is a Contributing Editor of UNDERSEA WARFARE Magazine and a Technical Editor with Anteon Corporation in Washington, D.C.

## Junior Officers of the Year Storm Washington, D.C.

continued from page 25

SEAL Delivery System], and this fall we’re going to be deploying it on the *Ohio* when she comes out of the yards. It is amazing to see how quickly it has moved through from concept to actual operations.

**Lt. Pratik Joshi:** It’s good to see more focus on special operations. Those missions are actually fun to do on a submarine. It is sometimes hard, because we have 175 people underway on a boat that is designed to carry 110. However, not many submarines have done what we did on the practice runs. It’s a great direction to be moving in.

**Lt. Ibbetson:** During our visit here, we’ve never had a specific brief about *Sea Power 21*, but everyone we’ve met has talked about it. There are a lot of revolutionary things going on in the Navy with Sea Shield and Sea Strike. I’m excited about how the Submarine Force is going to work with the Littoral Combat Ship (LCS). A lot of our new missions are going to be in

the littoral, and it seems like it’s going to be very dynamic working with the SWOs [surface warfare officers] and the aviators. There’s an exciting shift in focus.

**Lt. Hardisty:** I think the two things that I’m excited about are the new *Virginia*-class submarines and the Block IV Tomahawk. Think of a warfare commander being able to say, “OK, where is my closest submarine? I have a building right here – at these coordinates – take it out right now.” The ability of a submarine to be able to plan and execute a mission autonomously gives quite a bit of flexibility to the strike commander.

**Lt. Wiley:** It’s nice to have the opportunity to employ a submarine in the littoral for providing what amounts to gunfire support ashore. That hasn’t really been our mission or our capability in the past, but it’s where we’re going now. I think it’s what the Submarine Force has got

to do to fit in with what the CNO is talking about in *Sea Power 21*.

**Lt. Charles Centore:** I’m really happy that the Submarine Force is getting better communication suites. Now we can see how our mission is affecting what’s happening in the world by watching it on CNN. We are getting networked with FORCENet.

### USW: Any final comments to sum up your trip?

**LT Root:** The personalities of the admirals we met left me very impressed. They have a level-headed understanding of the problems that the Navy faces, and even though they look at things from a budgetary point of view – which they need to do – they have a good handle on the warfighting aspect.

Ms. Zeldis is the Senior Editor of UNDERSEA WARFARE Magazine and an analyst with Anteon Corporation in Washington, D.C.

**CHANGES OF COMMAND****COMSUBPAC**

Rear Adm. Jeffrey B. Cassias relieved  
Rear Adm. Paul F. Sullivan

**COMSUBDEVRON-5**

Capt. Peter H. Young relieved  
Capt. Mark R. Myers

**USS Columbus (SSN-762)**

Cmdr. Charles A. Marquez relieved  
Cmdr. Michael B. Ryan

**USS Asheville (SSN-758)**

Cmdr. Scott C. Swehla relieved  
Cmdr. Patrick J. Scanlon

**USS San Francisco (SSN-711)**

Cmdr. Kevin R. Brenton relieved  
Cmdr. Andrew Hale

**QUALIFIED SURFACE  
WARFARE SUPPLY  
CORPS OFFICER**

Lt. j.g. Benjamin Wilson  
USS Frank Cable (AS-40)

**QUALIFIED  
FOR COMMAND**

Lt. Cmdr. Michael J. Boone  
USS Alexandria (SSN-757)

Lt. Cmdr. Thomas A. Bushaw  
COMSUBRON-2

Lt. Cmdr. Daniel B. Caldwell  
USS Wyoming (SSBN-742) (B)

Lt. Brandon Christensen  
USS Portsmouth (SSN-707)

Lt. Cmdr. Daniel Geiger  
USS Louisiana (SSBN-743)(G)

Lt. Cmdr. Eric E. George  
COMSUBLANT

Lt. Cmdr. Robert G. Hanna  
SUBDEVRON-12

Lt. Cmdr. Jack E. Houdeshell  
USS Toledo (SSN-769)

