



UNDERSEAWARFARE

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

FIRST PLACE
Undersea Warfare
PHOTO CONTEST



OnWatch

**U.S. Submarine Force Provides
Vital Support to National
Security Initiatives**

INSIDE

Underwater Teamwork

Director, Submarine Warfare
Shapes Future Force

Submarine IDCs

USS Florida returns to the Fleet



4



8



18



28

OnWatch

U.S. Submarine Force Provides Vital Support to National Security Initiatives

Features

4 Underwater Teamwork
Submariners, SEALs, and Navy Divers Bring Increased Capabilities to the Fleet
by Chief Petty Officer (SW/AW) Dave Fliesen, USN

8 Q&A: Undersea Dominance
A Submarine Force for the Future
by Mike Smith

13 IMF Innovation Makes Real Time Situation Awareness a Reality
by Katie Eberling

18 Key Elements of the Nation's Joint Force: The Ohio-class Guided Missile/SpecOps Submarines
by Adm. Edmund Glambastiani, USN

22 Submarine IDC's – The Navy's Most Unique Docs
by Senior Chief Petty Officer Kevin Boyce, USN

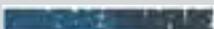
25 Submarine Force's Best Junior Officers
Embark on Unique Journey
by Mike Smith

28 Albacore: Forerunner to the Future
Innovative Submarine Shapes the Future of the U.S. Submarine Force
by Julie Scraford

33 USS Florida Readies for Full Operation
by Chief Petty Officer 1st Class Donald Rule, USN

Departments

- 1 | Washington Watch
- 2 | Enterprise Watch
- 3 | Letters to the Editor
- 35 | Downlink

 is online at:
www.chinfo.navy.mil/navpalib/cno/n87/mag.html

On The Cover



USS *Henry M. Jackson* (SSBN-730) arrives at Puget Sound Naval Shipyards and Intermediate Maintenance facility for a 27 month overhaul and TRIDENT D5 conversion. The sail is manned by (clockwise from top right) the ship's former CO, Cmdr. Paul McHale, a civilian pilot, the lookout, the Junior Officer of the Deck, and the Officer of the Deck, Lt. George Howell.

This photo is the winner of UNDERSEA WARFARE's 8th Annual Photo Contest.



“We continue to improve mission capability through modernization; remaining agile, adaptable, persistent, lethal, and forward deployed.”

RADM Joseph A. Walsh, USN, Director, Submarine Warfare

This is my last report to you as Director, Submarine Warfare. By the time you read this I will have reported to Pearl Harbor and relieved RADM Jeff Cassias as Commander, Submarine Forces Pacific. We would all like to wish Admiral and Mrs. Cassias “Fair Winds and Following Seas,” and extend to them our heartfelt thanks for 30 years of tremendous dedication and service to our Submarine Force, our Navy, and our country.

As I reflect back on my tour here in the Pentagon, and look beyond the challenges of working through budget cycles, program reviews, and the ongoing churn that comes with a tour in Washington, D.C., I am encouraged by the hard work and dedication of the N87 staff and the Undersea Enterprise. This dedication has resulted in the delivery of new platforms and advanced capabilities to our Submarine Force. At the end of the day, it is this delivery of warfighting capability to our Sailors in the Fleet that makes what we do here in Washington so important.

We continue to improve mission capability through modernization. For example, 30 years ago the U.S. Navy took delivery of USS *Los Angeles* (SSN-688), the lead ship of a new class of submarine. Designed with speed and stealth, *Los Angeles*, and the ships that followed her, silently countered the threat posed by the Soviet Navy, and significantly contributed to our nation’s victory in the Cold War. Over the last 30 years we have continuously modernized these ships, and as a result, *Los Angeles* is as capable and modern – in some aspects even more modern – than USS *Cheyenne* (SSN-773), the 62nd and last 688-class submarine to be commissioned 20 years later. Today, 49 *Los Angeles*-class submarines continue to serve our nation in the Global War on Terror. They remain agile, adaptable, persistent, lethal, and forward deployed, doing our nation’s work in the most operationally challenging waters imaginable – and doing it well.

This past June, I had the opportunity to speak about our modernization efforts at the Naval Submarine League’s 24th Annual Symposium. Today, we are aggressively installing over 15 new or improved systems into our submarines Fleet-wide, and continue the development of numerous others that will reach their initial operating capability in the not too distant future. We are also using open architecture software and

applying the ARCI sonar business model to our imaging, communications, electronic warfare, and combat systems. Just as ARCI delivered significantly improved warfighting capability at a reduced cost to our sonar systems, applying the ARCI business model to the majority of our combat systems will set the conditions for rapid, continuous, and low cost capability insertion for the life of the ship, and will ensure our continued undersea dominance well into the future. I discuss this initiative, along with several others on page 8.

In addition to an aggressive modernization program, we continue to deliver new platforms to the Submarine Force. In June USS *Texas* (SSN-775) passed her INSURV and was delivered to the U.S. Navy, and USS *Hawaii* (SSN-776) was christened by her namesake’s governor, the Honorable Linda Lingle. Additionally, we recently returned to service two completely overhauled, refueled, and transformed submarines, USS *Ohio* (SSGN-726) and USS *Florida* (SSGN-728). ADM Giambastiani, Vice Chairman of the Joint Chiefs of Staff, talks more about the success of this transformation on page 18.

Working with the Naval Submarine League has been one of the many highlights of my tour. I couldn’t ask for more ardent supporters than the active duty and retired submariners, industry partners, and the other supportive members of this outstanding organization. In addition to everything they do for the Submarine Force (and they do a lot), they also sponsor our annual submarine photo contest; the winners of which you can find on the pull-out gatefold. You can learn more about the Naval Submarine League and the work they do for the Submarine Force at www.navalsubleague.com.

As I depart Washington, D.C., and trade the Pentagon for Pearl, and the Potomac for the Pacific, I leave the Submarine Warfare Division in the capable hands of RADM Carl “Van” Mauney, who comes to us after commanding Submarine Group EIGHT in Naples, Italy. To those of you I have had the privilege of serving with here in Washington, D.C., farewell and best wishes. For those of you who are submariners in the Pacific, I’ll see you on the waterfront.



“We provide the tools and talented folks that our Combatant Commanders need and are using. We perform day in and day out as “scouts” for our Nation in areas others can’t go; and if needed, we are ready to quickly strike on Combatant Commanders’ direction for our national interests.”



VADM Chuck L. Munns, USN, Commander, Naval Submarine Forces

Greetings to the Undersea Enterprise. Since I last addressed you, we returned USS *Florida* (SSGN-728) to service in May following her SSGN conversion process. USS *Hawaii* (SSN-776) has been christened; and the U.S. Navy has taken delivery of USS *Texas* (SSN-775) – the second *Virginia*-class. She will be commissioned on September 9th. All together significant capability for the new and increased challenges our nation faces and delivered in a timely and cost effective manner.

I would like to give my most sincere congratulations to RADM Jeff Cassias, who retires after 30 years of loyal dedicated service to our Navy and our nation. He has been an inspired leader of our Submarine Force. RADM Joe Walsh has followed him as Commander of our Pacific Fleet Submarine Force. Joe’s superb leadership at the helm as Director, Submarine Warfare has greatly contributed to the success of our Undersea Enterprise.

This has been a good year for Undersea Warfare. Our brand is “On Scene, but Unseen.” Our strategic themes that deliver value to our nation include:

- Presence with a product – bringing back “knowledge” from phase zero operations that can shape decisions and prevent escalation to Major Combat Operations
- Day in day out – Walking the field to allow Navy, Joint, and National command levels to act from a position of understanding, a position of strength
- Persistent, Clandestine, Agile, Mobile Scout
- And if needed in place, on call as shooter

These components make our brand; they are worth repeating to the point where when you think Undersea Warfare you instinctively visualize these characteristics of our Submarine Force.

The Submarine Force is doing well, and we’ve got our message right. All those requirements that make up our brand name are well aligned with the attributes that will be needed throughout the Long War, a long peace, or future Major Combat Operations.

Key parts of our Forces’ success are the achievements of specific ships and individuals. In June, ADM John Nathman, Commander, U.S. Fleet Forces Command, announced the winner of the Battenberg Cup Award for best all-around ship based on accumulation of crew achievements. This year’s award went to USS *Memphis* (SSN-691), commanded by CDR Bill Merz. Well Done!

The Submarine Force produced both Sea and Shore Sailors of the Year for Commander, U.S. Fleet Forces Command. They are Petty Officer 1st Class Jordan Rosadorosario from USS *Seawolf*(SSN-21), and Petty Officer 1st Class Earl Watson III from Naval Submarine Support Center, Kings Bay, Ga. On July 20th Vice Chief of Naval Operations ADM Robert Willard meritoriously advanced Rosadorosario along with the other 2006 Sailors of the Year (SOY) to Chief Petty Officer. They expertly represent all 18,000 of us – again well done!

One of the roles for the Navy that continues to grow is the use of Navy personnel to relieve stress on the joint warfighters. The specialized skills of our submariners have application and are in demand outside of Undersea Warfare. A success story I think we should be proud of is our outstanding success rate at deploying individual augmentees. We have provided 186 active duty individuals to date that are now serving in Iraq, Afghanistan, and JTF-Horn of Africa. In addition to the active component, there are 123 SUBFOR Reserve personnel currently serving in CENTCOM, 240 have completed and returned from CENTCOM mobilizations since September 11, 2001, and 102 more deployed in July. When our nation calls we respond.

The SUBFOR Enterprise Management Team has begun to provide training on effects based thinking for operators. These training events will highlight five objectives that the Undersea Enterprise is working today, they include Operational Availability, CO Decision Making, Submarine Expertise, Submarine Culture, and Future Capability.

Understanding the big picture of how we are organized as an enterprise and your role in its success is important. It is also important that you act as an undersea expert when you are in billets outside the Submarine Force. The dolphins you wear represent not only your professionalism but also that of the entire Submarine Force – past, present and future.

Keep up the good work in your respective part of the Enterprise! Smooth sailing, and good hunting.

Vice Adm. Charles L. Munns

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

Rear Adm. Joe Walsh

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

Rear Adm. Carl Mauney

Director, Submarine Warfare

Master Chief Petty Officer Dean Irwin

COMNAVSUBFOR Force Master Chief

Master Chief Petty Officer Mo Pollard

COMSUBPAC Force Master Chief

Capt. D.J. Kern

Commander, Undersea Surveillance

Lt. Cmdr. Chris Loundermon

COMNAVSUBFOR Public Affairs Officer

Lt. Cmdr. Jeff Davis

COMSUBPAC Public Affairs Officer

Military Editor: **Lt. Cmdr. Travis Petzoldt**

Senior Editor: **John Whipple**

Managing Editor: **Mike Smith**

Layout & Design: **BlueWater Agency**

Web Design: **Deepa Shukla**

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 N87
2000 Navy Pentagon, Washington, DC 20350-2000
E-Mail: 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



Silver Inkwell Award Winner



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 N87
2000 Navy Pentagon
Washington, DC 20350-2000
or underseawarfare@navy.mil

a letter from the EDITOR,

The Department of Veterans Affairs (VA) announced June 3 that active-duty Sailors may be affected by the theft in May of military personnel data.

According to the VA, a duplicate database with data files was stolen from a VA employee's home May 3 (the database has since been recovered). While the VA has received no reports that the stolen data has been used for fraudulent purposes, they are asking all veterans to be extra vigilant.

Several resources are available for people to go to for more information. The VA has set up a special Web site (www.firstgov.gov) and a toll-free telephone number (800-FED-INFO or 800-333-4636) that feature up-to-date news and information on the data compromise.

Sailors whose information has been compromised will be notified by a letter from the VA and the Navy so they can take the appropriate steps.

Tips on how to watch for suspicious activity include the following:

Closely monitor your bank and credit card statements for fraudulent transactions. Monitoring accounts online is the best way to detect fraud early.

Place a 90-day fraud alert on your credit report, which tells creditors to contact you before opening any new accounts or making any changes to your existing accounts. This action may cause some delays if you are trying to obtain new credit.

It is only necessary to contact one of three companies to place an alert. That company is then required to contact the other two.

The three companies are Equifax (800-525-6285, www.equifax.com), Experian (888-397-3742, www.experian.com) and TransUnion (800-680-7289, www.transunion.com).

Once the fraud alert has been posted, you are entitled to free copies of your credit reports. Review these reports for inquiries from companies you haven't contacted or accounts you didn't open. The alert can be renewed after 90 days.

Sailors are advised to take the following steps if they discover fraudulent accounts or transactions:

Contact the financial institution to close the fraudulent account(s) that have been tampered with.

File a report with the local police department.

File a complaint with the Federal Trade Commission by phone at 877-438-4338, online at www.consumer.gov/idtheft or mail a letter to Identity Theft Clearinghouse, Federal Trade Commission, 600 Pennsylvania Avenue NW, Washington, DC 20580.

