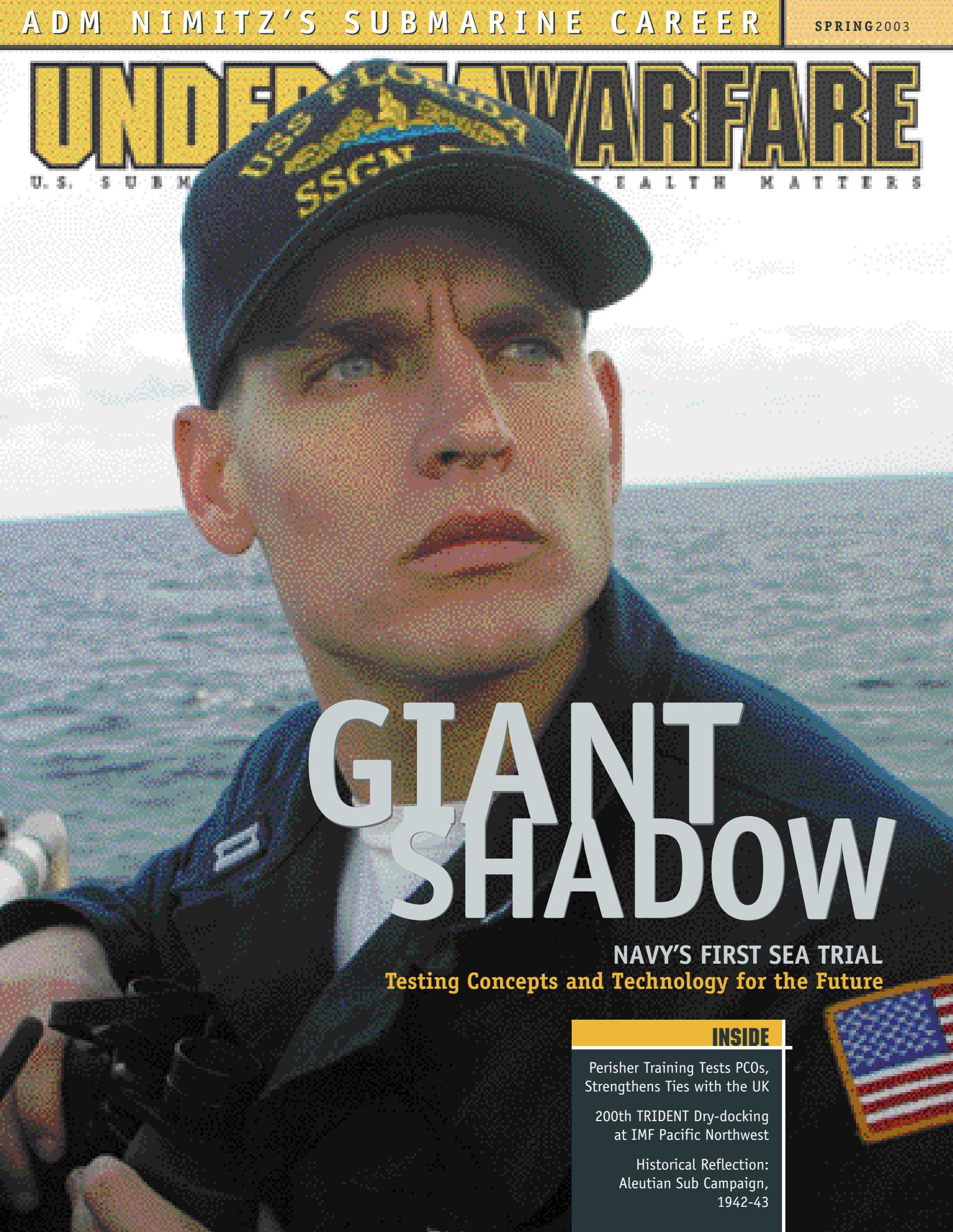


UNDERSEA WARFARE

U.S. SUBMARINE TEALH MATTERS



GIANT SHADOW

NAVY'S FIRST SEA TRIAL
Testing Concepts and Technology for the Future

INSIDE

Perisher Training Tests PCOs,
Strengthens Ties with the UK

200th TRIDENT Dry-docking
at IMF Pacific Northwest

Historical Reflection:
Aleutian Sub Campaign,
1942-43





CHARTING THE COURSE of the FUTURE NAVY

Giant Shadow Showcases Potential Future Capabilities

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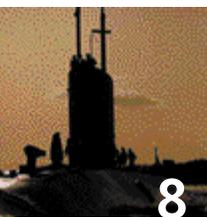
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UNDERSEA WARFARE

2002 CHINFO Merit Award | 2nd Place - Publication for a Specific Audience



On The Cover

LT Todd Santala, Damage Control Assistant aboard USS *Florida* (SSGN-728) stands watch on the bridge as the guided-missile submarine sails off the coast of the Bahamas. *Florida* recently participated in Giant Shadow, a Naval Sea Systems Command/Naval Submarine Forces experiment of potential future Submarine Force capabilities. Read more about Giant Shadow and the Navy's plans to convert four *Ohio*-class ballistic missile submarines into SSGNs on page two of this issue.

Photo by JOC David Nagle



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UNDERSEA WARFARE

THE OFFICIAL MAGAZINE OF THE
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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.

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Over the past 12 years, our submarines have progressed from the limitations imposed by launching salvos from four horizontal torpedo tubes to vertical launch systems... As a result, our force has nearly tripled its Tomahawk delivery capability.

All of us are extremely proud of our shipmates aboard the submarines who joined in the Tomahawk cruise missile strikes in support of the Iraqi Freedom campaign. Twelve U.S. SSNs and two Royal Navy SSNs were involved, contributing significantly to the launching of more than 800 TLAMs during the combat phase of the campaign. In addition to performing ISR, ASW, ASUW, MIO, Tomahawk strike, and other non-kinetic operations in conjunction with Iraqi Freedom, attack submarines today are providing continuing coverage of other strategic interests around the world. Altogether, these operations highlight the on-going importance of dominating the undersea battlespace.

Compared to the four percent of Tomahawk land-attack missiles fired from submarines against Iraq during Operation Desert Storm in 1991, dramatic improvements in submarine communications and combat systems over the past decade yielded the concentrated firepower that enabled launching roughly one-third of all Tomahawk missiles from our boats during the recent combat operations. Specific improvements that have enabled this increased capability include improved collection sensors and processing equipment for real-time actionable information, and fiber-optic combat control systems for more rapid response to urgent missile taskings. Over the past 12 years, our submarines have progressed from launching limited salvos from four horizontal torpedo tubes to vertical launch systems, which increase the maximum salvo size to 16 Tomahawk missiles. As a result, our force has nearly tripled its Tomahawk delivery capability.

Leaps in capability are nothing new for our force. Since the commissioning of the first U.S. submarine, USS Holland, in October 1900, our Submarine Force has enjoyed the benefits of the latest in emerging technology. These improvements are certainly important, but it is the efforts of the Navy's finest that make the silent service so effective. Indeed, as you enjoy the stories in this issue of ADM Chester Nimitz' submarine career and operations in the "forgotten theater" of the Aleutians in World War II, you should realize that while technologies, doctrine, and planning are ever-evolving, the most valuable part of our force is the ingenuity and tenacity of our Sailors and those who lead them in using that technology to dominate the undersea battlespace.

A very important tool for developing new doctrine and planning involves sharing ideas with other submariners. In this issue, we cover a close cooperation recently instituted with the Royal Navy – Prospective Commanding Officer Training. Read the story on the Perisher course and understand how we share lessons with our closest ally.

As we continue to explore new concepts and operations to transform the Submarine Force to meet future challenges, experimentation within the CNO's Sea Trial initiative, will become even more important. The Navy's first of these events, Giant Shadow, showcased the ability of an SSGN to serve as the ideal platform to capitalize on the world's largest maneuver space. As you read our extensive coverage of January's Giant Shadow experiment, just imagine how we'll be able to leverage the operational mobility of our platforms and the stealth provided by the undersea battlespace to project credible combat power ashore in areas of the world where land-based options are not possible. The lessons from this experiment will guide us not only in the continuing modernization efforts of our existing platforms, but also those of the future SSGNs and spiral development of the Virginias of tomorrow as well.

We are developing the most capable toolbox ever to ensure continued dominance of the undersea battlespace, and it's being filled with the Advanced SEAL Delivery System (ASDS), the Acoustic Rapid COTS Insertion (ARCI) Sonar, Mission Reconfigurable UUVs (MRUUV), and other technology that will extend our dominance beyond the imagination of those who fought the Gulf War 12 years ago. As discussed earlier, though, the best platforms and systems in the world will not ensure we can maintain our undersea superiority. Speaking for all of the submariners working in Washington, D.C. to obtain the resources you need to perform your jobs, we could not be prouder of your efforts. Well done.

RADM Paul F. Sullivan, USN
Director, Submarine Warfare



(above) USS Florida launches a Tomahawk cruise missile in the waters of the Gulf of Mexico.

(right) USS Florida (SSGN-728) is seen here participating in Giant Shadow in the Caribbean to evaluate future SSGN concepts. Giant Shadow is the first experiment under the "Sea Trial" initiative of the Chief of Naval Operations' Sea Power 21 vision and the first in a series of experiments to explore future SSGN capabilities.



Photo by JOC Kevin Elliott

CHARTING THE COURSE of the FUTURE NAVY

Giant Shadow Showcases Potential Future Capabilities

by JOC David Nagle, USN

Editor's Note: Although this experiment was coordinated from a future SSGN the lessons learned regarding payloads, command and control, and netting with joint forces will be considered both for implementation onboard existing platforms and for spiral development onto Virginia and future submarine classes.

Since their "birth" in the 1960s, the Navy's ballistic missile submarines have silently patrolled the ocean depths with one purpose – strategic deterrence. These submarines – and their arsenal of TRIDENT missiles – provided our nation with a survivable and enduring nuclear strike capability against the former Soviet Union and continue to carry out their deterrent mission today.

But the world is a different place since we won the Cold War and the Soviet Union dissolved. Particularly, the 9/11 tragedy made us aware that the threat to the United States isn't as clear-cut as it once was. And while a plan to convert SSBNs to nuclear-powered guided-missile submarines was already in place on 11 September, the events of that day pushed us to go even further in testing what such ships could do. We realized that we face a very unpredictable enemy and a very different battlefield. And we realized we need new and different approaches to fight that enemy.

Fortuitously, under the most recent START agreements, four of our 18 TRIDENT submarines were slated to leave the deterrent force by the end of next year. What if we could take these capable boats, otherwise destined for the scrap heap, and instead convert them to carry an arsenal of conventional weapons invisible to a potential enemy until they were too late to counter? What if they could house scores of Special Operations Forces (SOF), ready to conduct clandestine operations anywhere, anytime? And, what if these underwater platforms could support those forces afloat for extended periods of time? What if they could launch unmanned aerial and underwater vehicles and use them to provide real-time intelligence to warfighting commanders?

Exploring these “what-ifs” was the purpose for Giant Shadow, an at-sea experiment sponsored jointly by the Naval Sea Systems Command (NAVSEA) and the Commander, Naval Submarine Forces (COMNAVSUBFOR). Giant Shadow was centered around USS *Florida* (SSGN-728), which is scheduled to enter Puget Sound Naval Shipyard this year to be transformed into one of the Navy’s first nuclear-powered guided-missile submarines (SSGN). Moreover, Giant Shadow, conducted in the Gulf of Mexico in January, was the first limited-objective experiment conducted under the auspices of the Sea Trial initiative of the CNO’s Sea Power 21 vision and the first to explore the SSGN concept before overhauling and converting *Florida* and three other *Ohio*-class ballistic missile submarines to SSGNs.

Multi-Capable Platforms for the Unpredictable Battlefield

The SSGN conversion program gives a new lease on life and a new mission to *Florida*, USS *Ohio* (SSGN-726), USS *Michigan* (SSBN-727) and USS *Georgia* (SSBN-729), which had all been slated for decommissioning as a result of the latest Nuclear Posture Review. With more than half of the submarines’ nominal 44-year lifespan remaining, planners asked themselves if the Navy could leverage its past investment in these strategic platforms by converting them into ships with capabilities to fight in future conventional conflicts.

The \$3.8 billion conversion program, managed by NAVSEA, includes removing the TRIDENT ballistic missiles and their tubes from the four submarines and equipping them with the capability to support and launch up to 154 Tomahawk missiles each. Up to seven missiles will be accommodated in each of a

series of Multiple All-Up-Round Canisters (MACs) which will replace most of the former TRIDENT missile tubes, yielding a load-out equivalent to half the total number of Tomahawk missiles fired during Operation Desert Storm in 1991. Moreover, besides housing Tomahawks, the SSGNs’ 24 massive missile tubes can be configured to carry other payloads, such as unmanned underwater vehicles (UUVs), unmanned aerial vehicles (UAVs) and SOF equipment.

Beyond this additional strike capability, the SSGNs will also have the means to carry and support more than 60 SOF troops and insert them clandestinely into potential conflict areas. For this purpose, the SSGNs will offer more living and working space than a fast-attack submarine and will also support two Advanced SEAL Delivery Systems (ASDSs), two dry-deck shelters, or a combination of both. “The SSGN brings more flexibility for the SEALs and a lot more fight for the Navy as a whole,” said Chief Warrant Officer (CWO4) Bill Snow, assistant training officer for SEAL Delivery Team 2 in Norfolk.

The SSGN conversions, which will include engineered refueling overhauls (EROs), will take place at the Norfolk and Puget Sound Naval Shipyards. They have already begun with *Ohio* in November 2002, and *Florida*’s ERO and conversion will begin this August.

The Giant Shadow Experiment

The SSGNs are intended to play a key role in support of the Navy’s expanding missions in establishing access, attacking land targets, and mounting joint special warfare operations. “One of the first things we did when we were developing the concept for the SSGNs was to go out to the operators and ask them what capabilities they needed to operate in a joint environment,” said CAPT William Toti. Toti, COMNAVSUBFOR Assistant Chief of Staff for Warfare Requirements, was a member of CNO’s “Deep Blue” team, formed after the 11 September 2001 terrorist attacks to explore innovations in warfighting. “It was not a question of what the Submarine Force needs from SSGN, but rather

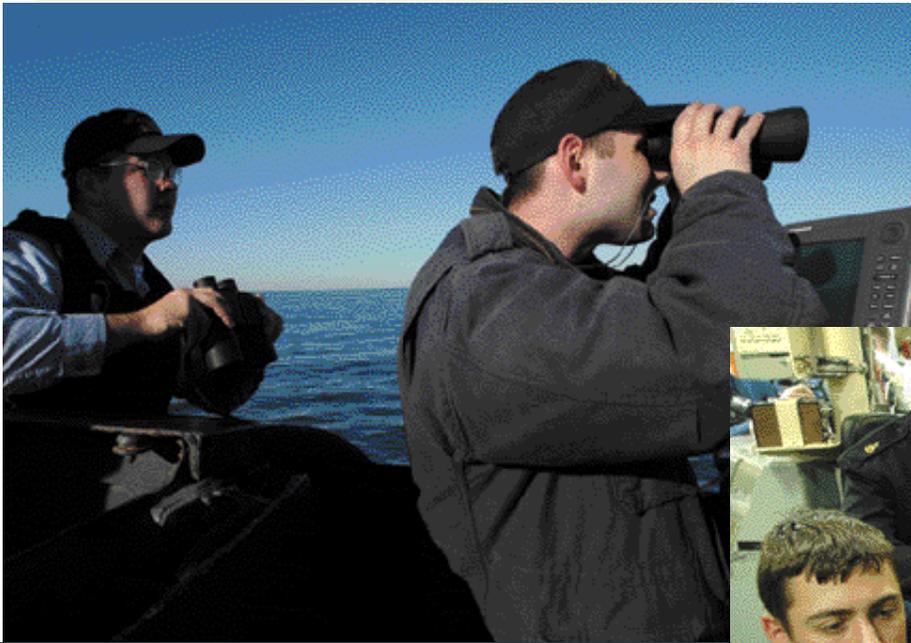


Photo by JOC Kevin Elliott

(above) YN3(SS) David Brookshire, left, and Officer of the Deck LTJG Chad Hannah look for contacts from the bridge as *Florida* pulls out of Port Canaveral, Florida.



Photo by JOC Kevin Elliott

(right) (left to right) MMFR Jaime Nastase, ETCS(SS) Steven Ray, SK3(SS) Joshua Brex, and MM1(SS) John Moore monitor course, speed, and depth from *Florida*’s control room.