Lt. Cmdr. Donald J. Jenkins  
USS Albany (SSN-753)

Lt. Cmdr. Charles Johnston  
USS Michigan (SSGN-727)

Lt. Cmdr. Kevin M. Kirin  
COMSUBRON-20

Lt. Cmdr. Scott C. Luers  
USS Maryland (SSBN-738)(G)

Lt. Cmdr. Richard Massie  
FLTASWTRACEN San Diego

Lt. Cmdr. Andrew T. Miller  
USS Maine (SSBN-741)(G)

Lt. Cmdr. Martin Muckian  
USS Louisville (SSN-725)

Lt. Cmdr. Mathew J. Mulcahy  
SUBRON-4

Lt. Cmdr. Lawrence D. Ollice Jr.  
SUBDEVRON-12

Lt. Cmdr. Andrew Peterson  
USS Parche (SSN-683)

Lt. Cmdr. James E. Scott  
USS Maine (SSBN-741)(G)

Lt. Cmdr. Kenneth Shepard  
USS Key West (SSN-722)

Lt. Cmdr. Benjamin A. Shupp  
USS Louisiana (SSBN-743)(G)

Lt. Cmdr. David Smith  
USS Nebraska (SSBN-739)(B)

Lt. Michael L. Stephens  
USS Maryland (SSBN-738)(G)

Lt. Rob W. Stevenson  
USS Rhode Island (SSBN-740)(B)

Lt. Cmdr. Robert W. Thomas  
USS Louisiana (SSBN-743)(B)

Lt. Cmdr. Lance E. Thompson  
USS Rhode Island (SSBN-740)(G)

Lt. Cmdr. Wayne C. Wall  
USS West Virginia (SSBN-736)(B)

Lt. Cmdr. Michael P. Ward  
USS Hampton (SSN-767)

Lt. Cmdr. Gregory M. Zettler  
USS Scranton (SSN-756)

**QUALIFIED NUCLEAR  
ENGINEER OFFICER**

Lt. j.g. Nicholas Anderson  
USS Olympia (SSN-717)

Lt. j.g. Timothy Berthold  
USS Salt Lake City (SSN-716)

Lt. j.g. Richard Betancourt  
USS Topeka (SSN-754)

Lt. j.g. Robert Clark  
USS Salt Lake City (SSN-716)

Lt. j.g. John Fischer  
USS Alaska (SSBN-732)(B)

Lt. j.g. Alexander Fleming  
USS San Francisco (SSN-711)

Lt. j.g. Leete Garrett  
USS Topeka (SSN-754)

Lt. j.g. James Grant  
USS Nebraska (SSBN-739)(G)

Lt. j.g. Justin Hawkins  
USS Greenville (SSN-772)

Lt. j.g. Luke Hedges  
USS Charlotte (SSN-766)

Lt. j.g. Roderick Hodges  
USS Key West (SSN-722)

Lt. Jason Israel  
USS Parche (SSN-683)

Lt. j.g. Dustin Jackson  
USS Columbia (SSN-771)

Lt. j.g. Sterling Jordan  
USS Pasadena (SSN-752)

Lt. j.g. Christopher Kelmis  
USS Henry M. Jackson (SSBN-730)

Lt. j.g. Douglas Kroll  
USS Michigan (SSGN-727)

Lt. j.g. Bradley McCreedy  
USS Columbus (SSN-762)

Lt. j.g. Ryan Mewett  
USS Helena (SSN-725)

Lt. j.g. Mark Mitchell  
USS Nebraska (SSBN-739)(G)

Lt. j.g. Gregory Morrison  
USS City of Corpus Christi (SSN-705)

Lt. j.g. Yulee Newsome  
USS City of Corpus Christi (SSN-705)

Lt. j.g. Michael Poplawski  
USS Pennsylvania (SSBN-735)(B)