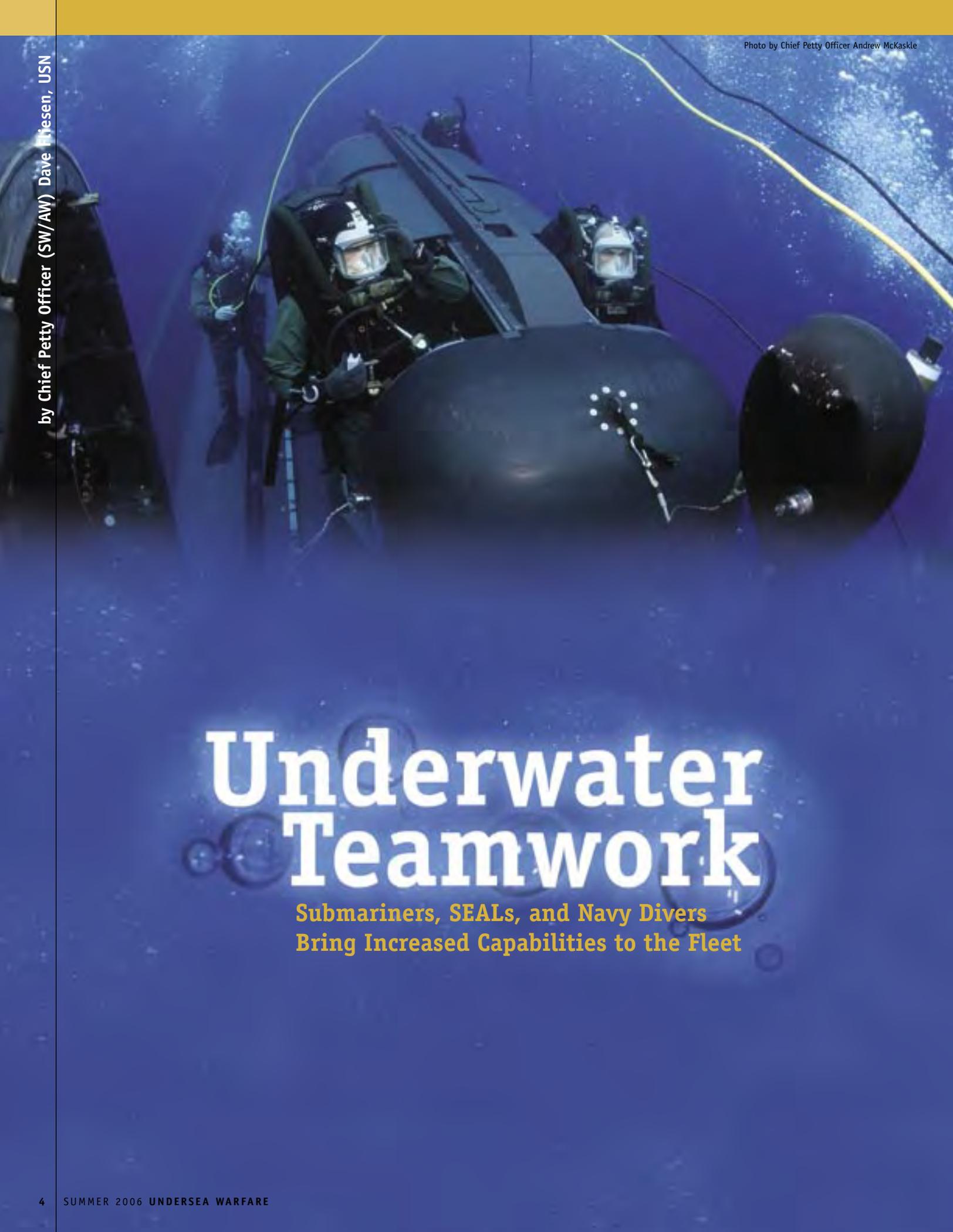
Other Web sites with more information on how to guard against identity theft include: www.privacy.ca.gov/sheets/cis3_english.htm and www.co.boulder.co.us/da/consumer/idtheft.htm

sailorsFIRST



Photo by Airman Damien Horvath

A Sailor assigned to the Los Angeles-class submarine USS *Jefferson City* (SSN-759), makes his way topside to greet family and friends after returning from a six-month deployment. *Jefferson City* recently returned from a deployment conducting operations in the Western Pacific.



Underwater Teamwork

Submariners, SEALs, and Navy Divers
Bring Increased Capabilities to the Fleet

(left) Members of SEAL Delivery Vehicle (SDV) Team TWO prepare to launch on a training exercise from the deck of the submarine USS *Philadelphia* (SSN-690). The SDVs are used to transport Navy SEALs from their submerged host submarine to targets while remaining underwater and undetected.

(right) An SDV is loaded aboard USS *Dallas* (SSN-700). A Dry Deck Shelter (DDS) is attached to the submarine's rear escape trunk to provide a dry environment for Navy SEALs to prepare for special warfare exercises or operations.



Photo by Chief Petty Officer Dave Fliesen

When combatant commanders need the latest intelligence, surveillance, and reconnaissance (ISR) – and they need it now – they turn to the Navy's "underwater team." Consisting of elements from three different Navy warfare specialties (SEALS, divers, and submarines), the underwater team is able to leverage their unique capabilities and expertise and provide a boots on the ground – or in some cases "fins in the water" – presence that is required in today's modern security environment.

One of these "underwater teams", comprised of the fast attack submarine USS *Dallas* (SSN-700) and members of SEAL Delivery Vehicle (SDV) Team 2 recently conducted special warfare exercises.



Taking their name from the elements in which they operate (Sea, Air, and Land), Navy SEALs conduct training from submarines to increase their proficiency for operating covertly in the littorals. Submarine Dry Deck Shelter (DDS) training is by far the most complex underwater exercise that Naval Special Warfare (NSW) conducts – with success relying on a synchronized effort between the host submarine crew and NSW operators (SEALs and the Navy divers operating the DDS). During this SPECWAR exercise, NSW operators learned and practiced procedures for launch and recovery from the submarine, which is required for the team's deployment as an operational unit.

Dallas is one of five submarines specially modified to host the DDS which acts as an open ocean interface to house either a SEAL Delivery Vehicle (SDV) or a complement of combat rubber raiding craft. The DDS can be used to transport and launch an SDV or to “lock out” combat swimmers. With the SDV, SEALs can travel underwater several miles to reach an objective area.

NAVY SEALS

A tactical force with strategic impact, Navy SEALs perform a number of missions: unconventional warfare, direct action, combating terrorism, special reconnaissance, foreign internal defense, information warfare, security assistance, counter-drug operations, personnel recovery and hydrographic reconnaissance. SEALs also provide real time intelligence and “eyes on target” which offer decision-makers immediate and virtually unlimited options in the face of rapidly changing crises around the world.

With stealth and clandestine methods of operation, SEALs are capable of conducting multiple missions against targets that larger forces couldn't approach undetected. Those missions take teamwork which is, of course, something critical in accomplishing any mission.

SEALs work with the same platoon of divers throughout their workups which allows for seamless integration with DDS divers.

The complex evolution epitomizes the term “teamwork,” requiring the embarked NSW task unit and the submarine crew

to integrate seamlessly to safely execute operations. Each unit has their specific role to support the DDS evolution. The submarine ship control party provides a stable platform for the diver and SEALs to conduct the SDV launch and recovery operations submerged. The end state of the training exercise is a finely tuned “team” that can conduct submarine-DDS operations overseas in support of the Global War on Terrorism.

NAVY DIVERS

Divers maintain equipment for the diving operations and assist the SEALs as they’re launched and recovered from the submarine.

“We’re the underwater garage door openers,” explained Senior Chief Petty Officer (DSW/SW) William Turner from SDV Team 2, about the DDS they maintain and operate. Basically, they get things ready

for the dive: everything from checking the batteries...to ensuring there’s enough air...to seeing that equipment is working properly.

“We keep the water out of the submarine as we help the SEALs in and out of the hatch. We supervise the dive and are there in case of a medical emergency,” said Petty Officer 1st Class (DSW) Dan Laube. “It helps to integrate with the crew. We’re guests in someone else’s house. If we need something, they help us out – just like we help them when they need a hand.”

NAVY SUBMARINERS

U.S. nuclear-powered submarines have repeatedly demonstrated the ability to carry out special operations. During exercises with SEALs, Army, Air Force, and Marine Corps special operations personnel, submarines have recovered personnel rappelling down from helicopters

and personnel parachuting from fixed-wing aircraft to later launch them to conduct their missions.

“The Divers and SEALs are part of our crew,” said Petty Officer 2nd Class (SS) Christian Livingston, a submariner from USS *Dallas*. “When the Divers and SEALs come aboard, everyone’s hot racking. But we make it work though...because that’s our job; that’s our mission.” *Dallas* is working with SEALs and Special Forces personnel. It was the first of the *Los Angeles*-class of fast attack submarines to deploy with the DDS.

“There’s definitely camaraderie between us,” said Livingston. “We have the same mission...the same goal. What we do together has a profound, but silent, impact on the war on terrorism.”

Chief Petty Officer Fliesen serves in the SUBLANT Public Affairs Office in Norfolk, Va.

(right) *Dallas* departs Souda Bay harbor in Crete, Greece following a brief port visit.

(below) *Dallas* sits pierside in Norfolk, Va. with the DDS attached to its forward escape trunk.



Photo by Chief Petty Officer Dave Fliesen



U.S. Navy photo



Photo by Paul Simonds

Undersea Dominance

A Submarine Force for the Future

Rear Adm. Joe Walsh was relieved as Director, Submarine Warfare (OPNAV N87) in July of this year, serving in this billet since May 2004, and reported as Commander, Submarine Force, U.S. Pacific Fleet (COMSUBPAC) in August. He is a native of Point Pleasant Beach, N.J., and graduated from the U.S. Naval Academy in 1977. Rear Adm. Walsh then served in a variety of submarine billets: Main Propulsion Assistant and Weapons Officer on USS *Skipjack* (SSN-585); Engineer of USS *City of Corpus Christi* (SSN-705); Executive Officer of USS *Ohio* (SSBN-726)(B); Commanding Officer of USS *Hyman G. Rickover* (SSN-709); Commander, Submarine Development Squadron TWELVE; and Commander, Submarine Group TWO. He has also served in a number of diverse shore assignments: Nuclear Power Training Unit instructor, Submarine Department Head Detailer, Naval Aide to Presidents H. W. Bush and Clinton, Special Assistant to the Deputy Director/Prospective Commanding Officer Instructor at Naval Reactors, and Chief of Staff for Commander, Submarine Force, U.S. Atlantic Fleet.

Rear Adm. Walsh recently sat down with UNDERSEA WARFARE Magazine to discuss the current and future states of the Submarine Force, his experiences as N87, and his assignment as COMSUBPAC.

Q: Why is 48 the right number of SSNs for the Fleet?

We've looked at our force-level requirements six ways from Sunday. When you think about it, the number of studies done on submarine force-structure probably exceeds the number done for any other platform in the U.S. Navy. In the last two years, we've done three separate force-structure studies, all of which came out at about 48 submarines. Forty-eight is the right number. And what's more important than "what the number is," is the fact that we have a number and not a range – Adm. Mullen has said it is "48 plus or minus zero." So it's not 48 to 52; it's not 40 to 48; it's 48. This allows us to stop discussing how many submarines we need and why we need them – and turn, rather, to what capabilities 48 submarines will provide.

Now that the number 48 is right, the real problem then becomes whether or not we can maintain a force level of 48. And the answer, unfortunately, is not always. We'll be able to stay above 48 until 2020 if we begin building two *Virginia*-class sub-

marines a year starting in fiscal year 2012. For the period of time that we're below 48 we're going to have to very carefully manage the risk that comes with a force structure that doesn't meet our requirement.

Q: Could you discuss the process for modernizing our submarines and its importance to the submarine force?

I think the Submarine Force deserves a pretty good "pat on the back" for the way we have modernized our ships. Today, the USS *Los Angeles* (SSN-688), the first 688, commissioned in 1976, is as modern – maybe even more modern – than USS *Cheyenne* (SSN-773), which was the 62nd and last 688-class submarine that we built, 20 years later. As a result of our modernization programs, the capability of our ships continues to improve. So, *Los Angeles* does not look or operate anything like she did when we built her in 1976. What has allowed us to be successful in terms of modernization is using our "ARCI business model" throughout the front end of the submarine – the non-propulsion electronics. We started with ARCI

[Acoustic Rapid COTS (Commercial Off The Shelf) Insertion] and the sonar systems. We're now applying the ARCI business model to the combat control systems, and to the imaging and electronic warfare systems. As a result, we no longer buy state-of-the-art equipment. We buy state-of-the-*practice* equipment at a fraction of the cost of legacy high-end equipment, and then we replace it periodically, like commercial industry does. Because we are buying commercial products, we don't buy spares, and we don't buy the logistics tail that historically went along with the older legacy systems. To upgrade signal-processing capability, we just buy a new processor, like you'd go out to buy a new computer in town. The other thing that our modernization model has allowed us to do is to transform the *Los Angeles*-class boats – built as blue-water submarines at the height of the Cold War – into very effective littoral assets. From the systems that give the ship unparalleled situational awareness in high-density contact environments, to precision hovering systems that allow the ships to operate in very shallow water, these new capabilities have allowed

USS *Virginia* (SSN-774) during her Alpha trials.



“We get the cream of the cream going into the Submarine Force in terms of their intellect and ability to think”

us to morph that ship from a deep-water submarine into a littoral boat.

Because this business model is critical and requires a steady-state investment, I worry about our ability to maintain COTS-based open-architecture and the ARCI business model in the face of budgetary constraints. Our budget process is not a steady-state affair in which I'm allocated the same amount of money each year, and the bills that we have to pay are always near term. When you take money out of COTS-based systems because you're forced to pay for other things, you walk away from that business model and the ARCI-business-model approach breaks down. To be successful using our modernization model requires a commitment to this process. During my tenure at N87, I've tried to protect, to the best of my ability, all of our investments in that area, and will pay bills with almost anything but our modernization money in order to maintain the ARCI business model.

Q: Please discuss the quality of the people serving aboard submarines. What can be done to improve upon their performance, education, etc.?

Let me first talk about our officer corps. You'll find that these are some of the best

people our country has to offer. Having just gone through the process of getting two daughters into college, I can tell you that getting into a high-end university in this country is really hard. But if you went around the wardroom of any U.S. submarine and asked the 15 to 20 officers on board to name the schools they went to, I bet they'd list some of the finest institutions in this nation. And then if you asked what they majored in, you'd find that almost every one of those officers took a high-end technical major and – by the way – graduated in the top third of his class. We get the cream of the cream going into the Submarine Force in terms of their intellect and ability to think.

And the same is true for our enlisted Sailors. Every ship I've served on, I've been amazed at the number of Sailors that have bachelor's or master's degrees. For those that don't have degrees, they're usually actively working on them and you learn pretty quickly just from talking to them, that these guys are really smart, and their lack of a degree is usually more of a lack of opportunity due to financial constraints than because they couldn't get into a college. Most of the Sailors on our submarines could get into any college they wanted to.



Photo courtesy of Electric Boat

Electric Boat photo



What I believe we have to continue to work on is to push experience-based training, as opposed to book-level training. Give a nuclear submarine officer a nautical rules-of-the-road book and say, “Here, go study this book and in a week I’m going to give you an exam,” and he’ll score a perfect 100 every time. But put him in a simulator or trainer, where he is presented with three different rules of the road that apply simultaneously, and it’s quite different. He has to decide what’s the one right thing to do and which two are wrong, despite the book, and that’s where experience comes in. What you have to do is to grow experience and that is something we’re trying to do at every level of Submarine Force training. We’re getting away from written exams and substituting tests in simulators and attack centers. We have completely morphed the PXO course from a five-week book course into an underway course. At the end of the day, what we care about is that whoever walks through the front door of PCO [Prospective Commanding Officer] School has the experience to back up his knowledge and has developed a very good, keen sense of judgment. Without one or the other – knowledge or experience – you don’t get the good judgment. That’s what allows the CO to say “left full rudder” two seconds before it is too late, rather than two seconds after. We started this process back in 2001, so the first young ensign who was exposed to this experience-based training will be walking through the PCO School door in about 2016.

Q: What new and exciting capabilities are being developed that will make the Submarine Force even more capable and relevant in the future?

