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The Silent Sentinel AUGUST 2009



Our Creed

To perpetuate the memory of our shipmates who gave their lives in the pursuit of their duties while serving their country. That their dedication, deeds, and supreme sacrifice be a constant source of motivation towards greater accomplishment and patriotism to the United States of America and its Constitution.

CONTINUED FROM PAGE 16

BUSTER from land, while the submarine “pull[s] in the full motion video and the infrared, correlate[s] it and fuse[s] it in our battle management centers on board.”

Looking ahead, the Navy wants to give its new Virginia-class attack submarines the same ability to carry robots, by outfitting them with a “payload module” similar to the SSGNs’ former missile tubes.

Russia To Lay Down One Multipurpose Submarine A Year From 2011

Novosti, July 27, 2009

SEVASTOPOL, July 26 (RIA Novosti) - The Russian Navy command has made a decision on building one nuclear-powered multipurpose attack submarine a year from 2011, the Navy chief said on Sunday.

Adm. Vladimir Vysotsky said that construction of a second Project 885 Yasen (Graney) class nuclear-powered multipurpose attack submarine started at the Sevmash shipyard in northern Russia on July 24.

Vysotsky said the state currently had all possibilities, including economic and financial, to implement this project as soon as possible.

The Kazan submarine will feature more advanced equipment than the first vessel in the series - the Severodvinsk, which was laid down in 1992 and is scheduled to join the Russian navy in 2010 or early 2011 after a long delay for financial reasons.

“The second submarine will have improved electronics and fire-control systems, and will be built exclusively with Russian-made materials and components,” Sevmarsh spokeswoman Anastasia Nikitinskaya earlier said.

The submarine’s armament will include 24 cruise missiles, including the 3M51 Alfa SLCM, the SS-NX-26 Oniks SLCM or the SS-N-21 Granat/Sampson SLCM. It will also have eight torpedo tubes as well as mines and anti-ship missiles such as SS-N-16 Stallion.

Vysotsky also said that Russia would annually build warships and nuclear submarines for the Russian Black Sea Fleet stationed in Ukraine’s Crimea.

“From 2010, we’ll annually lay down one surface ship and one nuclear submarine for the Black Sea Fleet,” he said.

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The Silent Sentinel via Email

To all of my Shipmates and families who currently receive our Great newsletter via the mail who would like it sent via email or continue to receive it via mail, please fill out the form and mail it to the base or myself. We are trying to cut the cost of the newsletter down from \$3700 to about \$1900 a year. By receiving the Silent Sentinel via email will cut down the printing and mailing cost. The other plus to receiving it via email is you can save it on your computer and not have the paper lying around the house.

A subscription to the Silent Sentinel newsletter will be available to surviving family members via internet email, at no charge, upon notification of the Membership Chairman. If a printed hard-copy is preferred, via US Post Office delivery, an annual donation of \$5.00 will be requested to cover costs.

NAME: _____

ADDRESS: _____

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EMAIL: _____

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Would like the SILENT SENTINEL emailed: YES _____ NO _____

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DUE TO LOGISTICS CONSTRAINTS, ALL INPUTS FOR THE SILENT SENTINEL MUST BE IN MY HAND NO LATER THAN *ONE WEEK* AFTER THE MONTHLY MEETING. IF I DO NOT RECEIVE IT BY THIS TIME, THE ITEM WILL NOT GET IN. NO EXCEPTIONS! MIKE

August Meeting

Our monthly meetings are held on the second Tuesday of the month at VFW Post 3787, 4370 Twain Ave., San Diego. Our August meeting will be on 11 August, 2009. The post is located one-half block West of Mission Gorge Road, just north of I-8. The meeting begins at 7 p.m. The E-Board meets one hour earlier at 6 p.m.

Check us out on the World Wide Web

www.ussvisandiego.org

BINNACLE LIST

Art Carter

Dennis Mortenson (Gall Bladder Removal, June 09)

Richard Fullen (recuperating in Santee)

Mike Hyman (recuperating at home)

C J Glassford (recuperating at home)

Bob Coates (doing well at home)

Dick Fullen, unfortunately is back in the Nursing Home with Pneumonia. Seems to be doing OK, but is no longer recuperating at home. Can be visited/called at: Villa Monte Vista, 12696 Monte Vista, Poway, Ca 92064, 858-487-6242, Room 119. Dick's wife said he'd be pleased to see/hear from any of us.

Tom Warner's wife Sherry is finally back home recuperating after being seriously injured in a car accident. Tom and Sherry both thank you for the calls and get well wishes.

Submitted by Mike Hyman

Submarine Losses in July

Submitted by C J Glassford



G - 2 (SS 27) Duty Section on Board: Sank, on 30 July 1919, At Moorings, in New London, Connecticut : " 3 MEN LOST "

GRUNION (SS 216) 70 Men on Board: Sunk, on 13 July 1942, by Gunfire from Torpedoed Japanese Transport (Kashima Maru), Ten Miles North of Segula, near Kiska Island, Aleutians : " ALL HANDS LOST "

S - 28 (SS 133) 50 Men on Board: Sunk, on 4 July 1944, During ASW Exercises, Off the Hawaiian Islands : " ALL HANDS LOST "

ROBALO (SS 273) 78 Men on Board: Sunk, on 26 July 1944, by a Mine, Off Western Palawan, Philippine Islands. " 74 MEN " went down with the Boat. Four Men managed to swim away, but were picked up by a Japanese Destroyer. " ONE MAN DIED, " of injuries on board the Destroyer. " THREE MEN DIED, " in POW Camp : " THERE WERE NO SURVIVORS "



Commanders Corner

AUG 09

Hello everyone!! I hope everyone is having a Great Summer. I know it's been hot at times, at least we are not in Vegas or Tucson were it has been above 110 degrees. It was a good turn out for the Julian 4TH of July Parade. The temperature was a little cooler than last year but not by much. And the American Legion put on another Great feast after the parade.

I would to Thank everyone who came out to the picnic at Subase and those who lent a hand (David Ball & Ron Gorence were a few of the big helpers). Sorry about the Boat tours falling through. Hopefully we can get some tours arranged later this year. Looks like we had about 60 to 70 people come out and enjoy a day out in the SUN!!! I think everyone had a good time and I know we all had lots to eat!!!!!!!!!!!!!!

Coming up this month is the Presentation of a National Scholarship Awards at the meeting. At the end of the month we have another breakfast. If you can't come out and help, at least bring the family out and enjoy a Great breakfast and the company there.

If anyone signed up to volunteered for working at the Convention, there will be a meeting on the 22nd Aug at the VFW at 1000. This is the Mission Gorge VFW Post. The VFW will be serving Hot Dogs and Hamburgers for a few bucks around 1100. If you haven't registered for the convention yet, the cost goes up to \$35 per person after the 15th Aug.

Just a reminder to all... **SEPTEMBER is a dark month (no meeting) due to the National Convention. Hope to see you there. I'm looking forward to it.**

As always, I hope we think about and prayer for our shipmates and their families to keep in good health and for their safety all the time.

Sincerely,

Bob Bissonnette
Base Commander

Minutes of the San Diego Base Submarine Veterans Meeting, July 14, 2009.

1900 - Monthly meeting called to order by Base Commander, Bob Bissonnette.

Conducted opening exercises:

Reading of the Creed:

Pledge of Allegiance:

Base Chaplin lead in opening Prayer and Tolling of the Boats for June.

USS 28 (SS 133) 04 JULY 1944

USS ROBALO (SS 273) 26 JULY 1944

USS GRUNION (SS 216) 30 JULY 1942

ALL HANDS OBSERVED A MOMENT OF SILENCE.

Secretary's report: Sailing list indicates 34 members present.

One E-board members not Present.

Chaplain's report: Chuck George, Mike Hyman, Jim Bilka, Charlie Marin

Minute's corrections: Bob (Doc) Coates donated the Grandfather clock which was auction off at the silent auction, Thank Bob.

Committee reports

Parade Committee: The July 4th parade: Our group did not win a prize for the float. It was pointed out that we did not even get our picture in the local paper.

Membership Committee: no losses no gains in membership this month.

Scholarship fund: Paul Hitchcock has volunteered to be in charge of the Scholarship fund.

Convention Committee: Last month I reported we had 500 registered to attend as of this month we have over 800 registered. Our dinner cruise has been sold out. We still need volunteers to help at the convention, We are working on the watch bill and you need to sign up. There will be a Committee meeting on August 1 at Scamp Base. Another meeting for Volunteers will be on August 22 at 1000 at our VFW Post, if you are a volunteer you must attend this meeting. Volunteers will be wearing a special shirt and if you are considering volunteering you must order your shirt tonight. We are taking orders for a Convention T-Shirt which may be between 15-19 dollars. They must be ordered tonight.

Tours for the Convention – We have been able to schedule four boat tours, however the tours are for veterans only. Other tours will be of the Submarine Trainer and other facilities. Tours will be conducted through out the week.

Convention coins are available to night they are 10 dollars.

Breakfast report: Next breakfast will be on August 30th. So come on out and enjoy a great breakfast, and sorry SOS will not be served.

1920 Break

1930 Meeting called to order by Base commander and conducted drawing. Winners for picture drawings are: CJ, Mike and Red.

Unfinished business: Picnic will be this Sunday July 19. I am still working on getting tours of a boat. Ron G has volunteered to conduct the games, come please and bring a side dish. We are supplying the food, music etc. At the end of the picnic we give to the boat that supplied the tour the left over food and drinks (except of course the beer) plus we invite the boat to the picnic.

A motion was made by to BC for funds to buy to food for the picnic, 350 dollars was requested, the motion was passed and Ayes have it.

BC reported that the damage to the braked on the float has been repaired by Fred, he also pointed out the Fred's truck was damage due to the problem with the float. A motion was presented to reimburse Fred for damages to his truck and cost of the brake controller. Made motion.... motion second.... discussion None,,,,, voted: Ayes have it.

No new business:

Good of the order:

Ray Ferbrache announced the passing away of J.K. Bain.

Member request (Everette Mauger) we should march in the Coronado parade.

CJ expressed strong concern about participating in the Coronado parade.

auction for Convention.

Suggestion made that silent auction items for the Breakfast. BC will hold items until August

1959- Meeting adjourned.

Sailing list:

FRED FOMBY	JOE ACAY	BILL EARL
FRANK WALKER	ED WELCH	CHUCK BABCOCK
DAVID BALL	BOB OBERTING	DENNIS MCCREIGHT

CJ GLASSFORD
 PAUL HITCHCOCK
 BOB BISSONNETTE
 ROD STARK
 TOM POLEN
 MANNY BURCIAGA
 BOB WELCH
 BOB COATES
 NIHIL D SMITH
 JACK L. ADDINGTON

JOEL EIKAM
 JACK KANE
 DICK WOLZ
 CHRIS STROWS
 TOM WARNER
 JIM MALDON
 RON GORENCE
 RAY FERBRACHE
 MIKE MURPHY

MICHAEL HYMAN
 MATT BAUMANN
 JIM WADE
 JIM TREGRENTHA
 DAN EBERHARDT
 MIKE HACKING
 BOB FARRELL
 MIKE SCHREIBER
 PHILL RICHESON

Membership Corner

Membership: 339 Members.

Welcome aboard to STS1(SS) Glen Gerbrand, of El Cajon, who qualified on Calhoun (SSBN630) in 1973, and RMC(SS) Ken Gordert, of San Diego, who qualified on Birmingham in 1983.

Special thanks to Leland White who donated another \$40 to the Holland Club, and to Mike Marmon, whose stained glass dolphins brought in \$150 for the Base and \$75 for the Razorback Association.

Note

We want to show the Submarine community that we are good and able hosts, but we're short volunteers for the Convention. We need every able-bodied member within the San Diego area to step up and offer a hand (wives, offspring, friends can sit with you and help too). If you do not plan to attend the **Volunteers Meeting at the VFW, 10:00-12:00 on August 22**, then please send me a note offering your assistance. Pick a four-hour watch in the morning, afternoon or evening, on Tuesday (Sept 8th), Wed, Thur or Friday (Sept. 11th), which you can commit to, and jot it on a piece of paper and send it to me or call or send an e-mail. Most jobs will be meet-and-greet sitting-down duties like passing out goodies, giving directions, etc. or, if you prefer, there will be a few tasks that will look like cat-herding. (address, phone #, and email on Sentinel, page 2).

It was God's Will.

by Ron Gorence

The San Diego Base can boast of having among our membership 31 WWII Veterans, if our records are accurate. These men sailed on 67 different boats (eight of which are among the lost boats we honor monthly with our Tolling of the Bells). Therein lies a part of our heritage:

Over half a century ago, during WWII, some of our present members—perhaps bound for a Navy school—paused on the brow of USS Herring or USS Argonaut, faced aft to salute the Ensign, and bid farewell to their ship and their shipmates. Others, with leave long overdue, may have made similar departures from Grampus, Bonefish, or Albacore and then headed home. Still others assigned to another ship or a shore-station, departed Swordfish, Trigger, or Tullibee under Navy orders. An unknowable future beyond the gangway was accepted with neither tears of joy nor of sadness. These men had just irrevocably cast the dice.

Within a few months, each of these men was stunned to learn that the boat he'd sailed on had either been sunk by the enemy or was *overdue and presumed lost*. They all had a Dolphin-wearer's knowledge of each valve and switch, every system, every job and operating procedure on that boat, and some were among those submariners who believe a submarine is not an inanimate machine, but that she forever embraces part of the heart and soul of every man who ever sailed on her. Their shipmates—men often known as well as their siblings back home—had inexplicably been sent forever on Eternal Patrol. Twenty-four hundred tons of sea was displaced after each periscope disappeared below the waves for the last time—the memory, a weighty load.

These WWII sub vets fought on against tremendous odds, and they live today to help us remember the valor of their departed friends, lost in savage battles at sea. They link us to a proud submarine heritage, achieved with great courage and in accordance with God's Will above and beneath the waves.

Our hearts go out to these men who perhaps suffered an even sharper pain than those whom we normally honor as our World War Two Heroes: those who offered their all for our Country and who—each and every one—lost treasured shipmates.