Lt. j.g. Douglas Pratt  
USS Tucson (SSN-770)

Lt. j.g. James Richie  
USS Alabama (SSBN-731)(B)

Lt. j.g. Camilo Rueda  
USS La Jolla (SSN-701)

Lt. Justin Sarlese  
USS Louisville (SSN-724)

Lt. j.g. Ryan Schow  
USS Ohio (SSGN-726)

Lt. j.g. Christopher Sergeant  
USS Alaska (SSBN-732)(B)

Lt. j.g. Brian Sherriff  
USS Alabama (SSBN-731)(B)

Lt. j.g. Brandon Soule  
USS Columbus (SSN-762)

Lt. j.g. Thomas Spahn  
USS Chicago (SSN-721)

Lt. j.g. Joshua Stewart  
USS Louisville (SSN-724)

Lt. j.g. James Todd  
USS Buffalo (SSN-715)

Lt. j.g. Christopher Turney  
USS Alaska (SSBN-732)(B)

Lt. j.g. Mark Vennekotter  
USS City of Corpus Christi (SSN-705)

Lt. j.g. Frederick Weisbrod  
USS Henry M. Jackson (SSBN-730)

**Line Officer Qualified  
in Submarines**

Lt. j.g. Matthew K. Ahlers  
USS Newport News (SSN-750)

Lt. j.g. Larry Arbuckle  
USS Nevada (SSBN-733)(G)

Lt. j.g. Richard K. Arledge  
USS Louisiana (SSBN-743)(G)

Lt. j.g. Brendon M. Bielat  
USS Albuquerque (SSN-706)

Lt. j.g. Lawrence Brandon Jr.  
USS Newport News (SSN-750)

Lt. j.g. Darrell Brown  
USS Buffalo (SSN-715)

Lt. j.g. Justin Carrell  
USS Los Angeles (SSN-688)

**Kern Assumes  
Command at IUSS**

Capt. David Kern relieved Capt. Steven Gabriele as Commander, Undersea Surveillance in a ceremony May 12, at Chapel by the Sea, Dam Neck, Va. The ceremony featured Vice Adm. Charles Munns, Commander, Submarine Force, U.S. Atlantic Fleet, as the guest speaker.

Capt. Gabriele's follow on orders take him to the Naval War College in Newport, R.I. where he will assume duties as a Military Professor of Strategy and Policy.



Lt. j.g. Christopher J. Carter  
USS Minneapolis-Saint Paul (SSN-708)

Lt. j.g. Ryan C. Carter  
USS Connecticut (SSN-22)

Lt. j.g. Marshall S. Croft  
USS Tennessee (SSBN-734)(B)

Lt. j.g. Jon Dollard  
USS Annapolis (SSN-760)

Lt. j.g. Phillip Emery  
USS Kentucky (SSBN-737)(G)

Lt. j.g. William J. Fahlstedt  
USS Newport News (SSN-750)

Lt. j.g. Jeffrey C. Fassbender  
USS Annapolis (SSN-760)

Lt. j.g. Kevin Fornal  
USS Kentucky (SSBN-737)(G)

Lt. j.g. Tyler Forrest  
USS Santa Fe (SSN-763)

Lt. j.g. Rick Gallagher  
USS Helena (SSN-725)

Lt. j.g. Bryan Gelnett  
USS Kentucky (SSBN-737)(G)

Lt. j.g. Richard W. Gripshover  
USS Albany (SSN-753)

Lt. j.g. Derek W. Grossman  
USS Maine (SSBN-741)(G)

Lt. j.g. Jon Hall  
USS Nevada (SSBN-733)(G)

Lt. j.g. Bradley D. Harrison  
USS Oklahoma City (SSN-723)

Lt. j.g. Nicholas Hernandez  
USS Columbus (SSN-762)

Lt. j.g. Zackary Hollcraft  
USS Columbus (SSN-762)

Lt. j.g. Matthew Horton  
USS Los Angeles (SSN-688)