Clearly the SSGN is revolutionary. One of the ways I like to characterize the capa-

bilities a submarine has is to talk about its “interface with the ocean environment.” On a 688-class submarine, you have four 21” torpedo tubes and we’re more than happy to take a look at any new payload that a contractor proposes as long as it’s less than 21” in diameter. When we built the *Seawolf*-class, we went to eight 25” torpedo tubes. In terms of the actual volume of interface with the ocean environment, the 688-class has about 200 cubic feet of volume; with the *Seawolf*-class that number jumps to about 640 cubic feet. We tripled the 688’s volume by going to larger diameter torpedo tubes and doubling the number of tubes. When you go to the later planned *Virginia*-class ships which will have the Advanced Sail, you are talking about 4,400 cubic-feet of volume, and with SSGNs it’s about 39,600 cubic-feet. The challenge that we’re facing now is what to do with all that volume. UUVs [Unmanned Underwater Vehicles], encapsulated weapons, and UAVs [Unmanned Aerial Vehicles] are obvious possibilities but it’s really up to the imagination of the user. We have a pretty good roadmap, and [Rear] Adm. [Steve] Johnson at SSP [Strategic Programs] oversees it for us. We need to make sure that payload development is in sync with planned increases in payload volume. Right now, quite frankly, we have more payload volume than we have payload to fill it. When Adm. Clark was CNO, he often noted that the fact that SSGNs could shoot 154 TOMAHAWK missiles was interesting, but not *that* interesting. That is certainly a powerful capability, but it’s not revolutionary. What’s really revolutionary is that we have a ship that has six missile tubes dedicated to SOF [Special Operations Forces] and 18 other tubes that we can put anything we want into. The amount of material that that ship can carry to support SOF is incredible – many orders of magnitude more

than what an SSN can carry and do. An SSN can support four, maybe six, SOF operators but what those four or six SOF guys can do on the beach is a lot less than what 100 SOF operators from an SSGN can do. SSGN, for example, can carry 29 combat rubber raiding craft, 39 outboard engines, 150 six-gallon fuel bladders, and thousands of pounds of C4 explosives and other ordnance. Another thing that SSGN can do – and we showed this in SILENT HAMMER [2004] – is that you can have that JTF [Joint Task Force] commander embarked on the submarine, and he can actually run the operation.

The new *Virginia*-class is really a marvel in two ways. First, is just the way we built that ship. We have really shown that the computer-aided design process that we use, works. When you think about the complexity of a submarine – the number of cables, pipes, what have you – and to think that we built that hull in seven sections, and everything came together in the right place, is in itself a marvel. This process resulted in a ship that had almost no deficiencies on sea trials. *Virginia* was as good as a fleet 688, having fewer major deficiencies during her in-service inspection than an operating 688 at sea today. That allowed us to deploy *Virginia* even before she completed her PSA [Post Shakedown Availability]. The second marvel of *Virginia* is that we built her entire front end in an open-architecture environment. Every piece of electronics in the front end of that boat will be able to be upgraded easily with new capabilities. Improving capabilities took us a long time with the 688 class, but it will much simpler with the *Virginia*-class.

Q: How do you see the roles and missions of submarines evolving in the near future? Long term?

Clearly in the Global War on Terror (GWOT), there is a huge role for submarines. When you think about the GWOT, it is principally a war of intelligence and because of the covert nature of submarine operations, they are excellent intelligence-gathering platforms. Iraq is not what the Global War on Terror is all about. It's not necessarily a war with large numbers of forces, but more about small units finding, fixing, and targeting specific individuals before they can carry out terrorist activities. When you think about the kind of platform you need to conduct that type of operation, it's something that the "bad guy" can't see but is able to gather needed intelligence. It requires the persistence to stay on station for a long time and the ability to put a small unit ashore to carry out their mission against potential targets. SOF capabilities on submarines allow you to do all those things and, if the SOF units get into trouble, you have the ability to conduct surgical strikes to protect them. The TOMAHAWK capability aboard submarines is a big part of that. The submarine really gives you the ideal platform for the Global War on Terror, and our submarines are carrying out these missions with a high degree of success today.

Simultaneously, they are also improving the undersea dominance of the U.S. Navy in far-forward areas. There has been a lot of talk lately about the proliferation of foreign navies developing their own submarine forces. And all that does is reinforce the fact that – in many ways – the submarine is the weapon of choice for a lot of countries as they try to improve their naval capabilities. That is why we have to maintain traditional capabilities, like ASW, as we expand our role in the war on terror.

Q: What has been the most challenging aspect of your job as Director, Submarine Warfare? And what has been the most rewarding?

What makes this job challenging is the need to produce a coherent program and then execute it successfully. The way the federal government and the federal budget process works makes this difficult, because there are so many steps along the way. I may be able to convince the CNO that I have the right program for the Navy, but then you have to convince the OSD

[Office of the Secretary of Defense] staff and the Congress. And those wickets can be difficult for the guy trying to build a program. Basically, what this "process" does is to slow things down – but there's a good reason for that. I believe that the Founding Fathers were pretty wise when they set up the federal government to ensure that we couldn't do anything precipitously; but rather created a series of "baby steps" which prevent us from making huge errors. To live and work in today's procurement environment is a bit challenging at times.

I've also found this job very, very rewarding. Prior to coming here, I had only one tour in the Pentagon – on the OSD staff. It is hard for the young Sailor out on the deck plates to recognize how important the work is that we do here at the Pentagon. Everything that shows up on the ships for the benefit of those Sailors is something we've fought for tooth and nail here in the Pentagon. I think I am pretty satisfied overall with both the staff here at N87 [Director, Submarine Warfare] and the quality of the products we produce. Most importantly, we've been able to maintain and modernize our ships. It is a tough fight, each and every day, and it's a grind to work your way through this process. But at the end of the day, if the boats out on WestPac [a Western Pacific deployment] get the capabilities they need – because we did our jobs here – well, that's pretty satisfying.

Q: What would you deem the highlight of this tour in the Pentagon?

Working with the staff we have here on a daily basis. When you compare the size of our staff to the size of some of the other staffs here in "the building," we're a pretty small group. These guys work very hard during many long days to try and move the ball down the field. We have a great group of officers, Sailors, and civilians here. I've also been very happy with my interaction with the other warfare sponsors I work with – in N86 [Director, Surface Warfare] and the N88 [Director, Air Warfare] offices. When I first came onboard, I thought there would be a lot of infighting among the various resource sponsors but it hasn't been that way at all. We've really worked together – I think – to produce the best programs and products



for the Navy. That has been very satisfying. To come here thinking that there wasn't going to be much interaction and cooperation, and then to have such a great working relationship with the other resource sponsors was a definite highlight.

Q: What are some lessons learned that you have gained during this tour that Sailors in the Fleet would find useful?

I don't think most Sailors fully understand how the procurement process works and how we actually acquire ships, weapons, torpedoes, and so forth. But at the same time, I'm not sure they need to. For their part, their responsibility is to articulate clearly what their requirements are, and see them vetted through the squadrons and type commanders. The way the Undersea Enterprise works today, if you asked me who my boss was I'd have to scratch my head for a second and think. I certainly work for [Vice] Adm. [Lewis] Crenshaw [Deputy Chief of Naval Operations for Integration of Capabilities and Resources] as the CNO N8, but I also work for [Vice] Adm. [Chuck] Munns [COMNAVSUBFOR] as the head of the Undersea Enterprise; I'm his chief financial officer. The Fleet Sailor needs to under-

continued on page 40



IMF Innovation

Makes Real Time Situational Awareness a Reality

After months of research, testing, and evaluation at Puget Sound Naval Shipyard and the Intermediate Maintenance Facility (PSNS and IMF) at Naval Base Kitsap in Bangor, the Chief of Naval Operations (CNO) has authorized the Automatic Identification System (AIS) to be rapidly deployed throughout the Submarine Force.

Inspired by a suggestion first submitted by the IMF's SWS Navigation Support Shop – and supported by current U.S. Coast Guard regulations for maritime domain awareness – this new innovation will bring real-time situational awareness to underway submarines and significantly increase the safety of their crews.

The addition of an AIS capability to TRIDENT submarines will provide the ability to see commercial vessel traffic beyond the reach of conventional radar. Currently, TRIDENT submarines utilize commercial radar capable of displaying Automatic Radar Plotting Aids (ARPA) data. This ARPA data provides contact Closet Point of Approach (CPA), Time to Closest Point of Approach (TCPA), speed over ground, and position and heading of the selected target. However, this data is not available for ships hidden from view by islands, landmasses, or weather conditions that mask radar contacts.

AIS-equipped vessels can see traffic regardless of the weather and radar impairment. In addition to the basic ARPA data available from radar, AIS data can include vessel name, speed, rate of turn, draft, cargo, destination, and ETA to destination of the selected target in real time. Moreover, the information is continually updated in real time. Obtaining AIS technology will also reduce the need for radio communications, allowing the crew

to concentrate on using information vice obtaining it.

Naval Submarine Support Center, Bangor (NSSC) first approached IMF about the potential of using the AIS on TRIDENT submarines in an endeavor to improve the capabilities of the Furuno secondary surface search radar, but IMF was one step ahead of them. Preliminary research on this idea had already commenced as a result of a 'Beneficial Suggestion' submitted by Ralph Reinke, a member of IMF's SWS Navigation Support Shop.

Reinke's research revealed that the current Furuno displays were not capable of displaying the AIS data, and that additional equipment, displays, and cabling would ultimately need to be purchased, foundations would have to be designed and installed, wire ways would need to be identified for cable runs, interfaces to existing equipment had to be established, and most importantly, approval for a new system would have to be secured.

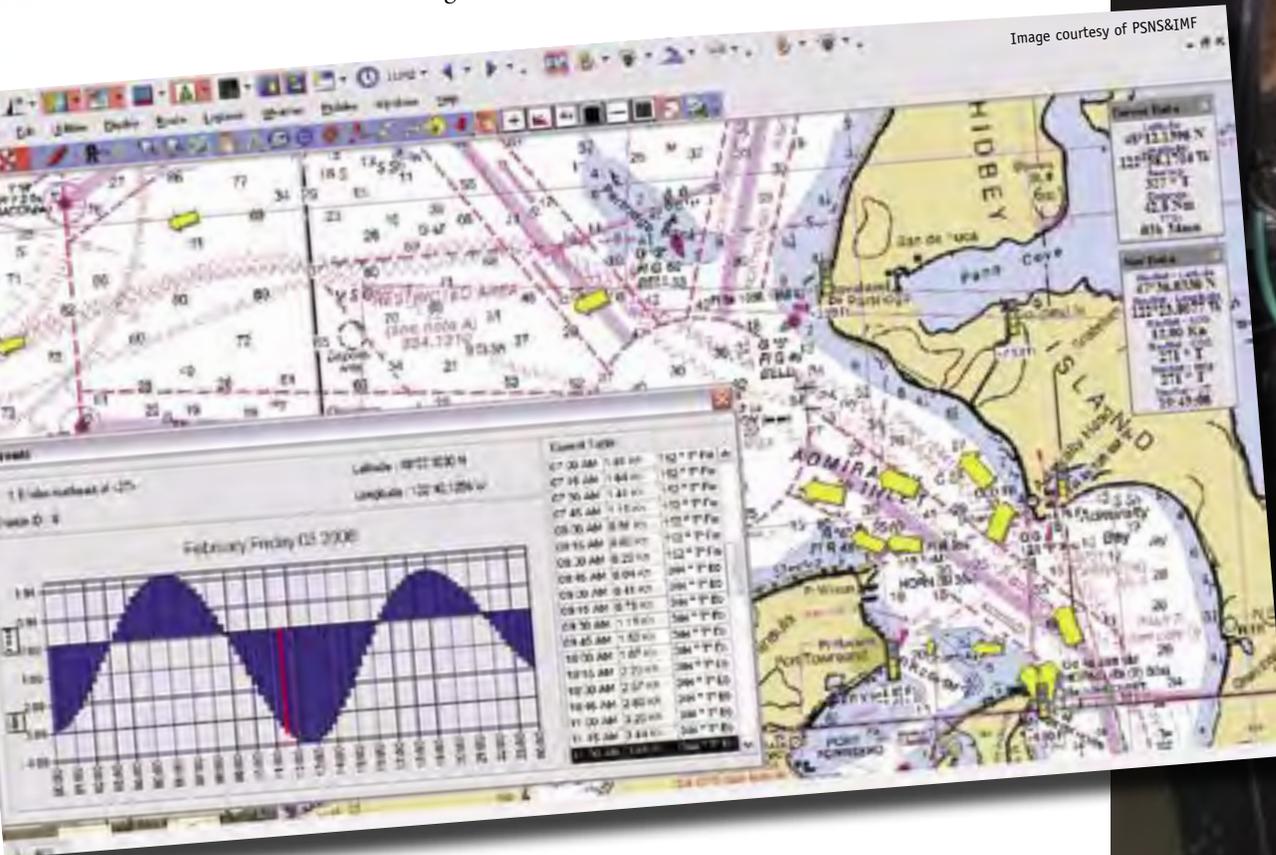
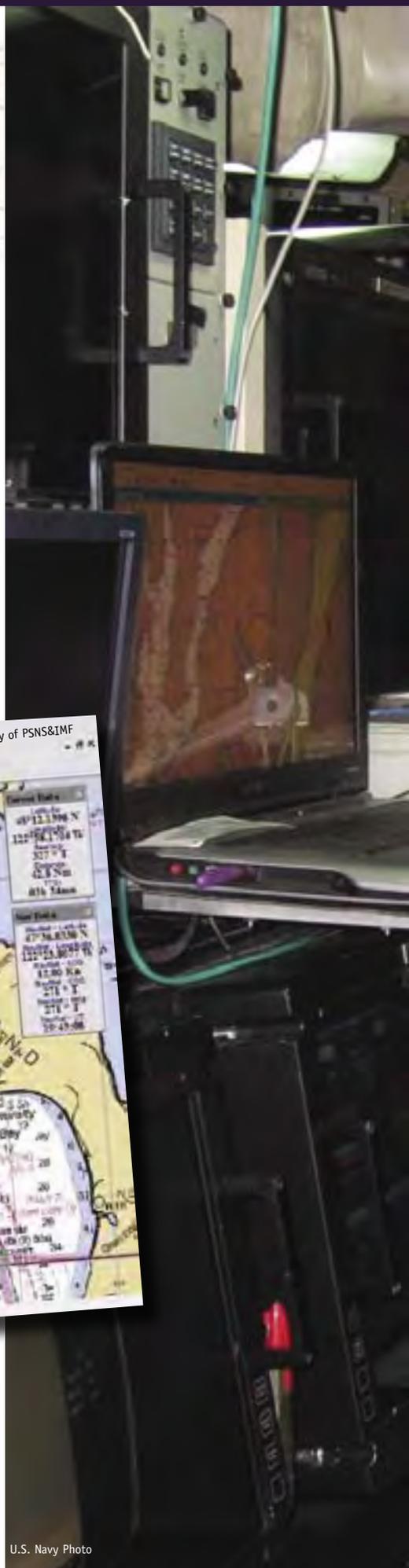