The boats of current San Diego Members which were forever lost at sea:

Boat	Cause of loss	Approximate Date Lost
Argonaut	Depthcharges (DC) & gunfire	1/10/1943 on her 3rd patrol
Grampus	<i>Overdue and presumed lost</i>	2/12/1943 on her 6th patrol
Herring	Only sub sunk by shore batteries	6/1/1943 on her 8th patrol
Albacore	Mines?	11/07/1944 on her 11th patrol
Tullibee	Circular run?	3/26/1944 on her 4th patrol
Swordfish	<i>Overdue and presumed lost</i>	1/12/1945 on her 13th patrol
Trigger	<i>Overdue and presumed lost</i>	3/28/1945 on her 12th patrol
Bonfish	DC <i>Hellcats</i> last SubPac boat lost	6/25/1945 on her 8th patrol

Checking Account Balance @ 05/29/2009		\$4,169.44
INCOME for JUNE 2009		
40/30/30 Base	39.00	
Breakfast - May 31	400.00	
Booster Club	0.00	
Midrats	40.76	
Ship's Store	342.00	
Subtotal		821.76
Membership	310.00	310.00
Scholarship from 40/30/30	39.00	
Other Scholarship Income	0.00	
Scholarship Income for June		39.00
Total Income for June (per Bank Stmt)		\$1,170.76
EXPENSES for JUNE 2009		
Membership	515.00	
VFW Parking Lot Paving Donation - 3/10/09	150.00	
Imaging Technologies - S.S. Printing	51.53	
Imaging Technologies - Toner Freight	10.57	
Silent Sentinel Printer Cartridge	91.96	
Silent Sentinel - 20 Reams of Paper	164.43	
Shannon Faust Scholarship	500.00	
		1,483.49
Total Expenses for June (per Bank Stmt)		\$1,483.49
Checking Account Balance @ 06/29/2009		\$3,856.71
ASSETS		
Base Checking (06/29/09)		\$3,856.71
Scholarship Fund Included in Base Checking	2,479.24	
Base Savings (06/29/09)		9,326.64
Convention Account (06/30/09)		105,327.13

San Diego Base Members at the Julian Fourth of July Parade



USS *George Washington* (SSBN-598) The Nation's First Boomer

by Jessica Taylor



During the 1950s, the tensions of the Cold War forced the United States to adopt a foreign policy of deterrence as the ultimate strategy to prevent nuclear war with the former Soviet Union. To execute this policy, the U.S. Armed Forces pursued a revolutionary strategy that relied on three elements: manned bombers, land based intercontinental ballistic missiles, and nuclear powered ballistic missile (SSBN) submarines—led by USS *George Washington* (SSBN-598).

George Washington was the U.S. Navy's first SSBN and, with her inception, submarines became a vital linchpin in the nuclear triad. Ballistic missile submarines' groundbreaking capabilities would forever transform the U.S.'s land, air, and maritime forces. With *George Washington*'s entry into service in December 1959, the U.S. Navy instantly gained a powerful deterrence weapon — a stealth platform with enormous nuclear firepower.

As the first SSBN, *George Washington*'s innovative concept and capabilities advanced U.S. Navy ballistic missile systems, paved the way for the rotating two-crew concept, foreshadowed the model of forward presence as a key part of U.S. maritime strategy, and laid the ground work for our present day SSBN to guided missile submarine (SSGN) conversions.

The third ship named after the first U.S. president and commander-in-chief of the Continental Army embodied the ideals put forth by her namesake. George Washington believed as early as the Revolutionary War that, "In any operations, and under all circumstances a decisive Naval superiority is to be considered as a fundamental principle upon which every hope of success must ultimately depend." The words of General Washington remain true for today's maritime strategy and were perhaps most realized in the capabilities of his third namesake vessel.

Electric Boat Co., in Groton, Conn., began construction on *George Washington* — originally an attack submarine named *Scorpion* — in 1957. However, the name changed when the Navy inserted a 130-foot missile section aft of the bow and finished *George Washington* as the lead ship in the class of SSBNs. Mrs. Robert B. Anderson helped commission the boat on Dec. 30, 1959. In total, *George Washington* had a length of 381.6

feet, beam of 33.1 feet, draft of 28.9 feet and a displacement of approximately 6,700 tons submerged. She carried 16 vertical tubes for Polaris A-1 missiles and six 21 inch torpedo tubes. Her crew of 12 officers and 128 enlisted men would assert the U.S.'s new strategic mission of nuclear deterrence from under the sea.

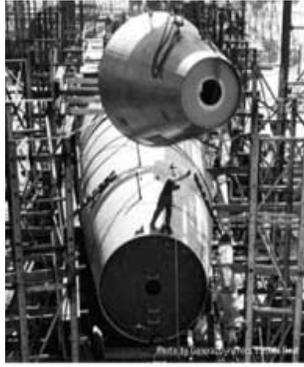
Missile System Advancement

Nearly two decades before *George Washington*'s conception the English author, Herbert George (H.G.) Wells, predicted the development of "long-range air torpedoes with directional apparatus" that would forever change the shape of conventional warfare. The first successful tests of a submarine-based launch platform for guided missiles occurred in Germany on U-boats during World War II with German V1 rockets. This new era of guided missiles encouraged the U.S. Navy to develop the Regulus guided cruise missile program.

The Regulus program was initially successful. However, after its implementation, the Navy quickly discovered a major drawback of the missile launch system. In order to launch a Regulus missile, the submarine needed to surface and remain surfaced during the launch. Unfortunately, submarines were very vulnerable to attacks during surface launches, and could not launch a fully or partially fueled missile on deck without serious hazards to the safety of the crew and the boat. Therefore, in 1959 the U.S. Navy asked Lockheed (currently Lockheed Martin) to begin developing the Polaris — two-stage solid-fuel nuclear-armed, a submarine-launched ballistic missile (SLBM) — that would replace the Regulus missile on Navy submarines.

George Washington and her Polaris missiles provided a novel stealth capability. She was the first submarine that could remain submerged and safely hidden from reconnaissance satellites during launch. At the time, this nearly guaranteed her immunity from a first or retaliatory strike.

George Washington was equipped with the first version of the Polaris A-1 missiles. Polaris A-1s were two-stage solid propellant missiles developed years ahead



*Her crew consisted of
12 officers and
128 enlisted men,
whose experience with
her new capabilities
at the depths of the sea
would assert America's
strategic mission of
nuclear deterrence.*



Above left) The first U.S. ballistic missile submarine, USS George Washington(SSBN-598) was converted to a missile submarine with the insertion of a 130-foot section. (Above right) USS George Washington(SSBN-598) under construction. Photos by General Dynamics Electric Boat.

of schedule under the leadership of Rear Adm. W. F. Raborn ("Red" — who would later become the seventh director of the Central Intelligence Agency). A-1s had a length of 28.5 feet, a body diameter of 54 in., and a launch weight of 28,800 lbs. A-1s had a range of 1,200 nautical miles, a Mk 1 re-entry vehicle, and carried a single W-47-Y1 600kT nuclear warhead with an inertial guidance system that provided a circular error probability of 6000 ft.

On July 20, 1960, *George Washington* conducted the first submerged launch of the Polaris A-1 missile system at the Atlantic Missile Test Range in Cape Canaveral, Fla., with Rear Adm. Raborn on board as an observer. Following the successful launch, at 12:39 p.m., *George Washington*'s commanding officer sent U.S. President Dwight D. Eisenhower notification of this historic achievement. Less than two hours later, another missile from the submerged submarine successfully launched on another impact area 1,100 miles down range. *George Washington* helped to forever tilt the scales of nuclear strike capability in America's favor.



USS George Washington(SSBN-598) was the Navy's first ballistic missile submarine. U.S. Navy Photo.

Development of a Two-Crew Concept

In addition to her innovative missile power, *George Washington* paved the way for the SSBN rotating two-crew concept. On July 1, 1958, Submarine Squadron FOURTEEN (SUBRON-14) was established under the command of Capt. Norvell G. Ward to develop operational doctrine before the commissioning of *George Washington* and future SSBNs. SUBRON-14 originally consisted of a submarine tender, a floating dry dock, and one or two work space and berthing barges. SUBRON-14 was located at U.S. Naval Base, Holy Loch, Scotland.

SUBRON-14 was responsible for the training, equipping and administering of the first SSBNs. One of the squadron's earliest and most notable achievements was its landmark development of the two-crew concept. This unique system provided two crews on a single SSBN, a BLUE and a GOLD crew, which would take alternate turns on patrols. Each crew deployed for 180 days per year. While one crew was on patrol, the other would take its leave before deploying on its subsequent patrol. The deployment schedule for both crews proved to be highly conducive for training during off time and allowed crewmembers to spend more time with family before deployment.

Following successful launch of the Polaris missiles, *George Washington* and her BLUE crew returned to Cape Canaveral to pick up her GOLD crew under the command of Cmdr. John L. From, Jr. Next, she duplicated her earlier successes by launching two more missiles while submerged. On Aug. 30, 1960, shakedown for the GOLD crew ended and the boomer went underway from Groton, Conn., on Oct. 28, 1960, for Charleston, S.C. to load her 16 Polaris missiles. In Charleston, *George Washington* and her GOLD crew were awarded the Navy Unit Commendation. After which, her BLUE crew, under the command of Cmdr. James B. Osborn, took her on her first deterrent patrol.

On Jan. 21, 1961, *George Washington* completed her first patrol at New London, Conn., after 66 days of submerged running. The GOLD crew then took over and she departed on her second patrol on Feb. 14, 1961. *George Washington* returned to Holy Loch on April 25, 1961 after her second patrol. She remained forward deployed through 1964, alternating between her BLUE and GOLD crews. In 1965 she returned stateside for overhaul and refueling by Electric Boat Co., in Groton, Conn., before resuming deterrent patrols out of Holy Loch.

Model of Forward Presence

Although it was a successful system, the Polaris A-1 missile had one limit: distance. With a range limit of 1,200 nautical miles, it was necessary to develop forward deployed submarine bases. Holy Loch served as a prime example of a forward deployed base because its strategic geography reduced transit times to and from SSBN submerged patrol areas. Holy Loch enabled SSBNs to achieve greater operational efficiencies and resulted in SUBRON-14 rapidly expanding during the 1960s.

SUBRON-14's success demonstrated proof of the concept of a forward deployed strategic deterrent. *George Washington* proved that ballistic missile technology was mature and reliable. Combined, they paved the way for the U.S. Navy to launch forty additional SSBNs from 1960 to 1966. Dubbed the "41 for Freedom," these submarines included the *George Washington*, USS *Ethan Allen* (SSBN-608)-, USS *Lafayette* (SSBN-616)-, USS *James Madison* (SSBN-627)-, and USS *Benjamin Franklin* (SSBN-640)-classes. By actively promoting a policy of deterrence, these boats were instrumental in making sure that the relationship between the U.S. and the Soviet Union did not end in a nuclear catastrophe.

The First SSBN Conversion

The evolution of nuclear arms control forced the U.S. to make decisions about what to do with strategic platforms that were no longer needed in their primary mission, yet had not reached the end of their designed hull life. As the first SSBN to undergo a complete conversion to an attack submarine, *George Washington* was a pioneer to another class of submarines, the guided missile submarine (SSGN), that is just completing its initial deployments today.

After the inauguration of President Richard M. Nixon on Jan. 20, 1969, the Soviet Union offered to negotiate their nuclear arms control position. The U.S. accepted and together both nations implemented the Strategic Arms Limitation Talks (SALT I) from 1969 to 1972, which froze the number of inter-continental ballistic missiles and replaced older missiles with newer ones. The reduction in missiles was part of a larger post-Cold War nuclear disarmament that continued through 1982, when U.S. President Ronald Reagan abandoned SALT I and implemented the Strategic Arms Reduction Treaty (START).



A topside direct stern view of USS George Washington(SSBN-598). U.S. Navy Photo.

START put a further reduction on nuclear weapons by placing a cap on 1,600 strategic nuclear delivery vehicles and permitting only 6,000 accountable warheads for each country.

To stay within the limitations imposed by START and to prevent unnecessary decommissionings, *George Washington* and two others in her class, USS *Patrick Henry* (SSBN-599) and USS *Robert E. Lee* (SSBN-601), had their missiles removed and were reclassified as attack submarines, allowing each to serve for several additional years. The redesign and reclassification of these three submarines to extend their service life and contribute to changing naval warfighting missions pioneered the conversion years later of *Ohio*-class SSBNs to SSGNs.

In 1994, under the administration of President William J. Clinton, the Nuclear Posture Review recommended a two-ocean based TRIDENT SSBN force — fourteen vessels in all — to carry TRIDENT II (D-5) missiles. TRIDENT II (D-5) missiles, first deployed in 1990, were the sixth and latest version of

ballistic missiles. They were a modern improvement to the dated Polaris A-1 missiles carried by *George Washington*.

The two-ocean based force met U.S. national security requirements under SORT (Strategic Offensive Reductions Treaty) — which in 2004 was the latest of mutual nuclear disarmament agreements between the U.S. and Russia. One of the provisions in SORT required the U.S. Navy to remove four TRIDENT *Ohio*-class submarines from strategic service. Following *George Washington*'s example, four *Ohio*-class SSBNs underwent conversions to extend their service life and add valuable special operations and strike capability.

In 2002, Electric Boat received a contract to convert the first four *Ohio*-class submarines, USS *Ohio* (SSBN-726), USS *Michigan* (SSBN-727), USS *Florida* (SSBN-728), and USS *Georgia* (SSBN-729), into conventional land attack and special forces (SOF) platforms, also known as guided missile submarines or SSGNs. The conversion process, ending successfully in 2008, allowed the *Ohio*-class submarines to succeed in their new form, and illustrated the U.S. Navy's resourcefulness in maximizing submarine platforms throughout available hull life. Just as *George Washington* dominated U.S. maritime strategy in 1960, today's *Ohio*-class SSGNs provide an unprecedented combination of Strike and SOF mission capability within a stealthy platform. The Navy's adaptability and ingenuity in redesigning SSBNs — starting with *George Washington* — continues to influence and support America's powerful presence at sea.

Conclusion

George Washington was a submarine of firsts. Her unique conception and innovative capabilities provided the Navy with a new missile system to promote nuclear deterrence, fostered the creation of the two-crew concept, promoted the model of forward presence, and paved the way for recent SSBN to SSGN conversions.

George Washington's historic patrols were a principle element that helped deter nuclear war between the U.S. and the Soviet Union. Her legacy continues; the U.S. Navy's SSBN force is the survivable element of the U.S. nuclear triad. At present, there are 14 ballistic missile submarines in the fleet providing the U.S. with a decisive nuclear deterrent — an accomplishment that would have made her namesake proud.

Jessica Taylor is a contributing editor for UNDERSEA WARFARE Magazine and an analyst at Alion Science and Technology.

Increasing IW Competencies

U.S. Navy Expands Irregular Warfare Capabilities.

By Scott R. Gourley, *Special Operations Technology*, July 29, 2009

“A Cooperative Strategy for 21st Century Seapower,” publicly presented in October 2007 and signed for the first time by the service chiefs of all three sea services, provides the Navy, Marine Corps and Coast Guard with the key underlying strategies for the application of U.S. maritime power to protect vital national interests in an increasingly interconnected and uncertain world.