Lt. j.g. Brent Jones  
USS Chicago (SSN-721)

Lt. j.g. Eric Kleen  
USS Bremerton (SSN-698)

Lt. j.g. Matthew W. Koskela  
USS Springfield (SSN-761)

Lt. j.g. Jason D. Lewis  
USS Rhode Island (SSBN-740)(B)

Lt. j.g. Andrew R. Lucas  
USS Hyman G. Rickover (SSN-709)

Lt. j.g. Thomas D. Luna  
USS Wyoming (SSBN-742)(G)

Lt. j.g. Gregory Marcinko  
USS Henry M. Jackson (SSBN-730)

Lt. j.g. James R. Maynard  
USS Louisiana (SSBN-743)(G)

Lt. j.g. Robert McDowell  
USS Asheville (SSN-758)

Lt. j.g. Charles Mello  
USS Jefferson City (SSN-759)

Lt. j.g. Michael Moore  
USS Buffalo (SSN-715)

Lt. j.g. Matthew Mooshegian  
USS Alaska (SSBN-732)(G)

Lt. j.g. Justin Nassiri  
USS Alaska (SSBN-732)(G)

Lt. j.g. Terry A. Nemece  
USS Memphis (SSN-691)

Lt. j.g. John Ourednik  
USS Chicago (SSN-721)

Lt. j.g. Brian G. Padworny  
USS Memphis (SSN-691)

Lt. j.g. Jerome S. Petron  
USS Louisiana (SSBN-743)(G)

Lt. j.g. Andrew Privette  
USS Nevada (SSBN-733)(G)

Lt. Kenneth Roman  
USS La Jolla (SSN-701)

Lt. j.g. Bryan W. Rowe  
USS Tennessee (SSBN-734)(B)

Lt. j.g. Brian Schall  
USS Bremerton (SSN-698)

Lt. j.g. Gustav Schmidt  
USS Santa Fe (SSN-763)

Lt. j.g. Mackie Sinkler III  
USS Maine (SSBN-741)(B)

Lt. j.g. Todd Smith  
USS Nebraska (SSBN-739)(B)  
Lt. j.g. Brian Sneed  
USS Santa Fe (SSN-763)

Lt. j.g. James Southerton  
USS Los Angeles (SSN-688)

Lt. Thomas E. Stone  
USS Annapolis (SSN-760)

Lt. j.g. Phillip Sylvia  
USS Chicago (SSN-721)

Lt. j.g. Ryan C. Tashma  
USS Albuquerque (SSN-706)

Lt. j.g. Micah Thirey  
USS Dallas (SSN-700)

Lt. j.g. Keith Thompson  
USS Nevada (SSBN-733)(G)

Lt. j.g. Mark T. Treen  
USS Maine (SSBN-741)(B)

Lt. j.g. Luke D. Vriezen  
USS Virginia (SSN-774)

Lt. j.g. Andrew S. Waldmann  
USS Virginia (SSN-774)

## PCU Texas Gets Wet

Photo by Chris Oxley, U.S. Navy.



The floating dry dock at Northrop Grumman Corporation in Newport News, Va., slowly fills up with water in order to launch the *Virginia*-class attack submarine PCU *Texas* (SSN-775) on April 9, 2005. Tugboats later moved the submarine to the shipyard's submarine pier for fitting out. *Texas* will have improved stealth capabilities, sophisticated surveillance capabilities, and Special Warfare enhancements that will enable it to meet the Navy's multi-mission requirements.