Image courtesy of PSNS&IMF

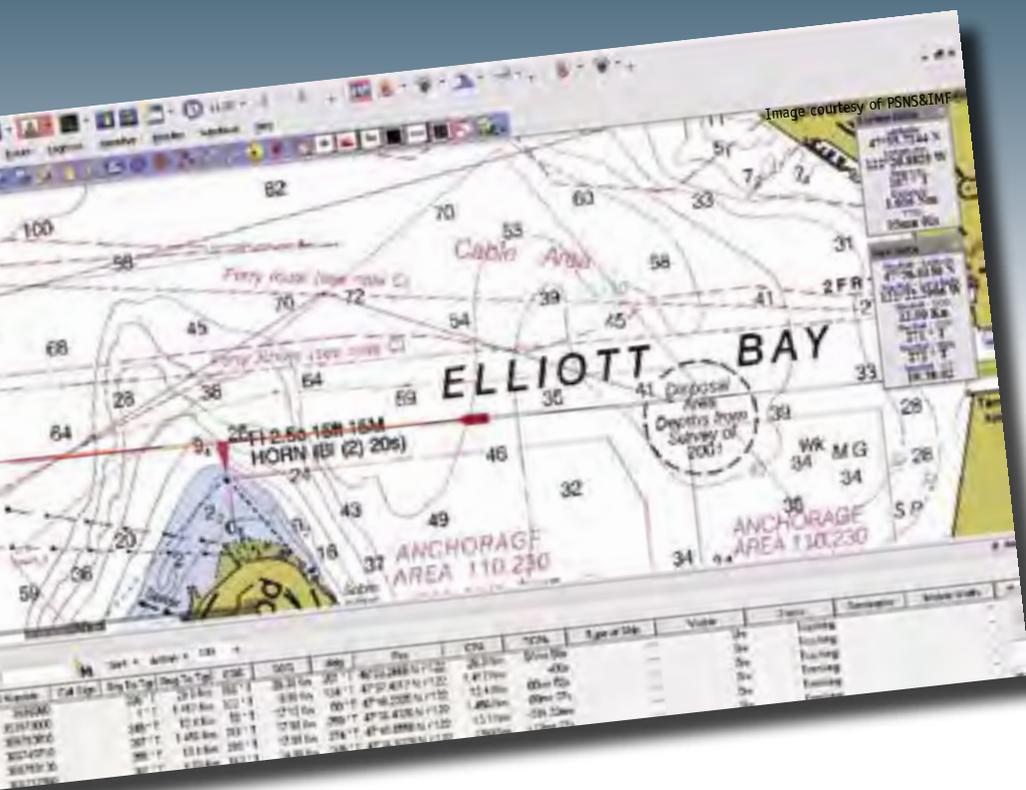
(above) This is a screen shot of an AIS display. Tides and currents may be brought up in a pop-up box.

(right) USS Nevada (SSBN-733)(G) navigator Lt. Andrew Ring (right), with Petty Officer 2nd Class (SS) Jeffrey Baars (center), and Petty Officer 3rd Class (SS) Charles Branham (left), use AIS while transiting through the highly congested waters of Puget Sound while returning from a recent patrol.



U.S. Navy Photo





(above) The Automatic Identification System allows a ship to provide and obtain detailed, real-time navigation information to and from participating vessels, such as ships' positions, speeds, courses, names, and destinations.

(below) AIS will allow submarines, such as USS Florida (SSGN-728) shown here, to operate in high-traffic areas more effectively by quickly and accurately identifying and tracking surface contacts.



Bringing AIS to the Bangor-based TRIDENT submarines began with three months of research and development conducted by Reinke and a team of engineers who worked around the clock to develop the drawings, obtain necessary approvals for a local first time alteration, and provide oversight on installation. Additionally, Electric Boat planners worked with the IMF mechanics, ship fitters, welders, and ship's crew to design the system's foundation and perform the actual installation. A proof of concept was accepted in April 2005 and approval was given to the IMF engineers to accelerate advancing the idea from concept to actual installation. Only a few weeks later, the first prototype of an AIS system was installed on USS *Pennsylvania* (SSBN-735) for operational testing.

When the crew returned from patrol, the commanding officer and navigator reported that the system completely delivered what they had hoped for during their sea trials. Following further refinement on installation and procurement procedures, the cost per unit has been reduced

from more than \$9,000 to only half that, with the expectation that costs can be driven even lower. As a result of this initial test, Commander, Submarine Force, U.S. Pacific Fleet (COMSUBPAC) authorized the IMF to perform a first time alteration.

“AIS will provide Group Nine and Ten submarine crews with a very valuable tool for situation awareness and contact management,” said Rear Admiral Frank Drennan, Commander, Submarine Group Nine and Ten.

Due directly to the work performed by the team led by PSNS and IMF, with COMSUBPAC taking the lead to develop a near-term procurement and fielding plan, in February 2006 the CNO directed rapid deployment of the stand alone AIS capability.

The 2006 Quadrennial Defense Review states that the Navy must sustain current readiness and adds that one way to do this is to increase Maritime Domain Awareness through improved integration with Coast Guard, interagency, and international partners. Installing AIS on all U.S. submarines not only takes a leap forward in this direction but also keeps the seas safer and helps

ensure the ships’ crews all make it home.

The U.S. Coast Guard has recognized the benefits of AIS and has been a leading proponent of AIS technology since its inception. AIS is an effective navigation and communications tool for reducing collisions, enhancing situational awareness, and playing a part in U.S. maritime domain awareness. While AIS is a requirement for all merchant ships greater than 300 tons, it is not mandated for submarines.

Nonetheless, the submarine community has recognized that having the ability to instantaneously display and track all AIS

contacts during periscope depth evolutions and surface transits would greatly improve the ship’s total situational awareness and increase the safety of those aboard and other vessels. Thanks to the hard work and foresight of the researchers, developers, engineers, and production workers who have rallied behind these new capabilities – and proven its success underway – AIS will soon be deployed throughout the submarine fleet.

Katie Eberling is the Command Information Officer for Naval Intermediate Maintenance Facility,

AIS technology relies on global navigation systems, navigation sensors, and digital communication equipment (i.e., transponders) operating according to standardized communication protocols that permit the voiceless exchange of navigation information between vessels and shore-side vessel traffic centers. On July 1, 2003, the Coast Guard published regulations, as required by the Maritime Transportation Security Act of 2002, requiring all vessels subject to the Safety of Life at Sea (SOLAS) convention and certain domestic vessels operating in Vessel Traffic Service (VTS) areas to install a ship-board AIS.



Photo by Chief Petty Officer Dave Fliesen

Key Elements of the Nation's Joint

The *Ohio*-class Guided Missile/SpecOps

Photo by Ray Narimatsu



Adm. Edmund Giambastiani returns a salute during the return to service ceremony for USS *Ohio* (SSGN-726) at Naval Base Kitsap.

On Feb. 7, 2006 the special-operations/guided-missile submarine USS *Ohio* (SSGN-726) returned to active duty, her crew anticipating a spectrum of operations and adversaries that no one could have predicted when she was first commissioned in November 1981. Then, at the height of the Cold War, *Ohio* was armed with 24 of the most powerful weapons ever conceived and was a vital component of the Nation's "Triad" of nuclear deterrence – along with land-based missiles and manned bombers – against a seemingly implacable Soviet Union.

Today, *Ohio* represents a significant milestone in transforming our Joint Force for the "long war" that the 2006 Quadrennial Defense Review (QDR) predicts as the future of America's military. *Ohio* and her three modified-sister SSBNs, which will soon rejoin the operating forces as SSGNs, will be instrumental in helping to wage what the QDR calls "long-duration unconventional warfare, counterterrorism, counterinsurgency, and military support for stabilization and reconstruction efforts."

In this regard, and from the vantage point of the Joint Chiefs of Staff, I want

Force: Submarines

to underscore three key points as the Submarine Force charts its course for a future laid out in the QDR.

Leadership

My first point is to celebrate and congratulate the far-sighted leaders of the past whose foresight and hard work made this SSGN both possible and affordable. For more than two decades, the *Ohio*-class submarine – and the associated training and maintenance systems ashore and afloat – have been the “crown jewel” of the deterrent capability of our Joint Force. Designed with more than 40 years of certified hull life...incorporating the stealthiest reactor plant ever...built with care at Electric Boat by skilled artisans from throughout the submarine industrial base...and maintained and operated by some of the most motivated and dedicated Sailors found in our Navy – the *Ohio*-class submarine remains a unique national asset for tailored deterrence, this time against different, more ambiguous, but still-dangerous foes.

Without the margin for growth, scalability, and change – as well as the superlative maintenance record – we would never



Unlike other U.S. submarines that can only carry a small complement of SOF, SSGNs can carry up to 100 SOF operators and their equipment.

USS *Florida* (SSGN-728), seen here off the coast of Norfolk, Va., is one of four *Ohio*-class submarines being converted from a ballistic missile platform to a guided missile/special operations submarine.



Photo by Chief Petty Officer Dave Fliesen

have considered transforming these platforms into new uses for the Joint Force.

Such innovative leadership like this will be critical to maintaining and expanding the capability provided by the SSGN and her associated weapons systems and elite warriors. So this is no time to rest on our laurels.

Innovation

Secondly, I want to salute the innovation and hard work of the Undersea Enterprise during the last decade, which worked together as a team to bring this capability to fruition. By Undersea Enterprise I mean not only operational submariners and their uniformed and civilian leaders but also our acquisition professionals and our partners in government laboratories and in industry.

As it became clear during the last decade that U.S. strategic requirements were more than satisfied by a strategic ballistic missile submarine force of 18 *Ohio*-class SSBNs, this Undersea Enterprise worked diligently to imagine – and then create – an SSGN capability encompassing submerged strike, robust SOF deployment and command and control elements, and enhanced organic reconnaissance. From initial concept discussions through detailed concept of operations development, to detailed drawings by engineers and naval architects, and ultimately “bending steel,” this evolution of USS *Ohio* from SSBN to SSGN is a case study in transforming military capabilities...on time, within budget, and with all technical, engineering, and operational objectives met.

Additionally, this “innovation in stride”

is an example of how the Department of Defense can effect major change rapidly. The SSGN concept was endorsed in the 2001 QDR, released in September 2001, and promptly programmed into the 2003 President’s Budget which was submitted in February 2002. Almost exactly four years later, USS *Ohio* returned to service with this new capability ready for delivery to the Fleet. This is a model for how to rapidly inject major transformational capabilities into the Joint Force and is both a credit to the Undersea Enterprise and an example for others to follow.

Transforming Not Transformation

Third, and finally, transformation of this critical undersea warfare capability will not stop with *Ohio*’s return to service. In fact, I prefer to say “transforming” the force rather than “force transformation,” since I view transforming our Joint Force as an ongoing imperative and not a one-time deal.

Indeed, there is no specific end-point of transformation and successful military forces have never stopped transforming. This ongoing transformation will be critical for the future of the Submarine Force. As a result, we have invested time in the SSGN operating cycle and space and weight into the hull itself to allow us to continue to experiment with advanced technologies and payloads, command and control networks, and concepts of operations. One tube out of 24 in each of these four multi-mission ships will remain dedicated to operational experimentation, and thus will be an important means to carry out the QDR’s directions.

This is a golden opportunity for the Submarine Force to continue to link their experimentation efforts with the Joint Force. In this venue, leadership, innovation and transformation can come together to keep the undersea warfare capability relevant to the Combatant Commanders as they operate in an increasingly uncertain world.

QDR Imperatives

Without a doubt, this transforming capability, and the process used to deliver it were key elements that informed the thinking – and influenced the outcome – of the 2005-2006 Quadrennial Defense Review. As we worked together to set the vector for the future of the Joint Force, the kinds of military capabilities embodied in the SSGN were validated again and again as what we need to take on the security challenges of an uncertain future.

For example, the QDR advocates a refined force-planning construct for the U.S. military that depends on numerous variables, including the duration of conflict and partnering with allied countries. Based on the evaluation of the four QDR focus areas – defeating terrorist networks; defending the homeland in depth, shaping the choices of countries at strategic crossroads, preventing hostile states and non-state actors from acquiring or using weapons of mass destruction – the Defense Department will refine the U.S. force-planning construct by:

- > Better defining the Department’s responsibilities for homeland defense within a broader national framework.

- > Giving greater emphasis to the war on terror and irregular warfare activities, including long-duration unconventional warfare, counterterrorism, counter-insurgency, and military support for stabilization and reconstruction efforts.
- > Accounting for, and drawing a distinction between, steady-state force demands and surge activities over multi-year periods.

The 2006 Quadrennial Defense Review is more of a “midcourse correction” to the long term strategic vector for the Joint Force, as Deputy Secretary of Defense Gordon England noted when the report was released on Feb. 6, 2006. Nevertheless, by drawing on the lessons learned from military campaigns of the past four years, this “rudder order” shifts the emphasis from conventional areas of warfare to a whole range of new approaches. I like to think of the “shift of weight” as follows:

- > From single, focused threats to multiple, complex challenges
- > From nation-state threats to decentralized network threats from non-state enemies
- > From responding after a crisis starts to preventive actions to avoid crises
- > From threat-based planning to capabilities-based planning
- > From a focus on kinetics to a focus on effects
- > From static-defense garrison forces to mobile expeditionary operations
- > From massing forces to massing effects

- > From set-piece maneuver and mass to agility and precision
- > From static alliances to dynamic partnerships
- > From vertical structures to transparent, horizontal integration
- > From Department of Defense solutions to interagency approaches

The “long war” against global terrorism is similar to the Cold War, Secretary England noted. Just as the Korean War was the start of a four-decade standoff between the United States and the Soviet Union, the tragedies of Sept. 11 and ongoing operations in Afghanistan and Iraq should be seen as the opening act of a long conflict with “violent extremists.” The SSGNs can – and must - prove to be critical capabilities to carry out a variety of operations in this global war for peace and prosperity.