While the majority of existing maritime capabilities were and will continue to be developed in preparation for major combat operations against a near-peer nation-state's military forces, some maritime elements are seeking to develop, enhance and optimize existing and future capabilities to increase competency in irregular warfare (IW) campaigns.

In the case of the Navy, these enhanced capabilities to conduct IW are evident across the spectrum of materiel, organizational and training arenas.

One of the most obvious examples in the materiel arena can be found in the conversion and “return to fleet” of the Navy's new *Ohio*-class SSGN guided missile submarines. Described by the Navy as providing “an unprecedented combination of strike and special operation mission capability within a stealthy, clandestine platform,” the SSGNs are equipped with an impressive combination of cruise missile, communications and special operations support capabilities.

Under the SSGN program, the Navy has leveraged available platforms by converting four existing SSBNs [submersible ship, ballistic missile, nuclear powered] into SSGNs [submersible ship, guided missile, nuclear powered]. Of the 24 missile tubes that previously carried Trident missiles, tubes 3 through 24 are configured to carry tactical Tomahawk land attack cruise missiles. Each tube carries the missiles in a seven-shot multiple all-up-round canister (MAC), for a total platform capability of 154 missiles. In addition, tubes 1 and 2 are converted to lock out chambers to allow clandestine insertion and retrieval of SOF personnel. Dry deck shelters (DDS) and the advanced can mount atop the lockout chambers. Together with additional SOF berthing in the missile compartment, those changes greatly enhance the SSGNs' SOF capabilities.

USS *Ohio* (SSGN 726) entered the shipyard on November 15, 2002, completed conversion in December 2005 and deployed for the first time in October 2007. USS *Florida* (SSGN 728) commenced its conversion in August 2003 and returned to the fleet in April 2006. Conversion of USS *Michigan* (SSGN 727) started in October 2004 and the ship delivered in November 2006. USS *Georgia* (SSGN 729) returned to the fleet in March 2008.

ORGANIZATIONAL AND OPERATIONAL EVOLUTION

While these four new platforms provide a significant expansion of U.S. Navy IW capabilities, senior service representatives are quick to note that Navy contributions in this arena stretch back well over a decade.

“If you think back, from a Navy perspective, we have been ‘in the fight’ for a pretty long time,” observed Rear Admiral Mark W. Kenny, director, Navy Irregular Warfare (N3/N5) in a recent industry briefing titled, “Engaging Terrorist Threats from the Joint and Maritime Environment.” Kenny noted, “We conducted operations against Osama bin Laden in ‘98 ... sensitive operations, including strikes ... We were embarked with teams; looking at Tomahawk strikes and a number of operations. Unfortunately, we did not get him.”

Explaining the changing and expanding emphasis on IW within the Navy, he observed, “The bottom line is ... you have got the Navy, with about 278 ships and 5,000 aircraft, that is focused principally on major combat operations [MCO]—scenarios tied to places like Iran or North Korea. A small piece of that navy is focused on IW—irregular warfare. And a small piece of that is focused on counter terrorism [CT]. [The CNO’s] vision is, through optimizing the fleet, to have a Navy that can do both [MCO and IW].

“The Navy IW Office main focus is on counter insurgency, counter terrorism, foreign internal defense, unconventional warfare, information [operations] and intelligence operations,” he added.

Drawing an IW heritage from those 1998 Naval TLAM strikes, Kenny continued, “Then, about 9/11, Admiral Grossenbacher’s time, [On October 1, 2001, Vice Admiral John J. Grossenbacher, commander, Submarine Forces U.S. Atlantic Fleet, assumed additional duties as commander, Naval Submarine Forces] they formed an organization to better use Navy submarines and SEALs to go after al Qaeda in the littorals.”

Choosing his words carefully, he explained that the 2002 COMSUBLANT CT Initiative led to the “first dedicated CT missions” in 2003–2004.

“We went after that. We found a lot of gaps and seams between inter-agencies, country teams and the uniformed services, and worked hard to bridge those seams.”

The need to bridge those gaps and seams led to the March 2005 creation of the Cell for Submarine Counter-Terrorism Operations (CSCO).

With the first SSGB still six months away from completion of conversion, early CSCO efforts focused on other available submarine platforms. An example could be seen in the “surge deployment” of USS Memphis (SSN 691), which departed Naval Submarine Base New London on May 6, 2006 “in support of the global war on terrorism.”

“Surge deployments are made to support real-world taskings from combatant commanders,” said Commander Joseph Wiegand, deputy commander for operations and training for Commander, Submarine Development Squadron (DEVRON) 12.

Memphis’ surge deployment coincided with the scheduled deployment of USS Alexandria (SSN 757), also of DEVRON 12, and the surge deployment of USS Louisville (SSN 724) of Submarine Squadron 3 in Pearl Harbor, Hawaii.

According to a service release, for the six months prior to deployment, “the crew of Memphis and the staff of DEVRON 12 have trained closely with the newly activated Cell for Submarine Counter-Terrorism Operations. The CSCO continuously worked with Memphis in training for mission planning, special forces certifications, and presented real-time lessons learned from other currently deployed submarines.”

“The nuclear-powered submarine continues to bring a lot to the table when it comes to the day-to-day operations in the global war on terrorism,” explained Lieutenant Commander David Kelly, deputy director of the CSCO. “Our submarine force has never been in higher demand than it is today, including in the heyday of the Cold War.”

Kelly added that nuclear-powered submarines are unique in that they are the one platform that can conduct forward missions against threats from traditional naval forces as well as engage in missions against the more elusive and scattered terrorist threats.

Noting that the evolution of the Navy’s IW effort continued through some “Deep Blue and Naval Studies Board” studies in late 2007, he continued, “We stood up an organization and then worked an organization with SOCOM, and eventually, the CNO stood us up last July.

On July 25, 2008, the CNO formally created the IW effort under N3/N5.

“Our [IW] mission is to synchronize and facilitate Navy support to the fight,” Kenny said. Acknowledging close coordination with SOCOM elements, he added, “Our goal is to optimize the Navy that we have today to continue to fight and be relevant to the fight.”

The effort includes helping to institutionalize IW in Navy’s planning, investment and capability development.

“We get input from the operators,” he said. “We have liaison officers stationed forward, shoulder to shoulder, in places like Africa and Afghanistan. And part of their mission is to identify the gaps. It may be an ISR gap or a C2 gap, but their strategy is a find/fix/finish methodology. They identify solutions. Those solutions could be tactics, training procedures; they could be doctrine; or they could be equipment. We find funding and then we work it through the Navy staff, the NAVSEA/NAVAIR Enterprises, and then deliver a capability.

“The CNO is driving us to a four-to-eight-month turnaround for what we call ‘combat assessments,’ where we are sending things into the fight and then assessing their value, much like SOCOM does routinely,” he added.

Depending on the assessed mission value, the process will stimulate a larger programmatic effort.

Kenny then highlighted the probable IW battlespace, identifying the so-called “arc of instability” that stretches east from the northern parts of South America, widening to encompass North Africa, the Balkans, Southwest Asia and Southern Asia, and then

ending around the Indonesia Archipelago. He noted that the region is primarily located along the maritime domain, with resulting implications for ease of movement, supply and communication.

“The way we address that is not through large numbers of troops and boots on the ground but in the small application of force, leveraging our country teams, leveraging our coalition partners, and working with our host nations to create a security environment that, first of all, will prevent extremism, but when extremism does get a chance to grow to hit back, hit those targets, in cooperation with our forces from the sea,” he explained.

A key aspect of the Navy’s IW concept of operations planning is a “sensor network approach” in which the Navy provides expeditionary combat capabilities through access, persistence, fusion and analysis, and strike, all within the selected IW operational footprint. In addition to the Navy’s “onboard” capabilities, the network is expanded through “offboard” assets, including special operations forces ashore, unmanned air and undersea vehicles, unmanned sensors, and other national assets.

“That [information] is then fused onboard. We have fusion cells much like the Army and special forces have in Afghanistan and Iraq, where they are doing much the same thing, except for the language factor, to fuse that data and then do something about it. It’s all about near real-time actionable intelligence. We can’t afford now to have that data sent back, filtered, and then sent to the warfighter. So we’re doing that fusion forward, at the right level, with the speed and agility to respond,” Kenny said.

UNMANNED VEHICLES

Cautioning that “unfortunately these get classified real fast because we’re using these vehicles in operations,” Kenny then offered the example of the Sea Stalker “large diameter” unmanned underwater vehicle (UUV) as one ongoing initiative with direct application to IW.

“What we’re doing is responding to needs from the front to send vehicles into the fight—doing combat assessments,” he reiterated. “We shifted to large diameter [38-inch tube], rather than 21-inch tube, because we need endurance and we need payload, and we couldn’t get it in a 21-inch [diameter] vehicle.”

Citing several large diameter platform activities, he noted an effort “to get those equipped with SIGINT collection and a command and control element to do real time exploitation of RF signals close to shore. We’re talking meters offshore, where ship platforms could be a few miles offshore. The alternative is to take this equipment onto the beach and either have surrogates or special forces hump it around at great risk—risk of compromise as well as risk to the safety of the individuals.”

“The CONOPS is to launch these from submarines at night,” he said. “They will transit to offshore, anchor, put their antennas out, and begin collection. Ideally you would have a series of these ... to cover different ports or hotbeds of terrorist activity. And then you would collate that information onboard the ship.”

He added, “You could do detections from a SIGINT and RF. Then you could use UAVs to get eyes on those areas, and then use our forces ashore to kill, capture or turn it over to the locals to do the job.” In terms of the UAVs that might help get “eyes on” those areas, Kenny highlighted the ScanEagle [developed by Boeing and the Insitu Group] and the potential for upgrades to expand its Navy IW capabilities.

“Scan Eagle is a well-proven system,” he said. “We’re expanding ScanEagle in a few ways. One [is] to bring onboard capabilities, more than just full motion video and infrared, to other SIGINT/intercept packages. We’re also looking at the ability to weaponize ScanEagle. We’re looking at trying to get a heavy fuel version for a longer dwell time. And we’re looking at launch and recovery from an SSGN payload tube to allow clandestine close-in operations.”

He noted that this summer’s exercise Talisman Saber will include participation by two ScanEagles, providing alternating full motion video (day) and infrared (night) “eyes on” capabilities with the second vehicle shifting to the data relay mission.

In terms of smaller UAV activities, Kenny also pointed to recent Navy efforts involving the BUSTER small unmanned aerial system from prime contractor Mission Technologies Inc.

“We’ve deployed it on a number of naval vessels,” he said. “We’ve also done some very successful operations with allies, doing foreign internal defense, training them to operate this vehicle.

“You might ask why the Navy trains ground forces on a Navy UAV.” He offered two reasons: “First of all, because we have it and we have relationships with country teams and Special Operations Command—and confidence in the system. But more importantly, it allows coalition forces or surrogates to launch them from shore. Naval vessels have the ability to pull in the full motion video and the infrared, correlate it and fuse it in our battle management centers onboard.”

“We currently have got the system deployed on USS Florida and we’re looking at larger and more capable versions of that vehicle,” he said.

Navy Reveals Details Of Submarine-Based Drones

By Stuart Fox, *Popular Science*, July 29, 2009

Between scientists warning of autonomous killer robots and a Predator drone killing Osama bin Laden’s son, news about killer robots has been eating up a lot of bandwidth lately. But most of that press has focused on the Air Force’s Predator and Reaper unmanned aerial vehicles (UAVs). Well, the Air Force needs to make some room in the spotlight, because the Navy’s getting in on the act, too.

In an oddly revealing interview, Rear Admiral Mark Kenny, the head of the Navy’s irregular warfare operations, not only stated that the Navy’s submarines have been equipped with unmanned vehicles, but even detailed which vehicles and how they are used.

According to Kenny, four submarines, whose nuclear missiles had already been removed to make room for more conventional weapons and Navy SEAL deployment chambers, are now underway with both aquatic and aerial robots. In particular, Kenny singled out a torpedo-sized robot used for electronic eavesdropping; a small, 45-pound UAV that may one day carry weapons like its larger cousins; and an ultralight 15-pound UAV that relays video and radio traffic back to a command center aboard the sub.

Kenny said that this trend is on the rise, with more subs trading out their nuclear weapons for easily deployed robots. There's still no word, though, on how many of the subs also have a talking dolphin.

Nuclear Arms Race Heats Up With Launch Of India's Nuclear Submarine

By Manzir Munir, Agoravox.com, July 30, 2009

The launch of a nuclear submarine will cause an increase in the arms race between India and its neighbors like Pakistan and China and will only add to the instability of the region.

New Delhi, India- Pakistan has stated that India's launch of a nuclear submarine is a threat to regional peace and stability in South Asia.

The Foreign office spokesman Abdul Basit stated that "Pakistan will take appropriate steps to safeguard its security without entering an arms race."

The submarine, unveiled at a ceremony on Sunday, will be able to launch nuclear missiles at targets close to 500 miles away.

At Sunday's launch, Prime Minister Manmohan Singh said India had no aggressive designs on anyone. However Pakistan, India's arch-rival, a fellow nuclear power, and a country that has fought three wars with India in the last 60 years, certainly feels threatened.

With the launch of the submarine, India has become only the sixth country in the world to build its own nuclear-powered submarine, until now only the US, Russia, France, Britain and China had the capability to manufacture its own nuclear subs. Till now, India had relied on Russian made submarines for its fleet.

The 6,000 ton Arihant will be deployed in a few years after trials and testing. The Hindi meaning of Arihant is "destroyer of enemies." Up till now, India has been capable of launching missiles only by air and land with its army and air force. Now the ability to launch nuclear missiles and weapons by sea gives it a triple dimension to its already impressive armed forces in the region.

The submarine will have the ability to carry up to 100 sailors on board and will have the capability to stay underwater for long periods of time, making it harder to detect. Analysts believe that the Indian government is looking to not only have an upper hand against Pakistan by having nuclear submarines that the Pakistanis do not possess, but also are attempting to thwart any threats from China which has a huge major naval presence in the Indian and Pacific Oceans.

Nonetheless, the launching of the Indian nuclear submarine will only make an already nervous Pakistan do everything in its power to also either purchase submarines from China, Germany, France or other countries or perhaps start its own long term plans of keeping pace with India by developing its own nuclear submarines with or without assistance from its arms suppliers.

The region does not need a buildup and an increase in the nuclear arms race and one hopes that the two countries focus on diplomacy and a stalled peace process rather than arming themselves to the teeth. The region already is one of the most militarized in the world with three of the world's exclusive nuclear club countries side by side with each other in Pakistan, India and China.