Photo by JOC David Nagle

what does the joint warfighting community and the Navy as a whole need from SSGN," he explained.

Giant Shadow examined some of these potential capabilities, including the clandestine confirmation of a suspected threat, conducting intelligence, surveillance, and reconnaissance (ISR) operations deep inland – with associated sensor integration, time-critical strike, and providing mobility, protection, and logistical support for special operations. The experiment brought together several players from the Navy, industry, and academia to explore how a network of forces, including *Florida*, SOF, UUVs, UAVs, and various aerial, underwater, and ground sensors could be used to provide surveillance, collect real-time intelligence, assist the joint commander in developing a course of action, and launch a time-critical strike.

Prior to, but coordinated with Giant Shadow, was the underwater firing on 14 January of two Tomahawk missiles from a modified MAC launcher installed on *Florida* as part of a demonstration and validation (DEMVAl) test. This event was a real milestone in the recent history of the Submarine Force – the first time that Tomahawks had ever been launched from an SSBN missile tube.

The scenario of Giant Shadow itself revolved around a fictional mission in which *Florida* – on the basis of vague intelligence – was dispatched to a remote island suspected of harboring a terrorist group making chemical weapons. Her orders were to evaluate the threat and, if necessary, take action.

Initially, *Florida* gathered intelligence about both the battlespace and the suspect land facility by launching UAVs and UUVs from the submarine, all controlled and coordinated by a state-of-the-art command and control center.

ET1(SS) Bryan Cosby of *Florida*'s Navigation Division plots a course while the submarine is underway.

Giant Shadow from the SEALs' Perspective

by JOC David Nagle, USN



During the nation's War on Terrorism, Navy SEALs have been the force of choice for a variety of missions, from direct action in the mountains of Afghanistan to boarding ships in the Arabian Gulf. As the Navy shapes itself to support future conflicts, it does so with the realization that special warfare will be playing an even greater role.

In planning to support Special Operations Forces onboard, the SSGN conversion program has been guided by the Navy SEAL principle "to equip the man, not man the equipment." And while the SSGN is bigger than the usual "tool" in the SEAL toolbox, it provides a bigger than usual payoff for the Navy's elite warriors. "The SSGN increases our arsenal and our ability to fight," said Chief Warrant Officer (CWO4) William Snow, a Navy SEAL working on the SSGN project.

Navy SOF personnel have operated from submarines since World War II. However, because of the limited space on traditional fast-attack submarines, SEALs often found themselves sleeping and working onboard wherever they could find an empty spot. The limited space also constrains the time that SEALs can stay on station in current Navy submarines. However, with special operations support a primary role of the larger SSGNs, all that is about to change.

In order to support SEALs onboard for a sustained period of time, the SSGNs will be equipped with additional exercise and cardiovascular equipment and a virtual-reality

SSGNs can support more than twice the number of SEALs a fast-attack submarine can deploy and will be configured to handle either the Advanced SEAL Delivery System (ASDS) and/or the SEAL Delivery Vehicle (SDV), both of which can insert SEALs clandestinely into remote areas.

The vertical launch of a large, 38-inch diameter UUV from one of *Florida's* missile tubes represented another first. Later, a group of SEALs deployed from *Florida* to the island, confirmed the existence of the weapons facility, and communicated their findings to the submarine via a laptop computer, relayed through the UAV overhead. The team also collected soil samples and sent them back to *Florida* on the large UUV, which had been sent ashore to re-supply the SOF team. Testing of the soil sample

“confirmed” that the facility was indeed a chemical weapons lab, and the decision was made to launch strike missiles.

Since *Florida's* conversion process has yet to begin, Giant Shadow planners employed a number of “surrogate” capabilities for the experiment. For example, USNS *Mary Sears* (T-AGS-65), an oceanographic survey

ship of the Naval Meteorology and Oceanography Command, was provided with an approximation of the command and control facilities that will be put onboard *Florida* as part of her transformation to an SSGN. Additionally, the Naval Air Systems Command’s “Hairy Buffalo,” a modified P-3C aircraft, supplied ISR capabilities and communication networking that would normally be provided by a high-altitude UAV like Global Hawk. Instead of actually launching the required low-altitude UAV from the submarine, Boeing Corporation’s “Scan Eagle” was launched and recovered from a nearby shore installation. The large 28-foot long UUV used as both a re-supply and transport vehicle was SEAHORSE, provided by the Naval Oceanographic Office, which also collaborated in the experiment.

While the UUV was launched from *Florida*, it was recovered by *Mary Sears* in lieu of exercising the capability for automated recovery of UUVs that may be developed for the SSGNs.

Giant Shadow also provided an opportunity to evaluate promising technologies, such as nuclear-biological-chemical sensors, and ISR and targeting systems. “One of the goals of Giant Shadow was to identify which technologies provide real operational value to the warfighter, so we can transition them into real acquisition programs,” said Toti.



Photo by JOC Kevin Elliott

TMSN (SS) Gregg Moore, front, checks the atmosphere for chemicals as TM3(SS) David Hernandez looks on during a drill in the torpedo room onboard *Florida*.

weapons range that will allow SEALs to maintain their targeting skills and distance vision in the tight confines of the submarine.

Among the SEALs onboard USS *Florida* for Giant Shadow was Gunner’s Mate 1st Class (SEAL) Dan Mick of Naval Special Warfare Group 4 (NSWG-4) in Norfolk. “This is a good platform to work off,” he said. “The SSGN offers a lot more comfort and more space to work and train than the fast attacks did.”

Giant Shadow gave NSWG-4 SEALs an opportunity to learn about the capabilities the SSGN would provide them. As part of the experimental scenario, SEALs launched their inflatable rafts from *Florida's* deck and “infiltrated” a remote island to gather intelligence on a suspected chemical weapons facility. The SEALs also planted unattended ground sensors, sent soil samples back to the submarine on a UUV for testing, and reported their findings from the island in real-time via a UAV overhead. “Communications is one of the hardest things in any situation,” said Snow, the NSWG-4 Assistant Training Officer. “This technology will bridge the gaps so we can quickly send large chunks of information to the decision makers who want a real-time picture.”

Combat operations of tomorrow will be very different from today’s, Snow added. And while the technology offered by the SSGNs will provide great new advantages, human beings are still more important than the hardware. “Future conflicts will still require someone with ‘eyes on’ to develop information that can tell the decision makers what’s going on,” Snow said. “We can help in that regard.”

Naval Special Warfare is already postured for quickly establishing presence worldwide, but the SSGN will give these global warriors another tool to sustain that presence, anywhere, anytime.



(above) A Navy SEAL prepares for a mission ashore from onboard *Florida* during the Giant Shadow experiment.

(left) A Navy SEAL prepares for a mission on the *Florida's* deck under cover of darkness.



Photos by JOC Kevin Elliott

(right) As a surrogate command and control center, USNS *Mary Sears* (T-AGS-65), an oceanographic survey ship of the Naval Meteorology and Oceanography Command, was provided with an approximation of the facilities that will be put onboard *Florida* as part of her transformation to an SSGN.

(below) An unmanned air vehicle (UAV) is prepared for launch on Great Harbour Cay, Bahamas during experiment Giant Shadow.

Photo by JOC Kevin Elliott



Photo by JOC David Nagle



RADM John Butler, Program Executive Officer for Submarines and former commander of the Naval Undersea Warfare Center, was on hand for the experiment and got to see these new supporting technologies at work. "I'm not planning to buy any of this today," he said. "But I'm sure planning to buy some tomorrow."

SSGN, Transformation and Sea Power 21

The SSGN's huge payload can use emerging technologies to create entirely new and affordable capabilities for the joint force, in accordance with Secretary of Defense Donald Rumsfeld's vision of transformation. The SSGN conversion process remolds the *Ohio*-class submarines to perform joint missions never envisioned by their designers at a fraction of the cost of developing similar capabilities from scratch.

The SSGN will also play a major role in three operational pillars of the CNO's Sea Power 21 vision, with its Tomahawk strike capability (for Sea Strike); its use of unmanned vehicles and sensors and an improved countermine capability (for Sea Shield); and its capacity to base and support SEALs and unmanned vehicles (Sea Basing). Additionally, the SSGN will support

FORCENet with its improved overland ISR capability and ability to network various unmanned vehicles and ground sensors with the joint force.

"An Exciting Time for *Florida* and the Navy"

Even after Giant Shadow, it's still business as usual for *Florida's* crew. Watchstations are still manned, equipment maintained, Sailors fed. Yet, there is a new excitement now that ripples throughout the entire crew – the realization that they are part of something big, part of history in the making.

"This is an exciting time for *Florida* Sailors and for the whole Navy," said ETCM(SS) David Kerr, *Florida's* Chief of the Boat. "The Navy is transforming a submarine designed for a single purpose twenty years ago, and going off to create a new multi-capable platform. We all see the awesome potential of our ship."

ET2(SS) Chris Hauf expressed his own excitement about these new developments. "This is an exciting change, a broader horizon to look forward to," he said. "A few years down the road, when you see this new platform taking part in world events, you can say 'Hey, I remember when I was onboard doing all that testing, and we were the first TRIDENT to launch a Tomahawk.'"

In his graduation address at the United States Military Academy in June 2002, President George W. Bush challenged the military to "take the battle to the enemy, disrupt his plans, and confront the worst threats before they emerge." Although this new capability is still a few years away – the first SSGN won't rejoin the fleet until 2007 – experiments such as Giant Shadow will ensure that the Navy can indeed continue taking the fight to the enemy.

"Today's battlefield is vastly different than what it was during the Cold War," said CAPT Toti. "The SSGNs will provide an extremely powerful capability that can operate like a ghost – it's out there, but you can't see it – which will complicate the defense of anyone who wants to challenge the United States."

JOC Nagle is a Navy Journalist assigned to NAVSEA Public Affairs.

Naval Oceanographic Office Provides SEAHORSE UUV for Giant Shadow

by JOC David Nagle

Among the Navy commands supporting the Giant Shadow experiment was the Naval Oceanographic Office (NAVOCEANO), an organization most operators give little thought to, yet one that provides vital support to warfighters in the undersea warfare community.

NAVOCEANO oceanographic survey ship USNS *Mary Sears* (T-AGS-65) and its associated unmanned undersea vehicle, SEAHORSE, were important participants in Giant Shadow, which explored and evaluated potential capabilities of forthcoming guided missile submarines (SSGNs). *Mary Sears* served as the surrogate command and control center for USS *Florida*. SEAHORSE was launched vertically from one of *Florida's* missile



The unmanned undersea vehicle SEAHORSE was launched from one of *Florida's* missile tubes during Giant Shadow. This computer rendering shows its modular battery and payload bays. SEAHORSE is nearly 28 feet long by 38 inches in diameter and weighs nearly five tons. Its mission range is 300 nautical miles, with an endurance of 72 hours.



(left) MT1 (SS) Leo Wells monitors a control station onboard *Florida* during the UUV part of the experiment.

(below) *Florida's* Navigator, LT Axel Spens, left, and Executive Officer LCDR William Stevenson refer to a chart in the navigation center onboard *Florida* as she prepares to launch an unmanned undersea vehicle (UUV).

Photos by JOC Kevin Elliott

tubes – a first for a UUV – and was used both to collect oceanographic data and to look for mines and mine-like objects in the exercise area.

According to NAVOCEANO's Commanding Officer, CAPT Philip Renaud, its seven survey ships map the ocean floor and collect high-resolution gravity measurements for navigation and fire control solutions. NAVOCEANO also collects data for computer modeling and simulation of the oceans and building databases used to guide minehunting operations.

"Our biggest challenge is to take that data and transform it into the kind of information and knowledge that warfighters can use in the operating environment," said Renaud.



From January through July 2002, I was an exchange officer attending the British Submarine Command Course, more commonly known as “Perisher”. The British have been running Perisher twice a year since 1917, but until 1994, it dealt exclusively with diesel submarines, and navies throughout the world sent

their prospective commanding officers to be tested by the British over six months of tactical training. Until I reported, there had never been a U.S. Navy officer “on course”.

With a historical failure rate of 25 percent, everyone wonders on the first day how many classmates will be there at the end – the odds are that with a look to your left and right – and including yourself – you’re seeing at least one officer who won’t make it. If we passed, we would be added to “The Wall” at the British Submarine School in Plymouth, United Kingdom, where the names of all Perisher graduates are inscribed. It would certainly be a tremendous honor and personal achievement for me to be the first graduate with “USN” after his name.

I was serving as the Navigation/Operations Officer on USS Memphis (SSN-691) when the detailer called to ask if I wanted to be among those considered for selection to Perisher. Without thinking about it too long, I said yes. During my tour on “The Mighty Memphis,” I deployed to the North Atlantic twice and participated in a host of other interesting operations. It was a challenging and enjoyable tour, and with the reputation of Memphis as strong as it is, I’m sure it played a big part in my selection to the course.



PERISHER

SUBMARINE COMMAND TRAINING IN THE

ROYAL NAVY

by LCDR Stephen Mack, USN

At Sea in Another Navy – and “Foreign” English

When I arrived in the United Kingdom in late January, I reported to the British tactical training team headed by Lt CDR Stewart Little. Stewart, a served Executive Officer and Officer-in-Charge at the training facility, was to be my mentor for the eight weeks of indoctrination that prepare participants for Perisher.

As I began the program, it was difficult not to feel a little overwhelmed by the prospect of learning not only the differences among platforms, but also of understanding Royal Navy ships and tactics well enough for command at sea. Language differences were the first hurdle. The “Queen’s English” as spoken in the UK can be a challenge. I was frequently asking people to speak more slowly or to repeat themselves. And in ship-driving, they even give rudder orders differently. “Port 15, steer North” was part of my new jargon, and notably, calling an angle on the bow of “Port 30” could well be met with an acknowledgement from the helm that he now had “30 of Port Wheel on.”

The first order of business was to study relevant submarine systems from the command perspective – not necessarily the in-depth knowledge I was used to, but it would have to do. I also began to practice periscope-employment techniques in the trainer. A large portion of the course is devoted to learning how to operate a submarine safely at periscope depth amid high contact densities. Rapid, accurate target setups and a disciplined approach to contact management were critical aspects of Perisher on which I would soon be thoroughly examined. During my indoctrination, I was given two underway periods on British fast-attack submarines – HMS *Turbulent* and HMS *Talent*, and I was exposed there to a variety of operations on two outstanding boats.

Upon returning from sea, I continued to develop my periscope skills while I took on the additional challenge of understanding the British system of preparing charts, employing weapons and fire control systems, and planning inshore operations. These evolutions are conducted in the very shallow littorals and can range from periscope reconnaissance of a port to intelligence gathering on a ship operating in the region.

The greatest challenge came from an area that I least expected – navigation and planning. There are no Quartermasters on British submarines. The officers man the navigation plot when the ship is submerged, and all charts are prepared and navigated on by an officer. I found that it was a big step to go from supervising a navigation team underway to actually doing the plotting. My plotting skills were much less than I needed for the demanding situations I would soon find myself in, so I began a crash course in the mechanics of plotting and working the charts. It has been observed that in the U.S. Navy, officers “manage” the navigation and in the Royal Navy, the officers “do” it. Another area in which I observed a basic difference between the two navies is in their approach to engineering. They have Marine Engineering Officers, Weapons Engineering Officers, and Seaman Officers. The Seaman Officers are warfare specialists focused mainly on warfare, navigation, and ship driving. No college degree is required to become a Seaman Officer, but they are masters in the art of submarine warfare. In fact, the other students on course with me had no formal college degrees.

Perisher Itself – Classrooms and Trainers

On 24 March, the Perisher course itself convened. British Perisher courses have between four and six students, and Perisher 102 had four, including me. From day one, the four of us formed a team that would stay together until we finished our at-sea evaluation. The three other participants were all Royal Navy O-4s. Lt CDR Guy Buckingham served most recently onboard *Talent*, but our paths had crossed before when *Memphis* conducted her mid-deployment upkeep in Plymouth, and he was the liaison officer on our host boat, *Turbulent*. Lt CDR Ed Ahlgren came from HMS *Triumph* but had also served on diesel boats before the British decommissioned their last one in 1994. Lt CDR Paul Dunn came from HMS *Superb* in Faslane. All three had experience all over the world in a variety of submarine operations. “Teacher,” as the British PCO Instructor is known, was CDR Paul Abraham. He had been in the Royal Navy for 23 years, with more than 20 of those in submarines, including two command tours. He was an intense warfighter with an unparalleled understanding of submarine operations and an amazing ability to create stress in the Perisher students.