Multi-mission SSGNs

Indeed, key characteristics of the QDR’s “long war” against “violent extremists” figure in SSGN operations, including:

- > Stealthy access to denied areas
- > A rapid and massive strike capability, based on the latest reconnaissance data
- > A unique and sizable Special Operations Force (SOF) insertion and extraction capability—matched to a joint command and control architecture meeting the needs of the Joint Force Commander
- > Significant on station endurance and operational availability

- > Unmatched modularity and technical/operational flexibility

Operating with two crews and using the existing *Ohio*/TRIDENT SSBN infrastructure will allow this potent warfighting capability to have a 70 percent in-theater presence. Our SSGNs will provide covert strike capabilities – from a SOF contingent of up to 104 troops for surge ops to as many as 154 Tomahawk land-attack cruise missiles (TLAMs) providing near-pinpoint accuracies against targets at extended ranges. These four ships will embark a variety of unmanned –under-sea/surface/aerial – vehicles (UUV/USV/UAVs) and ISR sensors to enhance the Joint Force Commander’s knowledge of the battlespace and to enable and maintain access for follow-on forces. The SSGN will also have the capability to support special operations forces for an extended period – ultimately enabling clandestine insertion and retrieval by lockout chamber, dry deck shelters, and current and future SEAL delivery systems.

Additionally, the large payload and ocean interface of 24 seven-foot diameter tubes will allow these transformational submarines to leverage future payloads and sensors, thereby increasing the submarine force’s future capabilities by overcoming the tyranny of the 21” torpedo tube. The inherently large internal capacity of these submarines will enable us to leverage future payloads and sensors for years to come.

The Way Ahead

All of these capabilities make USS *Ohio* – and her three sister-ships to come – “poster children” for the kind of capabilities the 2006 Quadrennial Defense Review advocates for the future. At a modification cost of approximately \$1 billion for each SSGN, the Navy – no, the United States – has made an excellent investment for another 20 years of “deterrent” operations against dangerous adversaries. .

Most fundamentally, however, it was the leadership of our people and the innovation of the Undersea Enterprise that made, and will continue make, this ongoing transforming for the future possible. Without a doubt, the *Ohio*-class SSGNs are vital elements in America’s Joint Force.

Adm. Giambastiani serves as the seventh Vice Chairman of the Joint Chiefs of Staff.



Photo by Chief Petty Officer Dave Fliesen



Photo by Petty Officer 2nd Class Johansen Laurel

Submarine IDCs – The Navy’s *Most Unique*

“D*o*c*s*”

“DIVE! ...DIVE!” A familiar lump fills my throat as the black steel behemoth slips beneath the dark, icy waves of the Atlantic. I reflect on the long hours of drills and operations followed by short stints of one-eye, one-ear open sleep during the weeks ahead. My experience has taught me the exact tone and vibration caused by the berthing door being opened by a shipmate headed to my bunk. I am part doctor, nurse, pharmacist, health inspector, psychologist, health physicist, shipmate, brother, submariner... I am “Doc”.

A lone submarine Independent Duty Corpsman (IDC) is the sole medical provider on every boat in the Submarine Force today. He is directly responsible to the submarine’s commanding officer for the health and wellness of every Sailor aboard and is the only enlisted department head. The practice of medicine can be challenging for even the most highly trained physician within the tight spaces and close quarters inherent to the submarine service. This point is shockingly apparent on fast attack submarines where the Doc shares a very small space with countermeasures launchers and a myriad of piping and valves. There is no room to even effectively evaluate and treat a patient here, just a simple fold-up desk for admin duties and a few lockers for supplies. In an emergency the Officer’s Wardroom or Crew’s Mess would act as a patient evaluation and treatment area. Medical supplies are stowed in various spaces throughout the ship in an effort to prevent the total loss of a particular item in a single casualty and additionally prepositions emergency medical gear throughout the ship in the event of a personnel casualty.

The IDC’s scope of medical practice underway includes all routine medical care that would normally be provided by

a family doctor and treatment/stabilization of injuries ranging from minor cuts and bruises to broken bones, closure of complicated wounds, and minor surgical procedures. This may sound routine or unimpressive as other medical professionals on shore do this on a routine basis. The difference on the submarine is the environment and isolation experienced during submarine operations is truly unique and often can be simply described as practicing medicine on the moon with minimal supplies, one hand tied behind your back, and often no communications to ask for help. The reality is the resume of the submarine IDC includes traits of a doctor, nurse, lab technician, psychologist, and orderly rolled in one. That makes the IDC one of the most versatile and highly-trained medical professionals in the world.

In addition to medical duties, the IDC is designated as the ship’s radiation health officer and is responsible to the commanding officer for administration



Photo by Petty Officer 2nd Class Corwin Colbert

(left) Petty Officer 1st Class Scott Hantsch loads a syringe filled with flu vaccine for a Sailor aboard the Los Angeles-class attack submarine USS *Topeka* (SSN-754). Petty Officer Hantsch’s achievements as *Topeka*’s Independent Duty Corpsman have greatly contributed to that submarine setting the standard for Pacific Fleet medical readiness.

(right) Senior Chief Petty Officer Dennis Davis, USS *Buffalo*’s (SSN-715) IDC, has little room to conduct his tasks among the tight confines of his workspace.



(above) Senior Chief Petty Officer Davis checks *Buffalo's* water supply for excess chlorine.

(right) Senior Chief Petty Officer Davis performs a routine exam on a Sailor's eyes.



Photo by Petty Officer 2nd Class Corwin Colbert

a high stress environment. The effectiveness of these standards is validated by the outstanding performance and low attrition rate of NUMI graduates in the fleet.

NUMI's roots go back to the 1940s during the early days of World War II, when Navy Physicians and Pharmacist Mates (now corpsman) were trained for duty in the submarine service through a partnership between the Naval Medical Research Laboratory and Naval Submarine School. With the birth of the nuclear fleet, the course for training submarine corpsman evolved from the Nuclear Submarine Medical Technician curriculum to the current Submarine Force Independent Duty Corpsman course of instruction. This curriculum began as very limited medical training coupled with Basic Enlisted Submarine School and has since matured into the intensive radiation health and medical training program currently in existence. NUMI graduates approximately twenty-five new IDCs per year. All report to operational submarines for their first tour of duty.

Corpsmen have served with distinction on submarines in every major war, conflict or patrol since World War I, and have distinguished themselves among fellow submariners. No longer are they just "the Doc" but are now increasingly qualifying and performing the duties of senior submarine watch stations such as Chief of the Watch (COW) and Diving Officer of the Watch (DOOW) in addition to their regular assignments. Several outstanding former submarine IDCs have even gone on to serve as Chief of the Boat (COB). The service of these men has been characterized by dedication and professionalism combined with true care and compassion for their crews. The autonomy, scope, and responsibility placed in the hands of a submarine IDC are virtually unparalleled in any other profession. In this community the title of "Doc" is not taken lightly by those who bear the title or those who bestow it. This title itself holds no true rank, authority, or civilian certification but is one of the most unique, challenging, and rewarding positions in the Navy today.

Senior Chief Petty Officer Boyce is the Senior Enlisted leader for the Independent Duty Corpsman program at the Naval Undersea Medical Institute in Groton, Conn.

of radiation health programs including personnel dosimetry, maintenance of records documenting crew occupational exposure to ionizing radiation, and maintenance of crew health records ensuring the rigorous requirements specified by the Navy's Bureau of Medicine are met. Most Doc's will tell you that these duties account for the majority of their time when not dealing with patients or medical issues. The effective management of the radiation health program is a vital element in the day-to-day operation of the submarine. Other routine duties carried out by the IDC include monitoring the ship's atmosphere to ensure clean breathing air is maintained, testing of the ship's potable water system and treating water for potability, ensuring general cleanliness and sanitation of all berthing and food preparation spaces, training the crew in basic first-aid procedures, and maintaining all medical equipment.

Training a basic hospital corpsman to be a successful "Submarine Doc" takes a little time, a few good instructors, and a whole

lot of work on the part of the student. Second Class Petty Officer Corpsmen with the drive and determination are eligible to apply for the 58-week course of instruction conducted at the Naval Undersea Medical Institute (NUMI) in Groton, Conn., a component of the Naval Operational Medicine Institute in Pensacola, Fla. The purpose of training IDC students is to equip them with the medical and administrative knowledge and skills required to administer all aspects of the medical mission aboard an operational submarine. This is perhaps the most difficult and demanding assignment in the Navy. There is not an instance during an IDC's tour that he can escape the grasp of responsibility. Students attend Basic Enlisted Submarine School followed by training in radiation health, medical administration, gas free engineering / atmosphere control, clinical medicine, and clinical rotations. The historical attrition rate through the curriculum is approximately 40% due to the high standards required to ensure a graduate can function independently in

Submarine Force's Best Junior Officers

Embark on a Unique Journey

They are not only the best and brightest junior officers on their respective boats; they are the most promising junior officers in their squadrons. Eighteen junior officers were chosen this past January to represent the Submarine Force as the 2005 Junior Officers of the Year (JOOY).

Being chosen as a Junior Officer of the Year has afforded these Sailors with a unique opportunity to learn about the advances in the area of undersea warfare at the Naval Postgraduate School in Monterey, Calif. and engage in frank discussions with some of the Navy and the Department of Defense's top leaders during office calls at the Pentagon and the Washington Navy Yard in Washington, D.C. These office calls included Adm. Edmund Giambastiani, Vice Chairman, Joint Chiefs of Staff; Adm. Kirk Donald, Director, Naval Nuclear Propulsion; Adm. Robert Willard, Vice Chief of Naval Operations; and Rear Adm. Joseph Walsh, Director, Submarine Warfare. Their time in Washington, D.C. also included a tour of the U.S. Capitol and a behind-the-scenes tour of the West Wing of the White House. Of the eighteen submariners chosen, thirteen were able to make the trip.

The Submarine Force Junior Officers of the Year take time on their visit to Washington, D.C. to tour the U.S. Capitol.

The following interview was conducted with several of those JOOYs near the conclusion of their time in Washington, D.C.

What has been the highlight of your JOOY experience thus far?

Lt. John Waterston: On the D.C. leg of this trip, it was getting a behind-the-scenes-tour of the West Wing of the White House and where the real work of the world goes on.

Lt. j.g. Cameron Aljilani: The West Wing tour was by far my favorite part of the trip because it is not something many people get to see. Another great part of the trip has been the access we've had to the senior Navy officers. We have had the opportunity to talk with the people that make the important decisions and got their "top down" perspective on what we, as junior officers, should be doing. We then had the chance to provide the "bottom up" perspective of what we're actually doing and what we perceive as the problem because sometimes there is a disconnect.

Lt. j.g. John Babick: Touring the Pentagon has been the highlight of the trip for me. Seeing how all these different components and agencies work together. Another highlight has been having the opportunity to listen to the senior Naval leadership and get their take on the future of the Submarine Force as well as the future of the Navy in general.

Lt. j.g. Ronald Hatt: The highlight of my trip to Washington, D.C., so far, has been the interaction amongst all the junior officers. Learning that my peer group,

these junior officers, are pretty locked on target and overall a fantastic group of guys. Another great part of this experience has been the opportunity to speak, shake hands, and look eye to eye with the Navy's senior leadership on a very "deck plate" level.

What kinds of lessons and experiences will you bring back to your respective boats from your JOOY experience?

Lt. j.g. Aljilani: After talking with Adm. [Kirk] Donald [Director, Naval Nuclear Propulsion] and learning his perception on how monitoring programs should be run and then comparing that to what we actually do on the deck plate level, there is a definite disconnect. Adm. Donald sees that the program should be run a certain way and then on the bottom side, we administrate our way out of the actual intent of the program. So when I go back to my boat, I'm going to talk to my other junior officers and say, "This is what we're really supposed to be doing and I agree with that point of view. And – oh by the way – the brass realize there are some flaws in the system." The expectation and the follow through aren't synched up.

Lt. Nicholas Crain: There are a lot of great things about the Submarine Force that I get to impart on my students [Lt. Crain is currently the assistant professor of military science at the University of Idaho]; all the opportunities, the standards, and all the exciting things as a junior officer you

get to do. What I think I got to see here was more of the opportunities there are outside the Submarine Force for submariners. I also saw first hand the camaraderie that exists throughout the Submarine Force, even outside the homeport.

Lt. Thomas McDermott: Everything fits into the larger picture. It is a much different view from the deck plate as opposed to at the higher levels of the Navy. When you get that "10,000 foot view" you begin to understand the "big picture Navy."

Lt. Waterston: Learning about the "joint side of the house" and how it is so separate from the operational side of the Navy. I didn't really realize the level of cooperation to plan operations and procure the funding for boats, bullets, etc.

Lt. Aljilani: I didn't realize that submariners were involved in so many different aspects of both the military and the government. We see submariners involved in homeland security, counterterrorism operations; you see 'dolphins' everywhere and I think it is because of our training. We integrate so well and we can go into a situation we don't know much about, read the requirements, and very quickly contribute to that organization.

Lt. Crain: I think the most surprising aspect is that they give junior officers an opportunity to do something like this. I thought that we would just kind of shuffle around, pose for a few photos, and not get anything of value added out of this trip. It has been very enlightening because of the opportunities we've been given to talk to the senior leadership.



Photo by Mike Smith



Photo by Mike Smith



Several of the Junior Officers of the Year pose for a photograph with Adm. Edmund Giambastiani, Vice Chairman, Joint Chiefs of Staff.

As a JOOY what lessons learned and wisdom would you like to take away from this experience and impart on other junior members of your crew?

Lt. j.g. Hatt: The big lesson I'll take back is that there are a lot of problems that have been identified but that the guys at the top are working hard to fix these problems. The other take away is that one day, we junior officers, will be a part of the solution.

Lt. Aljilani: I want them to understand that they are an integral part of what the Navy does. It is hard to see when you are standing watch or at the deck plate level. But the fact that every one of our submarines plays a significant role in the big picture is important to understand.

Lt. Waterston: I'd say that the submarine community has, throughout the history of the Navy, established a reputation of excellence and that it is important to uphold that.

Lt. McDermott: Everything does fit together and, while they may not realize it yet, there is a great purpose to everything they do.