China Casts A Wary Eye On India's Nuclear Sub

By Venkatesan Vembu, DNA India, July 29, 2009

Hong Kong: China took wary note of India's launch of its first indigenously built nuclear-powered submarine, but with Chinese focus shifting to the upgraded, high-profile Sino-US strategic and economic dialogue in Washington, DC, the official media gave it only passing mention.

The official news agency Xinhua put out a factual report on the launch, without any commentary. Even the rather more stridently nationalist Global Times, which has in recent times kept up a barrage of articles criticising India's "unwise military moves", offered no immediate comment.

Xinhua, however, amplified a Pakistan Navy spokesman's comment that India's launch of a nuclear-powered submarine would "trigger a nuclear arms race" and "destabilise the region".

Shijie Junshie (Global Military) magazine executive editor Chen Hu, a military historian and specialist in strategic affairs, said the muted international response to India's announcement of its nuclear-powered submarine programme reflected the world's "duplicitous" efforts to focus attention away from the development.

"If, instead of India, it had been Iran or North Korea that had made this announcement, there would have been a more stirring response from the international community... There would have been economic, diplomatic, and military sanctions and intimidation — and even the threat of war," he noted.

Global Times has been far more shrill in recent weeks, and one of its most recent articles on India's "unwise military moves" remains one of the 'most commented' articles on its website. That article bluntly said: "India sees China as both a potential threat and a competitor to surpass. But India cannot compete with China in a number of areas, like international influence, overall national power, and economic scale. India apparently has not realised this."

Indian politicians “seem to think their country would be doing China a huge favour simply by not joining the ‘ring around China’ established by the US and Japan,” the article speculated. It further claimed that India believes China will respond with “fear and gratitude” and “defer” to India on territorial disputes. “But this is wishful thinking, as China won’t make any compromises in its border disputes with India. And while China wishes to coexist peacefully, this desire isn’t born out of fear.”

Pakistan Says Indian Submarine Harms Regional Peace

Reuters, July 28, 2009

ISLAMABAD - India’s launch of its first nuclear-powered submarine capable of carrying ballistic missiles is “detrimental to regional peace and stability,” Pakistan’s foreign ministry said, vowing to safeguard its own security.

India launched the submarine Sunday as part of a \$2.9 billion plan to build five submarines. The vessel, Arihant, will undergo sea trials before being formally inducted in 2015.

It completes a nuclear triad for India of fighter aircraft, missiles and now submarines capable of carrying nuclear warheads.

Nuclear-armed rival Pakistan has only aircraft and missiles to deliver nuclear payloads, according to military officials.

“Pakistan believes that maintenance of strategic balance is essential for peace and security in South Asia,” the office of the Pakistani foreign ministry spokesman said in a statement late Monday.

“Without entering into an arms race with India, Pakistan will take all appropriate steps to safeguard its security and maintain strategic balance in South Asia,” it said.

India and Pakistan have fought three wars since gaining independence from Britain in 1947, and came close to a fourth in 2002. A peace process started in early 2004 was paused by India after attacks by Islamist gunmen in Mumbai last November in which 166 people died.

Commando Subs Sending Drones, Robo-Torpedos Into Combat

Wired News, July 28, 2009

The U.S. Navy’s four Special Forces-optimized submarines are using a wide range of robots in combat in coastal areas, the Navy’s top officer for irregular warfare said in a surprisingly candid interview. The Ohio-class guided-missile subs, modified from surplus ballistic-missile boats, have been outfitted with robotic mini subs and at least two types of unmanned aerial vehicle, according to Rear Adm. Mark W. Kenny. It seems Kenny’s comments, to Special Operations Technology reporter Scott Gourley, just barely slipped under a descending veil of secrecy. “These get classified real fast because we’re using these vehicles in operations,” Kenny admitted.

The guided-missile subs, called “SSGNs” by the Navy, had their nuclear missiles removed starting in 2002. The boats’ nuke missile tubes now contain clusters of conventional Tomahawk cruise missiles or serve as “payload tubes” for equipment, including robots. The SSGNs have accommodations for up to 66 SEALs or other commandos.

The Navy’s submarine force is notoriously publicity-shy - it’s not for no reason submariners call themselves the “silent service.” U.S. Special Operations Command is equally hush-hush. Now combine the two - and you’ll understand why the Kenny interview is so surprising. He detailed three robots now found aboard the Ohio boats:

* Sea Stalker, a torpedo-size underwater robot that specializes in snooping on radio signals and other communications. “The [concept] is to launch these from submarines at night,” Kenny said. “They will transit to offshore, anchor, put their antennas out and begin collection. Ideally you would have a series of these . to cover different ports or hotbeds of terrorist activity. And then you would collate that information on board the ship.”

* Scan Eagle, the 45-pound aerial bot that has seen heavy use by the Marines in Iraq and Afghanistan. Kenny says Special Operations Command is looking at boosting Scan Eagle with extra fuel and sensors - and maybe even weapons, like the Air Force’s armed Predators and Reapers. It seems Scan Eagle is launched from a sub’s deck while she is surfaced, but that could change. “We’re looking at launch and recovery from an SSGN payload tube to allow clandestine close-in operations,” Kenny said.

* BUSTER, a 15-pound UAV that Kenny says is particularly useful when working with foreign armies. “We’ve . done some very successful operations with allies, doing foreign internal defense, training them to operate this vehicle.” The allied armies launch

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Russia Outwitted U.S. Strategic Defenses With Missile Test

Novosti, July 15, 2009

MOSCOW - The United States was unable to detect the presence of Russian strategic submarines in the Arctic before they test-launched two ballistic missiles, a Russian intelligence source said on Wednesday.

Russia carried out test launches of two Sineva intercontinental ballistic missiles from two Delta IV class nuclear-powered submarines, located near the North Pole, on July 13-14.

“The American radars certainly detected the missile launches but their location took them by surprise,” the source said.

The first missile, flying a ballistic path, hit its designated target at the Kura testing grounds on the Kamchatka Peninsula, while the second, fired with a flat trajectory, destroyed a target at the Chizha testing site on the White Sea.

The source said that the launch area, covered by ice floe, was heavily patrolled by Russian attack submarines and the Americans were unable to detect the arrival of two strategic submarines before the launch.

“At the same time, U.S. reconnaissance satellites are unable to detect submarines under thick ice floe in the Arctic,” he said.

The region around the North Pole is a perfect place for launches of ballistic missiles because it allows the submarines to arrive in a designated area undetected and to shorten the missile flight time to the target.

The RSM-54 Sineva (NATO designation SS-N-23 Skiff) is a third-generation liquid-propellant intercontinental ballistic missile that entered service with the Russian Navy in July 2007. It can carry four or 10 nuclear warheads, depending on the modification. Russia plans to equip its Delta IV class submarines with at least 100 Sineva missiles.

Israeli Warships Cross Suez Canal Again

Haaretz (Israeli NewsService), July 14, 2009

Two Israel Navy warships made a rare crossing of Egypt’s Suez Canal on Tuesday, heading from the Mediterranean to the Red Sea in a voyage that could be seen as a warning signal to Iran.

Egyptian Foreign Minister Ahmed Aboul Gheit said that the crossings were legitimate in accordance with an agreement between Cairo and Jerusalem.

One of the ships, the Hanit, had reportedly already crossed the canal both ways in June, in what a port source called the first case of a large Israeli warship using the strategic waterway. However, this was not possible to confirm officially.

The other ship to cross on Tuesday, the Eilat, was named after a destroyer sunk by Egypt with the loss of 47 lives shortly after the 1967 Six Day War, the source told AFP.

Israeli defense officials said that two missile boats did cross the canal, but they spoke on condition of anonymity due to the sensitive nature of the matter.

During the maneuver in June, the Hanit accompanied an Israeli Dolphin-class submarine for a drill off Eilat - the first such voyage for the secret craft and a sign of Israel’s growing strategic reach, Reuters quoted defense sources as saying.

Witnesses told Reuters the vessel docked briefly at Eilat’s naval base before departing. But an Israeli defense official was quoted as saying there would be no permanent deployment there of the German-made submarines - of which Israel has three, with two more on order.

A senior Egyptian security official later denied reports that an Israeli submarine had sailed the Suez Canal last month as part of a naval drill.

“Egypt does not allow Israeli warships to enter our territory,” Army Radio quoted the official as saying.

Lockheed Martin to Upgrade U.S. Navy Submarine Communication Mast Antenna Systems

Lockheed Martin Press Release, July 15, 2009

MARION, Mass. – Lockheed Martin, in a joint venture with Granite State Manufacturing (GSM), received a \$6.9 million contract from the U.S. Navy to design, test and manufacture an upgraded Multifunction Mast Antenna System to improve submarine communications.

Currently, all U.S. Navy submarines operating at periscope depth, including the new Virginia-class attack submarines, use the antenna system as their primary method to communicate with aircraft, surface ships and land-based assets. The system – designated the OE-538 – provides high performance, erectable mast-mounted communication and navigation capabilities.

The upgraded OE-538/BRC Multifunction Mast Antenna System will provide submarine communications with improved performance in the UHF signal band. It also will add LINK 16, Iridium and Mobile User Objective System (MUOS) UHF satellite communications capabilities, while maintaining performance in legacy bands. Lockheed Martin expects to upgrade and return to the fleet at least 12 systems per year over six years. If all options are exercised, the cumulative value of the contract is estimated at \$57.6 million.

“Lockheed Martin has provided more than 90 OE-538 systems for the U.S. and allied navies since 1989,” said Joe Rappisi, vice president and general manager of Lockheed Martin’s Marion-based business. “This upgrade ensures compatibility with new satellites and evolving communication systems to ensure that submarine forces will remain connected to the global information grid.”

GSM, of Manchester, NH, is a highly specialized organization, combining value engineering, program management and in-house state of the art production facilities. GSM offers a full range of manufacturing services including precision machining, metal fabrication, welding, soldering, mechanical assembly, electrical assembly and testing. Headquartered in Bethesda, Md., Lockheed Martin is a global security company that employs about 146,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation reported 2008 sales of \$42.7 billion.

Peruvian U-Boat Stalks the USN

Strategy Page, July 16, 2009

For the fifth year, the U.S. Navy has trained with a diesel electric sub from a South American navy. This program, called DESI (Diesel Electric Submarine Initiative) hopes to eventually entice NATO navies to send one of their subs over for the exercise. So far, DESI has provided 450 engagement days involving diesel electric subs maneuvering against American anti-submarine forces (air, surface and subsurface.) The exercises give the sub crews a realistic workout against the most modern ASW (anti-submarine warfare) equipment, and allows them to show how dangerous a diesel electric boat is when it's submerged and running on batteries. This year, the sub was the Peruvian Arica (SS-36). This is a German built Type 209, which is one of the more widely used diesel-electric subs in the world. The Arica displaces 1,300 tons, is 183 feet long, has eight torpedo tubes and carry 14 torpedoes and a crew of 36. The boat is 34 years old, but had a major overhaul in 1983-4.

Malaysia's First Submarine Begins Journey Home From France

Asian Defence, July 14, 2009

Malaysia's first submarine KD Tunku Abdul Rahman left Toulon, France on its historical maiden journey to Malaysia at 11 am Thursday. The Embassy of Malaysia in Paris in a statement sent here, said the submarine was waved off by Malaysia's Ambassador to France Datuk S. Thanarajasingam.

Also present at the ceremony were Defence Attache Captain Khairuddin Mohd Ariff and officials from Malaysia's submarine project team as well as French senior navy officials led by Admiral Yann Tainguy. The submarine consisting of 35 crew members was commanded by Commander Zulhelmy Ithnain of the Royal Malaysian Navy.

The submarine is expected to stop at Lumut and Port Klang for a few days before continuing the journey to Sepanggar Naval Base in Sabah. It will also transit at major ports such as Jeddah, Djibouti and Cochin, before reaching Malaysia. The submarine project started when Malaysia signed a deal to purchase two submarines in 2002. The first submarine was finally completed with the departure of KD Tunku Abdul Rahman, which is expected to reach its Malaysian home in Sepanggar by early September.

Test Of Russian Ballistic Missile Fails

By Mike Eckel, Associated Press, July 16, 2009

MOSCOW – Russia's latest test of its advanced submarine-launched ballistic missile Bulava has failed, with the missile self-destructing, the Defense Ministry said Thursday – another setback for the nation's efforts to upgrade its aging arsenal.

The failure was the seventh in 11 test launches for the Bulava, and could have consequences for Russia's top missile designers and missile force commanders.

The Defense Ministry said in a statement that the missile was fired Wednesday from the submarine Dmitry Donskoi, but its first-stage malfunctioned and the weapon self-destructed.

No other information was released.

Russian forces earlier this week conducted two successful tests of another less-advanced missile, the Sineva. Military analysts, however, had been closely watching for the latest, long-promised test of the Bulava.

Defense Ministry officials had suggested a test was likely on Wednesday. However, there was no announcement of any sort that day, stoking speculation that the missile had again failed.

"Another failure would certainly provoke a serious soul searching in Russia," Pavel Podvig, a well-known analyst of Russia's missile forces, wrote in his blog on Wednesday. "It is probably too late to shut the program down, but the fact that the industry is not able to get the missile to fly ... is quite worrying."

Despite the failures, Russian leaders have boasted about the Bulava's capability to penetrate missile defenses and described it as a key part of the military's future nuclear arsenal.

Military commentator Alexander Golts said the failure was due to the fact that top government and military leaders were rushing to upgrade the aging-Soviet arsenal to keep up with the U.S.' technological advances.

He said missile designers skipped crucial steps in the testing process, such as running tests on land, instead of going straight to maritime conditions.

He also noted that the Bulava is the first missile to be designed and manufactured in post-Soviet Russia. That means that many of the research institutes and scientists who worked closely under the Soviet military industrial complex have withered away, for lack of government funding.

"The system disappeared, and they've had to build the system from scratch, and therefore serious failures," he said.

Deputy Prime Minister Sergei Ivanov, who is overseeing efforts to upgrade some of Russia's military capabilities, was quoted last month as saying that the Bulava would have to undergo many more tests before being commissioned into use.

Ivanov also blamed the failures on manufacturing flaws, saying that it's difficult to control the quality of all parts supplied by the 650 subcontractors involved.

Russian Missile Designer Quits After Test Failures – Officials

Easy Bourse, July 22, 2009

MOSCOW (AFP) – The head of the institute developing a sea-based version of Russia's newest strategic missile has quit following repeated failures of the weapon in testing, officials said Wednesday.

Yury Solomonov, head of the Moscow Institute of Thermal Technology, was the most senior official to date to take responsibility for the string of failures of the Bulava intercontinental ballistic missile, which is in development.