The Perisher course is 24 weeks long. The first 16 are focused completely on submarine warfighting, and their culmination is a four-week, at-sea exercise during which the Duty Captains (Perisher students) are evaluated on their ability to employ the submarine across the spectrum of undersea operations. Upon successful completion of the at-sea portion, the students who have passed the course are given their follow-on assignments as Executive Officers and spend a final eight weeks on various administrative courses and visits to military-industrial centers throughout the UK. My exchange program did not include these last eight weeks.

We spent the first week of Perisher in the classroom. After an administrative introduction, we started the week with lectures and discussions on leadership and finished with more work on periscope employment. Finally, we were briefed formally on our tactical priorities: First – safety; second – avoiding counter-detection; and third – achieving the mission. All command decisions had to be soundly based on safe principles, and making a decision that resulted in an unsafe condition was the fastest way to fail the course.

Weeks 2 through 5 had us in the trainer practicing the periscope skills that would become critical when we went to sea. Teacher evaluated each of us in eight categories every time we got on the periscope: ranging and estimating, mental agility, overall situational awareness, command presence, intellectual honesty, safety, character under pressure, and a unique British evolution known as “Q-drill” for quickly and safely regaining periscope depth when a contact encroaches the “Go-Deep” circle.

Week 6 started a series of visits around the UK. The first stop was in Culdrose for a day-long visit with the Merlin Helicopter Squadron. Next, we went to the command center at Northwood, where we had a series of briefs with the British SUBOPAUTHS, and then stopped for a day with the crews of Nimrod maritime patrol aircraft (MPA) in Kinloss. There we met the Dutch participants in Perisher, and we would spend the remainder of that week and the following two weeks with the Dutch. Next was a day at Thales Optronics for a VIP tour and presentations on

PERISHER'S TRADITION FOR HANDLING AN UNSUCCESSFUL STUDENT IS NOT TO MAKE HIM AWARE OF HIS FAILURE UNTIL A SMALL BOAT APPROACHES TO REMOVE HIM FROM THE SUBMARINE. UNKNOWN TO THE UNFORTUNATE OFFICER, HIS SEA BAG HAS ALREADY BEEN PACKED BY A MEMBER OF THE CREW AND BROUGHT UP FOR THE TRANSFER. UPON DEPARTURE, HE IS PRESENTED WITH HIS PERSONAL GEAR AND A BOTTLE OF WHISKY, NEVER AGAIN TO RETURN TO SUBMARINE SERVICE.

periscope technology, and we wound up with a fishing-vessel liaison visit to Campbeltown, Scotland, where we went to sea for a day to get some feel for the capabilities and limitations of a working fishing boat.

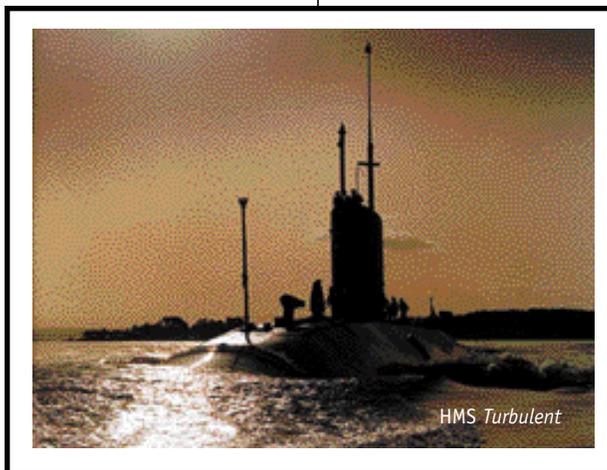
We spent Weeks 7 and 8 in Portsmouth at a multinational Maritime Warfare Course that provided a chance for us to

commenced for the afternoon scenario, which ran from 1315 to 1700 with debrief immediately following. Then, we would frequently have lectures with Teacher or a guest authority until 1830 or 1900. The four of our team would then get dinner in the wardroom and reconvene from 2000 to 2100 to pre-brief the next day's runs, review charts, and discuss plans. From 2100 until midnight (or later), we worked individually, preparing for the tasks we had been assigned at sea. This routine continued until 14 June, when the at-sea portion commenced.

At-Sea Training in Deep and Shallow Water

On that day, we had our gear packed and were ready to go to sea onboard *Trafalgar* – and then *Turbulent* – for Perisher's four-week, at-sea exercise. We would man up the same positions we

had covered in the attack center – Duty Captain, XO, Navigator, and Fire Control Officer – in a rotating watchbill. The first three to four days at sea were dedicated to “Eyes Only” or “Safety Training.” During this phase, Teacher had two to three frigates working directly for him. The goal was to give students practice and confidence in working in close proximity to fast, maneuvering ships while seeking to remain at periscope depth. The area chosen for this part of the exercise also featured heavy merchant traffic



step outside of our submarine-centric world and see where we fit into the overall planning process. The schedule also gave us our evenings free for planning operations and preparing charts for the upcoming tactical phase.

Weeks 9 through 12 had us back in the attack center. There, we rotated through the positions of Duty Captain, Executive Officer, Navigator, and Fire Control Officer. Each day, we ran two scenarios and completed 26 over the four weeks. Teacher stressed that the goals of the tactical phase were all concerned with “risk assessment, personal leadership, and the CO's ability to recognize the time when he must step in.” We started a typical day with a group meeting at 0700 in preparation for presenting our plans for the upcoming operation in the briefing room at 0800. The planning required for each mission was detailed and thorough. All charts used in the trainer and later at sea were prepared by the student Duty Captain conducting the evolution. We also analyzed the threat, determined environmental conditions and their impact on operations, reviewed alterations to the sonar lineup, developed our plan for employing ESM, drafted any messages required, and detailed the tasks that required immediate attention at the start of the problem. The first of our two daily missions ran from 0815 to 1200. At 1200, we debriefed the exercise and grabbed a quick meal, generally bag lunches brought in from the wardroom. At 1300, the briefing

and moderate fishing and pleasure craft activity. Time on the periscope as Duty Captain was physically exhausting. The torque assist was useless, and we were meeting the scope as soon as it rose above the deckplates. The first run of the day started at 0500, and we continued until nearly 2200 – sunset comes late in England in the summer. Throughout each run, the WT Mast (for communications) was raised to permit Teacher to communicate directly with the surface ships. While we were operating the attack periscope, he observed each run from the search scope, both to evaluate our performance and to ensure absolute safety. Additionally, with two periscopes and a communications mast raised, the surface ships had excellent radar targets for reference as they conducted set-geometry runs around – and sometimes over – the submarine. At the end of the first day, all four of us could barely make it down the ladder from Control.

All during the British Perisher course, the Dutch were running their own version – the International Diesel Submarine Command Course. This is convened once per year, taught in English, and offered to the international community. The British and Dutch conduct their Perisher sea training concurrently to enable the two forces to train against each other. Following “Eyes Only,” we began a period of training with the Dutch diesel submarine, HNMLS *Walrus*.

The next phase of the training was our first “Inshore

Weekend.” The focus here was on conducting inshore navigation and intelligence training in the presence of potentially hostile warships and neutral shipping. Once again, Teacher arrayed a variety of opposing forces that included frigates, auxiliaries, ship- and land-based helicopters, and MPA. The opposition was given an approximate time and area where we would be conducting operations and the task of finding the submarine. All navigation was done without GPS as we conducted our missions around the Scottish island of Arran. During this period, the students rotated positions after each four-hour segment. This was another particularly exhausting time on the course, and we learned a lot about the effects of fatigue on our decision-making processes. Teacher stressed that sleep is a weapon, and a CO has to recognize when he needs it.

Next, we transitioned into deep-water operations. During this phase, we participated in several exercises against air assets, surface ships, and submarines and ran day-to-day operations on the ship. In general, we each served as Duty Captain for a full 24-hour period in deep water. This period also included participation in two Tomahawk Land-Attack Missile (TLAM) exercises and the spring Joint Maritime Warfare Course exercise, a multinational event coordinated by the British three times each year.

The Final Trial – Success or Failure?

On 12 July, we commenced our final Inshore Weekend. The goals were similar to those of the first, but now we were tasked to support a notional Amphibious Ready Group (ARG) approaching the coast. Our mission was to report regularly to the ARG with SITREPs detailing intelligence gained from local area surveillance. We were given specific collection goals and intelligence detailing enemy strengths and expected weapons locations. The requirement to report in regularly while an alerted enemy was actively searching for us further complicated managing our counter-detection risk. In the back of our minds during this final weekend was the fact that we could still be removed from the course for unsatisfactory performance at any time until the ship surfaced on the afternoon of 14 July. Perisher’s tradition for handling an unsuccessful student is not to make him aware of his failure until a small boat approaches to remove him from the submarine. Unknown to the unfortunate officer, his sea bag has already been packed by a member of the crew and brought up for the transfer. Upon departure, he is presented with his personal gear and a bottle of whisky, never again to return to submarine service. It is not unheard of for a student to be removed from the course immediately before the last intelligence-gathering mission – but in our case, all four of us passed. Two of my “mates” are now serving as XO’s on Plymouth-based *Trafalgar*-class SSNs, and one is at Faslane on a *Vengeance*-class SSBN.

Looking Back – Lessons Learned

So, how does Perisher benefit the U.S. Navy? Certainly it fosters closer collaboration between the submarine forces of the United States and the United Kingdom. I was immersed in British submarine operations for six months in what is one of the

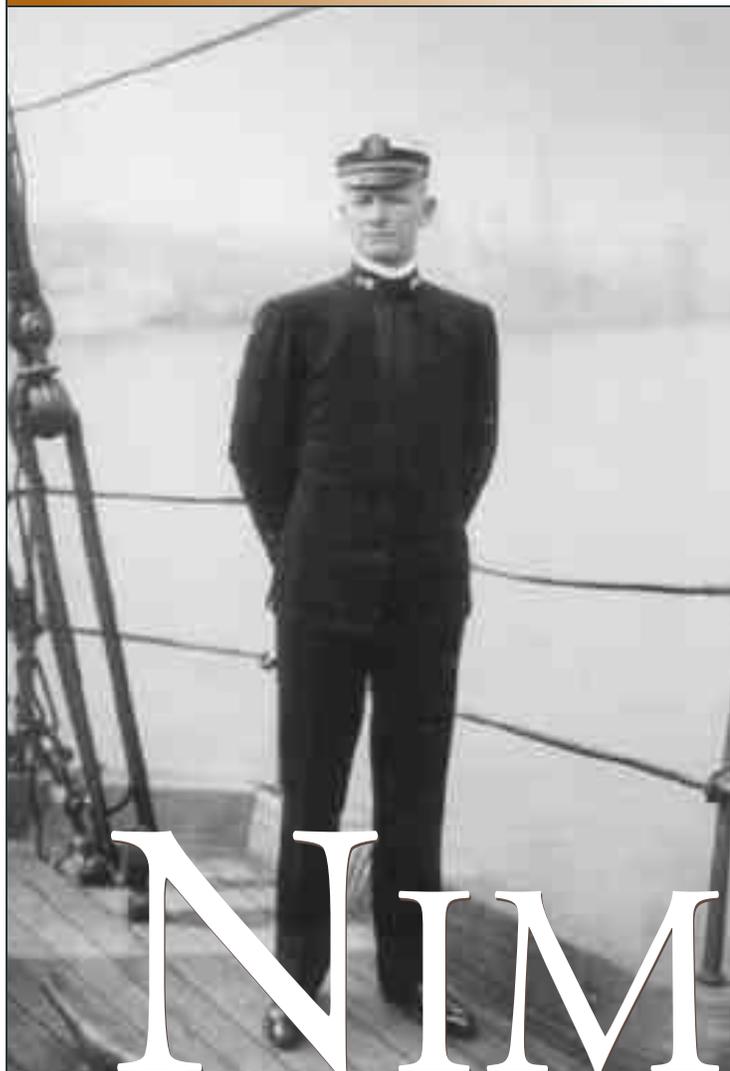
premier training programs for submariners in the world. As we worked on navigation, tactics, weapon employment, ship-driving, shallow-water navigation and intelligence-collection, it was an opportunity to experience operations with another navy and explore alternatives for accomplishing a mission: The Perisher exchange will continue in the future with two U.S. officers attending each year. I was selected as a served Navigator, but the program is open to any post-department head nearing the end of his shore-duty tour. For planning purposes, one U.S. student will report to the UK each January and July for six months of instruction. In return, the British will be sending a student to attend our PCO classes starting in 2003.

From the British point of view, Teacher observed that there was somewhat more competitiveness in our class than he had seen previously. I found myself working extremely hard to match the performance of my colleagues, and they in turn would respond by raising their standards, each of us feeding off the motivation demonstrated by others in the group. There was no real competition to be the best in the class, but rather the shared goal of seeing all of us pass, which drove each to work as hard as necessary to see his shipmates succeed.

Overall, my time with the British on Perisher was unforgettable, and the guys who were on course with me – living in the Plymouth Wardroom, working out, eating, and drinking together – will be friends for life. Being the first American at Perisher drew a lot of interest from the officers and enlisted men I encountered. When asked frequently why I wanted to undergo such a rigorous and stressful trial, I could only answer, “How could I pass it up?” Aside from deploying on *Memphis*, it was the most challenging and demanding time I’ve had in the Navy, and I would definitely do it again. The British are outstanding hosts, shipmates, friends, and allies, and I’d certainly recommend Perisher to all my fellow submariners.

Prior to Perisher, LCDR Mack had served on USS *Alaska* (SSBN-732)(Gold) and USS *Memphis* (SSN-691) and ashore at the Johns Hopkins University Applied Physics Laboratory. He is currently the Director of the Officer Navigation Training Division at the Navy Submarine School in Groton.

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NIMITZ,

THE SUBMARINER

by RADM Jerry Holland, USN (Ret.)
Photos courtesy of the Naval Historical Center

(above) Chester Nimitz as an ensign, circa 1907, during his four years with the Asiatic Fleet in the Philippines. Barely visible in the background is the battleship USS *Ohio* (BB-12), Nimitz's first ship, which brought him to the Far East in 1905 and which served as the Asiatic Fleet flagship until mid-1907.

Nimitz graduated from the Naval Academy in January 1905, at a time when the Academy was the sole source of new officers. The expansion of the fleet after the Spanish-American War during the administration of Theodore Roosevelt was so rapid that new ships were built faster than the existing officer strength could man them. To provide the junior officers needed at the time, the Class of 1905 graduated as "Passed Midshipmen" six months early. Nimitz stood seventh out of 114 in the class – definitely a "star" man – and his first orders were no different from those of his classmates; he went to the newly-commissioned battleship, USS *Ohio* (BB-12) and shipped out in her to the Asiatic Fleet.

Once in the Far East, he stayed there – moving from assignment to assignment under orders of the local commanders – apparently without the benefit of a central detailer or preference cards. When the battleships were called back to the United States in 1906, Nimitz stayed behind in the old cruiser USS *Baltimore* (C-3), a veteran of the Battle of Manila

Bay. Evidently, his *Baltimore* tour was what we would call temporary duty, for in January 1907, he was assigned command of an old gunboat, USS *Panay*, a prize taken during the war with Spain. One can assume that Nimitz worked to get this assignment under the principle that it was “Better to be first on the Rubicon than second in Rome.” The other officer assigned to *Panay* was Passed Midshipman John S. McCain of the Class of 1906. Nimitz and McCain got to select a crew of 30 men from the drafts that remained in the Orient after the capital ships departed for the United States. They subsequently had the marvelous assignment of cruising through the Philippine Archipelago visiting whatever ports they chose. In addition to his gunboat, Nimitz commanded a small shore facility at Polloc, Mindanao where 22 Marines were stationed.

Such a dream assignment couldn’t last long. Because of Japanese belligerency fueled by prejudicial treatment of Japanese immigrants on the West Coast, Roosevelt ordered the battle fleet to the Pacific, and *Panay* was recalled to the Cavite Naval Base in Manila Bay. Making his arrival call on the Senior Officer Present, the 22-year old Nimitz, now an Ensign, was sent immediately on board USS *Decatur* (DD-5) to take command. At the time, *Decatur* had been out of commission for about a year – in some form of inoperative or reserve status in which the ship was not only cold iron but without any crew. When he went on board, still in the whites with sword that he had worn to make his formal call, he was greeted by two Filipino watchmen, since a crew was still being assembled. Surmounting the problems of an idle ship, unbunkered with a scratch crew, ENS Nimitz managed to get *Decatur* to the dry dock at Subic Bay within the two-and-a-half days demanded by the admiral.