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

2005 Junior Officers of the Year

- Lt. j.g. Cameron Aljilani, *USS Helena (SSN-725)*
- Lt. Jeffrey Alsup, *USS Frank Cable (AS-40)*
- Lt. j.g. John Babick, *USS Pittsburgh (SSN-720)*
- Lt. Nicholas Crain, *USS Augusta (SSN-710)*
- Lt. Matthew Feist, *USS Los Angeles (SSN-688)*
- Lt. j.g. Matthew Giambusso, *USS Hartford (SSN-768)*
- Lt. j.g. Ronald Hatt, *USS Tennessee (SSBN-734)(B)*
- Lt. Trevor Heinert, *USS Nevada (SSBN-733)(B)*
- Lt. Roderick Hodges, *USS Key West (SSN-722)*
- Lt. Daniel Hudson, *USS Oklahoma City (SSN-723)*
- Lt. Robert Hutchins, *USS Emory S. Land (AS-39)*
- Lt. Corey Johnson, *USS Houston (SSN-713)*
- Lt. Thomas McDermott, *USS Philadelphia (SSN-690)*
- Lt. j.g. Brian Patterson, *USS Norfolk (SSN-714)*
- Lt. Adam Royer, *USS Rhode Island (SSBN-740)(G)*
- Lt. j.g. Paul Rouleau, *USS Louisiana (SSBN-743)(B)*
- Lt. Andrew Sause, *USS Cheyenne (SSN-773)*
- Lt. John Waterston, *USS Jimmy Carter (SSN-23)*

Albacore

Forerunner to the Future

Innovative Submarine Shapes the Future of the U.S. Submarine Force

The auxiliary general submarine USS *Albacore* (AGSS-569) transiting on the surface off the Isles of Shoals, April 1954. *Albacore* served as a sea-going test platform from 1953 to 1972. *Albacore's* teardrop-shaped hull was the prototype for the Navy's nuclear powered submarine force and was the first boat optimized for submerged performance.



Wind tunnel tests are performed on a scale model of *Albacore's* revolutionary tear-drop shaped hull.

“When in doubt, think speed.”

This was the guidance Vice Adm. Charles “Swede” Momsen, Assistant Chief of Naval Operations for Undersea Warfare, gave to designers in 1949 as they began work on the U.S. Navy’s newest submarine. During World War II, the Navy’s Submarine Force proved its combat capability by sinking 30 percent of Japan’s navy, including one of the six aircraft carriers that attacked Pearl Harbor on Dec. 7, 1941. All told, U.S. submarines destroyed over half of the Japanese tonnage lost in the war. During that earlier era submarines were primarily surface vehicles with the ability to submerge, but their outstanding war record inspired Momsen and a series of high-ranking naval officers to put scientists and engineers to work on a true submersible. Speed may have been an initial goal of this design effort, but through successive improvements and the incorporation of new technologies the end result would prove to revolutionize submarine

performance and handling, and greatly influence modern submarine design.

The advent of nuclear energy was pivotal to the prospect of designing a true submersible. Since nuclear power plants could operate without the oxygen supply needed by conventional internal-combustion machinery, and because techniques were available for removing carbon dioxide from the ship’s atmosphere and creating oxygen for the crew it was possible to envision a submarine that would operate almost exclusively submerged, limited only by the endurance of the crew and supplies. In 1949, the Bureau of Ships authorized the David Taylor Model Basin at what is now the Naval Surface Warfare Center, Carderock Division, to research the ideal architecture of a fast and capable underwater vessel. And thus began the story of a 204-foot submarine that would break the world speed record twice and establish key design parameters for virtually all future submarines – USS *Albacore* (AGSS-569).

From July 1949 to April 1951, the David Taylor Model Basin tested a



U.S. Navy photo

variety of hull forms and associated appendages that would increase underwater speed without jeopardizing surface performance. Designers looked to aviation for inspiration – something aerodynamic would be hydrodynamic as well. Derived from the traditional shape of airships or blimps, a rounded hull in the form of a paraboloid was incorporated in the initial designs. This configuration was then tested in a wind tunnel at Langley Air Force base in two variants – dual and single propeller systems. Because the twin propellers on previous submarines were largely for surface maneuvering and not really required for submerged running, a single, 11-foot diameter, five-bladed propeller was tested. When tests proved that this configuration was the most efficient for propulsion and maneuverability, the single propeller and tear-drop shaped hull were adopted in the initial design of *Albacore*. HY-80 steel – the toughest and strongest steel yet produced – had just become available and was used for *Albacore*'s pressure hull. With these innovations, the new design was a milestone in

imaginative submarine technology.

For nearly two decades, from 1953 to 1972, *Albacore* was used as a test platform to validate design features and techniques that made possible the advances in speed, maneuverability, and depth capability enjoyed by today's Submarine Force. During that period, *Albacore* went through five design phases and a series of corresponding underwater trials that revolutionized undersea warfare on a step-by-step basis. Built at the Portsmouth Naval Shipyard and commissioned on Dec. 5, 1953 with the Latin motto *Praenuntius Futuri*, or "Forerunner of the Future," *Albacore* would soon demonstrate the aptness of that particular choice.

In Phase I, increasing underwater speed was the primary goal. The ship's designers made every effort to streamline the hull. The sail was smaller than normal and served only to house the necessary masts. The rudder and diving planes, or control surfaces, were placed *behind* the single propeller. Because of limited internal volume for both crew and equipment, the

engineers adopted one-man aircraft-style controls that integrated the operation of planes and rudders. The single helmsman controlled depth by pushing the wheel fore and aft for down and up angles and turning it like a steering wheel for direction. Electronics Technician Jim Tyrell remembers being at the wheel. "I actually learned to control *Albacore* in that way. A few years after I got out of the Navy, I took flying lessons. The instructor was amazed I could fly a plane the first time I tried. It felt exactly like flying *Albacore*".

As the ship-control team became more confident, *Albacore* was subjected to increasingly tight turns at high speed and surprised her crew with near "snap rolls" that caused extreme heeling. To minimize this dangerous effect, a dorsal rudder was attached to the rear of the sail. However, the rudder caused too much control sensitivity, turning *Albacore* at the slightest touch of the wheel. Small aircraft-type trim tabs were installed to minimize the use of the larger control surfaces and ensuing trials showed that the sail-mounted rudder was not



(left) *Albacore*, seen here in Oct. 1961, with its innovative “X” tail.

(right) *Albacore*’s dive brakes can be seen in their deployed position.

U.S. Navy photo

necessary for adequate maneuverability. It was dropped in the next design phase but would be reintroduced in Phase III.

In Phase I, *Albacore* had shown that a single-stick control station for the bow planes, stern planes, and rudder allowed piloting to be a one-man job. Ultimately, however, the U.S. Navy would be one of few to reject this system because it was thought to be unreliable and that human error was too great a possibility. During Phase I, *Albacore* was also the first to use a single periscope that combined the functions of an attack periscope and a search/night periscope.

Albacore went through design Phase II from December 1955 to March 1956. During this phase, control surfaces were moved in front of the propeller and arranged to be horizontal and vertical, forming a “+” shape. The dorsal rudder on the sail was deactivated and the small forward planes were removed not only for the reasons given above, but because they created drag and slowed the boat down. The new design provided excellent high-speed maneuverability. In another change, the diameter of the propeller was increased from 11 to 14 feet, which could turn more slowly and was quieter, but it proved relatively less effective and was deleted in the next phase. Other tests evaluated a fiberglass sonar dome carrying the BQS-4 sonar and a towed array fitted to the end of the submarine.

Soon, the technologies which had thus far proven successful on *Albacore* were applied in new construction. USS *Barbel* (SS-580), commissioned in 1959, was the first of a three-boat, conventionally-powered class to incorporate the tear-drop hull design and HY-80 steel. At that same time, the *Skipjack* (SSN-585) program combined the *Albacore*’s hull shape, single axially-mounted propeller, and HY-80 steel with the nuclear propulsion system that had been pioneered on the USS *Nautilus* (SSN-571) to create the prototype of the modern attack submarine.

Phase III took place from 1957 to 1961. The designers again experimented with new control surfaces. In this phase, control surfaces were still forward of the propeller but were mounted diagonally, forming an “X”-shaped configuration. This new design was expected to facilitate sharper turns, so a larger dorsal rudder was installed on the sail and re-activated. Ten hinged panels ringing the aft part of the boat were installed on *Albacore* as speed brakes. These panels were hydraulically operated to slow the boat rapidly if necessary. In addition, a drag parachute from a B-47 bomber was installed on the aft edge of the sail, which could be opened and streamed in an emergency to slow the boat and decrease the down angle. As clever as this idea may have seemed, the parachute ripped out after three test runs and was deleted from future designs.

The “X” stern configuration and dive brakes were potential solutions to a recurring concern about uncontrollable crashdives. Because the individual control surfaces in the X configuration needed to operate with coordinated motions to affect a dive, no single mechanical failure could cause a crash dive. Because these potentially-dangerous inadvertent dives were less likely, *Albacore* could attempt more dangerous maneuvers at little risk. Nonetheless, neither of these features would be included in the next design. The dive brakes occasionally opened on their own at high speeds, and the X-stern required computer control at a time when computers were little understood and yet to be trusted.

In 1962, *Albacore* went into Phase IV. During this period, the single propeller was replaced by a 10-foot diameter, 7-bladed forward propeller, in tandem with an 8-foot diameter, 6-bladed aft propeller. The spacing between these two propellers was set at 10 feet and a second 7,500-SHP motor was added to drive the second screw. The separation distance was later decreased to five feet which proved optimal for propulsion efficiency. In February 1966, when most submarines were averaging speeds of 10 knots submerged, the *Albacore* was credited with the world record of 33 knots underwater. In an attempt to reach similar speeds in an operational boat, USS *Jack* (SSN-605), commissioned in 1967, incorporated counter-rotating propellers in its



U.S. Navy photo

Albacore Innovations Throughout the Years

design. But *Jack* was never able to reach *Albacore's* speed, and the counter-rotating propeller system would not be used in any future submarine classes.

The Submarine Force suffered a major catastrophe while *Albacore* was working through Phase IV. In 1963, during deep-diving trials, USS *Thresher* (SSN-593) suffered a flooding casualty and was unable to blow her ballast tanks and surface, resulting in the loss of the submarine and all aboard. In response to this tragedy, an emergency blow system was installed and tested on *Albacore*. This new system ran a maze of piping from the air banks, through the control room and then to the ballast tanks. In the control room, the blow valves could be operated manually to expel ballast in each tank. When there was an emergency, a flip of the “chicken switch” blew all the ballast tanks and the submarine would rise rapidly to the surface. Quartermaster Norm Bower recalls this experience,

“After testing the system on the surface, we went to sea to test it while submerged. Our first test was from a depth of 100 feet and a dead stop. The blow was initiated and the boat rose rapidly to the surface. The second test was... from 300 feet... When the blow began, the boat immediately took a huge [54 degree] angle to starboard and stayed that way

- July 1949: David Taylor Model Basin tests hull designs
- Nov. 24, 1950: USS *Albacore* (AGSS-569) ordered
- March 15, 1952: Keel laid
- Aug. 1, 1953: Launched with teardrop shaped hull and a dorsal rudder attached to the trailing edge of the sail
- Dec. 5, 1953: Commissioned
- 1953-1955: Phase I: Control surfaces aft of single propeller
- 1956: Phase II: Propeller moved aft of cruciform control surfaces, dorsal rudder deactivated, and forward planes removed.
- 1957-1961: Phase III: X-shaped control surfaces, 10 diving breaks around hull, a new bow, new sonar system, larger dorsal rudder installed and activated
- 1962-1965: Phase IV: Installed contra-rotating propellers, larger battery, and larger main motor
- Feb. 1966: Set world record for underwater speed at 33 knots
- Jan. – April 1968: Returned to Portsmouth, N.H. for modification of propulsion system.
- Aug. 1969 – Aug 1971: Phase V: 'Slippery Water' project
- Sept. 1, 1972: Decommissioned and placed in the Inactive Ship Facility in Philadelphia
- 1984: Towed to Portsmouth, N.H. to be restored as a museum
- Aug. 30, 1986: Maritime Museum at Albacore Park opened to public
- April 11, 1989: Designated a National Historic Landmark
- 2000: Designated a Historic Mechanical Engineering Landmark and a Historic Welded Structure for her hull
- May 2005: Inducted into the Submarine Hall of Fame in Norfolk, Va. for her contributions to submarine engineering and tactics



U.S. Navy photo

until we reached the surface...we did the blow from 500 feet and we shot to the surface with no problem."

In Phase V, August 1969 to August 1971, the designers attempted to push *Albacore* even faster by lowering the friction of the water flowing over the hull in an early drag-reduction technique. Her crew called it the "Slippery Water" project, and it included the release of a viscous polymer liquid that would stream down the hull and reduce drag. Some drag reduction was observed, but so much polymer had to be ejected, and stored on board, that this method was deemed impractical. Since then, many tests have been done to develop a more efficient approach, but to date, no drag reduction schemes of this type have been deployed operationally.

"Slippery Water" was *Albacore's* final test. After having been used for successful

experiments on the tear-drop shaped hull, new diving controls, and high-yield steel for her pressure hull, plus testing sail rudders, speed brakes, drag chutes, counter-rotating propellers, and three different arrangements for her control surfaces, she was ready to retire. In September 1972 *Albacore* was decommissioned and placed in the Inactive Ship Facility in Philadelphia.

Ten years would pass before a volunteer group, the Portsmouth Submarine Memorial Association (PSMA), would bring *Albacore* home to Portsmouth, N.H. The submarine was towed 575 miles from Philadelphia to Portsmouth. After another year, she was towed up the Piscataqua River and then moved a quarter mile inland from the river. This required dismantling 30 feet of a railway trestle, carving out 70 feet of a four-lane highway, and raising the boat

27 feet above the river to finally rest on dry land. On Aug. 30, 1986 the Maritime Museum at *Albacore* Park opened to the public. Three years later, on April 11, 1989, *Albacore* was designated a National Historic Landmark, and in 2005, she was inducted into the Submarine Hall of Fame in Norfolk, Va. for her contributions to submarine engineering and tactics.

In retrospect, *Albacore's* true legacy is that it was the Navy's first design effort to stress a submarine's underwater performance over its surface performance. It was the first attempt to develop a truly submersible combat ship and *Albacore's* achievements – and the incorporation of revolutionary new technology – made the effort a success and ultimately set the U.S. Navy on its path towards building today's modern submarine fleet.

Ms. Scrafford is a communications specialist with General Dynamics Information Technology in Washington, D.C.

Bibliography:

<http://www.ussalbacore.org/>

Friedman, Norman. *U.S. Submarines Since 1945 - An Illustrated Design History*, U.S. Naval Institute Press (1995)

The Naval Service Warfare Center, Carderock Division provided the following:

Potentialities of the *Albacore*-Type Submarine. Talk given by Morton Gertler of the David Taylor Model Basin to The American Society of Mechanical Engineers, Philadelphia, Pa.

Heffner, James A. *USS Albacore (AGSS 569) Standardization Trial Results with Contra-Rotating Propulsion System (U)*. March 1967.