"After the latest unsuccessful launch of the Bulava rocket, Yury Solomonov has submitted a resignation letter," Interfax-AVN, a news agency specializing in military affairs, quoted a source in the country's space industry as saying.

The source said his resignation was likely to be accepted as the Russian space agency Roskosmos believed that the institute that has spearheaded development of the Bulava required changes in its management structure.

The resignation came after the Russian defense ministry said last Thursday that a Bulava missile had exploded after launch from the nuclear-powered submarine Dmitry Donskoy off northern Russia.

The failure of the missile, reportedly the sixth in 11 test-firings, was characterized by defense experts as a serious setback for the Russian military's drive to revamp its Soviet-era missile arsenal.

The Bulava, which can be equipped with up to 10 individually targeted nuclear warheads, has a maximum range of 8,000 kilometers.

Boris Rummyantsev, one of Solomonov's deputies at the institute, confirmed to AFP that Solomonov had submitted his resignation as general director but denied the move was linked to the repeated failures of the missile.

Could Israel-Iran Standoff Turn Violent?

Reuters, July 16, 2009

Could Israel launch a nuclear strike against Iran?

It's a poker game with high stakes and a degree of bluff. Israeli leaders refuse to rule out any option. They do not believe Iran's assurances it wants only nuclear energy. Noting re-elected Iranian President Mahmoud Ahmadinejad has said Israel should be "wiped off the map", Israel says an Iranian bomb is a threat to its very existence that it will simply not tolerate.

Last year, however, it emerged officials were making plans for how Israel might live with a nuclear Iran in a state of mutual deterrence. And an opinion poll last month showed most Israelis would not expect a nuclear Iran to attack them.

Since becoming prime minister in March, Benjamin Netanyahu has, aides say, made ending threats from Iran a defining element of what he sees as his personal role in Jewish history. A 1981 Israeli air strike that destroyed Iraq's only nuclear reactor, as well as a strike in Syria in 2007 that remains cloaked in mystery, set historical precedents. Despite a policy of silence, few doubt Israel has nuclear weapons that could hit Iran.

What might hold Israel back?

It is not clear how Israel would define achieving its goal of preventing Iran acquiring nuclear weapons, but a pledge from Iran to forswear such arms, backed by some form of supervision and intelligence data, might be a minimum. Much, of course, will depend on Iran's actions and on U.S. President Barack Obama and others, who are pressing Iran through sanctions and diplomacy.

While many analysts doubt Iran's denials of military intent, some say Iran may be content with showing it has the potential to go nuclear quickly, without actually arming itself.

In the meantime, were Israel to consider a unilateral strike on it Iran it would have to weigh several major risks:

- of retaliation, not just from Iran but its allied guerrilla groups, Lebanon's Hezbollah and the Palestinian Hamas
- of economic and diplomatic backlash from U.S. and allies
- of a failed attack still triggering the above reactions

What are the key elements in timetable?

First, Iran's technology: Israel's national security adviser said last week it had passed a "red line" in terms of being able to make its own nuclear explosive but could not make significant amounts nor yet put viable nuclear warheads on its missiles. Mossad chief Meir Dagan, seen as a key figure in Israel's Iran policy who has just had his mandate unusually extended to 2010, said last month Iran could have a viable warhead in 2014.

Second, the wider diplomacy: The G8 last week gave Iran until September to start talks or face new sanctions. In May, Obama told Netanyahu that "by the end of the year" he expected to have a sense of whether diplomacy was succeeding with Iran?

Would Israel go it alone, without U.S. backing?

Obama, at odds with Netanyahu over Jewish settlement in the West Bank and peace moves with the Palestinians, said last week he had “absolutely not” given Israel a green light to attack. He was responding to a remark by his vice-president that Israel had a sovereign right to act if it felt “existentially threatened”.

Israel would be reluctant to anger its key ally. But as Netanyahu’s security adviser Uzi Arad said last week, recalling the Holocaust: “We are always alone. Sometimes we have partners and lovers and donors of money, but no one is in our shoes.”

Some question whether Israel’s U.S.-armed military has the range and firepower to destroy Iran’s nuclear facilities without U.S. help. Analysts say Israel might be content with slowing any nuclear arms programme, hoping for political change to end it.

Talk of an Israeli unilateral strike may also be part of a tactic of deterrence. Arad again: “The more credible and concrete the option, the less likely that it will be needed.”

How might Israel attack Iran?

Overt or covert? Israel has been developing “cyber-war” capabilities that could disrupt Iranian industrial and military control systems. Few doubt that covert action, by Mossad agents on the ground, also features in Israeli tactics against Iran. A key advantage of sabotage over an air strike may be deniability.

Militarily Israel can also deploy the following forces:

AIR — 500 combat aircraft, including F-15s and F-16s able to bomb Iran’s west, and further with aerial refuelling, a technique for which the air force has been training. Planes could overfly hostile Arab states using stealth technology. Armed with “bunker buster” bombs that could be released with accuracy outside Iran’s airspace. Israel is also assumed to have dozens of Jericho missiles designed to carry nuclear warheads to the Gulf. It is unclear Israel would make a pre-emptive nuclear strike.

LAND — Special forces could be deployed on the ground, to spot targets, and also possibly destroy them with sabotage.

SEA — Israel sailed one of its three German-made Dolphin submarines into the Red Sea through Suez last month, opening a way to the Gulf. The submarines are believed to be capable of firing nuclear and conventional missiles.

San Diego-based Deep Submergence Unit Holds Change of Command

From Submarine Squadron 11 Public Affairs, July 17, 2009

NAVAL BASE CORONADO, Calif. – Cmdr. David Lemly relieved Cmdr. Jay Spencer as commanding officer of Deep Submergence Unit (DSU) today during a ceremony held at the DSU facility.

Capt. Stuart B. Munsch, commander, Submarine Development Squadron Five, was the guest speaker at the ceremony. He congratulated Spencer on a job well done, and said Lemly comes to DSU with impressive credentials and many successes.

Lemly, a graduate of North Carolina State University, has been serving the submarine force for 20 years with early sea tours on the USS Salt Lake City (SSN 716), USS Helena (SSN 725) and USS Tucson (SSN 770). Most recently, he served as the Deputy for Submarine Material Readiness for Submarine Squadron Fifteen.

DSU provides submarine rescue for the U.S. Navy and foreign navies. Rescue systems include the Submarine Rescue Diving Recompression System and Submarine Rescue Chamber Flyaway System. Assigned assets include the Advanced Diving Suit 2000 and the primary rescue module Falcon. Both systems are operable in depths of up to 2,000 ft. of seawater. Staffed by active duty, reserve, contractor, and civilian personnel, DSU provides a lifeline for distressed submarines worldwide.

Sri Lanka Troops Find Tiger Submarine: Military

Agence France-Presse, July 17, 2009

COLOMBO – Sri Lankan troops have recovered a submarine-type craft built by Tamil Tiger guerrillas in an area where they fought their final battle two months ago, the military said Sunday.

The craft was found on Saturday submerged about 500 metres (yards) off the coast of Vellamullivaikal in the district of Mullaittivu, the army said in a statement.

“Based on information provided by an informant... the submersible was found and brought ashore with the help of army divers,” the statement said.

Sri Lanka’s navy has already begun investigations into the naval capability of the defeated Tamil Tiger rebels to establish how they acquired the technology and supplies, a military official said.

Several submersible devices had been found by the military in the run up to the final defeat of the Tamil Tigers on May 18 with the killing of the entire Tiger leadership at Vellamullivaikal.

The Tigers had a sea going unit known as the Sea Tigers and had sunk several naval craft as well as merchant ships off the island’s northeast coast.

Last week, troops uncovered one of their biggest hauls of weapons and explosives since the defeat of the rebels.

Troops found 332 roadside bombs in Mullaittivu where Tamil Tiger supremo Velupillai Prabhakaran was killed. The bombs weighing more than a tonne constituted the largest haul of explosives found this year.

Sri Lanka's former army chief General Sarath Fonseka announced Wednesday that the government had scrapped a 200-million-dollar ammunition order from China after the defeat of the Tigers.

"We had ordered about 200 million dollars of heavy ammunition from China," Fonseka told local reporters after taking office as the new chief of defence staff. "There is no need for such ammunition any more."

Sri Lanka relied heavily on China and Pakistan for mortar bombs and ammunition for multi-barrel rocket launchers in the battle against the Tigers.

Middle East Navies Eye New Submarines

United Press International, July 17, 2009

Submarine warfare seems to be in vogue in the Middle East these days, with Israel leading the way. Iran, Algeria and Egypt are also planning to acquire new submarines that could operate in the Indian Ocean, the Arabian Sea, the Red Sea and the Mediterranean.

Israel's surprise deployment of one of its German-built Dolphin boats, the 1,500-ton Leviathan, in the Red Sea in late June underscored the regional trend.

The Type-800 boat's highly visible transit from the Mediterranean through the Suez Canal to the Red Sea was widely seen as a message to Tehran that the Israeli navy would participate in any pre-emptive strike against Iran's nuclear facilities.

Israel bought the Dolphins under a \$1 billion contract in 2000 and wants to buy two more from Germany. That would allow it to keep at least one of its submarines, possibly even two, on patrol in the Arabian Sea from where cruise missiles, possibly nuclear-tipped, could be launched at targets in Iran.

The Israeli navy rarely discusses its submarine operations, but given the need to refuel and maintain them, there has been speculation for some time that Israel is seeking a base in the Red Sea or the Indian Ocean for its submarines.

Israel's relations with India and Sri Lanka are good. Israel is now India's second-ranking arms supplier after Russia. But diplomatic sources say it is unlikely that either would risk accommodating Israeli Dolphins.

Another possibility would be the Dahlak archipelago in the Red Sea off Eritrea, which owns the islands. The Soviet navy had a submarine base there, but it was abandoned after the Soviet Union collapsed.

In the meantime, Russian defense industry sources report that Iran, fearful of an Israeli attack, is thinking of buying advanced Russian submarines to add to its flotilla of three Kilo-class diesel-electric boats it acquired a decade ago from Moscow.

The focus is on Project 636- and Amur 1650-class submarines being developed by Russia. State-owned arms export agency Rosoboronexport said the fourth-generation diesel-electric boats, considered to be among the stealthiest in the world, could be exported by 2015.

Iran and Algeria appeared to be among the leading prospects. According to sources in Moscow, Algeria agreed in 2006 to buy Project 636 submarines, advanced versions of the Kilo-class Type 877EKM currently in service with Algeria and Iran.

Jane's Navy International reported July 8 that Algeria will take delivery of the first of two Project 636 subs in December from Admiralty Shipyards of St. Petersburg.

A spokesman for Russia's Rubin Design Bureau said during the recent International Maritime Defense Show in St. Petersburg that Egypt was also considered a possible customer for the new Kilos. Egypt operates four Romeo-class Soviet-era submarines.

Turkey, a major military power at the eastern end of the Mediterranean, signed a deal for the purchase of six European submarines on June 2.

Under the \$3.5 billion contract, the Turkish navy will co-manufacture U-214-class submarines with a consortium headed by Howaldswerke-Deutsche Werft of Kiel, Germany, which builds the Dolphin boats used by Israel.

Turkey currently has 13 German-built submarines, six Atilay-class Type 209/1200s and seven Preveze/Gur Type 209/1400s. Libya operates two Soviet-era Foxtrot-class submarines, but it is not known if these are operational. The only other Arab state with submarines is Syria, but none of its three Soviet-era boats has left port for many years.

If You Wish For Peace...

Why US needs a strong Navy

By John Lehman, New York Post, July 21, 2009

EDITOR'S NOTE: Two Australian warships, HMAS Sydney and HMAS Ballarat, are to finish their New York visit tomorrow, having docked here to mark the 100th anniversary of the Great White Fleet.

Theodore Roosevelt's favorite Latin quote was *Si vis pacem, para bellum* – if you wish for peace, prepare for war. With that thought in mind, President Roosevelt on Dec. 16, 1907, stood aboard the presidential yacht *Mayflower* and watched the Great White Fleet depart from Hampton Roads, Va.

At 400-yard intervals, 16 gleaming white battleships with gilded bows, with numerous destroyers and escorts, passed before the commander-in-chief. Over the next 14 months, the Fleet's 14,000 sailors and Marines would travel some 43,000 miles and make 20 port calls on six continents. This was an unprecedented and totally unexpected feat of maritime prowess by the young Republic – stunning to domestic and international imaginations.

America had arrived as a world power – and TR wanted the world to know it.

With his unique political and strategic talents, Roosevelt knew that diplomatic and economic power were impossible without naval power. Here was the epitome of his favorite saying “Speak softly and carry a big stick.”

Congress, of course, could not agree on the wisdom of this bold peacetime move, and hadn't provided sufficient money to make the voyage. TR characteristically decided to send them off anyway – and let Congress then decide whether to provide money to bring them home or not.

This dramatic show of naval power had its desired effect. The fleet's arrival in Japan led directly to the Root-Takahira Agreement recognizing the balance of power in the Pacific to TR's satisfaction. The visit to Australia and New Zealand launched a century-long partnership with the US and the event is still commemorated there.

Visits to China, Manila and Ceylon were all national events with huge crowds. The visits to Egypt and Turkey signaled TR's recognition of building relations with the Islamic world, and are also remembered there today. Visits to Peru, Chile and Mexico had a resounding effect in Latin America.

TR was determined to use the cruise to hone and sharpen fleet operations. As he stated before the ships left, “I want all failures, blunders and shortcomings to be made apparent in time of peace and not in time of war.”

In this regard, the fleet's voyage was also a real success. Gunnery, steaming in formation, coal conservation and sailor training and morale were all exercised. The voyage also exposed multiple design flaws to be corrected in future naval construction – and triggered the change of the color of our naval vessels from white to gray.

TR was again on hand to review the fleet's return on Feb. 22, 1909. The impact with the American public had been all he could have wished for.

He wanted more ships, particularly more battleships (the top-of-the-line capital ships of the day), for the American fleet. All 16 of the battleships in the American Atlantic Fleet had been built since the end of the Spanish-American war of 1898 – and 11 of them on TR's watch from 1904 to 1907. The success of the cruise helped to ensure that eight more battleships' orders were awarded or ships were delivered prior his leaving office in 1909.

Congress and President Obama should review this history. Our fleet today has shrunk from 600 to 270 and is heading for 150. We have cut carriers from Reagan's 15 to Obama's 10.

But we can't argue with geography: The seas still cover 70 percent of the world, and our vital trade and allies are far more global than in TR's day. With this shrinking fleet, we can no longer deter piracy and guarantee freedom of the seas.

It is indeed wise to talk with our enemies, but we must understand that successful diplomacy is the shadow cast by power, especially naval power.