Lt. j.g. Scott Washburn  
USS Louisville (SSN-724)

Lt. j.g. Justin W. Westfall  
USS Rhode Island (SSBN-740)(G)

Lt. j.g. Christopher M. Whitley  
USS Minneapolis-Saint Paul (SSN-708)

Lt. j.g. Jacob F. Wingeback  
USS Wyoming (SSBN-742)(G)

### LIMITED DUTY/CHIEF WARRANT OFFICER QUALIFIED IN SUBMARINES

Lt. Peter J. Kloetzke  
USS Maine (SSBN-741)(B)

Chief Warrant Officer 2 Jeffrey W. Smith  
USS Wyoming (SSBN-742)(B)

### UNDERSEA MEDICAL OFFICERS QUALIFIED IN SUBMARINES

Lt. Matthew B. Patterson  
NSSC New London

Lt. Joshua G. Tice  
NSSC New London

### SUPPLY CORPS OFFICER QUALIFIED IN SUBMARINES

Lt. j.g. Blaine G. Garrison  
USS Minneapolis-Saint Paul (SSN-708)

Lt. j.g. Michael W. George  
USS Wyoming (SSBN-742)(G)

Lt. Mark Greaves  
USS Alaska (SSBN-732)(G)

Lt. Jason E. Hasis  
USS Georgia (SSGN-729)

Lt. Allen M. Owens  
PCU Texas (SSN-775)

Ensign John P. Tamez  
USS Tennessee (SSBN-734)(B)

Lt. Daryl M. Wilson  
USS Norfolk (SSN-714)

### QUALIFIED SURFACE WARFARE OFFICER

Ensign Jeffery McGoukskey  
USS Frank Cable (AS-40)

## Submariner Named Navy Reserve 2005 Sailor of the Year

Petty Officer 1st Class Mike Miller, COMNAVRESFOR Public Affairs

Photo by Petty Officer 3rd Class Paula Sato

Chief of Navy Reserve Vice Adm. John G. Cotton announced the selection of Petty Officer 1st Class(SS) Tom Mock as the 2005 Navy Reserve Sailor of the Year (NRSOY) during a ceremony at Commander, Navy Reserve Forces Command in New Orleans, March 30.

Mock is a Selected Reservist (SELRES) attached to Navy Supply Support Battalion One at Navy Marine Corps Reserve Center (NMCRC) Phoenix. He was chosen from among 50,000 SELRES. He served aboard USS *Lafayette* (SSBN-616). Another submariner, Petty Officer 1st Class (SS) Stephen Harmon, Fleet Support Training 1610, NMCRC Houston, was a finalist. Ironically, both Sailors are now Seabees in the Reserve Force.

The group of five finalists who reported to Navy Reserve Command headquarters in New Orleans also included: Petty Officer 1st Class Tina Grogg, USS Emory S. Land (AS-39), Detachment 313, NMCRC Cincinnati; Petty Officer 1st Class Wayne Lien, Commander, Destroyer Squadron TWO, Detachment D, NMCRC Denver; and Petty Officer 2nd Class Shawna Moore, Commander, Forces Western Pacific, Aviation Intermediate Maintenance Department, Navy Reserve Center Whidbey Island, Wash.

“Five finalists are chosen by a selection board. Those five are brought to New Orleans for interviews, evaluation, and selection. A second board, comprised of five master chief petty officers, then makes a recommendation to the chief of Navy Reserve, who, in turn, makes the actual Reserve Force Sailor of the Year selection,” said Navy Reserve Force Master Chief(AW/NAC) Thomas W. Mobley.

“It was an exciting, but also challenging, experience,” said finalist Lien. “We all came here thinking it was a competition, but we quickly realized we were one team, and through this week have developed life-long bonds. We each just want to represent our Navy in the best way we can.”

“These candidates for Sailor of the Year are the best of the best,” said Cotton. “When I show their resumes to the master chiefs at the Pentagon and tell them who they are and what they do, they shake their heads in amazement and



Petty Officer 1st Class (SS) Thomas Mock (right) from Avondale, Az. steps forward as Chief of the Navy Reserve Vice Adm. John G. Cotton names him the 2005 Navy Reserve Sailor of the Year.

say, ‘Where do you get these people?’ I tell them, ‘America.’”

Cotton praised Mock’s achievements over the last year, including his deployment to Iraq.

“Mock is the type of Sailor that gives me confidence in the future of our Navy,” said Cotton. “He is the type of Sailor I brag about when I am touring our great nation.”