U.S. Navy photo

USS *Florida* Readies for Full Operation

The guided-missile submarine USS *Florida* (SSGN-728) arrived at its new home of Naval Submarine Base Kings Bay, Ga., April 11, after completing the submarine's three-year refueling and conversion at Norfolk Naval Shipyard in Portsmouth, Va.

Florida is the second *Ohio*-class ballistic missile submarine the Navy has reconfigured, replacing its 24 TRIDENT missiles with nearly 154 Tomahawk cruise missiles, switching the boat from a nuclear deterrent to a source of more conventional firepower in the global war on terrorism.

"We've taken the TRIDENT submarine, which is a well proven design, and we've done great things with it," said *Florida's* commanding officer, Cmdr. Gregory Ott. "It's a very flexible platform. We haven't really built it just for today's threat. We've built it so that it can be modified for whatever's over the horizon that we can't imagine."

Photo by Petty Officer 2nd class Lynn Friant

The *Ohio*-Class guided missile submarine USS *Florida* (SSGN-728) makes her way through Cumberland Sound to Naval Submarine Base Kings Bay. *Florida* is the second of four SSBN submarines to be converted to the guided missile SSGN platform.



The first in the class, the guided-missile submarine USS *Ohio* (SSGN-726) returned to the fleet in February, and two additional subs, USS *Michigan* (SSGN-727) and USS *Georgia* (SSGN-729), are currently undergoing conversion.

The Navy's existing fleet of attack submarines had already been outfitted with Tomahawk cruise missiles, a staple of naval operations in the past used during the early stages of Operation Iraqi Freedom. Although effective, the attack subs could only carry a small number of missiles,

which meant several vessels were needed to conduct major cruise missile strikes.

"When we had submarines in the Gulf," said *Florida's* Chief of the Boat, Command Master Chief (SS) Harold Miller, "it's a huge waterspace management issue to have multiple submarines in this area. If we had two of the [SSGNs] there, we could have launched more missiles and still not had the waterspace issue that we had."

Changing to conventional weapons isn't the only change *Florida* underwent during the conversion. Several spaces aboard were

reconfigured for increased littoral combat capability.

The newly-upgraded SSGNs can now fully house "at least 66 or more SEALs (Sea, Air, Land)," said Ott. "There are no platforms right now other than the SSGN that are dedicated to carrying special forces. And it's not just the personnel that we can carry – we can carry all of their equipment, and the ship has the capability to deliver the SEALs covertly."

According to Ott, *Florida's* firepower, mixed with a greater capacity to move SEALs and their equipment into mission essential areas, increases the Navy's ability to engage the enemy on a whole new level.

"The importance of not having anybody know you're there can't be overstated," said Ott. "The bottom line is, if you put a surface ship off the coast or there is knowledge of the Navy's presence, people don't do the same things. They go hide when they know you're there. So, having the submarine there – and that whole stealth piece – is very important."

The boat was returned to the Fleet in May during a ceremony at Naval Station Mayport in Jacksonville, Fla., and has returned to King's Bay to begin its service to the Fleet.

Petty Officer 1st Class Rule is assigned to the Fleet Public Affairs Center Atlantic in Norfolk, Va.



(above) Topside line handlers stand in a line as part of the maneuvering watch on board *Florida* as they approach Naval Submarine Base Kings Bay. *Florida* departed Norfolk Naval Shipyard headed for her new home port after undergoing a three year conversion from a ballistic to a guided missile submarine.

(right) *Florida* arrives at Naval Station Norfolk to make a brief stop for passengers during sea trials off the coast of Virginia.



Photo by Chief Petty Officer Dave Fliesen



Community says Farewell to Namesake Submarine USS *Honolulu*

by Chief Petty Officer (SW/AW) David Rush, USN

U.S. Senator Daniel Inouye, Lieutenant Governor James Aiona, and Commander, Pacific Fleet, Adm. Gary Roughead, joined past and current crewmembers of USS *Honolulu* (SSN-718) to bid farewell to the nuclear-powered attack submarine at a ceremony on April 15, at Naval Station Pearl Harbor.

Keynote speaker, Seventh Fleet commander Vice Adm. Jonathan Greenert, who commanded *Honolulu* from 1991 to 1993, said USS *Honolulu* performed exceptionally well throughout its career. "She was consistently the most reliable ship in the squadron, whatever squadron she was in. Her complex systems always worked well...even the anchor on this ship always worked."

Inouye said *Honolulu*, and all other *Los Angeles*-class submarines, have served the Navy in a variety of roles. "These submarines constituted the front lines during the cold war. Today, they continue to operate...putting SEALs ashore, collecting intelligence, and taking care of our strike forces."

"USS *Honolulu* demonstrates how important Pearl Harbor is and how important the submarines are and how much we rely upon them," Inouye added.

Praising the efforts of her crew that have served for more than 20 years, Aiona cited *Honolulu* as a valuable asset to the community and the country. "For the past two decades, this nuclear-powered attack submarine has proudly served our nation and her namesake city Honolulu. The state of Hawaii is indeed honored to have had the prestigious USS *Honolulu* at Pearl Harbor."

As USS *Honolulu*'s final operational commanding officer, Cmdr. John Russ said the crew has enjoyed serving and is ready to put the submarine through its paces. "Although we are sad to say goodbye to the best homeport in the Navy – a place that has been a warm and welcoming home for crewmembers and their families for nearly two decades – we are excited about our upcoming deployment," said Russ. "It's a chance to put into practice the skills we have spent our careers mastering, and the teamwork we have spent the last few months honing."

USS *Honolulu* departed for its final deployment to the Western Pacific in early May. Following the deployment, it will return directly to Bremerton, Wash., to begin inactivation.

Sidney Quintal, director of Enterprise Services for the City & County of Honolulu presented a proclamation on behalf of Mayor



(above) Honolulu Mayor Mufi Hannemann visited the Pearl Harbor-based *Honolulu* to bid farewell to the nuclear-powered attack submarine that has served as his city's namesake for the last two decades. Cmdr. John Russ, USS *Honolulu*'s commanding officer, exchanged gifts with the Mayor, who was given a tour of the control room, followed by lunch with the crew on the mess deck.



(right) Chief Petty Officer Brian Hircock and Petty Officer 1st Class Burnell Broussard of *Honolulu*'s navigation department review charts in the control room.

Photo by Petty Officer 2nd Class Corwin Colbert

Mufi Hannemann, who was out of the country. Hannemann visited USS *Honolulu* on March 29 to bid his farewell.

USS *Honolulu* has been homeported at Pearl Harbor for most of its operational life. After its commissioning in 1985, it moved to Hawaii to join the Pacific Fleet in September 1986. It has completed nine deployments to the Western Pacific, participated in Operation Enduring Freedom and conducted operations under the Arctic ice.

The submarine has received an impressive array of awards, including six Battle 'E's. USS *Honolulu* is the third ship named in honor of the city of Honolulu, Hawaii.



Photo by Petty Officer 2nd Class Corwin Colbert

USS *Honolulu* (SSN-718) sails by the USS *Arizona* Memorial one last time before heading out on its 10th Western Pacific deployment on May 13, 2006. This will be the last deployment for the Pearl Harbor based nuclear-powered attack submarine. Following the deployment, the ship is scheduled for decommissioning and will transit to Bremerton, Wash. to begin inactivation.



Bravo Zulu

BZ to USS Columbia (SSN-771) for being named the Arleigh Burke Fleet Trophy winner. The award is given annually to the most improved operational unit in the Pacific Fleet.

BZ to USS Memphis (SSN-691) for winning the 2005 Battenberg Cup. The Cup is awarded annually to the best ship or submarine in the Navy's Atlantic Fleet.

Changes of Command

Submarine Force, U.S. Pacific Fleet
Rear Adm. Joe Walsh relieved
Rear Adm. Jeffrey Cassias

Director, Submarine Warfare
Rear Adm. Carl Mauney relieved
Rear Adm. Joe Walsh

Submarine Group EIGHT
Rear Adm. Jeffrey Fowler relieved
Rear Adm. Carl Mauney

Submarine Learning Center
Capt. Richard Moyer relieved
Capt. Arnold Lotring

Submarine Squadron FOUR
Capt. Richard Breckenridge relieved
Capt. Robert Perry

Submarine Development
Squadron TWELVE
Capt. Kenneth Perry relieved
Capt. John Richardson

Submarine Squadron ONE
Capt. Stephen Marr relieved
Capt. Michael Zieser

Submarine Squadron SEVEN
Capt. Jeffrey Powers relieved
Capt. Barry Bruner

Submarine Squadron FIFTEEN
Capt. Phillip Sawyer relieved
Capt. Bradley Gerhke

Submarine Squadron NINETEEN
Capt. Kerry Ingalls relieved
Capt. Derek Hesse

USS Emory S. Land (AS-39)
Capt. Jeffrey Hughes relieved
Capt. Michael Budney

NOF-Whidbey Island, WA
Cmdr. Stephen Tripp relieved
Cmdr. Laurell Brault

JMF-St. Mawgan, UK
Capt. William Stacia relieved
Capt. Stephen Noce

USS Pennsylvania (SSBN-735)(B)
Cmdr. Brad Neff relieved
Cmdr. Michael Dobbs

USS Rhode Island (SSBN-740)(G)
Cmdr. Steve Gillespie relieved
Cmdr. Peter Clarke

USS Annapolis (SSN-760)
Cmdr. Dennis McKelvey relieved
Cmdr. Donald Neubert

USS Springfield (SSN-761)
Cmdr. Paul Savage relieved
Cmdr. Peter Miller

USS Connecticut (SSN-22)
Cmdr. Daniel Christofferson relieved
Cmdr. Philip McLaughlin

USS Miami (SSN-755)
Cmdr. Rich Bryant relieved
Cmdr. Joe Wiegand

USS Jacksonville (SSN-699)
Cmdr. John Kropcho relieved
Cmdr. John O'Neil

USS Toledo (SSN-769)
Cmdr. Howard Goldman relieved
Cmdr. John Schneider

USS Montpelier (SSN-765)
Cmdr. Chris Harkins relieved
Cmdr. Mark Davis

USS Los Angeles (SSN-688)
Cmdr. Erik Burian relieved
Cmdr. Thomas Stanley

USS Helena (SSN-725)
Cmdr. William Schwalm relieved
Cmdr. Douglas Wright

USS Jimmy Carter (SSN-23)
Cmdr. Dave Honabach relieved
Cmdr. Robert Kelso

USS City of Corpus Christi (SSN-705)
Cmdr. Scott Minium relieved
Cmdr. Marc Denno

USS Salt Lake City (SSN-716)
Cmdr. Eric Irwin relieved
Cmdr. Tracy Howard

USS Wyoming (SSBN-742)(G)
Cmdr. Roger Isom relieved
Cmdr. Eric Merrill

USS Memphis (SSN-691)
Cmdr. Glenn Pendrick relieved
Cmdr. Bill Merz

USS Columbus (SSN-762)
Cmdr. James Doody relieved
Cmdr. Charles Marquez

USS Maine (SSBN-741)(B)
Cmdr. John Tolliver relieved
Cmdr. Robert Palisin

USS Jefferson City (SSN-759)
Cmdr. John Zimmerman relieved
Cmdr. Daryl Claude

Arco (ARDM-5)
Lt. Cmdr. Michael LaPrade relieved
Cmdr. Edward Hogan

Qualified for Command

Lt. Cmdr. Travis Petzoldt
USS Pennsylvania (SSBN-735)(B)

Lt. Cmdr. Patrick Pfanz
USS Alexandria (SSN-757)

Lt. Cmdr. William Solomon III
Naval Submarine School

Lt. Cmdr. Donald Tenney
COMSUBRON-20

Lt. Cdr. Paul Frontera
USS Virginia (SSN-774)

Qualified Nuclear Engineer Officer

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

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

Lt. j.g. Theodore Goda
USS Salt Lake City (SSN-716)

Lt. j.g. Jeffrey Loebach
USS Alaska (SSBN-732)(G)

Lt. j.g. Mathew Merten
USS Michigan (SSGN-727)

Line Officers Qualified in Submarines

Lt. Justin Mickolay
USS San Juan (SSN-751)

Lt. Theodore Stanton
USS Norfolk (SSN-714)

Lt. j.g. David Augustin
USS Norfolk (SSN-714)

Lt. j.g. Kevin Beatley
USS Newport News (SSN-750)

Lt. j.g. Bradley Bozin
USS Newport News (SSN-750)

Lt. j.g. Jonathan Cantor
USS West Virginia (SSBN-736)(B)

Lt. j.g. Frank Conlow
USS Oklahoma City (SSN-723)

Lt. j.g. Andrew Crawford
USS Philadelphia (SSN-690)

Lt. j.g. Samuel Dienes
USS Oklahoma City (SSN-723)

Lt. j.g. James Drumgole
USS Wyoming (SSBN-742)(B)

Lt. j.g. Nicholas Engelbrecht
USS Scranton (SSN-756)

Lt. j.g. Edan Engstrom
USS West Virginia (SSBN-736)(B)

Lt. j.g. Benjamin Frazier
USS West Virginia (SSBN-736)(B)

Lt. j.g. Francis Gauthier
USS Georgia (SSGN-729)

Lt. j.g. Jamon Holzhoiser
PCU Texas (SSN-775)

Lt. j.g. Erick Mau
USS Wyoming (SSBN-742)(B)

Lt. j.g. Shawn Newburg
USS Maryland (SSBN-738)(G)

Lt. j.g. Christopher Newport
USS Norfolk (SSN-714)

Lt. j.g. Brian Patterson
USS Norfolk (SSN-714)

Lt. j.g. Glenn Richeson
USS Wyoming (SSBN-742)(B)

Lt. j.g. Steven Roberts
USS Albany (SSN-753)

Lt. j.g. Kevin Shand
USS West Virginia (SSBN-736)(B)

Lt. j.g. Andrew Simmons
USS Rhode Island (SSBN-740)(B)

Lt. j.g. Adam Sipp
USS Wyoming (SSBN-742)(B)

Lt. j.g. Matthew Thelen
USS West Virginia (SSBN-736)(B)

Lt. j.g. Aaron Vierbicky
USS Scranton (SSN-756)

Supply Corps Officers Qualified in Submarines

Lt. j.g. Jonathan Albano
USS Rhode Island (SSBN-740)(B)

Lt. j.g. Matthew Berkau
USS Toledo (SSN-769)

Lt. j.g. Jared Sweetser
USS Montpelier (SSN-765)

Lt. j.g. Matthew Wilcox
USS Maryland (SSBN-738)(B)

Ens. Matthew Miller
USS West Virginia (SSBN-736)(B)

Limited Duty Officers Qualified in Submarines

Lt. j.g. Michael Welz
USS West Virginia (SSBN-736)(B)



U.S. Navy photo



Rear Adm. Fowler Relieves Rear Adm. Mauney

Rear Adm. Jeffrey Fowler, left, relieves Rear Adm. Carl Mauney as Commander Submarines, Allied Naval Forces South and Commander, Submarine Group EIGHT, during a ceremony held at Nisida, an island off the coast of Naples, Italy. Fowler also relieved as Deputy Commander, Sixth Fleet and Director, Navy Europe Plans and Operations. Mauney relieved Rear Adm. Joe Walsh as Director, Submarine Warfare (OPNAV N87).