Iran, North Korea and other disturbers of the peace must be made to understand that our genuine wish for peaceful solutions is underwritten by the real naval power to, in TR's words “smite our enemies down” if they pursue hostilities.

John Lehman was secretary of the Navy in the Reagan administration and a member of the 9/11 Commission.

Russian Subs Mapping The North-Atlantic

Barents Observer, July 21, 2009

With the aim to map potential petroleum resources, Russian submarines participated in a research operation in the waters between the Norwegian Island of Jan Mayen and Iceland in June. According to the Norwegian newspaper Dagbladet, two of the submarines were nuclear powered.

The submarines participating in the research mapping of the seabed were in both Icelandic, Norwegian and international waters in June this year. Interviewed by Dagbladet, Head of Icelandic Defence Agency Ms Ellisif Tinna Vigdisdottir, said the submarines were northeast of Iceland. The Defense Agency's website writes that the submarines were sailing in the North-Atlantic from The Faroe Islands in the south to Svalbard area in the north.

Neither the Norwegian nor Icelandic Foreign Ministries have officially reacted or made any statements against the Russian research mapping of potential oil- and gas resources in their economical zone.

BarentsObserver.com wrote in May about Russia's newly adopted National Security Strategy that highlights the energy challenges. The strategy says that the Barents Sea and the Arctic are among the regions of upcoming international competition for energy resources.

According to the article in Dagbladet, two submarines are participating in the research activities while the two nuclear powered submarines had support tasks. The identities of the submarines are not known.

In June, BarentsObserver.com wrote that Russia's newest special purpose submarine, B-90 named Sarov was operating in northern waters. During the Cold War, Russia's Northern fleet operated several special purpose submarines aimed for underwater spy operations. It is not officially known if any of them are still in operation.

Cracks Found On Submarine Toledo's Hull; Navy Investigating

By Peter Frost, Newport News Daily Press, July 21, 2009

Two cracks have been discovered on the hull of the submarine USS Toledo, a potentially fatal flaw that could have led to water leaks and, ultimately, hull failure if the boat submerged, the Navy confirmed Tuesday.

Toledo crew members on Friday found the 21-inch crack in the exterior topside hull aft of the sail and a corresponding one-inch crack in the pressure hull underneath, said Lt. Patrick Evans, a Navy spokesman.

The Los Angeles-class sub, which was pier side at the Navy's facilities in New London, Conn., when the cracks were discovered, completed in March a 27-month maintenance and modernization project at Northrop Grumman Corp.'s Newport News shipyard.

It is not yet known what caused the cracks or when they appeared, but the Navy is investigating, Evans said.

"We know that neither crack is part of a weld, and therefore, this cannot be connected to the weld issues seen at (Northrop's Newport News shipyard,)" Evans said.

After the Navy determines a cause, similar inspections and testing will be conducted on other submarines, Evans said.

External hull inspections and tests are done routinely on submarines to ensure the structural integrity of the ships. Maintaining an air-tight pressure hull is critical to ensuring the safety of submarines.

The cracks have been described as very narrow, or hairline.

Sailors discovered the cracks prior to getting the boat prepared for an underway period to conduct local operations, Evans said.

The boat will remain pier side until the Navy determines the scope of repairs. It is unclear which shipyard will be in charge of repairs, but it's likely the Navy will opt to keep the sub in the Northeast, since Northrop's sub-building partner, General Dynamics Electric Boat, has a shipyard nearby.

Newport News-built Toledo returned to the local shipyard in December 2006 for a \$178.5 million maintenance project that was supposed to be finished in June 2008.

The project was delayed more than eight months because of more than 2,000 project changes, Northrop said.

The additional work – which neither the Navy nor the shipyard has specified – likely has pushed the final price tag higher, but it's unclear how much. The Navy has acknowledged the delay carries with it additional costs.

During its time in the yard, it became part of two Navy-Northrop investigations into welding practices at Newport News.

In the first probe, Toledo was included in a group of more than a dozen vessels that required re-inspection after the yard discovered some of its workers used incorrect metals to weld together piping and joints on submarines and surface ships. The use of the wrong material could lead to cracking and, eventually, leaks.

Then earlier this year, a weld inspector at the Newport News shipyard admitted to signing off on the quality of welds that he did not inspect.

After a technical review, the Navy determined the welds in question on the Toledo were "deemed acceptable with no further action required," a Navy spokeswoman said.

Breaking Into The Underwater Boys' Club Sailor One Of 12 Women To Be Submarine-Qualified

By Erik Slavin, Stars and Stripes, July 21, 2009

YOKOSUKA NAVAL BASE, Japan – A sailor once asked Lt. Cmdr. Marilisa Elrod where she got the twin dolphins sewn below the U.S. Navy lettering on her uniform. She could understand the sailor's confusion – he had probably never seen the insignia on a woman before.

"I said I borrowed them from my husband ... just to tease him," said Elrod, a doctor and undersea medical officer based in Hawaii.

Then she explained how she studied for more than a year and passed her qualification test aboard the USS Key West before earning the distinction of being a submarine-qualified sailor.

To a submariner, those dolphins mean that the sailor wearing them knows enough about every function of the boat to save it in an emergency.

Elrod is one of 12 submarine-qualified women in the Navy, officials said.

As a medical officer, she has had the opportunity to ride on several vessels. However, crews stationed aboard submarines remain all male in the U.S. Navy.

"I think in the beginning it would be difficult from a logistics standpoint, but I don't see any reason why women would not be well-suited to be on subs," Elrod said.

Australia, Canada, Spain and Norway all allow women to serve on submarines, though their deployments tend to be shorter than those aboard U.S. nuclear-powered subs.

Some U.S. sailors say having women serve aboard subs would hurt unit cohesion. Others say sailors would adapt.

"You'll hear all sorts of arguments against it, some medical ... some similar to the arguments you hear against having homosexuals serving in small units," said Petty Officer 1st Class Jim Grisham, an electronics technician serving aboard the USS Seawolf. "Nothing credible, in my opinion, and little that the surface Navy and the other armed forces haven't learned to deal with."

Female U.S. Naval Academy students have come aboard the Seawolf and other submarines for years as part of their summer training.

While aboard submarines, Elrod has shared an officer's stateroom.

If women were allowed to serve permanently aboard subs, they would need designated spaces that aren't available on today's boats, said Submarine Group Seven spokesman Lt. Cmdr. Greg Kuntz.

"It's the space and the design itself that makes it very difficult at this time, but it's not that we aren't constantly reviewing [the idea]," Kuntz said. "The big question we continually ask ourselves is, 'How could we make this work?'"

Studies on retrofitting existing submarines to accommodate female berthing have shown that doing so would be prohibitively expensive, Kuntz said.

Submarines are already packed tightly with equipment; the few spaces that aren't, like the chief petty officer's lounge, aren't likely to be given away to enlisted sailors of any gender, Kuntz said.

Meanwhile, rack space is precious; the lack of bedding requires some enlisted sailors to "hot rack," meaning that three sailors share two racks while working different shifts.

Nonetheless, some sailors think it could be done if women are willing to put up with the same near-absence of privacy as men. For example, an extra curtain could cordon off a women's bunk area in the existing berths.

In Elrod's case, a sign hung on the door of the head, or bathroom, when she was using it. Certain times could be designated as women only, as they are for shower trailers in Iraq and Afghanistan.

Undiagnosed pregnancies before deployment could interrupt missions, detractors say. However, there are protocols for evacuating sailors with medical emergencies.

Submarine medics would also need to keep women's health issues in mind; for example, abdominal pain can be harder to diagnose in women, Elrod said.

"There are definitely some things that would need to be worked out and some instructions would need to be written, medically speaking," she said.

Other than the logistics, the biggest change would have to occur among attitudes. A large group of men in their 20s and 30s, living in very close quarters, tend to produce a lot of off-color humor.

"There's a sort of fraternity culture on board that would have to evolve, but if destroyers and the space station can be sex-integrated, then so can submarines," Grisham said.

Kuntz, who is submarine qualified, said that successful submariners of any gender tend to be shaped by the existing culture more than they change it themselves.

Petty Officer 2nd Class Seth Powers, 29, said that even most sailors who think it's a bad idea wouldn't have much choice but to do their jobs.

"It would probably work out," Powers said. "I don't see it being impossible. ... People would just get used to it."

France, Germany Vie To Sell Pakistan Subs

United Press International, July 21, 2009

Pakistan appears to be losing patience with Germany over a deal worth some \$1.5 billion to boost its 10-strong fleet of submarines, or it is playing a reluctant Berlin administration against Paris.

An agreement to supply three U-214 U-boats reportedly has been awaiting a final German signature since details were worked out in a visit to Germany by a Pakistani navy delegation in April. Quoting Pakistani government sources, the Financial Times Deutschland says President Asif Zardari may overrule his military's preference for the German subs to take up a "better offer" from France.

The French have reportedly offered to supply three submarines and to sweeten the deal by upgrading and overhauling older submarines that are already part of the Pakistani fleet. Two years ago French President Jacques Chirac reportedly wrote a personal letter to Pakistan's president, Gen. Pervez Musharraf, urging his administration to buy French and offering the prospect of French government support and finance for new hotels and a car manufacturing plant.

The German subs on offer would be built by ThyssenKrupp at its Howaldtswerken shipyard in Kiel. The sale, which would attract low-interest finance from the state-owned KfW, is politically controversial and requires the approval of the German National Security Council, which vets the sale of sensitive military and other equipment, especially to areas of actual or potential conflict and instability.

In response to a preliminary inquiry in 2006, the Council gave a further sale of submarines to Pakistan a tentative green light. That approval raised a storm of political protest for fear that such a sale would add to the existing arms race between India and Pakistan. Last year a number of non-governmental organizations protested the supply to Pakistan of Drone aircraft and torpedoes. Pakistan is also interested in acquiring further German-made tanks and armored vehicles.

In Germany, concerns about supplying arms to Pakistan — a nuclear power — are increasing, attracting fears that the country could be destabilized by or even fall into the hands of militant Islamists. There are worries over the reliability of the armed forces with some element of the army said still to be sympathetic to the Taliban.

The issue is potentially divisive even within the governing coalition of Angela Merkel. In 2005 the Defense Ministry led by Franz Josef Jung — a member of Merkel's center-right Christian Democrats — negotiated a wide-reaching agreement with Pakistan to cooperate on armaments. A corresponding declaration of intent by the German government was blocked after opposition from Foreign Minister Frank Walter Steinmeier, a Social Democrat and his party's candidate to be chancellor at forthcoming elections, due on Sept. 27.

With weapons for Pakistan currently a hot political potato — and only likely to get hotter — the Federal Security Council has deferred taking any decision on the sale, pending the election.

Meanwhile India is in the process of acquiring a nuclear submarine fleet using technology from France, joining the select club of countries with submarine nuclear capability. Currently, they are the five Permanent Members of the U.N. Security Council: the United States, Russia, China, France and the United Kingdom.

Inside The Ring

By Bill Gertz, *Washington Times*, July 23, 2009

New executive order

The Obama administration is putting the finishing touches on an executive order on classified information that will create a new National Declassification Center to review and release government secrets.

The order will update Executive Order 12958 when signed by the president next month. The order will seek to create “a uniform system for classifying, safeguarding and declassifying national security information, including information relating to defense against transnational terrorism,” according to a copy of the draft order.

“Our democratic principles require that the American people be informed of the activities of their government,” the draft order states. “Also, our Nation’s progress depends on the free flow of information and fully embracing the responsibility to provide information both within the government and to the American people.”

The newest feature of the order’s policy will be the creation of the National Declassification Center within the National Archives and Records Administration for declassifying records.

The order states that protecting information is “critical to our nation’s security and demonstrating our commitment to open government through precise, accurate, and accountable application of classification standards and routine, secure and effective declassification are equally important priorities.”

The order also will create a “secure capability” for receiving information, allegations or complaints regarding “over-classification, or incorrect classification.”

It also calls for limiting the government’s ultra-secret Special Access Programs (SAPs), stating that they can be created only by the secretaries of State, Defense, Energy and Homeland Security, and the Director of National Intelligence, or their main deputies, who must “keep the number of these programs at an absolute minimum” and only to counter an “exceptional” vulnerability or threat to specific information.

A copy of the draft order was obtained by Inside the Ring.

A Pentagon list of comments on the draft order states that the Defense Department “is adamantly opposed to any changes that would significantly increase costs without associated gains and impair our wartime mission.” The Pentagon also said it cannot meet the requirement to “immediately” set up the declassification center because of personnel issues.

The tone of the new order is oriented toward making it easier to declassify some of the millions of pages of classified data now held throughout government, which is costly to maintain.

The order states that “if there is significant doubt about the need to classify information, it shall not be classified.”

The order will keep the current three levels of classification, namely “Top Secret,” “Secret” and “Confidential.”

Information that will be classified falls into several categories, including military plans, weapons systems, or operations; foreign government information; intelligence activities, intelligence sources or methods, or cryptology; foreign relations or foreign activities of the United States, including confidential sources; scientific, technological, or economic matters relating to the national security; U.S. government programs for safeguarding nuclear materials or facilities; vulnerabilities or capabilities of systems, installations, infrastructures, projects, plans, or protection services relating to the national security, which includes defense against transnational terrorism; or the development, production, or use of weapons of mass destruction.

Most information will remain classified for 25 years when it can be automatically released, with the exception of confidential human source data. And classified data can be reclassified for longer periods. However, the new order states that “no information may remain classified indefinitely.”

Spokesmen for the White House National Security Council and the Pentagon spokesman had no immediate comment.

New submarine

The only new weapon system authorized by this year’s fiscal 2010 Defense Authorization bill is a new class of strategic ballistic missile submarines, dubbed the SSBN-X.

According to a defense source familiar with internal deliberations on weapons systems, Obama administration budget officials were anxious about adding the nearly \$700 million for the new strategic submarine because it runs counter to the president’s strategy of seeking the complete elimination of nuclear weapons, as outlined in a speech the president gave in Prague earlier this year.

The SSBN-X money is the first sign in pending law that the administration’s nuclear free world is not likely until after 2029, when the new missile submarine will be deployed.

Defense Secretary Robert M. Gates called the new submarine “a little-noticed initiative” in his speech in Chicago on July 16 that focused mainly on the hotly debated issue of whether to produce more than 187 advanced F-22 jets. The SSBN-X is needed to “sustain and continually improve our specialized strategic deterrent to ensure that our allies’ security is always protected against nuclear-armed adversaries,” he said.

The real reason for the new submarine funds is more prosaic, according to the source who declined to be identified because of the sensitivity of the information.