The war scare over, *Decatur* operated independently for almost two years in Philippine waters. In July 1908, on entering an unfamiliar harbor in Manila Bay she ran aground and had to be towed off the next day. Relieved of command and court-martialed, Nimitz was found guilty of “neglect of duty” and sentenced to a reprimand. The Commander-in-Chief of U.S. Naval Forces Philippines declared in his endorsement, “The promulgation of the proceedings and sentence will be regarded as constituting in itself the reprimand.” Later in life, as an admiral, Nimitz was quick to cite this incident when questioned if anyone who ran a ship aground could have a future in the Navy.

In a way, this grounding and his ensuing relief were a break for Nimitz. After three years in the Orient, he was without an assignment and free to return to the United States. He assumed a billet as a watch officer on a gunboat that occasionally steamed – but mostly sailed – from Manila west to Boston – a 13-week trip that completed his circumnavigation of the globe that began in 1905. Nimitz hoped, like all his contemporaries, to be assigned again to a battleship, which during that era was not just the pride of the Navy, but the *capital* ship, the embodiment of seapower. It was duty sought by every officer and viewed as the *sine qua non* for promotion. But for whatever reason, he was assigned to submarines – then in their infancy – and generally despised and neglected by “real” naval officers.² Nimitz himself observed later,

*“I didn’t volunteer. At that time, the battleship was the Queen of the Navy. I applied for my next duty on board a battleship. However I was sent involuntarily... as First Officer aboard the Plunger.”*³

Though discouraged by these orders, Nimitz threw himself wholeheartedly into the assignment and over the next two years, in succession, commanded the A-class USS *Plunger* (later *A-1*, SS-2), commissioned the USS *Snapper* (later *C-1*, SS-16), and finally commanded USS *Narwhal* (later *D-1*, SS-17). Though the French had introduced diesel engines into submarines as early as 1900, gasoline engines powered all these ships. Since Nimitz was an early advocate of changing from gasoline to diesel engines for submarines, it was natural that in 1911 he was sent back to new construction as skipper of USS *Skipjack* (later *E-1*, SS-24), the first U.S. submarine with diesel-electric drive. Although in the lit-



(left) The Holland-built, gasoline-powered USS *Plunger* (SS-2) was the Navy’s second submarine and Nimitz’s first command (in May 1909). The officer in the photograph is not Nimitz, but his pose gives a good idea of the small scale of these earliest boats – displacing only 123 tons submerged on a length of 64 feet.



(below) Laid down by Electric Boat in December 1909, USS *Skipjack* (later *E-1*, SS-24) was the Navy’s first submarine with diesel power, bow planes, and a radio. She displaced 342 tons submerged on a length of 135 feet, and her two 350-horsepower diesel engines yielded a surface speed of 13 knots. Then-Lieutenant Nimitz commissioned her in February 1912 on his way to becoming the Navy’s expert on diesel propulsion.



The oiler USS *Maumee* (AO-2) was the first diesel-powered surface ship in the U.S. Navy. Launched at Mare Island (California) in late 1914, *Maumee* was brought around to the Brooklyn Navy Yard for installation of her diesel engines under the supervision of LT Chester Nimitz. After her commissioning in October 1916, Nimitz became her Executive Officer and helped devise the underway refueling techniques that permitted U.S. destroyers to cross the Atlantic in World War I. *Maumee* served in both the Atlantic and Pacific during World War II – when this picture was taken – and ended her days in the Chinese Navy as *Omei*.



Beginning in 1929, then-Captain Nimitz began two years as Commander, Submarine Division 20 in San Diego, California. Initially formed of the Navy's four newest submarines – V-1 through V-4 – SUBDIV 20 was a focus for early experimentation in tactical development. Here, USS V-3 (later USS *Bonita*, SS-165) approaches the division's submarine tender and Nimitz's flagship, USS *Holland* (AS-3).

Over three years that Nimitz commanded submarines, they had tripled in size – from 107 to 287 tons – these were truly “boats,” with crews of only seven to 22 men and the capability for remaining at sea for only a day or two. So little was thought of these craft that they lost their earlier names in 1911, and until 1924, submarines were designated by class-letter/number combinations.

Submarines were still novelties in 1912. While generally objects of derision and disregard in the officer corps, it meant that those few officers who did serve in submarines were unencumbered by directives from higher authority on how they should be operated. Nimitz was an experienced, if not the preeminent, practitioner. Now a lieutenant and serving additional duty as Commander, Third Submarine Division, Atlantic Torpedo Fleet, he was invited to address the Naval War College on the subject. His lecture

went unremarked at the time and when adapted for publication by the Naval Institute *Proceedings*, it apparently stimulated little or no response.⁴

Given the limited mobility and armament of the submarines of that era, it is understandable that Nimitz portrayed them primarily as defenders of coasts and harbors. However, in retrospect, his essay had some remarkable insights on the value of submarines and their future development, and he predicted, for example, that rapid advancements in submarine propulsion would eventually make them more capable than their surface ship adversaries. Most significantly, from a career standpoint, he demonstrated that he was a thinker as well as a doer.

His championship of diesels in submarines together with his ability to speak German – he was born and raised in a German-

speaking immigrant community in Texas – led to an assignment to spend the summer of 1913 in Germany visiting the principal diesel engine manufacturers. His assiduousness in that task seems typical of talented and zealous officers:

“He took off his coat and rolled up his sleeves in every important Diesel factory in the country. He talked, ate, slept Diesels until even his wife, so she says, ‘... learned the lingo of wrist pins and bushings.’ When he returned, he was the Navy’s last word on the subject.”⁵

On that return, he was assigned as the Executive Officer and Chief Engineer on the Navy’s first diesel-powered surface ship, the oiler USS *Maumee* (AO-2), then under completion at the Brooklyn Navy Yard. *Maumee* was a good-sized ship for her time, 14,500 tons, and her engines were very large, developing 2,500 horsepower each. Once again, Nimitz was handed an assignment that he did not want, thwarted in his attempt to get duty on battleships, and now marked as a specialist in a propulsion technology of limited utility when most promotions went to gunners.

Then still in their infancy, diesel engines were suffering many developmental problems, and it was no secret in the manufacturing community that Chester Nimitz was the Navy’s expert on the subject. During *Maumee*’s construction, a representative of Busch-Sulzer Brothers, a manufacturer in St. Louis that began building diesel engines for the Navy in 1913, approached Nimitz offering him a job for \$25,000 a year at a time when his pay was \$240 a month, plus \$48 BAQ. When Nimitz turned that down, he was offered the opportunity to “...write his own ticket,” but he remained firm in his determination not to leave the Navy.

Apparently, extended new-construction periods are not a recent development nor related solely to nuclear-powered ships. *Maumee* did not go to sea until October 1916. In the year that followed, her Captain, CDR Henry C. Dinger, and his Executive Officer worked out the first procedures for transferring fuel oil at sea. Initially, refueling with oil followed the same pattern as coaling – done at anchor in a protected roadstead with the receiving ships moored alongside. In less than six months, Dinger and Nimitz had worked out a mechanism for underway replenishment by towing the receiving ship alongside. When the United States joined the Allies in World War I, *Maumee* was the oiler that



(top) In 1933, Captain Nimitz took command of the heavy cruiser USS *Augusta* (CA-31), homeported in the Philippines as flagship of the Asiatic Fleet. Launched in February 1930, *Augusta* played a largely ceremonial role “showing the flag” in the Far East until November 1940 and then spent the entirety of World War II in the Atlantic.

(bottom) On 31 December 1941, three-and-a-half weeks after the Pearl Harbor attack, Admiral Nimitz (center) took command of the U.S. Pacific Fleet on the deck of USS *Grayling* (SS-209), a venue symbolic of his long association with the Submarine Force.

made possible deployment of the Navy’s destroyers across the Atlantic. Nimitz credited Dinger with the plan and its accomplishment, but it is clear that his own reputation was enhanced because of *Maumee*’s success.⁶

Promoted to Lieutenant Commander, Nimitz left *Maumee* in the summer of 1917 and reported as engineering aide to Commander, Submarine Force, Atlantic Fleet. His boss, CAPT Samuel S. Robison, became a lifelong friend, mentor, and sponsor. In less than a year, Nimitz was the SUBLANT Chief of Staff. At the end of the war, he toured Europe with then-RADM Robison assessing German and British submarines. He then served as a member of a board deliberating the design of the next U.S. submarine class. Nimitz’s specific contributions to the new submarine designs are not documented, but the outcome of this board – generally conservative but with strong endorsements of improved habitability, reliability, and specific research and development priorities – reflect the practicality and innovation that seem to have been one of Nimitz’s trademarks.⁷

At last, assignment to a battleship came – in 1919 he went to USS *South Carolina* (BB-26) as the Executive Officer. *South Carolina* was the oldest of the American battleships and would be scrapped two

years later – a good but not a premier line billet. Nimitz stayed there not quite a year before returning to the Submarine Force. Fast rotations through ships were not uncommon in that era, when as a result of post-World War I reductions in force, the number of officers exceeded the number of sea-going billets. Competition was great, because with the preeminence of the Battle Line, assignment to – and ultimately command of – a battleship was obviously, and very rightly, a necessary prerequisite for selection to Captain, much less flag rank.

In June of 1920, now-Commander Nimitz was ordered to build Submarine Base, Pearl Harbor. Told to use surplus equipment left from the wartime expansion, he and the four chiefs assigned to him had no funds or equipment. As officers then and now will readily understand, the commanders of East Coast Navy Yards and Stations, to whom Nimitz had to apply for the material to build and equip his base, were loath to declare anything

continued on page 31

Bangor, WA



SUBDEVRON-5

Parche (SSN-683)
 CDR Chas Richard (CO)
 MMCM(SS) Morris Pollard (COB)



SUBRON-17

Michigan (SSBN-727) (G)
 CDR Dietrick Kuhlmann (CO)
 CMDCM(SS) Kurt Dessert (COB)



Florida (SSGN-728) (B)
 CDR Jeffrey Powers (CO)
 MMCM(SS) Larry Hamon (COB)

Pearl Harbor, HI



SUBRON-1

Charlotte (SSN-766)
 CDR Tom Bailey (CO)
 CMDCM Mitchell Erhardt (COB)



SUBRON-3

Olympia (SSN-717)
 CDR Bob Brennan (CO) (D)
 CDR Paul Marconi (CO) (R)
 ETCM(SS) Wayne Owings (COB)



SUBRON-7

Tucson (SSN-770)
 CDR William Traub (CO)
 CMDCM(SS) Wes Harper (COB) (D)
 MTCS(SS) Peter Beck (COB) (R)

San Diego, CA



SUBRON-11

Salt Lake City (SSN-716)
 CDR Stephen Marr (CO)
 HMCM(SS) Bob Weber (COB) (D)
 ETCM(SS) Brian Schell (COB) (R)



Arco (ARDM-5)

LCDR Charles Baker (CO)
 CMDCM(SS) Randall Jones (CMC)



Deep Submergence Unit

CDR Hubert Clopp (CO)
 STSCM(SS) Lance Reynolds (CMC)

Narwhal (TWR-842)

QMCM(SW) James Colbert (Craftmaster)
 ENC(SW) Arthur Lopez (Cheng)

Guam



SUBRON-15

Frank Cable (AS-40)
 CAPT Kevin Ryan (CO)
 CMDCM(SS) David Kennedy (CMC)

Groton, CT

SUBRON-2

Submarine NR-1

CDR William Merz (CO) (D)
LCDR Dennis McKelvey (CO) (R)
ETC(SS/DV) Mike Uherek (COB) (D)
ETC(SS) Chad Samples (COB) (R)



Springfield (SSN-761)

CDR Dan Forney (CO)
ETCM(SS) Gaylord Humphries (COB)



SUBRON-4

Annapolis (SSN-760)

CDR David Bartholomew (CO)
MMCM(SS) John Snyder (COB)



SUBDEVRON-12

San Juan (SSN-751)

CDR Ed Takesuye (CO)
FTCM(SS) Glen Kline (COB)



La Maddalena, Italy

SUBRON-22

Emory S. Land (AS-39)

CAPT D. M. Volonino
PNCM (SW) Terry Miles (CMC) (D)
CMDCM (SS) Joel J. Allison (CMC) (R)



Norfolk, VA

SUBRON-6

Scranton (SSN-756)

CDR Chuck Melcher (CO)
MMCS(SS) Steve Sturgill (COB)



SUBRON-8

Resolute (AFDM-10)

CDR Steven Cole (D)
LCDR Doug Holderman (R)
EMCS(SS) James Jennings



Hyman G. Rickover (SSN-709)

CDR Pete Young (CO) (D)
CDR Ken Gray (CO) (R)
ETCM(SS) James Schubert (COB) (D)
STSCS(SS) Robert Dingmann (COB) (R)



Kings Bay, GA

SUBRON-16

Maine (SSBN-741) (B)

CDR Kevin Zumbar (CO)
FTCM(SS) Alan Holland (COB)



Maine (SSBN-741) (G)

CDR Joe Tofalo (CO)
MMCS(SS) Jeff Compton (COB)

SUBRON-20

Maryland (SSBN-738) (B)

CDR Steve Davito (CO)
ETCS(SS) Brett Prince (COB)



Maryland (SSBN-738) (G)

CDR Rusty Smith (CO)
ETCS (SS) Dennis Moore (COB)



IMF CELEBRATES ITS 200TH DRY-DOCKING

by Katie Eberling

On 14 November 2002, the Naval Intermediate Maintenance Facility (IMF), Pacific Northwest performed the 200th dry-docking of a TRIDENT submarine at Naval Submarine Base, Bangor, Washington. In an evolution that had been done 199 times since 1982, USS *Michigan* (SSBN-727) was maneuvered into the dock and positioned carefully over the keel blocks. After the riggers floated in the caisson that forms the “gate” of the dock and secured it in place, the submarine was gently lowered onto the 74 blocks – her resting place for the next 18 days – by pumping out the basin with the three main de-watering pumps.

Once aligned on her keel blocks and with the dry-dock still filled with 30 feet of water, the area comes alive with machinery and personnel ready to start repair, preservation, and inspection work on the vessel.

With *Michigan* settled on the keel blocks – but even before the dry dock was empty of water – the area came alive with machinery and personnel as life lines and “kickboards” were made secure to ensure the safety of personnel working on top of the ship. Crane operators and riggers worked steadily through the day to deliver various “job boxes” to *Michigan*’s deck in preparation for her upcoming refit.

During 20 years of dry-docking submarines at Bangor, IMF has had a perfect safety record, which can be attributed to the training, careful planning, and cumulative experience of the team of Docking Officers, Dock Masters, shop foremen, tug masters, and Sailors responsible for bringing the boats in safely.

“We’ve had 200 safe dockings due to strict adherence to policy and the extensive training each worker receives. The docking evolution is very dynamic, and although docking instructions provide standard procedural steps, it can’t be a paint-by-numbers,” said LTJG Steve Terreault, the Docking Officer.

“Tide, current, and wind determine the parameters for a safe docking,” said Tom Germaine, the waterfront services general foreman. “We need winds less than 35 knots sustained to operate the cranes safely, a tidal height of plus five feet or greater, and a flood tide of a half knot or less, but no ebb tide. The stronger the current, the harder it is to manage the boat,” Germaine continued. “Generally, we have two opportunities to dock a boat per day. If we miss the first, we’ll only have one other chance that day usually, and it can occur at any time of the day or night,” he concluded.

Tide tables are based largely on the phases of the moon, but timely calls must be made on what the tides, winds, and currents are actually doing on the day of the docking. The Hood Canal has a huge tidal swing, making docking and undocking evolutions unique and tricky for IMF’s Docking Officer and Dock Master. Once these men have predicted

the best time to perform an evolution, Submarine Squadron 17 (CSS-17) finally determines when the boat will be moved.

To prepare the dock for *Michigan*, however, the shipwrights of Shop 64 had only about 30 hours available after undocking USS *Pennsylvania* (SSBN-735) shortly before. Between dockings, the blocks may need to be moved for maintenance, and in any event must be reconfigured for the next boat, since each sub has its own "signature" and keel-block plan due to undulations in the hull and the maintenance planned for her. The keel blocks are centered to support the weight of the submarine, while additional side blocks are positioned to steady it laterally against wind and ground forces, including even earthquake motion.