Cotton presented each finalist the Navy Commendation Medal for meritorious service. Mock, as NRSOY, will be advanced to chief petty officer during the Sailor of the Year recognition ceremony in Washington, D.C., in July.

Mock was visibly humbled by his selection.

“I am a United States Sailor and a Navy Seabee,” said Mock. “I have had the privilege

of serving on a ballistic missile submarine, the USS *Lafayette*, as well as in Iraq in support of the global war on terrorism, and many other places. But as I stand here today, I am serving with some of the finest Sailors I have ever known. We are one force and ours is one fight. It is very humbling to receive this award, and I will continue to lead and serve in the United States Navy.”

One common thread among the best of the best is love of the Navy and the dedication required to put in a lot of time. Grogg said, “Being here is incredible and humbling at the same time. All of the things that I did last year were not a part of the process of trying to get here. It was because I love the Navy, and the more time I can do with the Navy, the better for me.”



## Dallas Submariner Earns Bronze Star

by Petty Officer 3rd Class Steven Feller, USN

Senior Chief Petty Officer Jason D. Taggart, an electronics technician aboard USS *Dallas* (SSN-700), made his log entry into the Submarine Force history books, when he received the Bronze Star Medal with Combat "V" March 4 at the Submarine Force Library and Museum in Groton, Connecticut.

The Wellsville, Ohio-native earned the award during his tour as the Coalition Military Assistance Team's (CMAT) Personnel Security Detachment (PSD) team commander from August 2003 to March 2004 in Iraq.

During the ceremony, Rear Adm. Mark W. Kenny, commander, SUBGRU 2, praised Taggart for his work overseas.

"Our [Submarine Force] record of success comes from the ideals that our submariners all embody courage, commitment, innovation and initiative in the face of new missions and challenging environments," said Kenny. "Senior Chief Jason Taggart represents all of these ideals, and today, we add his unique chapter to our story."

Taggart said he was sent to Iraq because his experience as a communications specialist was something the military needed. Eventually Taggart's expertise would play even further when the need arose for more security detachments.

"They [military leaders] looked and saw I had law enforcement experience and offered me a job to take over as Personnel Security Detachment team commander," he said. "I accepted the job and started the first of my two five-man teams."

As team commander, Taggart was responsible for the formation, training and deployment of the PSD Teams. He completed more than 200 missions from Iraq's border with Turkey and Syria all the way to Kuwait. During these missions, Taggart twice discovered roadside Improvised Explosive Devices (IED), cleared the area, set up security and waited for Explosive Ordnance Disposal teams to declare it safe. In one incident, Taggart was wounded by an IED and continued his duties, refusing to leave the area until the mission was complete. Taggart was also involved in four separate firefights.

For most Submariners, getting into firefights, securing areas around roadside bombs and logging thousands of miles

across Iraq are not something they envision doing while patrolling the seas. But for Taggart, this experience was expected.

"Wide [experience] was a goal," said Taggart. "Throughout my military career, I volunteered to go to many places. When I was on shore duty, I went to Japan and Korea; and I once completed two NATO operations on Chilean submarines. I've been trying to do something different than just submarines."

While earning the Bronze Star is a very rare experience, especially for a Submariner, Taggart's humility illustrates his complete focus on the mission, and not accolades.

"I was going there to do the job I was assigned to do," said Taggart. "It was quite a surprise when I learned about the award."

Since September, Taggart has been spending his days aboard *Dallas* as the 3M coordinator.

According to *Dallas* Commanding Officer, Cmdr. Gard Clark, and *Dallas* Chief of the Boat, Senior Chief Petty Officer John Jors, a fire control technician, neither are surprised Taggart earned the award.

"Based on my experience working with him, I wasn't really surprised to find out he was getting the award," said Clark. "He's just an overall great example of the U.S. Navy Sailor and a senior chief petty officer. He was in a leadership position over there, in combat, and his actions meshed with my picture of who Senior Chief Taggart is. I'm very impressed."