Development of the new submarine class, the first of which will not be built until 2029, is being slightly speeded up because it will be needed not just for the U.S. Navy, but it will also be adapted for use by Britain as a replacement for its four aging Vanguard-class missile submarines.

The British government announced in 2006 that it would spend \$32.9 billion to modernize its nuclear arsenal with up to three new missile submarines that can launch Trident nuclear missiles.

The new class of the Navy's boomer, as missile submarines are called, is expected to cost between \$3.3 billion and \$6.3 billion per submarine, and they will replace the 14 Ohio-class nuclear missile submarines.

F-22 Debate

With the Senate's rejection on Tuesday of an additional \$1.75 billion in funding for more F-22 jets beyond the 187 already authorized, the debate now moves to the closed-door House Senate conference likely to be held in September.

The House version of the fiscal 2010 defense authorization contains \$369 million for parts and a commitment to build 12 more F-22s. The two versions of the bill must be reconciled in conference, and President Obama has threatened to veto a bill that contains funding for F-22s.

During Senate debate on the F-22, several senators quoted Mr. Gates as the authoritative voice against the advanced warplane. Mr. Gates said in a speech in Chicago this week on the F-22 that "if we can't get this right, what on Earth can we get right?"

A day earlier he said, "What I have not heard is a substantive reason for adding more aircraft in terms of our strategic needs."

Proponents of the F-22 contacted Inside the Ring to say that Mr. Gates must have missed the June 9 letter to Sen. Saxby Chambliss, Georgia Republican and key Senate advocate for the jet, from Air Force Gen. John D.W. Corley, commander of Air Combat Command at Langley Air Force Base, Va.

"At Air Combat Command we have held the need for 381 F-22 to deliver a tailored package of air superiority to our combatant commanders and provide a potent, globally arrayed, asymmetric deterrent against potential adversaries," Gen. Corley stated.

"In my opinion, a fleet of 187 F-22s puts execution of our current national military strategy at high risk in the near to mid-term," he stated.

The four-star general said the F-22 is a "critical enabler of air dominance" and "plays a vital role and indispensable role in ensuring joint freedom of action for all forces, and underpins our ability to dissuade and deter."

Jakarta terrorism

The British private security analysis firm Stirling Assynt has identified a new feature of Islamist terror: Using terrorists posing as couples who checked in to the Jakarta hotels prior to the simultaneous bomb blasts.

The bombing is believed by U.S. officials to have been the work of the al Qaeda-affiliated Jemaah Islamiyah. Coordinated bombings went off at Jakarta's JW Marriott and Ritz-Carlton hotels July 17, killing seven people and injuring 53. Reports from Jakarta say intelligence officials suspect Noordin Mohammed Top, a wanted Southeast Asian terrorist, was behind the bombings.

Justin Crump, head of terrorism and country risk assessments for Stirling, said the new method of attack was more significant than who carried it out.

"The tactic of checking in to the hotel in order to assemble the bomb(s), make final preparations and detailed reconnaissance is a worrying development," Mr. Crump said in an e-mail.

At first it was thought the bombers may have checked in as a male-female couple, however, Mr. Crump said later a female bomber was ruled out and the terrorists had checked in as "Noordin A" and "Noordin B," references to the suspected mastermind Noordin Top.

Mr. Crump said that the idea of using couples remains a possibility and that the Noordin references represent a "gutsy" move by the perpetrators.

Using cover as a couple would "further lower suspicion" because "this approach circumvents all the 'classic' signs of a suicide bomber and would be very hard to defend against," he said.

Mr. Crump noted that the new terrorist tactics in Jakarta have sparked interest among other terrorists.

"Although we also expect more combined firearms and bomb attacks, as in Mumbai, Kabul and Peshawar, this opens up a new avenue of attack," he said in the e-mail analysis.

Mr. Crump could not be reached for further comment on his analysis, and a spokesman for Stirling Assynt had no comment.

Thirty Year Old SSG Refurbished

StrategyPage.com, July 23, 2009

China's lone Golf class ballistic missile sub has apparently been refurbished, rather than scrapped. These diesel electric boats (SSGs) were introduced by Russia in the late 1950s, and 23 were built by the early 1960s, when attention was turned to nuclear ballistic missile boats (SSBN).

Fourteen Golfs were modified in 1966-72 to carry larger R-21 (1600 kilometer range) missiles. These boats remained in commission until 1990. A few years later, ten were sold to North Korea for scrap. It's not certain that North Korea actually dismantled all these subs. The North Korean No-Dong missiles was based on the R-21.

China received two Golf boats, seven R-11F missiles (a 300 kilometer range SCUD) and the building plans, from Russia in the 1960s, and the Chinese built one in the 1970s, as the JL-2.

This boat rarely put to sea. The R-11F was the basis of later Chinese ballistic missile design. The recent refurbishment of the Chinese Golf apparently included changes to the three missile silos so the boat could be used to test new submarine launched ballistic missiles (SLBM).

The Golf was a 2,800 ton boat with a crew of 83 and three missile silos. There were also six torpedo tubes, and during the Cold War, these boats carried two torpedoes with nuclear warheads.

Russian Carrier Dreams Sunk

The Strategy Page, July 23, 2009

Last year, Russian admirals were talking about building half a dozen carriers, and escort ships. That was when oil (Russia's major export) was at over a hundred dollars a barrel. Now there's a global recession, and all raw materials prices are down. Moreover, the admirals have come to realize that their nuclear submarine program is in big trouble. The submarine construction industry, which used to turn out several nuclear subs a year, has been producing less than one a year since the early 1990s, and cannot build new boats fast enough to replace those that have to be retired.

The Russian Navy has not only shrunk since the end of the Cold War in 1991, but it has also become much less active. In the last three years, only ten of their nuclear subs went to sea, on a combat patrol, each year. Most of the boats going to sea were SSNs (attack subs), the minority were SSBNs (ballistic missile boats). There were more short range training missions, which often lasted a few days, or just a few hours. But the true measure of a fleet is the "combat patrol" or "deployment." In the U.S. Navy, most of these last from 2-6 months. In the last three years, U.S. nuclear subs have carried out ten times as many patrols as their Russian counterparts.

Currently, Russia only has 14 SSBN (nuclear ballistic missile sub) boats in service, and not all of them have a full load of missiles. Some lack full crews, or have key systems in need of repair. Only eight of these SSBNs can actually go to sea. Russia has only 14 modern, 7,000 ton, Akula SSNs (nuclear attack subs) in service. These began building in the late 1980s and are roughly comparable to the American Los Angeles class. All of the earlier Russian SSNs are trash, and most have been decommissioned. There are also eight SSGN (nuclear subs carrying cruise missiles) and 20 diesel electric boats. There is a new class of SSGNs under construction, but progress, and promised funding increases, have been slow.

The peak year for Russian nuclear sub patrols was 1984, when there were 230. That number rapidly declined until, in 2002, there were none. Since the late 1990s, the Russian navy has been hustling to try and reverse this decline. But the navy budget, despite recent increases, is not large enough to build new ships to replace the current Cold War era fleet that is falling apart. The rapid decline of Russia's nuclear submarine fleet needed international help to safely decommission over a hundred obsolete or worn out nuclear subs. This effort has been going on for nearly a decade, and was driven by the Russian threat to just sink their older nuclear subs in the Arctic ocean. That might work with conventional ships, but there was an international uproar over what would happen with all those nuclear reactors sitting on the ocean floor forever. Russia generously offered to accept donations to fund a dismantling program that included safe disposal (of the nuclear reactors).

Since the end of the Cold War in 1991, most of the ship building money has gone into new nuclear subs. Six Akulas have been completed in that time, but all of these were under construction when the Soviet Union dissolved in 1991. Since 1991, only one nuclear sub has been laid down, and completed. The first of a new generation of SSBNs, the Borei class has been delayed by technical problems, a new ballistic missile that wouldn't work, and lack of money. The first Borei class boat, after many delays, is finally ready for service, but ended up costing over two billion dollars.

The Russian admirals made their big mistake in the early 1990s, when the dismantling of the Soviet Union left the second largest fleet in the world with only a fraction of its Cold War budget. Rather than immediately retire ninety percent of those ships, Russia tried to keep many of them operational. This consumed most of the navy budget, and didn't work. There were too many ships, not enough sailors and not enough money for maintenance or training at sea. The mighty Soviet fleet is mostly scrap now, or rusting hulks tied up at crumbling, out-of-the way naval bases.

While Western nuclear subs can last for about thirty years, Russian models rarely get past twenty. That means two new SSN or SSGN has to be put into service each year to maintain a force of forty boats. Unless the sub construction budget get billions more dollars a year, that is not going to happen. Right now, the priority is on producing a new class of SSBNs (11 more Boreis are planned or under construction). These Boreis are critical, because they carry SLBM (Sea Launched Ballistic Missiles) that provide a critical (they are much harder to destroy in a first strike than land based missiles) portion of the nuclear deterrent. The rest of the Russian armed forces, like most of the navy, is in sad shape, and unable to resist a major invasion. Only the ICBMs and SLBMs guarantee the safety of the state. So the way things are going now, in a decade or two, Russia will end up with a force consisting of a dozen SSNs and a dozen SSBNs. And no aircraft carriers.

Submarine Vets Award Scholarships

The Day, July 27, 2009

Groton - The U.S. Submarine Veterans Inc. Groton Base awarded scholarships to children and grandchildren of their members.

The Groton Base scholarships were awarded to the following students: Rebecca Ator, of Lipan, Texas, received \$3,000; Nicholas Craven, of Enfield, received \$2,000; Ashley Rotchford, of Niantic, received \$2,000; Ashlee Coutu, of Lebanon, received \$2,000; and Bridget Kesling, of Brooklyn, received \$1,000.

The USSVI National Organization also awarded scholarships to children and grandchildren of Groton Base members. The following students received awards: Nicholas Craven, of Enfield, received \$1,250; Samuel Radinsky, of San Diego, received \$1,250; Kelsey Alexander, of Montville, received \$950; Amanda Coutu, of Lebanon, received \$950 and Stephanie E. Kuzel, of Lebanon, received \$950.

The awards will be presented at the Subvets monthly meeting on Aug. 2, 6 p.m., at the clubhouse, 40 School St.

Experts: Toledo Crew Would Have Been Safe

By Andrew Scutro, Navy Times, 26 July 2009

Crewmen of the attack submarine Toledo dodged what may have been a significant incident - or simply a puddle in the control room - when a crack in the ship's pressure hull was discovered July 17 before getting underway from Naval Submarine Base New London, Conn.

A week later, Navy inspectors are still trying to determine the cause of a 21-inch crack on the topside hull of the Los Angeles-class attack sub, along with a "corresponding" 1-inch crack through the overhead of the control room, according to Naval Sea Systems Command.

The width of the crack was not released. "The crack's exact geometry is being investigated," said command spokesman Alan Baribeau said.

Because the pressure hull was compromised, "water would have entered Toledo if submerged," said Lt. Patrick Evans, spokesman for Submarine Group 2 in New London.

"The Navy is conducting additional tests to determine the extent of the crack and the proper procedures to repair it," Evans said. "After a cause is determined, other submarines will conduct similar inspections."

While a hole in the skin of a submerged sub sounds disastrous, the scenario of seawater suddenly rushing through an expanding hole in the hull is unlikely, according to a retired submarine commander with extensive experience.

"I don't see that it would fail," he said. "Even if it happened later, when the ship was submerged, it wasn't going to fail catastrophically."

Submarine procedures during the initial dive require holding at 150 feet for about 15 minutes to check for leaks and establish neutral buoyancy. The retired commander said the crew would have likely discovered leaking water at that point.

"If the ship submerged in this circumstance, they would have seen dripping in that part of the ship," he said, noting its location in the continuously manned control room. "From the perspective of ship safety, it's nothing to get hysterical about."

The larger question, he said, is where else in the fleet might there be similar failings, possibly as a result of poor quality control all the way back to the foundry. The crack was found in a casting, which is made from a mold, as opposed to the rolled steel that comprises most of the hull.

"The more important issue is: Why is this the case? Is it because we don't understand some level of metallurgy?" he said.

A second retired commander agreed that the crew likely would have detected the leak quickly but said "it's still shocking" that the crack would happen at all.

This is not the first incident in which cracks have been discovered in a U.S. nuclear sub.

Baribeau said that in 1995 cracks were found in missile-tube castings on the ballistic-missile sub Florida. In 1999, a crack was discovered in the bridge-access trunk casting of the attack sub Boise.

"The Navy corrected both issues immediately upon learning of the issues and will do the same for Toledo," Baribeau said.

Toledo's 25-month depot maintenance period at Northrop Grumman Newport News Shipbuilding in Virginia ended in February, taking about nine months longer than the standard DMP for the class. Baribeau said \$268.7 million was spent on modernizing the sonar and combat control systems as well as maintenance, repair and preservation work. He confirmed the casting in question "had areas of corrosion repaired during the DMP."

In 2007, Toledo was one of several Navy ships built or worked on at Newport News that needed close reinspection after faulty welds were discovered on non-nuclear internal piping in new Virginia-class submarines.

Other Los Angeles-class subs that needed inspection were the Oklahoma City and Newport News.

A Naval Sea Systems Command investigation is under final review. Baribeau said the crack is not connected to the 2007 weld issues.

Toledo is assigned to Submarine Development Squadron 12. It was built at Newport News and commissioned in 1995.

'63 sub disaster killed 129

On April 10, 1963, while testing its deep-diving abilities off Boston, the attack submarine Thresher was lost with 16 officers, 96 crew and 17 civilian technicians aboard. An accompanying submarine rescue ship, Skylark, was in communication, but "garbled transmissions indicated that - far below the surface - things were going wrong. Suddenly, listeners in Skylark heard a noise 'like air rushing into an air tank' - then, silence," according to a Navy account.

A court of inquiry later "opined" that the loss likely was due to "a casting, piping or welding failure" which flooded the engine room and set off a disastrous chain of events, according to the Navy account.

SOCOM: \$180 Million Needed to Fix Mini Submarine Damaged by Fire

By Christopher J. Castelli, Inside the Navy, July 27, 2009

U.S. Special Operations Command is asserting it needs an additional \$180 million to repair the Advanced SEAL Delivery System damaged by a November 2008 fire.

“Competing funding priorities for the current and projected” SOCOM budgets “prevent the command from repairing” the mini sub, the command said in an unusual July 24 statement.

Naval Sea Systems Command and Portsmouth Naval Shipyard estimate it will cost \$237 million — \$180 million above SOCOM’s ASDS budget — and 32 months to repair the sub, according to the command.

But there is no mention of abandoning the project in the statement, which appears aimed at building support for more funding. ASDS-1 is the only vessel capable of meeting SOCOM’s requirement to transport small SEAL elements underwater in a dry environment over long distances for infiltration and exfiltration in shallow water, the statement notes.