The dry-dock was built to withstand an earthquake rated at 8.0 on the Richter scale, and its design and structural engineering won the American Consulting Engineers Council Outstanding Achievement Award in 1980. "The earthquake Kitsap County sustained two years ago caused no damage to the dry dock or to the submarine sitting in it at that time," explained Germaine. "The blocking system in place here worked just as it was designed to."

The Delta Pier complex is built on pilings and includes two refit piers and the dry dock itself. The dry dock is one of the largest ever built by the Navy and is the deepest cellular cofferdam dry dock in the world, constructed by driving interlocking steel cells into the bed of the Hood Canal and filling them with gravel as a solid buffer. It is also the only dry-dock

constructed offshore, due to the need not to interfere with yearly salmon runs.

There are about 40 people involved on the day of the docking to ensure that the submarine gets on the blocks safely. Terreault, a Phoenix, Arizona, native, is one of three qualified IMF Docking Officers who are responsible for the safe movement of the vessel into the facility. The Docking Officer is also the individual who determines officially when responsibility for the safe conduct of the boat transfers from the submarine commanding officer to the IMF Docking Officer. This occurs when the extremity of the boat first crosses the dock sill, and the ship is lined up for entering the basin. The Docking Officer then contacts the submarine's commanding officer through the pilot: "Captain, this is the Docking Officer. The ship's bow has crossed the sill. The ship is now under my control." From then on, it's the Docking Officer's show. Only after the dock is dewatered and the submarine is settled safely on the blocks does the commanding officer of the boat again assume responsibility for his ship.

General foreman Tom Germaine is responsible for day-to-day operations on the waterfront, with the Dock Master, Brian Farr, coordinating boat movements. Germaine, an IMF Plank Owner, arrived at IMF in October 1980, two years before the arrival at Bangor of the first TRIDENT submarine, USS *Ohio* (SSBN-726). He was at IMF for the very first dry-docking, and over the last 20 years, he's been involved in nearly every docking and

undocking evolution. His team of riggers (Shop 72A) handle the lines and bring the boats in; the Crane Operators (Shop 02A) lift and move loads in and out of the dry-dock; and the shipwrights (Shop 64A) build up and arrange the keel blocks. Meanwhile, the Pump Room employees (Shop 25D), four stories below, are operating all the pumps and the actual dry-dock system under direction of a supervisor alongside the dock during the procedure.

Working topside on the submarine are some of the ship's crew and the IMF ship superintendent assigned to the incoming boat. Often, several chief petty officers will also be working on their qualifications as mooring officers. In addition to the crew of the incoming submarine, CSS-17 sends an additional 20 to 25 Sailors to assist with line handling. On the water, guiding the vessel safely, you'll also find tugboat operators and IMF personnel assisting with small boats known as Log Broncs.

The entire operation takes about seven hours, and once safely on her blocks, the submarine will undergo an 18 to 22-day availability for repairs, refurbishment, and replenishment. A TRIDENT submarine refit requires complex, intensive, and coordinated maintenance actions on nearly every system. Every code and shop in the IMF contributes, either directly or indirectly, to accomplishing the 40,000 man-hours of maintenance and preserva-

(right) IMF shipwrights may only have a day after an undocking to prepare the dock for the next vessel. Between dockings, blocks may need to be moved for maintenance and will need to be reconfigured for the next boat as each sub has its own "signature" and keelblock plan due to undulations in the hull.

(far right) Following the docking evolution, IMF Docking Officer LTJG Steven Terreault discusses pier-side duties with STS3 Bradley Amelsberg.

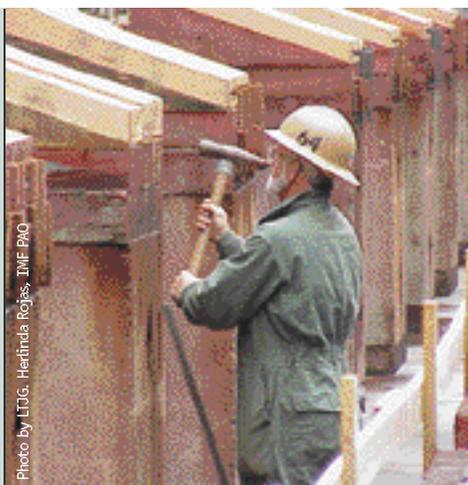


Photo by LTJG, Herlinda Rojas, IMF PAO



Photo by John Woodmansee

USS *Michigan* (SSBN-727) is guided from the Delta Pier (North) to the Delta Drydock. This move marks the 200th TRIDENT dry-docking at the Intermediate Maintenance Facility, Pacific Northwest Delta Pier.

Photos by Brian Nokell,
NSB Bangor



tion required for each refit of one of the eight TRIDENT submarines based at Bangor. These refits are designed to be incremental overhauls, conducted approximately three times a year for each TRIDENT boat. This innovative maintenance approach was developed originally for the TRIDENT fleet at Bangor, and was later used for the TRIDENTs based at Kings Bay, Georgia. This has paid significant dividends in enabling the Navy to keep the submarines at a high readiness level while minimizing extensive overhaul and shipyard time.

On 1 October 2002, IMF celebrated its 20th anniversary of performing TRIDENT refits. The Trident Refit Facility (TRF) – as the IMF was known prior to its consolidation with the Shore Intermediate Maintenance Activity, Everett – performed its first refit on *Ohio* in July 1982, prior to her first strategic deterrent patrol and only 15 months after TRF was established. Since that time, the facility has racked up more than 19.5 million man-hours of TRIDENT repair work. “As the primary customer of IMF, our TRIDENT submarines have greatly benefited from the broad spectrum of talented employees located there,” said the Commander of Submarine Group 9, RADM Bruce Engelhardt. “They have done a superb job for us since the arrival of USS *Ohio*. IMF personnel continue to meet the challenge of maintaining our submarines so that they can remain

deployed at sea 70 percent of the time.”

“A TRIDENT submarine dry-docking is a sight to behold!” said CAPT Peter Ozimek, IMF’s Commanding Officer. “Our docking availabilities are the most intensive of all our normally high tempo availabilities. It is inspiring to see the IMF team come together and orchestrate a multitude of complex jobs to completion in such a short time window. This is only possible because of the quality, experience, professionalism, and tenacity of the workforce. I am very proud of them,” he concluded.

“I continue to be impressed with the ability of the IMF to successfully operate the Bangor Delta Dry Dock at the high pace necessary to execute the Trident Maintenance Plan, said CAPT Timothy Giardina, Commander, Submarine Squadron 17. “Executing this plan implements an incremental overhaul approach, which requires frequent dry-docking of our TRIDENT Submarines to do major maintenance. As a result, the TRIDENT force maintains the highest platform operating tempo (OPTEMPO) of any ships in the U.S. Navy. This is also reflected in the fact that the Bangor dry dock is one of the most heavily loaded docking facilities in the world. This superb capability is one of several major assets that enable us to perform our strategic deterrent mission with fewer submarines than would be needed if we operated under typical Navy deployment schemes. The incredible safety and

efficiency record – in spite of the high pace of operations – is a great testament to the dedication and professionalism of the entire IMF team.”

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

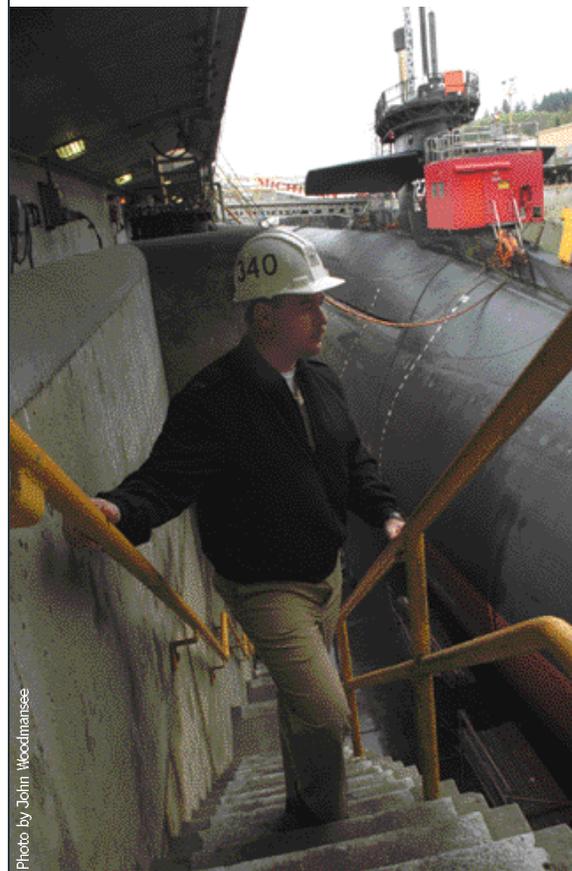


Photo by John Woodmansee

(above right) LTJG Terreault surveys the dry dock to ensure all safety requirements are adhered to.

(right) IMF shipwrights on the roof of the dock sight the ship to ensure it’s positioned in the center of the dock. Once aligned, the submarine will be gently lowered onto the keel blocks, her resting place for the refit, by pumping the basin dry with the three main de-watering pumps.



Photo by Brian Nelsell, NSB Bangor

This 1943 view of the U.S. submarine base at Dutch Harbor, Alaska conveys the icy desolation that characterized the Aleutians campaign. Originally established as a seaplane base in the late 1930s, Dutch Harbor also had provision for six submarines by the opening of the war. As an adjunct to Admiral Yamamoto's plan for the invasion of Midway in June 1942, the Dutch Harbor facilities were heavily damaged on the 3rd and 4th in bombing raids by carrier aircraft from IJS *Ryujo* and IJS *Junyo*.



the **FORGOTTEN**
THEATER

U.S. SUBMARINE OPERATIONS IN THE ALEUTIANS IN WORLD WAR II

by Edward C. Whitman

Even as the likelihood of Japanese aggression mounted in the 1930s, Alaska and the Aleutian Island chain remained virtually undefended. Although the Aleutians themselves stretch nearly 900 nautical miles west from the tip of the Alaskan Peninsula to the outermost island of Attu — and reach to within 650 nautical miles of what was then Japan’s northernmost naval base at Paramushiro in the Kurile Islands — they seemed unlikely candidates for Japanese conquest. Cold, inhospitable, virtually unpopulated, totally lacking in any natural resources but fish, and afflicted with some of the worst weather in the world, the Aleutians held little military interest for either the United States or Japan.

Submarines to Alaska

Even so, with the Japanese conquest of Manchuria in 1937, defense of the north-east Pacific region assumed new importance, and seaplane bases were established first at Sitka, southwest of Juneau — and later on Kodiak Island (south of the Alaskan Peninsula) and at Dutch Harbor on Unalaska in the eastern Aleutians. The last two of these were also provided with the support facilities for basing six submarines each, and by late 1941, they were ready for operation under a newly-formed Alaskan Naval Sector, part of the 13th Naval District headquartered in Seattle. When the war began, the sector com-



Graphic by Lakshmi Febree

The Aleutian Islands stretch 900 nautical miles westward from the Alaskan Peninsula to the outermost island of Attu, only 650 miles from what was then Japan’s northernmost naval base at Paramushiro in the Kurile Islands. The principal U.S. base was at Dutch Harbor on the island of Unalaska.

mander controlled a small force of hand-me-down gunboats, two World War I destroyers, and a few Coast Guard cutters and improvised patrol craft, plus ten PBV Catalina flying boats. Meanwhile, the Army had established an Alaskan Defense Command and begun the construction of an airfield on Umnak, near Dutch Harbor, from which land-based bombers could be staged.

After Pearl Harbor — and in accordance with the Rainbow Five war plan — COMSUBPAC RADM Thomas Withers sent two older submarines, S-18 (SS-123) and S-23 (SS-128) to Alaska from the U.S. West Coast, and they arrived at Dutch Harbor on 27 January 1942. Within two weeks, they had departed on their first war patrols, defensive sweeps south of the Aleutian chain and easterly toward

Kodiak Island. Although no contact was made with the enemy, the two S-boats were the first to experience the full rigor of the weather and ocean conditions that characterized Alaskan submarine operations for two miserable years. An entry in S-23’s deck log for 13 February 1942 notes:

Shipped heavy sea over bridge. All hands on bridge bruised and battered. Officer of the Deck suffered broken nose. Solid stream of water down hatch for 65 seconds. Put high pressure pump on control room bilges; dry after two hours... Barometer 29.60, thirty knot wind from northwest.

RADM “Fritz” Harlfinger, who served on S-boats in the Aleutians, later described how dreadful it was:

The conditions those boats endured up there are simply indescribable. It was God awful. Cold. Dreary. Foggy. Ice glaze. The

In preparation for the U.S. invasion of Attu in May 1943, USS *Narwahl* (SS-167) and USS *Nautilus* (SS-168) carried 215 Army Scouts to the island and inserted them behind enemy lines. Here, *Nautilus* (formerly V-6), with Scouts and raiding craft on deck, rehearses the mission at Dutch Harbor. Earlier, in August 1942, she had joined USS *Argonaut* (SS-166) in bringing Carlson’s Raiders to Makin Atoll.



periscopes froze. The decks and lifelines were caked with ice. Blizzards. You could never get a navigational fix.

Moreover, the tides, currents, and weather throughout the region were often unpredictable and frequently treacherous, and the rocks and shoals of the island-studded archipelago posed a constant danger under the usual conditions of poor visibility from driving snow and rain, particularly during the long northern nights.

After their relatively brief patrols, *S-18* and *S-23* returned to San Diego for an overhaul that included superstructure modifications and additional internal heating in accordance with the “lessons-learned” from their first Alaskan experience. Simultaneously, a division of six additional S-boats – originally intended for Brisbane, Australia – was redirected to Dutch Harbor. These submarines – *S-30* through *S-35* (SS-135 through 140) – arrived in the theater between April and August 1942, to be augmented by *S-27* (SS-132) and *S-28* (SS-133), which headed north from San Diego in late May. Thus, when *S-18* and *S-23* completed their overhauls and returned to the theater at that same time, a total of ten S-boats had been assigned to Alaskan waters. In April, on the first Dutch Harbor war patrols into Japanese territory, both *S-34* and *S-35* penetrated as far as Paramushiro, but despite several attacks on merchant ships, they scored no successes.

The Japanese Seize Attu and Kiska

Even before the Battle of the Coral Sea in early May 1942, cryptologic intelligence had revealed that Japanese Admiral Isoroku Yamamoto’s next major offensive in the central Pacific would be the invasion of Midway Island, some 1,100 miles west of Hawaii early in June. This main attack would be accompanied by a diversionary thrust toward the Aleutian Islands. In response to the latter, CINCPAC Admiral Chester Nimitz assigned two heavy cruisers, three light cruisers, and ten destroyers to a North Pacific Force under RADM Robert Theobald, who also assumed command of the existing “Alaska Navy,” including the Dutch Harbor submarines, then under CAPT Oswald Colclough.

Since RADM Theobald expected the Japanese attack – possibly including

amphibious landings – to be directed against military facilities on the Alaskan Peninsula and the eastern Aleutians, he deployed his main surface force south and west of Kodiak Island during the first days of June. Of the six submarines that had already arrived in the theater, four were set to patrolling off the approaches to the expected Japanese objectives in the east and the remaining two as far west as Attu in hopes of intercepting the enemy.

In fact, RADM Theobald’s surface task force made no contact at all with the Japanese. Except for bombing raids by aircraft from the carriers IJS *Ryujo* and IJS *Junyo* on Dutch Harbor on 3 and 4 June, Japan had no designs whatsoever on the eastern Aleutians, and all along had planned only to occupy Attu, Kiska, and Adak well to the west. Several thousand miles to the south, however, the Japanese suffered a major setback in the Battle of Midway on the 4th through the 6th, and Admiral Yamamoto had nearly cancelled the Aleutian invasions. In the event, he was persuaded by his staff to proceed with the seizure of Attu and Kiska, which was

had sighted any elements of the invasion force by the time they were ordered back to Dutch Harbor on 11 June.

To consolidate their hold on Attu and Kiska, the Japanese began conveying reinforcements and supplies into the islands from Paramushiro and Ominato (on northern Hokkaido). To protect these supply lines, they formed a powerful task force around the heavy carrier *Zuikaku*, the light carriers *Zuiho*, *Ryujo*, and *Junyo*, and two battleships, which operated south of the western Aleutians until mid-July. The United States responded with a series of attacks on Japanese shipping at Attu and Kiska by Alaska-based aircraft and submarines, and ADM Nimitz ordered additional Aleutian war patrols by “fleet” submarines from Pearl Harbor. Before these were discontinued in August 1942 in favor of supporting the Guadalcanal campaign, seven fleet boats had made sorties into the northern theater – in order, *Growler* (SS-215), *Triton* (SS-201), *Finback* (SS-230), *Grunion* (SS-216), *Trigger* (SS-237), *Tuna* (SS-203), and *Gato* (SS-212).