"From the day he stepped aboard *Dallas*," said Jors, "he was a real go-getter. He takes the tasks and sees it through until it's done. It doesn't matter if it's small road bumps or big mountains, he plows through them."

While working tirelessly aboard the submarine, training junior Sailors, and soaking up every bit of experience along the way, Taggart said he would jump at the chance of returning to his days in the sand.

"I've been trying since I got back to re-deploy," said Taggart. "I would love to go back and work. The ladies and gentlemen I worked with are outstanding, well respected and highly professional, and I believe in what we're doing over there."

---

Senior Chief Petty Officer Jason Taggart (second from right) receives his Bronze Star from Rear Adm. Mark Kenny as Cmdr. Gard Clark, USS *Dallas* (SSN-700) commanding officer, and Taggart's wife Jennifer look on.



# Force Master Chiefs set Standards and Tones for Submarine Force CPOs

by COMSUBFOR Master Chief Petty Officer Dean Irwin  
and COMSUBPAC Master Chief Petty Officer Michael Benko

Today, as elements of the Submarine Force continue to engage enemy forces in the global war on terrorism, our focus and daily efforts must continue to ensure that we remain ready to answer our nation's call, wherever and whenever it comes. We are more powerful and more ready than many of us have ever experienced in our careers. Sailors today are better educated, better trained, and more mission-focused than at any time in our history. And the ability of you, the Chief, to lead and mentor these Sailors remains a crucial ingredient of our overall success.

To do this, we need to set the proper standards and tone for our submariners to strive for. These standards must be set at achievable levels but ensure that our force succeeds in its mission without sacrificing what we believe in. There are a number of clearly-stated standards that drive the tone at your command. You should know where your ship or station stands on each of these areas and work your leadership teams to move the weak areas forward. We need to be stressing each of these topics as an integrated Submarine Force.

First and foremost, we expect every Chief to discuss openly our Navy's Core Values, the problem of Sailor-on-Sailor violence, substance abuse, healthy lifestyles, and other topics vital to being a good Sailor and submariner in our Navy. Knowing the Navy's and the Chief's expectations may very well be that one thing that prevents one of our Sailors from straying into shoal waters.

That conversation you have with them may become the key influence – or create the mind set – that makes clear what's acceptable and what isn't – and it may prevent a career-ending incident. Over the years, many a Sailor has taken aboard what his Chief has to say – and we must make sure we're telling the right story. And, it isn't enough to print it in the POD or put it out in an e-mail. These are very personal issues that require your presence, personal effort, and intervention. No Sailor should doubt or question what their Chief's or the Navy's position is on any of these subjects.

Substance abuse should be at the forefront of your conversation. Though random sampling and unit sweeps are among our most productive deterrents, we continue to battle substance abuse. There is no room for error here. Any substance abuse can affect

a boat's operational readiness and mission accomplishment. Our Sailors need to know that the use of drugs is not only illegal, but unhealthy. That is the standard.

Chiefs must set the standard for our junior personnel when it comes to physical fitness, also. We can't expect our Sailors to maintain Navy physical-fitness standards if we don't maintain them ourselves. We shouldn't be seeing our chiefs doing physical training only during CPO Transition season. It's a day-to-day thing. Physical fitness programs should be put on the agenda of planning meetings and included in the command schedule of

events to become a significant part of the lifestyle of all of us. A good physical fitness program ties directly into command readiness. The stamina, speed, and agility we require of our submariners in any crisis situation demand a healthy lifestyle and proper physical fitness.

We should place continuing emphasis on the cleanliness and appearance of both our physical infrastructure and our submariners themselves. As you walk through your spaces, look at your surroundings and ask yourself, what message is this environment sending to my people? Those spaces are setting a tone – is it the one you want? The military bearing of each of us is as important as the job we do. Are uniforms maintained? Are salutes rendered when appropriate? Are we respectful of both juniors and seniors? We cannot become lackadaisical in these areas. We should encourage an atmosphere of professionalism, confidence, and crisp execution of duty.