USS *Boise* Conducts Successful First Test of Remote Maintenance Data Retrieval System

by Jack Papp

In a not-too-distant future, deployed U.S. submarines will be able to receive remote troubleshooting and maintenance assistance for their combat systems from technicians ashore in real time.

In a successful first step to making that possible, Lockheed Martin engineers remotely accessed and retrieved classified combat system maintenance data from USS *Boise* (SSN-764) through a secure SIPRNET landline during a dockside test in March. *Boise* has the latest installation and software version of the AN/BQQ-10 Submarine Sonar Suite and the AN/BYG-1 Submarine Tactical Combat System.

“We successfully accessed *Boise*’s combat system, extracted the system’s maintenance data and displayed it ashore at the Norfolk Naval Base Regional Maintenance Center,” said Roger Rosenberger, an engineer involved with the program. “We were able to observe the maintenance data remotely.”

This first step of remotely accessing and retrieving maintenance data was another successful milestone in the Maintenance Free Operating Period (MFOP) initiative. MFOP is a combat system design approach with a goal of eliminating the need for at-sea maintenance, thereby reducing requirements for associated maintenance training, documentation and supply support. With supportability built in – spares are embedded in the system along with the capability to semi-automatically use them in the operational environment – the submarine combat system could be treated as requiring no hardware maintenance actions while on a mission. Consequently the operator’s maintenance actions are reduced to notification and acknowledgement of asset reallocation and software updates/reconfigurations. System logs provide the necessary information for expeditious dockside maintenance and assistance to eliminate the need for unplanned fly-away technical assist actions.

Previously, Sailors recorded system maintenance data on diskettes aboard the submarine and then sent the data via secure e-mail to Lockheed Martin’s Customer Support Center in Manassas, Va., where it was analyzed by engineers.

“What we’ve demonstrated aboard USS *Boise* is a capability to move maintenance data off ship, without an operator in the loop,” said Tom Digan, a senior manager on the program. “With permission to electronically connect to the Tactical Local Area Network (TACLAN) on the submarine via the SIPRNET, the Navy can predict upcoming problems with systems, troubleshoot system anomalies, and if desired, assist in remote corrective actions for software problems.”

The MFOP initiative has already been piloted on four *Los Angeles*-class (688 and 688I) submarines with ARCI (Acoustic Rapid COTS Insertion) sonar systems. All combat systems installed on the *Los Angeles*-class (688 and 688I), *Seawolf*-class, and new construction *Virginia*-class fast attack platforms make significant use of commercial-off-the-shelf (COTS) technology and products. Because the Navy is driving towards a common combat system across all submarines, the ability to implement the MFOP processes and remote assistance capabilities is technically achievable. The cost avoidance in system downtime and the operational availability of the combat system has already been demonstrated in the pilot program.

The next step in MFOP’s remote diagnostic plan is demonstrating the capability to move combat system maintenance data from a submarine’s TACLAN to a remote shore site via secure satellite.

Mr. Papp supports Lockheed Martin’s public affairs office in Manassas, Va.

Memorial Service Honors Lost USS *Lagarto* Crew

by Chief Petty Officer David Rush, COMSUBPAC Public Affairs

Families of crew members serving on the ill-fated World War II submarine USS *Lagarto* (SS-371) gathered May 6 in Manitowoc, Wis., to honor the men whose submarine went missing six decades ago and was only recently located by divers.

Rear Adm. Jeffrey B. Cassias, commander of the U.S. Pacific Fleet's Submarine Force, served as the keynote speaker at the ceremony held at the Wisconsin Maritime Museum in Manitowoc, where *Lagarto* was built. Jamie MacLeod, a British wreck diver who reported locating the *Lagarto* wreck in the Gulf of Thailand last year, was also at the ceremony.

For 60 years, crew members' families did not know the exact circumstances which had led to the submarine's loss. *Lagarto* was last heard from May 3, 1945, as it was preparing to attack a Japanese convoy under heavy escort. Japanese war records later revealed that the minelayer *Hatsutaka* reported sinking a U.S. submarine at roughly the same time and location.

In May 2005, MacLeod and a group of commercial divers reported finding *Lagarto* in the Gulf of Thailand sitting upright in 225 feet of water. The Navy sent divers to the site in June to confirm the discovery.

MacLeod's team reported seeing a large rupture in the port side bow area indicating that *Lagarto* had apparently been struck by a depth charge.

But there was something else that MacLeod's team noticed that caught their attention: an open torpedo tube door, with an empty torpedo tube. It seemed to suggest that *Lagarto* had gone down fighting.

62-year old Arthur H. Keeney III of Engelhard, N.C. said the discovery of *Lagarto* has given him a new connection to a father he never knew.

"It has made my father's high school and Academy yearbooks and other family memorabilia more alive and personal," said

Keeney. "Moreover, I'm pleased for my mother, who, now 84, can reflect on the earlier stages of her life when Bud was part of it."

Sailors from the staff of Commander, Submarine Force, U.S. Pacific Fleet, have flown U.S. flags over the World War II Submarine Memorial at Pearl Harbor for this event. Cassias presented the flags to family members at the May 6 ceremony.

"We owe a great debt to these men and to all of the World War II submariners," said Cassias. "In the world's darkest hour, they faced the greatest risks and demonstrated the most noble courage to preserve the freedom of our nation."

Last May, Wisconsin Gov. Jim Doyle signed a proclamation making May 3, the day the submarine was presumed sunk, as USS *Lagarto* Remembrance Day in perpetuity. Museum personnel are making plans to record oral histories of veterans and the surviving family members.

Lagarto was one of 52 submarines lost on patrol during World War II.



(above) Rear Adm. Jeffrey Cassias addresses USS *Lagarto* family members from the deck of USS *Cobia* (SS-245), a restored World War II submarine moored next to the Wisconsin Maritime Museum.

(left) Sailors raise U.S. flags over the World War II Submarine Memorial at Pearl Harbor, Hawaii, that were presented to USS *Lagarto* family members during a memorial service held on May 6 at the Wisconsin Maritime Museum in Manitowoc.



Submariners Honored as Sea, Shore Sailors of the Year

by U.S. Fleet Forces Command Public Affairs

Praised for their exceptional service, 10 top Sailors (five sea-based and five shore-based) gathered at the Founders Inn in Virginia Beach recently as the winners were announced in the 2006 U.S. Fleet Forces Command Sea and Shore Sailor of the Year competition.

Setting the tone for the evening, Commander, U.S. Fleet Forces Command, Adm. John B. Nathman said, "Tonight is not a night for speeches but for speaking straight from the heart about our Sailors."

Amid a prestigious crowd of Navy leaders, supporters, and past Sailors of the Year, Petty Officer 1st Class (SS/SW/AW/DV) Jordan Rosadorosario and Petty Officer 1st Class (SW) Earl Watson, III, were named the 2006 U.S. Fleet Forces Command Sea and Shore Sailors of the Year respectively. Rosadorosario is currently serving on USS *Seawolf* (SSN-21) in Groton, Conn., and Watson is assigned to Commanding Officer, Naval Submarine Support Center, Kings Bay, Ga.

Allowing the top Sailors to savor the moment, Master of Ceremonies, U.S. Fleet Forces Command Fleet Master Chief Jon Thompson announced the winners with descriptive anecdotes about the Sailors before announcing their names.

"I heard him talk about an evaluation," said Rosadorosario, who will be meritoriously advanced to the rank of Chief Petty Officer. "And I thought, 'Hey, that's my eval.' I couldn't believe it, it could have been any of the five of us." His father and mother traveled from New Mexico to attend the banquet, and his father was much more certain about his son's success, hugging him and saying, "I knew it. I knew it."

The announcement came at the conclusion of a week of activities designed to honor all 10 candidates' service. The week also included intense oral boards where the candidates faced some of the fleet's top Master Chiefs. The candidates had to explain their



U.S. Navy photo.

The Naval Submarine Force Master Chief, Master Chief Petty Officer (SS/SW) Dean Irwin (center), poses with the two Sailors selected as the 2006 U.S. Fleet Forces (CFFC) Sailors of the Year (SOY). CFFC's Shore SOY is Petty Officer 1st Class (SW) Earl Watson, III (left) from Naval Submarine Support Center, Kings Bay, Ga. CFFC's Sea SOY is Petty Officer 1st Class (SS/SW/AW/DV) Jordan Rosadorosario (right) from USS *Seawolf* (SSN-21).

views on Navy programs and also share their thoughts on leadership and a variety of other topics.

"This whole week has been great. They really know how to make us feel special," said Watson who will continue on to the Chief of Naval Operations Shore Sailor of the Year competition that will be held in Washington, D.C. in May.

SUBPAC Celebrates 106th Birthday of the Submarine Force



Photo by Petty Officer 2nd Class Corwin Colbert

(From left to right) Rear Adm. Jeffrey Cassias, Commander Submarine Force U.S. Pacific Fleet, Seaman Storekeeper Nathaniel Price, Master Chief Electronics Technician Tim Butler, and COMSUBPAC's Force Master Chief Michael Benko make the first cut of the 106th Enlisted Submarine Birthday Ball cake on April 21. Price and Butler represented the newest and the oldest submarine qualified active-duty members. Butler received his submarine dolphins in April 1982 and Price received his during the ceremony. The ball took place at the Hilton Hawaiian Village Hotel in Honolulu with more than 1,600 past and present submariners, their spouses, and friends.

Q&A: Undersea Dominance – A Submarine Force for the Future

continued from page 12

stand that he has a voice in the requirements process because he also works for Adm. Munns. Coordination across the pillars – the financial pillars, the shipyard pillars, the operational pillars – of the Undersea Enterprise impacts what we do here on a daily basis. There are several examples of capabilities that are in the fleet now because the Sailors on the boats asked for them. We have a well-organized, well-oiled machine working the problem. Our development squadron [Submarine Development Squadron 12] has a Submarine Tactical Requirements Group, a board of O-6s, that articulates the requirements they are seeing from the Fleet perspective twice a year. That requirements letter gets vetted through the two Type Commanders and then to me for action.

Q: What are you looking forward to as COMSUBPAC?

Most of my life I've been in operational jobs, so getting back into a command position is clearly something that I really do look forward to. I've had command of a ship, a squadron, and a group, so now to be a Type Commander is something I am eager to take on. It is especially exciting to be heading to the Pacific, where I think the world's naval focus is centered today. Another aspect of the job is serving as the ASW Commander for Adm. [Gary] Roughead at COMPACFLT. Particularly with respect to open architecture, I think I can import the lessons learned in the Submarine Force and bring them to the surface Navy and the aviators – the Sailors operating SH-60s and P-3s. We really need to stop paying for the same things two and three times, and I've learned enough here to be able to shape that when I get out there.

SUBPAC is a real waterfront job. Even as the Group Commander in New London, you've got to get in a car to see a submarine; at SUBPAC, you look out your window, and you see four of them. Just seeing Sailors on a daily basis will be rewarding as well. I'll never see many of the issues I've worked on in the Pentagon come to fruition, but when you're out on the waterfront solving today's problems, you get to see the impact you have in a much tighter feedback loop.

Q: Any parting thoughts?

I guess I would just say that I've enjoyed it here a lot more than I thought I would. Many Sailors dread coming to the Pentagon, and I think that's the case for a lot of guys. But the camaraderie I've had with the other resource sponsors in the building has been more than I anticipated. The process is frustrating, but it works. I think we've had some outstanding leadership. Having the opportunity to work for two CNOs has shown me two different, but effective, leadership styles. I'll look back on these two years as a very positive time. The mentoring I've received from Vice Adm. Munns, Adm. [Kirk] Donald [Director, Naval Nuclear Propulsion] and Adm. [Skip] Bowman before him has been tremendous. I think I've grown professionally in this job more than I have in most others. Overall, I've had a great experience and wouldn't trade it for anything.

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

Kuroshio Makes U.S. Port Call



Photo by J01(SW) Cynthia Clark

Japan Maritime Self-Defense Force submarine *Kuroshio* enters Naval Station Pearl Harbor on June 25, 2006. Commander, Submarine Squadron ONE hosted the submarine during their stay as part of RIMPAC 2006.

Photo by J02 Corwin Colbert



Photo by J02 Corwin Colbert

(above) The Republic of Korea Navy Submarine *Jung Woon* (SS-067) prepares to moor at the submarine piers at Naval Station Pearl Harbor on May 24 for this year's Rim of the Pacific Exercise (RIMPAC). *Jung Woon* is the first foreign submarine to enter Pearl Harbor for this year's exercise, which is held every two years. During RIMPAC 2004, more than 18,000 personnel onboard submarines and surface ships from the United States, United Kingdom, Canada, Australia, Japan, South Korea and Chile took part in the exercise.



Photo by J02 Corwin Colbert

(above) Friends and loved ones said aloha to the submariners of USS *Buffalo* (SSN-715) as the Pearl Harbor-based nuclear-powered attack submarine departed for the Western Pacific June 12. This is the last time the submarine will depart Pearl Harbor for a deployment as it is slated to move to Guam next summer where it will become an asset of Submarine Squadron FIFTEEN.



(left) USS *Chicago* (SSN-721) submariner Petty Officer 1st Class John Cahill receives a lei from his wife and four-month-old daughter upon his return from deployment. The submarine returned to its homeport of Pearl Harbor May 30 following a six-month deployment to the Western Pacific. The Pearl Harbor-based submarine successfully conducted missions vital to national security. The crew also visited several ports including Hong Kong, Japan, Singapore, and Guam.

On The Back



USS *Pogy* (SSN-647) is seen here surfaced in the Arctic. During SCICEX-96 (Scientific Ice Expeditions 1996), *Pogy* surfaced multiple times in the Arctic to collect water samples. *Pogy* was commissioned in May of 1971 and was decommissioned in January 1999.

Robert Malin, a self-taught artist with no formal training, was born in Tauranga, New Zealand to an American father and British mother. Mr. Malin enlisted in the Navy one week after coming to the United States in 1993. His previous assignments include USS *Frank Cable* (AS-40), USS *Detroit* (AOE-4), and Naval Submarine Base Kings Bay.



“USS Pogy (SSN-647)”

Robert Malin