A squadron of PBY Catalina flying boats over an Alaskan glacier. Designed by the Consolidated Aircraft Corporation, about 4,000 Catalinas were built between 1936 and 1945 and served in every maritime theater for patrol, night bombing, and search and rescue. At the beginning of the war, ten were assigned to the Alaskan Naval Sector.

accomplished without opposition on the 6th and 7th. The attempt on Adak was abandoned. Only *S-34* and *S-35* were in any position to oppose the Japanese landings. Both had been patrolling north of Attu since the end of May, but neither

Of these, only *Growler*, *Triton*, and *Grunion* scored sinkings. The most spectacular success was achieved by *Growler* under LCDR Howard Gilmore – later to be awarded the Medal of Honor posthumously. [Ed. Note: See “Submarine Hero –

Howard Walter Gilmore” in the Summer 1999 issue of *UNDERSEA WARFARE*.] On 5 July, Gilmore came upon three Japanese destroyers anchored off Kiska and in his first attack of the war loosed torpedoes at all three, scoring hits on each. *Growler* went deep to avoid two torpedoes fired back at her, but when the smoke cleared, one of the destroyers – IJS *Arare* – had sunk, and the other two were so severely damaged they had to be towed back to Japan for repairs. Similarly, the day before, *Triton* sank another destroyer off the island of Agattu, and *Grunion* destroyed two patrol craft near Kiska on the 15th. Unfortunately, that same war patrol ended tragically, because contact was lost with *Grunion* after 30 July, and she was never heard from again.

The Travail of the S-boats

The Alaska-based S-boats did even less well in the months after the Japanese invasion. In a total of 14 war patrols from Dutch Harbor targeted on Japanese shipping in the western Aleutians between July and September, no enemy sinkings were credited. Moreover, *S-27* was lost to grounding on a reconnaissance mission to Amchitka Island, when an undetected current carried her onto the rocks while she was charging batteries on the surface during the night of 19 June. *S-27*’s Commanding Officer, Herbert Jukes, managed to get his entire crew ashore in rubber boats, and after being stranded for six days, they were discovered by a PBY and brought back to Dutch Harbor.

Built to a World War I design based on early submarine technology, the S-boats assigned to the Aleutians were 20 years old, largely worn out, and clearly regarded as “second-line” submarines. [See associated sidebar.] Powered by only two 600-horsepower diesel engines, they could make only 12-14 knots on the surface – perhaps 10 submerged on battery – and with a test depth of 200 feet, there was little margin for error. Moreover, their surface displacement of somewhat less than 1,000 tons and their low freeboard made operating in the stormy, northern waters of the Aleutians and the Bering Sea a grueling, daily challenge. Despite the electric heaters that had been installed for the northern climate, life below decks was dispiriting, cold, and wet, not only from seawater sloshing down through the conning tower, but also from the condensation of atmospheric moisture on all the metal surfaces inside.

Engine breakdowns, battery trouble, and electrical “shorts” were continuing problems, exacerbated by the age and condition of the machinery. *S-35* was nearly lost in December 1942 to a chain of events that began when she took several massive waves over the bridge during a storm near Amchitka, sending tons of water into the control room and injuring her captain, LT Henry Monroe, who was forced to go below. Shortly thereafter, electrical fires broke out in both the control room and forward battery and began to spread, filling the boat with acrid smoke and forcing the engines to be shut down and the control room sealed off. The crew fought back with every trick they could think of, including bucket brigades to lower the water level, eventually restarting the engines under local control, and the boat retreated toward Dutch Harbor, fighting recurrent fires so serious that twice the crew was driven up to the bridge. After three days, they reached Adak, where assistance was available, and finally, on 29 December, under escort, *S-35* made it back to Dutch Harbor and eventually to the Puget Sound Naval Shipyard, where she was completely overhauled – only to return to the Aleutians again six months later.

Alaskan Countermeasures

As a first step in regaining the islands lost to the Japanese, the U.S. Army occupied Adak in late August 1942 and commenced building an airfield that could threaten Attu and Kiska more directly. Then, in January 1943, meeting no resistance, they invaded and secured Amchitka, only 70 miles from the latter. Pressure mounted on the two enemy-held islands with sporadic bombardments by both Army aircraft and Navy surface forces, and the Japanese began

Designed during World War I, the first several members of the S class were commissioned in 1919 and 1920. Eventually, 51 were built in a number of variants by four different shipyards: Fore River Shipbuilding, the Lake Torpedo Boat Corporation, the Portsmouth Navy Yard, and the Union Iron Works. The last to be commissioned was *S-47* (SS-158) in September 1925. (She was also one of the last to be de-commissioned, in October 1945.) Planned as a compromise between a coastal defense boat and a full-fledged fleet submarine, the S-class were powered by twin diesel engines and electric motors on two shafts. Over many re-enginings during the life of the class, per-diesel output ranged from 500 to 1,000 horsepower. Most were fitted with four 21-inch bow torpedo tubes, but several were later re-designed to add one or two stern tubes. During World War II, the S-boats carried a 4-inch deck gun and occasionally a 20-millimeter anti-aircraft gun. Although there was a great deal of variability among individual submarines, approximate general characteristics of the later ships of the class follow:

- Length:** 225 feet
- Beam:** 21 feet
- Draft:** 17 feet
- Displacement:** 960 tons surfaced
1,130 tons submerged
- Surface Speed:** 12-14 knots
- Submerged Speed:** 10 knots
- Surface Endurance:** 3,500 nm at 6.5 knots
- Submerged Endurance:** 20 hours at 5 knots
- Complement:** 4 officers; 39 enlisted men



Shown at Pearl Harbor in 1927, only three years after she was commissioned, USS *S-18* (SS-123) was one of the first two submarines sent to Dutch Harbor in January 1942. Eventually, she made seven arduous war patrols in the Aleutians before being withdrawn from the theater and reassigned to training duties in early 1943.

U.S. Army troops land in force at Massacre Bay, Attu, on 12 May 1943. Defended with suicidal tenacity by the Japanese garrison, the island was not finally secured until the end of that month.



to fear that their loss could become the prelude to an invasion of the Kurile Islands from the northeast, perhaps with the intervention of Russia. Thus newly resolved to hold Attu and Kiska at all costs, they stepped up the reinforcement of their garrisons there, and in particular, sent a powerful convoy from Paramushiro, escorted by virtually the entire Japanese 5th Fleet, including two heavy cruisers. This move precipitated the Battle of the Komandorski Islands on 26 March, in which an outnumbered force of U.S. cruisers and destroyers fought a retiring action in which the heavy cruiser USS *Salt Lake City* (CA-25) was heavily damaged and went dead-in-the-water, yet survived to fight another day. More significantly, the enemy supply ships broke off their mission and returned to Japan.

On 11 May 1943, the Army landed in force on Attu. Several days prior to the main assault, USS *Narwhal* (SS-167) and USS *Nautilus* (SS-168), coming from Dutch Harbor, had clandestinely inserted 215 officers and men of the Army's 7th Infantry Scout Company behind enemy lines. Nonetheless, Attu was fiercely contested by the Japanese, and it wasn't until the end of the month, when over 2,300 of their number had been lost in several suicidal "banzai" attacks, that they yielded the island to the invaders.

With Attu retaken, attention shifted to Kiska, which was blockaded by a ring of destroyers and bombed regularly, weather permitting. A powerful surface bombardment force, including several old battleships, pounded the island on 22 July, and an invasion fleet was assembled for an assault in mid-August. Meanwhile, however, the Japanese had reluctantly decided to relinquish the island, and 13 large I-class transport submarines were assembled to evacuate the garrison. This plan was revealed to the U.S. high command in a series of cryptologic intercepts, and after seven of the 13 I-boats were lost or crippled

in evacuating only 820 men, that approach was abandoned. Instead, on 28 July, under a heavy fog, the Japanese managed to sneak in two light cruisers and six destroyers and spirit away the remaining 5,200 personnel without being detected by the waiting Americans. When the latter came ashore after heavy bombardment on 16 August, they found Kiska entirely abandoned. The Japanese had held the western Aleutians for only 13 months.

Last Operations in Northern Waters

In preparation for the retaking of Attu and Kiska, seven more S-boats (*S-40*, *S-41*, *S-42*, *S-44*, *S-45*, *S-46*, *S-47*) had been ordered north in the spring of 1943 and trickled into Dutch Harbor between May and December. Until August, the Dutch Harbor boats concentrated on the supply lines between Japan and the western Aleutians, but after the re-conquest of Attu and Kiska, the emphasis shifted to more general hunting expeditions in the northern Kuriles. Again, little was achieved. The 24 war patrols mounted from Dutch Harbor between May 1943 and the end of the year – generally about a month long but as much as 40 days – produced only four enemy victims totaling some 13,000 tons, all Japanese merchant ships sunk near Paramushiro. *S-28*, *S-30*, *S-35*, and *S-41* (SS-146) were the lucky boats, but *S-44* (SS-155), caught on the surface by a Japanese destroyer on 7 October during her first Alaskan patrol, was lost with all hands save two crewmembers, who survived to become prisoners of war for the duration.

At the end of 1943 with the end of a credible Japanese threat to the Aleutians, COMSUBPAC RADM Charles Lockwood finally acknowledged the

futility of sending the Dutch Harbor submarines into harm's way for so little return, and he ordered the remaining S-boats withdrawn from Alaska and for the most part assigned to training duties in both the Southwest Pacific and home waters. In the very last war patrol mounted from Dutch Harbor, *S-45* (SS-156) left the submarine base there on New Year's Eve and returned to Attu at the end of January 1944, before departing for San Diego and a general overhaul. And thus ended the U.S. submarine campaign in the Aleutians.

It had to have been the worst duty in the world. The privation, hardship, and danger endured by the more than 1,000 U.S. submariners who served in the Aleutians during 1942 and 1943 – most of them in small, obsolete, and worn-out boats – were never repaid by the spectacular success later achieved by submarines in the wider Pacific conflict. Only nine confirmed kills were scored in over 80 war patrols conducted in the Alaskan theater in those years – and four of these were claimed by Pearl Harbor-based fleet boats, which accounted for only one eighth of the total sorties. On the negative side of the ledger, two S-boats – *S-27* and *S-44* – and one fleet boat – *Grunion* – were lost, two with virtually all hands. In retrospect it is an extraordinary tribute to the seamanship, dedication, and perseverance of the men who suffered and died there that an even larger toll of ships and men was not exacted by the many perils of the williwaw, the frozen and desolate islands, and those awful seas.

Dr. Whitman is the Senior Editor of UNDERSEA WARFARE Magazine.



Longtime Submariner Remembered as Warrior-Poet

by JOC Michael Foutch, USN

More than a hundred friends and family members met to remember a man who was not only an undersea warrior but a gifted writer who brought the tales of his adventures to grateful readers everywhere.

CAPT Edward L. “Ned” Beach, Jr., author of the celebrated World War II submarine novel, *Run Silent, Run Deep* – and many other books – was honored at a memorial service 14 January at the U.S. Naval Academy Chapel.



CAPT Edward L. “Ned” Beach, Jr.

ADM Skip Bowman, Director, Naval Nuclear Propulsion, described the legacy of CAPT Beach. “If you seek a monument to CAPT Ned Beach, simply look around: to Sailors standing the watch, around the world, around the clock, trained to the standards he helped champion; to an officer corps whose ideals he celebrates in novels and histories that tell us who we are, and more importantly, why we serve; to a Submarine Force of unparalleled accomplishment, operated with skill, daring, and efficiency; to a United States Navy unchallenged on the oceans, advancing freedom and justice around the world.”

CAPT Beach followed his father – also an accomplished author – into the Navy, where he found others inspired by the elder Beach to serve at sea. During his days at the Naval Academy, where he finished second in the class of 1939, young Ned chanced upon another midshipman at the Academy barbershop. After a quick exchange of names, the young man turned to Ned and asked if he was related to Edward L. Beach, the author of the book that moved him to attend the Academy. “I’m his son,” Ned replied, proudly.

Sixty years later, that same comrade, retired Admiral Daniel K. Weitzenfeld, spoke of his friend’s World War II service. “He was the archetype of the 20th century warrior-poet, who not only was part of the war, but could write about it in a way we could all learn from.”

CAPT Beach completed 12 war patrols onboard several attack submarines. His experiences on USS *Trigger* (SS-237) inspired his first effort, *Submarine*, published in 1952, followed by the best-selling *Run Silent, Run Deep* in 1955, later made into a Hollywood motion picture starring Burt Lancaster and Clark Gable. Later, in *The Voyage of the Triton*, he described the first underwater circumnavigation of the world, accomplished by USS *Triton* (SSRN-586) in 1960 under his command.

Beach retired from the Navy in 1966 after 27 years in the silent service, but he authored a dozen more works, including his memoir, *Salt and Steel: Reflections of a Submariner*.

ADM Bowman opened his eulogy by quoting the Roman epic-poet Virgil and noting that “We face the same challenges Virgil faced 2,000 years ago – how to capture the challenge, the battles won, the terrors of the moment, of the loves of one’s lifetime of sea and shore. Ned was the best teller of his own tale, through his fiction and more, works that will rank among the classics of naval literature.”

Paul Stillwell met Ned Beach after reviewing one of his books for the U.S. Naval Institute and observed, “He had a storytelling flair with words, complete with observations to make his characters come alive.”

Ned Beach’s son, Edward, eulogized his father as a man who – despite achieving a measure of greatness in his life – lived with an easy humility.

“Often, I would be asked what it was like to be the son of a great man,” Edward said, “or, with a solicitous look, whether it was difficult growing up in the home of Ned Beach. I can say none of us felt eclipsed by him. I often wondered if we were missing something important that others could see in my father. Did familiarity breed contempt? I think not. Rather, one of the hallmarks of his greatness was his gift to make all of us feel at ease.”

Hugh Beach spoke to the attachment of his father to the many shipmates and friends whom Ned considered as part of his family. “I know what a meaningful life you’ve had and how many people you’ve led. And, (looking up to the mourners in the Chapel) I am enriched by knowing my dad was part father to the many of you.”

Ned Beach’s memory continues to be honored by the U.S. Naval Institute, whose Beach Hall is named for father and son.



Announcing the Fifth Annual

UNDERSEA WARFARE PHOTO CONTEST

UNDERSEA WARFARE Magazine and the Naval Submarine League are pleased to announce the Fifth Annual UNDERSEA WARFARE Photo Contest. While all entries should relate to some aspect of the undersea warfare community, we encourage you to be creative in your choice of what you shoot and how you shoot it. Photos that convey a sense of patriotism and pride in the U.S. Submarine Force are particularly encouraged.

A maximum of three entries per person is allowed. Entries must be black-and-white prints, color prints, or electronic JPEG files of 300 dpi or higher. The minimum print size is 4” by 6”, and full caption information, as well as the photographer’s name, address, and affiliation, must be submitted with each entry.

PLEASE NOTE: This photo contest is open to everyone, but all entries must be previously unpublished. Furthermore, JPEG submissions must be unaltered images, and must meet minimum requirements to be considered (if you have questions, please contact us directly).

Entries are due by 24 May, and winners will be announced at the Naval Submarine League Symposium in Washington D.C.