The tone of the command is often measured by the first impression of the ship, the shore station or the Sailors themselves. How does yours measure up?

We, as Chief Petty Officers who lead both the Sailors and our Navy, must continue to instill pride and a renewed sense of dedication to the Navy's Core Values: Honor, Courage, and Commitment. We, as a Force, must continue to be in the forefront of the global war on terrorism, by doing what we do best – watching and waiting for the time to strike, with stealth, endurance, and flexibility. And from the waterfront to the squadrons and groups, the Chiefs must take the lead and set the standards for others to follow.





## USS Asheville Returns to San Diego from Deployment



Friends, family members, and fellow submariners welcomed the *Los Angeles*-class submarine USS *Asheville* (SSN-758) back to San Diego April 1. The submarine returned from a six-month deployment to the Western Pacific.

*Asheville* had a busy schedule performing national security missions and taking part in two international exercises. This made for long days for the crew, but *Asheville's* Sailors were up for the challenge.

"The deployment was, and is always, a true test on what a crew is made of," said Petty Officer 1st Class (SS) Thurston Ball. "The crew of USS *Asheville* proved to have the guts to make it happen. Personally, I'm very proud of being a part of team *Asheville*."

In addition to 18-hour working days, many *Asheville* Sailors took time to improve themselves through personal and professional development. They squeezed in exercise and even at-sea college courses during off-duty time.

Nine sailors also completed the rigorous qualification in submarines and earned their "fish." The dolphin warfighting pin is a certification by the commanding officer that an individual has completed the arduous task of learning details about all aspects of the submarine including damage control, warfighting and tactics, engineering, and everyday "submarining."

The deployment wasn't all work, though, as *Asheville* made several port calls. Stops included Guam, Singapore, Japan, Saipan, and Hawaii. Each location offered many liberty opportunities for *Asheville's* crew, and each Sailor had his favorite.

"My favorite was probably Singapore," said Petty Officer 3rd Class (SS) Austin Carter. "The transportation was great, the weather was beautiful and the people were cool. I took a lot of pictures and would love to go back there sometime."

(above) USS *Asheville* (SSN-758) crewmembers man the rails of the *Los Angeles*-class attack submarine as family members and loved ones wait on the pier.

(left) Crewmembers aboard *Asheville* man the bridge in preparation for entering the channel at San Diego Bay. The submarine and its crew returned to their homeport at Naval Base Point Loma, Calif., after completing a six-month deployment to the Western Pacific.

Photos by Petty Officer 1st Class (AW/SW/NAC) Daniel Woods



### On The Back

"*The Virginia Vision*" by Rear Adm. Paul E. Sullivan. With this painting, Rear Adm. Sullivan illustrates the revolutionary capabilities of the nuclear-powered USS *Virginia* (SSN-774)-class fast attack submarine. Silently submerged, one ship launches a Tomahawk cruise missile while the other deploys an Advanced SEAL Delivery System (ASDS) demonstrating *Virginia's* mission flexibility and advanced technologies. Operating both at depth and close to shore, *Virginia*-class ships have unprecedented open-ocean supremacy and littoral dominance.

Rear Adm. Sullivan is the former Program Manager for the *Virginia*-class Submarine Program (PMS 450), and was integral in the ship's initial design and construction. As an artist, he began painting while stationed aboard a minesweeper, but with its limited space and ventilation he had to abandon oil painting for watercolors. He soon became fascinated with the unpredictability of watercolors and continued on in that medium to paint several ship sponsor gifts and two commissioning paintings. Rear Adm. Sullivan is currently Deputy Commander for Ship Design Integration and Engineering, Naval Sea Systems Command. USS *Virginia* was commissioned Oct. 23, 2004 and is homeported in Groton, Conn.



*“The Virginia Vision”*

by Rear Adm. Paul E. Sullivan