Cash Prizes:

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

Submit entries to:

USW Magazine Photo Contest
USW Military Editor (CNO N77C)
2000 Navy Pentagon,
Washington, D.C. 20350-2000

Or E-mail entries to:

subwarfare_mag@navy.mil



Changes of Command

USS Bremerton (SSN-698)

CDR Charles J. Logan relieved
CDR Brian K. Nutt

USS Pennsylvania (SSBN-735) (G)

CDR David C. Knapp relieved
CDR Kenneth M. Perry

Qualified for Command

LCDR Darin Brown
USS Pennsylvania (SSBN-735)

LCDR James Christie
USS Ohio (SSBN-726)

LCDR Jeffrey Cima
USS Pasadena (SSN-752)

LCDR Christopher Henry
USS Albuquerque (SSN-706)

LT Wyatt Nash
COMCARGRU-8

Line Officer Qualified In Submarines

LTJG Mitchell Becker
USS Kentucky (SSBN-737) (B)

LTJG Mark Bjerke
USS Wyoming (SSBN-742)

LTJG Jeremy Bryant
USS Maryland (SSBN-738)

LTJG Christopher Buczkowski
USS Louisiana (SSBN-743)

LTJG Vincent Chen
USS Salt Lake City (SSN-716)

LTJG Roger Cortesi
USS Pasadena (SSN-752)

LTJG Shawn Donovan
USS Maine (SSBN-741)

LTJG Clark Durant
USS Jacksonville (SSN-699)

LT David Edgerton
USS Honolulu (SSN-718)

LTJG Bryan Everitt
USS Wyoming (SSBN-742)

LTJG Ryan Fair
USS Louisiana (SSBN-743)

LTJG Eric Fredrickson
USS Alabama (SSBN-731) (G)

LTJG Michael Fuller
USS Nevada (SSBN-733) (G)

LTJG Jason Grimmett
USS Annapolis (SSN-760)

LTJG Joshua Grove
USS Hampton (SSN-767)

LTJG Jason Grizzle
USS Maryland (SSBN-738)

LTJG Travis Hair
USS Parche (SSN-683)

LTJG Kevin Hein
USS Pittsburgh (SSN-720)

LTJG Matthew Holland
USS Salt Lake City (SSN-716)

LTJG Ian Hildreth
USS Columbia (SSN-771)

LTJG Marc Holt
USS Bremerton (SSN-698)

LTJG James Hough
USS San Francisco (SSN-711)

LTJG Jason Israel
USS Parche (SSN-683)

LTJG Daniel Jones
USS Kentucky (SSBN-737) (B)

LTJG Michael Keehn
USS Nevada (SSBN-733)(G)

LTJG Joshua King
USS Los Angeles (SSN-688)

LTJG Matthew King
USS Louisiana (SSBN-743)

LTJG Ryan Leidigh
USS Parche (SSN-683)

LTJG Dalton Li
USS Annapolis (SSN-760)

LTJG Jeb Lyne
USS West Virginia (SSBN-736)

LTJG Todd Mathieu
USS Springfield (SSN-761)

LTJG Nicholas Miller
USS Albuquerque (SSN-706)

LT Kevin Morris
USS Topeka (SSN-754)

LTJG Michael Palmieri
USS Louisville (SSN-724)

LTJG Robert Pierce
USS Topeka (SSN-754)

LTJG Kenneth Princen
USS Parche (SSN-683)

LTJG Christopher Roscetti
USS Louisiana (SSBN-743)

LTJG Eric Sonnenberg
USS Maine (SSBN-741)

LTJG Steven Tarr
USS Louisville (SSN-724)

LTJG Lynn Trujillo
USS Annapolis (SSN-760)

LTJG Joseph Viera
USS Tucson (SSN-770)

Limited Duty Officer Qualified In Submarines

ENS Andrew Dunham
USS Parche (SSN-683)

LT Jeffrey Freeland
USS Parche (SSN-683)

Qualified Surface Warfare Officer

USS Emory S. Land (AS-39)

LTJG Kevin Friedly
ENS James Hornef

LTJG Gregory Lied
ENS Charles Linnemann
ENS Carl Ortmann
LT Eddie Robles
ENS Todd Smith
LTJG Jose Torres
CWO2 Gilbert Williams

USS Frank Cable (AS-40)

ENS Guy Calkins
LT Anthony Kitson
ENS Steven Laatsch

Qualified Surface Warfare Supply Corps Officer

USS Emory S. Land (AS-39)

LTJG Jimmy Karam

USS Frank Cable (AS-40)

ENS Gail Clifton
LTJG Jimmy Karam
LT Terry Owens
ENS Fredrick Skinner

Surface Warfare Medical Officer

LCDR James Christenson
USS Emory S. Land (AS-39)

Qualified Nuclear Engineer Officer

LTJG Robert Boyer
USS Pennsylvania
(SSBN-735) (G)

LTJG Benjamin Chang
USS Santa Fe (SSN-763)

LTJG Robert Coleman
USS Bremerton (SSN-698)

LTJG Paul Costanzo
USS Alaska (SSBN-732)(G)

LTJG Michael Doniger
USS Key West (SSN-722)

LTJG Matthew Fanning
USS Los Angeles (SSN-688)

LTJG Titus Fortner
USS Ohio (SSGN-726)

LT Matthew Frank
USS Georgia (SSBN-729)(G)

LTJG Gregory Gebbie
USS Chicago (SSN-721)

LTJG Michael Hartmann
USS Buffalo (SSN-715)

LTJG Ryan Hemminger
USS Pennsylvania
(SSBN-735) (G)

LT Carlos Jativa
USS Alaska (SSBN-732)(G)

LTJG William Johansson
USS Bremerton (SSN-698)

LTJG Thomas Kelley
USS Nevada (SSBN-733)(B)

LTJG Neil Lapointe
USS Tucson (SSN-770)

LT Patrick Lessard
USS Alaska (SSBN-732)(G)

LTJG Timothy Lobner
USS Portsmouth (SSN-707)

LT Jared Males
USS Pasadena (SSN-752)

LTJG Leslie Martin
USS Columbus (SSN-762)

LTJG Colby Matthews
USS Pasadena (SSN-752)

LTJG Douglas McAdams
USS Henry M. Jackson
(SSBN-730)

LTJG Rami Musallam
USS Columbia (SSN-771)

LT Brian Nowitzki
USS Columbus (SSN-762)

LTJG Carter Reue
USS Charlotte (SSN-766)

LT Jason Rudrud
USS Greeneville (SSN-772)

LTJG Robert Sawyer
USS Alabama (SSBN-731)(G)

LTJG Benjamin Selph
USS Salt Lake City (SSN-716)

LT Gene Severtson
USS Henry M. Jackson
(SSBN-730)(G)

LT Jeffrey Sowa
USS Alaska (SSBN-732)(G)

LTJG Robert Stansell
USS Georgia (SSBN-729)(G)

LTJG Brett Sternecker
USS Michigan (SSBN-727)(G)

LTJG Aaron Taylor
USS Olympia (SSN-717)

LTJG Thomas Taylor
USS Kentucky (SSBN-737)(G)

LTJG Carl Trask
USS Houston (SSN-713)

LTJG Jacob Wallace
USS Kentucky (SSBN-737)(G)

Supply Corps Officer Qualified In Submarines

LTJG Joseph Gilmore
USS Kentucky (SSBN-737) (B)

LTJG Daniel Hogue
USS Oklahoma City (SSN-723)

LTJG Jesus Marsden
USS Georgia (SSBN-729) (G)

ENS Kevin McGraw
USS Tucson (SSN-770)

LTJG Roldan Mina
USS Honolulu (SSN-718)

LTJG Philip Mock
USS Parche (SSN-683)

Engineering Duty Officer Qualified In Submarines

LCDR Bradford P. Bittle,
Puget Sound Naval Shipyard

CDR Luther B. Fuller, III,
Portsmouth Naval Shipyard

LCDR Adam W. Masten,
Pearl Harbor Naval
Shipyard & IMF

LCDR Timothy C. Spicer,
Norfolk Naval Shipyard

Captain Edward F. Ney Awards for Food Service Excellence

Atlantic Fleet

Strategic Missile Submarine Category

First Place:
USS Maryland (SSBN-738) (G)

Runner-Up:
USS West Virginia
(SSBN-736) (G)

Attack Submarine Category

First Place:
USS Augusta (SSN-710)

Runner-Up:
USS Annapolis (SSN-760)

Large Afloat Category

First Place:
USS Emory S. Land (AS-39)

Pacific Fleet

Strategic Missile Submarine Category

First Place:
USS Florida (SSGN-728) (G)

Runner-Up:
USS Georgia (SSBN-729) (G)

Attack Submarine Category

First Place:
USS Los Angeles (SSN-688)

Overseas General Mess Category

First Place:
Silver Dolphin Bistro,
NAVSTA Pearl Harbor, HI

Junior Officers of the Year

COMSUBRON-1
LT Charles Patterson
USS Charlotte (SSN-766)

COMSUBRON-3
LTJG Aaron Taylor
USS Olympia (SSN-717)



Navy Cross Recipient Offers First-Hand Comments on “Submarines to Corregidor”

Gentlemen,

As usual, I have enjoyed the latest issue of your magazine. It continues its brief tradition of high quality with pertinent articles concerning the past and future of submarines.

As one of the ever-decreasing number of World War II skippers, I thought you would be interested in a vignette related to the article in the Summer 2002 issue entitled “Submarines to Corregidor”. I was a commissioning officer on USS *Drum* (SS-228), which was the first new construction submarine to arrive at Pearl Harbor after 7 December 1941. Her Official Ship’s History begins with her departure from Pearl Harbor on 17 April 1942 en route to the Empire. However, she undertook a mission prior to War Patrol No. 1, which is the subject of my contribution:

Drum arrived at Pearl Harbor on 15 March 1942, and traded her 24 Mk 14 torpedoes for others prepared by the Submarine Base Pearl Harbor. She trained south of Barbers Point and was scheduled to depart for War Patrol No. 1 on 1 April (COMSUBPAC 301828Z March), but this was countermanded by COMSUBPAC 010114Z April.

On 3 April *Drum* received COMSUBPAC Operation Order No. 28-42 assigning *Drum* as Task Group 7.5.3, Transportation and Patrol Unit. The operative paragraph states, “This unit will transport certain critical stores from PEARL HARBOR to CORREGIDOR and then conduct offensive patrol in AREA ELEVEN...”

Drum offloaded her 14 torpedo reloads, and on 4-5 April took on U.S. Army

medical supplies and millions of foul-smelling vitamin pills. In response to COMSUBPAC 051847Z April, she got underway for Midway. After a very rough three-day passage, she arrived fully prepared for the long transit ahead and the rigors of penetrating the Japanese harbor defenses at Manila.

Drum’s Commanding Officer, LCDR Robert H. Rice, had been directed to rendezvous with a merchantman loaded with ammunition for Corregidor. He met with the skipper, who expressed confidence that with *Drum* as his escort, he could successfully penetrate the defenses in Manila. He determined that he would identify *Drum* en route by the three rows of eight vent holes that provided air access to the main induction. Rice was less confident and advised him that *Drum* would maintain its scheduled speed of advance and made it the responsibility of the merchantman to maintain contact. This ship was SS *Thomas Jefferson*, manned for this voyage by a Navy crew.

As the UNDERSEA WARFARE article states, *Snapper* reached Corregidor on 6 April just before the U.S. forces on Bataan surrendered. Thus, shortly before the scheduled westward departure of our formidable task unit on 9 April, COMINCH 092150Z April directed CINCPAC to order COMSUBPAC to abort the mission and return *Drum* to Pearl Harbor, without refueling (See CINCPAC 100027Z April and COMSUBPAC 100041Z April).

Concurrently, CINCPAC 100245Z April ordered *Thomas Jefferson* to return to Pearl Harbor, after which COM 14 requested that

she be returned to the War Shipping Administration at San Francisco by the Navy crew, since the previously assigned merchant crew had been returned to CONUS.

I quote *Drum’s* log for 9 April 1942: “12-16 – Underway as before. 1216 – Commenced steering various courses and speeds approaching Midway Island. 1255 – Entered Midway Island Lagoon. 1310 – Moored starboard side to south side of fuel dock. 1325 – Commenced fueling ship from Midway Island. 1555 – Completed fueling. Received 19,488 gallons of Diesel oil. Commenced preparations for getting underway. Signed, M.H. Rindskopf, LTJG USN.

1620 – Moored as before. 1641 – Underway on various courses and speeds conforming to channel standing out of Midway Island Lagoon. 1708 – Steadied on course 136 at full speed (16.5 knots). Signed, Manning M. Kimmel, LT, USN.”

The log offers no commentary, nor is Operation Order 28-42 mentioned again.

After an equally rough return, *Drum* arrived in Pearl Harbor on 14 April, reversed the loading process, and sortied on 17 April (COMSUBPAC 160206Z April) via Midway for her first war patrol.

RADM Maurice H. Rindskopf, USN (ret.)

RADM Rindskopf graduated from the Naval Academy in 1938 and served on both USS *R-4* (SS-81) and *Drum*. On the latter, he made 11 Pacific war patrols, the last two as commanding officer, and he was awarded the Navy Cross and the Silver and Bronze Stars for that service. Among many postwar duties prior to his retirement in 1972 was an assignment as the Director of Naval Intelligence.

JUNIOR OFFICERS OF THE YEAR

continued

COMSUBRON-7
LTJG Neil Lapointe
USS Tucson (SSN-770)

COMSUBRON-11
LT Tullio Celano
USS Jefferson City (SSN-759)

COMSUBRON-15
LT Brian Hogan
City of Corpus Christi (SSN-705)

COMSUBRON-17
LT William Bonifant
USS Georgia (SSBN-729) (B)

COMSUBRON-17
LTJG William Farnham
USS Michigan (SSBN-727) (G)

COMSUBDEVRON-5
LT George Major
USS Parche (SSN-683)

COMSUBGRU-9
LT John Long
USS Houston (SSN-713)

Tender Junior Officer Of The Year

COMSUBRON-15
ENS Kirby Hallas
USS Frank Cable (AS-40)

SUBLANT Surface Junior Officer of the Year

ENS Jeff Peterson
USS Emory S. Land (AS-39)

SUBPAC Sailors of the Year

Sea Sailor of the Year
MM1 (SS) Nicholes H. Naquin, III
USS Pasadena (SSN-752)

Shore Sailor of the Year
OS1 (SW) George M. Laue, III
COMSUBGRU-7

Junior Sailor of the Year
ET2 (SS) Michael Twymon

SUBLANT Sailors of the Year

Junior Shore Sailor
IT3 Hermionne Etienne
Joint Maritime Facility, St. Mawgan

Junior Sea Sailor
MM2(SS) Andrew McCaslin
USS Florida (SSGN-728)

Senior Shore Sailor
MM1(SS) Charles E. Barreras
Kings Bay TRIDENT Refit Facility

Senior Sea Sailor
SM1(SW) Dorothy J. Averhart
USS Emory S. Land (AS-39)



Land-based Submarine Radio Rooms at NUWCDIVNPT

by Darlene N. Sullivan



Photo Courtesy of NMIC

In order to keep the Submarine Force current with the rapidly improving state-of-the-art in communications, the Navy is transforming its antiquated communications architecture into one based on the commercial Internet Protocol (IP) model. In line with this transition, an integrated, open-systems approach will replace the existing “stove-pipe” architecture in submarine radio rooms and align with the quality of service and human systems integration goals embodied in Sea Power 21’s FORCENet vision. To develop and test these new configurations and provide corresponding technical support to the fleet, the Naval Undersea Warfare Center Division Newport (NUWCDIVNPT) assumes the role of the Technical Design Agent (TDA) in maintaining land-based radio-room facilities for integrating and testing all submarine communications upgrades.

The Land-Based Submarine Radio Room (LBSRR) at NUWCDIVNPT provides an independent integration, test, and certification facility for evaluating the technical and operational performance of evolving SSN-688I submarine communications systems. The LBSRR is a fully-operational 688I-class submarine radio room, including hull sections and framing, an equipment configuration accurate in form, fit, and function, and shipboard-equivalent power and cooling. The facility is capable of working with both on-the-air and simulated signals to model the at-sea environment as closely as possible. It is housed in an electromagnetically-shielded enclosure with shipboard antennas on the roof and connected to associated communications equipment within the laboratory. The use of both operational and training frequencies and cryptographic keying material create an optimum test environment in which the fidelity of the physical configuration and realistic procedures make possible the identification of all potential hardware or software anomalies prior to fleet delivery.

Before installation on operational submarines, TEMPALTS, SHIPALTS, and OPALTS are verified in the LBSRR to eliminate logistical and technical missteps, verify system readiness, and mini-

mize adverse ship impacts during the fleet installation phase. The TDA analyzes the resulting data for compliance with specifications and consistency with operational objectives and then develops recommendations for fielding, additional testing, and – when warranted –

– redesign or reengineering. Testing at the LBSRR is valuable for both correcting problems efficiently and for reducing fielding costs. The fleet recognizes the importance of validating submarine communications components at LBSRR before fielding them, and the Commander Naval Submarine Force (CNSF) has mandated that all submarine communications systems be evaluated at LBSRR before installation.

The LBSRR maintains connectivity with the Submarine Extremely High Frequency (EHF) Satellite Communications (SATCOM) Integration Facility (SESIF) and the Combat Systems Test Laboratory (CSTL) for implementing full end-to-end test scenarios. Because the capabilities of the LBSRR are so representative of shipboard environments, it has been used for operational testing by the Commander, Operational Test and Evaluation Force (COMOPTEVFOR), crew training, and numerous fleet exercises.

Space and Naval Warfare Systems Command’s Submarine Communication Program Office (SPAWAR PMW-173) is developing a Common Submarine Radio Room (CSRR) for all submarine classes in the fleet. Their goal is a common communications system that differs among submarines only when there are platform-unique considerations due to mission needs, external interfaces, and engineering factors. A CSRR land-based test facility is under construction at NUWCDIVNPT that will provide a single testbed configurable for integrating, testing, solving problems, and providing training for the radio rooms of all classes. The USS *Jimmy*

Carter (SSN-23), currently under construction, will be the first submarine delivered with the full CSRR configuration in FY04, followed by the *Virginia* (SSN-774) class, USS *Seawolf* (SSN-21) and USS *Connecticut* (SSN-22), and the *Ohio* class (including SSBN and SSGN), all starting in FY04 or FY05. Finally, the *Los Angeles* (SSN-688)-class boats will begin upgrades in FY06.

The new CSRR site is under construction adjacent to the existing TRIDENT Integrated Radio Room (IRR) FSP-2 laboratory at NUWCDIVNPT, which is similar to the LBSRR in that it provides a fully-functional radio room connected to antennas, simulation and stimulation equipment, and combat system interfaces. This laboratory is currently supporting the TRIDENT IP program and was recently used for validation testing of the UHF Communications Upgrade for the Giant Shadow demonstration.

As submarine open-systems architectures develop to replace legacy systems, and shipboard networks increase their efficiency, the land-based radio room concept grows more important. Getting the right information to the right people at the right time is one of the bedrock concepts within FORCENet. As part of the “virtual submarine,” the LBSRR enables end-to-end land-based testing that provides immeasurable benefits in ensuring the reliable networking of disparate shipboard information domains with the Global Information Grid (GIG).

Darlene N. Sullivan is currently the Program Manager for Submarine Exterior Communications Systems at NUWCDIVNPT.



Nimitz

continued from page 15

surplus. The evidence suggests that the cohort of chiefs Nimitz gathered around him believed in the adage that it was better to seek forgiveness than ask permission. Moreover, his own years in the Orient probably equipped him with the adaptability necessary to understand *cumshaw* – the art of reorienting the government’s property for the benefit of the government, though not necessarily in accordance with the government’s rules and regulations. According to his biographer, his minions even lifted a Navy car for Nimitz in the machinations that took place. Even today, there remain buildings on the Pearl Harbor base without official Navy building numbers – an indication that their construction was neither sanctioned in law or in accordance with the direction of the Bureau of Yards and Docks. But by 1922 Submarine Base Pearl was in operation, and Nimitz was off to the Naval War College.

When Nimitz finished War College, his mentor, former CAPT Robison, was now Commander-in-Chief, Battle Fleet, embarked on USS *California* (BB-44). Nimitz became his Flag Aide, then Assistant Chief of Staff and Tactical Officer. In this billet, he brought ideas from the War College about the fleet’s tactical formations, and initial work with circular formations at sea began. In 1925 Robison became Commander-in-Chief, U.S. Fleet, and of course Nimitz went with him. During the Fleet Exercise that year, Nimitz tried to get the USS *Langley* (CV-1), then the only aircraft carrier, to operate with the fleet. He failed – and it would be three more years before carriers operated in Fleet Exercises – but his effort reflected a foresight and imagination that lurked behind the ready smile and sunny disposition. After three years on Robison’s staff, Nimitz was selected – nominated by Robison to be sure – to be one of the first six Commanding Officers of Naval Reserve Officer Training Units and Professors of Naval Science. In the fall of 1926 he went to the University of California, Berkeley in what must have then been seen as another diversion from the accepted career path. Although he enjoyed Berkeley and his students, the assignment was not, as is said, “career-enhancing.”

It was at Berkeley that he made Captain in 1928 – 23 years after graduating from the Naval Academy. His was an “on-time” promotion – early selection in the Navy was still far in the future. In 1929, at San Diego, he was back in the Submarine Force as Commander, Submarine Division 20, which had recently been formed around the Navy’s four newest submarines, USS *V-1* through *V-4* (later *Barracuda*, *Bass*, *Bonita*, and *Argonaut*, SS-163 through 166, respectively). In the annual Fleet Exercises that were the only significant operations of those years, Nimitz fretted at having to tie the submarines to the battle line as scouts. He wanted to deploy them far ahead in independent operations to attack the enemy well before the major engagement was joined.

In June of 1931 at the height of the depression, Nimitz began a two-year tour in charge of 35 out-of-commission destroyers in San Diego, with his family quarters on the upper decks of an old tender, USS *Rigel* (AD-13). This novel setting was not without amenities that have long passed into history – a cook, a steward, and two mess attendants to serve the family. On the other hand, there were rats in the bilges, and the Nimitzs still had a daughter in diapers, so Mrs. Nimitz must have harbored some concern about “Child Overboard” situations.

Though Nimitz was out of the mainstream, he was certainly not forgotten. In 1933, he was ordered as Commanding Officer of the heavy cruiser, USS *Augusta* (CA-31), flagship of the Asiatic Fleet, a prime sea-going command. Early in his tour, *Augusta* – with Nimitz at the conn – collided with the moored oiler USS *Pecos* (AO-6), damaging *Pecos*’ bridge structure and boat davits. No repercussions seem to have come from this incident – indicating a certain tolerance for the errors of talented and promising officers. For most of his 18 months in command he lived afloat as the ship shifted berths between Manila, Shanghai, and Tsingtao, China, while his family resided first in Japan and then in Shanghai. After 18 months in command, he became Assistant Chief of the Bureau of Navigation (now Personnel) where in 1938, 33 years after graduation, he was selected for flag.

As is evident from this account, ADM Nimitz did not follow an “optimum,” or even conventional career path. In an age

when big guns dominated naval strategy, and the most promising officers served in battleships, he served most of his time in vessels that hardly deserved the appellation man-of-war. His dedication to the Navy was manifest. His performance was marked with intelligent application and attention to detail in the tasks he was assigned, a grasp of the technical fundamentals of the matters at hand, an unhesitant willingness to innovate, and finally good relations with seniors, contemporaries, and juniors. Like his contemporaries, he never seems to have had to worry about reenlistment programs or officer retention, though Nimitz and his wife frequently hosted social events for junior officers in his commands. His application, intelligence, and good humor earned him a place in the inner circle of senior officers and brought him a powerful mentor who pushed his advancement, not as favoritism, but because his benefactor saw that such promotion benefited the service. Nimitz’s characteristics are ones that officers of any time or era can appreciate and emulate.

Admiral Jerry Holland is a retired flag officer, who served most of his career in submarines. Currently he serves as the Vice President of the Naval Historical Foundation.

1 The basis for most of the facts here in is E. B. Potter, *Nimitz*, U.S. Naval Institute Press, Annapolis, 1976. Other sources are cited where appropriate. Opinions and characterizations are the author’s unless otherwise identified.

2 In *The Fateful Hours*, Peter Maas describes the suggestion of the Commanding Officer of the battleship USS *Oklahoma* when then-Ensign, later Vice Admiral “Swede” Momsen turned down orders to a battleship to go to Submarine School in 1921. “I think you’ve a bright future. Better reconsider. Only the scum of the Navy go into pigboats.”

3 Chester W. Nimitz, personal interview with Adah-Marie Miller, quoted in her thesis, “Fleet Admiral Chester W. Nimitz, A Speculative Study”, University of Texas, August 1962.

4 C.W. Nimitz, “Defensive and Offensive Tactics of Submarines”, U.S. Naval Institute Proceedings, December 1912.

5 W. Karig, “He Must Balance Security and Freedom”, New York Times Magazine, February 4, 1951.

6 Thomas Wildenberg, *Grey Steel and Black Oil*, Annapolis, Maryland, Naval Institute Press, 1996, pp. 9-13.

7 Dr. Gary E. Weir, *Building American Submarines, 1914-1940*, Naval Historical Center, Washington, D.C. 1991.

The Media and Giant Shadow

by JOC Michael Foutch, USN

While Navy participants played out the Giant Shadow exercise in the warm January waters of the Bahamas, a network video crew was looking over their shoulders to capture all the action.

News segment producer Elliot Kirchner joined colleagues from CBS News' *60 Minutes II* to record a story on the SSGN concept and Giant Shadow for airing on the network. Kirchner, affiliated earlier with the History and Discovery Channels, had been working on a series of programs on the military's high-tech weaponry, including cruise missiles and the TRIDENT submarine. It was the follow-on implications of his documentary on TRIDENT that led him to Giant Shadow.

"With the Cold War over and all the talk of transformation for the military coming out, I used the wrap-up of the TRIDENT documentary to talk about what the Navy might do next with these submarines," Kirchner said from his CBS office on West 57th Street in Manhattan. So, as he finished production on the earlier program, he approached the office of the Navy's Chief of Information to ask about the conventional-weapons conversion he'd heard of for a handful of TRIDENT boats.

With USS *Ohio* (SSGN-726) only recently in the shipyard for the first conversion effort, doing a story on a "real" SSGN would be difficult. Television is a visual medium requiring compelling images, but no pictures of an SSGN in action would be available until *Ohio* returned to the fleet in 2007. Fortunately, though, the Navy had already planned Giant Shadow to demonstrate the SSGN concept, and this would offer a chance to capture the video Kirchner needed.

His bosses at CBS were enthusiastic about the project – this was an unparalleled at-sea opportunity to watch the Navy try out new ways to use a ballistic missile submarine. The capabilities associated with SSGN – Tomahawk missiles and Special Operations Forces – already are of great interest to the television audience, Kirchner noted. "But it was also a chance to go where the media isn't allowed – a chance for us to say 'we're going to take you where you've never been before.'"

However, Kirchner saw a problem: the price he might have to pay for access to the rarely-seen world of a ballistic missile submarine. Imagine Navy concerns about allowing a media crew onboard USS *Florida* (SSGN-728) during an exercise focusing on transformation efforts. Things could go wrong during Giant Shadow; operators could make mistakes, and the TV camera would be there to document it all for a nationwide audience. Kirchner's integrity as a journalist was at stake if he told a story that scrubbed away all the honest warts and imperfections inherent in experimental tests on a new platform at sea.

"You need to be clear what your goals are when you approach a story like this," Kirchner said. "Everyone understands national security and the concerns with classified material. Also, because these are operational platforms, they're on a schedule that limits when you can be onboard."

Kirchner drew a comparison with coverage by CBS newsman Edward R. Murrow of the beginnings of the Polaris program some 40 years ago. Not only did Murrow air the internal debate about whether submarines could be a nuclear-deterrent platform, but he showed striking footage of a failed launch, with the missile spinning wildly out of control. Yet his unfettered access told the complete story of the Polaris program as it unfolded, and in the end, CBS' depiction of occasional testing failures gave their reports of the Navy's ultimate success in deploying ballistic missile submarines unmatched credibility and support from a nationwide audience.

"The media always want to go and report," Kirchner said. "I think independent reporting serves the military in showing Americans where their money is going. I think America is generally sympathetic toward the military, even when things aren't always pretty, and even when they make mistakes."

Despite unavoidable logistics constraints during the exercise, Kirchner was pleased with the access, hospitality, and openness the Navy and the submarine community provided. In particular, he was impressed with the participants' eagerness to answer all the questions *60 Minutes II* had on SSGN – as well as on the SOF deployment and coordination with other elements in the experiment.

"One thing struck all of us," Kirchner said, "...the seriousness and professionalism of the young crew. CAPT David Duryea [*Florida's* Commanding Officer] remarked to us that sometimes the youth of today just make you want to throw up your hands. But you see these 18- and 19-year-olds in charge of this very important weapon and doing it for very little pay, and you can't help but be impressed."

Not everything went smoothly during Giant Shadow for the CBS crew and their hosts. As they were leaving Florida in rough seas for the return trip to USNS *Mary Sears* (T-AGS-65), a wave washed much of their television gear out to sea. Fortunately, all but one of the videotapes were saved to provide documentation of the exercise.

"That showed us that unexpected things can pop up," Kirchner said. "Sometimes, dangerous things can happen even when everything seems under control. There's nothing routine, and even an experiment in friendly waters can still be an uncertain business."

The airdate for the segment had not been determined as of press time.

JOC Foutch is a Military Editor for UNDERSEA WARFARE Magazine.





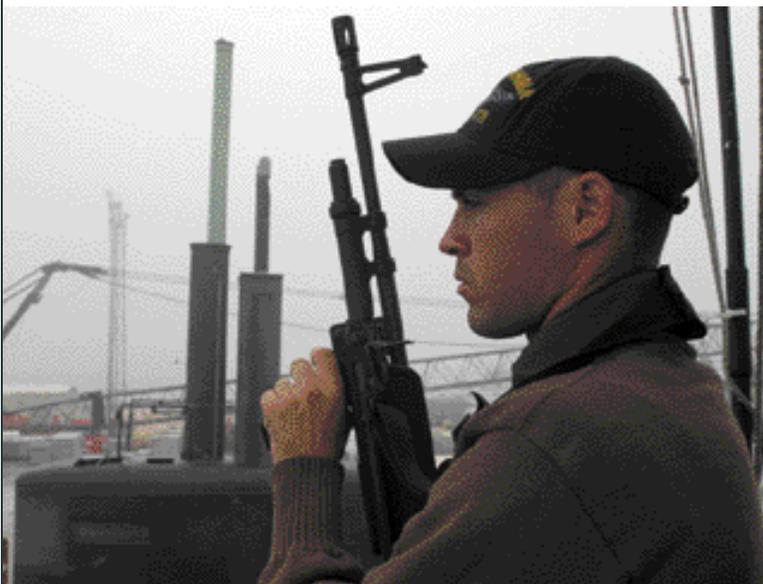
USS *Columbia* Supports

OPERATION ENDURING FREEDOM

by COMSUBPAC Public Affairs,
photos by PH2 Richard R. Moore

USS *Columbia* (SSN-771) recently left family and friends behind for a six-month deployment with the USS *Constellation* (CV-64) Carrier Battle Group in support of Operation Enduring Freedom.

“Leaving is always difficult for our crew and their families and even more so during the holidays,” said CDR Duane Ashton, *Columbia*’s commanding officer. “We have a great support team for the families, however, and I am comfortable with the fact that they will be well taken care of while we are deployed.” *Columbia* was christened in 1995 by then First Lady Sen. Hillary Rodham Clinton (D-NY). The *Los Angeles*-class attack submarine is approximately 360-feet long and carries a crew of 130 men. “The crew has been preparing for this deployment, and we are all ready to go and do our part for the war on terrorism,” Ashton said.



(above) Yeoman 2nd Class Nick Kountapanya makes his way down the ladder aboard *Columbia* prior to getting underway.

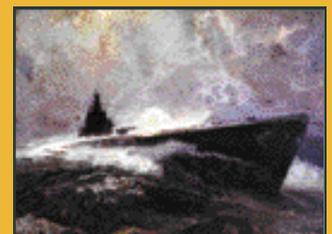
(top left) Fire Control Technicians 3rd Class Dennis Tarpert, of Covina, California, and Trevor “Toolman” Franklin of Wyoming take a moment to smile for the camera as *Columbia* gets underway.

(bottom left) Machinist’s Mate 3rd Class Nathan Grandjean stands watch.

On The Back

“USS *Growler* (SS-215)” by McClelland Barclay (1891-1943). Born in St. Louis, Missouri, well-known American artist McClelland Barclay was most noted before World War II for his ability to paint strikingly beautiful women, who often adorned the covers of the *Saturday Evening Post* and *Pictorial Review*, as well as advertisements for General Motors automobiles. Appointed a lieutenant commander in the Naval Reserve during the war, he did many posters, illustrations, and officer portraits for the Navy before being lost at sea on an LST torpedoed by the Japanese. He painted “USS *Growler*” shortly before his death.

Launched at Electric Boat in October 1941, *Growler* is particularly remembered in connection with the February 1943 sacrifice of her commanding officer, CDR Howard Gilmore (“Take her down!”). But earlier, when Gilmore took *Growler* to the Aleutians in July 1942 on her very first war patrol, he sank a Japanese destroyer and damaged two more – with a single torpedo salvo. [Ed. Note: See “Submarine Hero – Howard Walter Gilmore” in the Summer 1999 issue of *UNDERSEA WARFARE* and “Forgotten Theater” in this one.]





“USS Growler (SS-215)”

by McClelland Barclay