SOCOM spokesman Lt. Cmdr. Fred Kuebler told Inside the Navy, “The fate of ASDS-1 has not yet been determined.” He said officials had notified Congress of the lack of funds to pay for the repairs.

ASDS-1 was damaged by fire while its batteries were recharging at Naval Station Pearl Harbor, HI, on Nov. 9, 2008. The fire damaged all of its operating systems, as well as the battery system, sonar, motors and controllers, anchor assembly and hull.

Officials have not completed the root-cause analysis to determine the fire’s origin, according to SOCOM. The command accepted delivery of the sub in 2003 from Northrop Grumman. ASDS-1 was declared operational in July 2007.

The original design and development contract for ASDS was awarded to Westinghouse Electric Corp. in 1994. When Northrop Grumman acquired Westinghouse in 1996, it took over the development of ASDS. Over the years, the program has suffered technical problems, schedule delays and cost increases.

In 2006, major performance and reliability problems with ASDS led then-Pentagon acquisition executive Kenneth Krieg to kill the program.

Krieg commissioned a group of officials to study ways to improve the one-and-only mini sub built, but plans to buy two more subs of the same design were scuttled.

But three years later the Pentagon is poised to put millions of dollars toward launching a successor program called the Joint Multi-Mission Submersible (JMMS). The new SOCOM-led program seeks to develop a combatant sub that will keep SEALs dry while clandestinely carrying them long distances underwater.

Fiscal year 2010 Pentagon budget documents maintain JMMS will provide “improved performance” over ASDS and will “permit small, highly trained forces to operate in denied areas increasingly controlled by a sophisticated threat.” Before blessing the JMMS effort, however, House authorizers have sought assurances that defense and intelligence officials have the most effective, affordable plan to meet warfighters’ needs and share the cost of the effort.

Prototype Mini-Sub Shelved

Repairing fire damage would cost more than entire program’s budget

By William Cole, Honolulu Advertiser, July 25, 2009

A one-of-a-kind SEAL mini-sub based at Pearl City Peninsula that has been plagued by years of development problems and cost overruns won’t be repaired after a November fire because the work would cost \$237 million and take nearly three years, U.S. Special Operations Command said yesterday.

The decision could be a final blow to a program that once envisioned a fleet of the 65-foot mini subs, designed to ride piggyback on much larger attack submarines and deliver SEALs dry and rested to an insertion point.

The Advanced SEAL Delivery System, or ASDS, originally was expected to cost about \$80 million per sub. But the Northrop Grumman program spiraled to more than \$885 million, with only one sub built, according to a 2007 U.S. Government Accountability Office report. Delivery of ASDS-1 was accepted in 2003.

One of Special Operations Command’s biggest investments was beset by battery, noise and propulsion problems, and in April 2006, the Defense Department canceled plans for follow-on ASDS boats and directed the Navy and Special Operations Command to set up an ASDS-1 improvement program.

The \$237 million repair estimate from the Nov. 9 fire is \$180 million more than the entire budget for the ASDS program, according to Special Operations Command, based at MacDill Air Force Base in Florida.

The command said “competing funding priorities” for current and projected special operations budgets prevent it from repairing ASDS-1.

The fire broke out while the submersible’s batteries were recharging at its Pearl City home port. The 8:30 p.m. fire occurred during routine maintenance, which included the battery recharging, the Navy said in a news release.

The fire damaged the ASDS’ operations compartment, which affected all the boat’s operating systems, Special Operations Command said.

The battery system, sonar, motors and controllers, anchor assembly and hull were also damaged.

The “root cause analysis” - being done to determine the fire’s origin - is not complete, the command said.

new sub emerging

Lt. Cmdr. Fred Kuebler, a Special Operations Command spokesman, yesterday said the final disposition of ASDS-1 has not been determined. He did not rule out the possibility of repair.

Kuebler had no information about possible manning changes at the Pearl City facility.

The command also has requested funding for the Joint Multi-Mission Submersible program to develop an alternative SEAL insertion craft.

The online publication Inside the Navy reported in June that \$43.4 million was being sought for pre-design work on the mini-sub that would provide “improved performance” over the ASDS.

The ASDS was heralded as a “transformational leap ahead” design and was intended to deliver commandos dry and rested to a point of departure. The current SEAL Delivery Vehicles are open to bone-chilling cold water and require the use of scuba gear.

Big plans faltered

Designed to ride piggyback on the Los Angeles-class submarines Greeneville and Charlotte, both based at Pearl Harbor, as well as on new Virginia-class submarines and former ballistic missile subs converted to carry conventional missiles and commandos, the boxy, 8-foot-diameter ASDS was designed to sneak up close to shore with two crew and up to 16 SEALs.

Its skin is the material used on stealth fighters, it could take and transmit pictures almost in real time, and its design allowed for long-range operations.

The Navy in 2004 celebrated the completion of a \$47 million waterfront home for SEAL Delivery Vehicle Team 1 on 22 acres at Pearl City Peninsula that included a 326,000-gallon freshwater test tank.

At the time, the team had 45 officers and 230 enlisted personnel - 93 of them SEALs.

The GAO said in 2007 that the ASDS had “encountered a difficult, long and costly development since the initial contract was awarded in 1994.”

Despite those problems, the Navy in July 2003 took delivery of the first ASDS.

The craft rode piggyback on the submarine Greeneville during a deployment to the Persian Gulf by Expeditionary Strike Group 1.

The ASDS was supposed to deploy with the USS Michigan, a former ballistic missile submarine converted to carry conventional missiles and commandos, shortly after the fire.

The entire program, including six mini-sub and facilities in Hawai'i and Little Creek, Va., originally was to cost \$527 million.

Lockheed Martin Team Passes Requirements Review For Navy Submarine Communications Program

Military and Aerospace Electronics, July 25, 2009

MARION, Mass. Lockheed Martin's team developing a Communications at Speed and Depth (CSD) capability for U.S. Navy submarines has completed the system requirements review. The capability will enable secure, two-way communications between submarines operating below periscope depth and at tactical speeds with surface ships, aircraft, and land-based assets. All classes of U.S. Navy submarines will be equipped with this transformational capability, according to a representative.

“The on-schedule progress of this program results from a strong government-industry team that is focused on delivering a much-needed capability to the fleet,” says Brent Starr, the Navy's CSD principle acquisition program manager. “The system requirements review was a huge success.”

The Lockheed Martin-led industry team includes Ultra Electronics Ocean Systems and ERAPSCO, a joint venture between Sparton Electronics Florida Inc. and Ultra Electronics - USSI.

The team will deliver three types of two-way communications devices and associated submarine and shore equipment. Two of the devices — the tethered expendable communications buoy (TECB) Iridium system and the TECB-UHF system — are launched from submarines. The third is an acoustic-to-RF Gateway (A2RF) system that can be launched from submarines and aircraft.

Hardware delivery is expected in mid-2010.

“Successful on-schedule completion of the system requirements review is a major step in providing submarines the same access to communication networks as the rest of the U.S. Navy's fleet,” says Rod Reints, Lockheed Martin's senior program manager for the CSD program. “Our team is now starting the preliminary design phase, moving us closer to our goal of providing communications at speed and depth to the U.S. Navy's submarine fleet.”

Hurting Through The Sea At 115 Mph

By Jennifer Grogan, The Day, July 27, 2009

Groton - The latest class of submarines can travel at more than 25 knots submerged.

But what if the Navy had a much smaller submarine that could travel four times as fast?

“The real reason we buy nuclear submarines instead of non-nuclear ones is that we're not protecting the Gulf of Mexico,” said retired Navy Capt. James Patton Jr., president of Submarine Tactics and Technology in North Stonington. “We go halfway around the world, real quick. We get there and we stay there. Anything that would allow you to get a platform somewhere a long ways away pretty quickly would have great military value.”

That is why the Defense Advanced Research Projects Agency, which commissions research for the Defense Department, has given Electric Boat millions of dollars to design a vehicle that could potentially transport high-value cargo or small groups of people at 100 knots (about 115 miles an hour) in a program known as "Underwater Express."

The technology, if developed, could revolutionize ocean transportation if it could be adapted to cargo and passenger ships.

The vehicle would travel inside a large gas bubble created in the water, a process known as supercavitation. The bubble reduces drag, since the drag is much lower in air than in water, allowing the vehicle to travel at high speeds.

Supercavitation is not new. The technology has been applied to weapons, but never to transport vehicles, according to DARPA.

"What we're trying to do is come up with the sweet spot where science meets practicality," said Franz Edson, EB's director of submarine payload integration and strategic weapon systems. "The problem with the technology, the science, was you couldn't go very far, you didn't have any endurance and you couldn't maneuver very well, so it was really kind of limited practicality.

"What these guys here have come up with is a way to dramatically increase the endurance and maneuverability of a body in supercavitating flight, so now you can really start to do things with it."

Blowing out air to create the bubble that envelops the vehicle is wasteful, and a vehicle can only carry so much compressed air, so Jack Chapman, an engineer at EB, came up with a way to "mitigate that issue," Edson said.

Exactly how is the gas-bubble creation process managed efficiently? Well, that's a secret.

"It's revolutionary, but we can't tell you what it is," said Jennifer Panosky, program manager of advanced programs and future payloads at EB.

"It's not something we want other people to be aware of," Edson said. "We've proven it works. We've set records for the longest supercavitating flight in a water tunnel. This has the potential to change ocean transportation.

"Ships would be much more fuel-efficient, or could use the same amount of fuel and instead of taking two weeks to get across the Pacific, they could get across in a matter of days. It's pretty slick."

DARPA has given EB about \$26 million so far for the project, with another \$12 million expected by the end, said Panosky.

EB initially pitted its design against one from Northrop Grumman Electronic Systems in Maryland. EB was chosen to build a quarter-scale unmanned vehicle, based on the concept of a full-scale size of 8 feet in diameter and 100 feet in length, for a demonstration in spring 2010 in the waters off Rhode Island.

The demonstration will include a 10-minute run at speeds of up to 100 knots with maneuvers, including depth control, to show the controllability of the vehicle, according to a DARPA statement.

At that point, the program will conclude and the technology will be available to the Navy for use in future systems as desired, according to DARPA.

Commando Subs Sending Drones, Robo-Torpedos Into Combat

Wired News, July 28, 2009

The U.S. Navy's four Special Forces-optimized submarines are using a wide range of robots in combat in coastal areas, the Navy's top officer for irregular warfare said in a surprisingly candid interview. The Ohio-class guided-missile subs, modified from surplus ballistic-missile boats, have been outfitted with robotic mini subs and at least two types of unmanned aerial vehicle, according to Rear Adm. Mark W. Kenny. It seems Kenny's comments, to Special Operations Technology reporter Scott Gourley, just barely slipped under a descending veil of secrecy. "These get classified real fast because we're using these vehicles in operations," Kenny admitted.

The guided-missile subs, called "SSGNs" by the Navy, had their nuclear missiles removed starting in 2002. The boats' nuke missile tubes now contain clusters of conventional Tomahawk cruise missiles or serve as "payload tubes" for equipment, including robots. The SSGNs have accommodations for up to 66 SEALs or other commandos.

The Navy's submarine force is notoriously publicity-shy - it's not for no reason submariners call themselves the "silent service." U.S. Special Operations Command is equally hush-hush. Now combine the two - and you'll understand why the Kenny interview is so surprising. He detailed three robots now found aboard the Ohio boats:

* Sea Stalker, a torpedo-size underwater robot that specializes in snooping on radio signals and other communications. "The [concept] is to launch these from submarines at night," Kenny said. "They will transit to offshore, anchor, put their antennas out and begin collection. Ideally you would have a series of these . to cover different ports or hotbeds of terrorist activity. And then you would collate that information on board the ship."

* Scan Eagle, the 45-pound aerial bot that has seen heavy use by the Marines in Iraq and Afghanistan. Kenny says Special Operations Command is looking at boosting Scan Eagle with extra fuel and sensors - and maybe even weapons, like the Air Force's armed Predators and Reapers. It seems Scan Eagle is launched from a sub's deck while she is surfaced, but that could change. "We're looking at launch and recovery from an SSGN payload tube to allow clandestine close-in operations," Kenny said.

* BUSTER, a 15-pound UAV that Kenny says is particularly useful when working with foreign armies. "We've . done some very successful operations with allies, doing foreign internal defense, training them to operate this vehicle." The allied armies launch BUSTER from land, while the submarine "pull[s] in the full motion video and the infrared, correlate[s] it and fuse[s] it in our battle management centers on board."

Looking ahead, the Navy wants to give its new Virginia-class attack submarines the same ability to carry robots, by outfitting them with a "payload module" similar to the SSGNs' former missile tubes.

Obituary: David Randall Hinkle

The New London Day, July 29, 2009

Stonington - David Randall Hinkle, CDR USN (Ret.), of Stonington, died at home on Monday, July 27, 2009. He was diagnosed with lung cancer in early 2008 but was able to continue his active lifestyle relatively unconstrained until his last several weeks. He remained in home health care and was surrounded by his loving wife of 55 years and his three daughters at his death.

Dave Hinkle was born in Clarendon, Tex., in 1930 and was raised as a farm boy on a West Texas ranch. He graduated from Tahoka High School and was licensed as a Baptist preacher before he attended Wayland Ministerial College in Plainview, Tex. He enlisted in the U.S. Navy in 1948 and served in submarines before entering the U.S. Naval Academy by Fleet appointment.

Shortly after graduation in June 1954, he and Muriel Nelson were married.

He served in both a destroyer and one of the Navy's first advanced-sonar equipped submarines before being accepted for nuclear power training in 1958. Dave's subsequent naval career was heavily oriented toward the employment of advanced nuclear submarines in anti-submarine warfare. When he finished nuclear power training, he became part of the new construction crew of USS Tullibee, a small submarine designed especially for anti-submarine operations. Dave's job in that new-construction period was to ensure the proper installation and testing of the first of a new sonar system designed for the Navy's first production class of nuclear powered attack submarines. His performance in that job and the technical knowledge he developed were recognized by senior submarine officers, and he was ordered to the materiel staff of the force commander to institute formalized training in that new system.

Following that short staff assignment, the then Lt. Hinkle reported to the USS Haddo, one of those new class submarines being built at the New York Shipbuilding Company's yard in Camden, N.J. as operations officer. His next assignment was to the USS Plunger in Pearl Harbor, and his job was to make operational a new ASW missile system to work in conjunction with that new sonar system he had helped introduce in two previous submarines. Soon the then Lt. Cmdr.

Hinkle became the executive officer of the Plunger for the initial deployments of those new submarines.

A tour with the Submarine Force's Development Squadron followed, where his unique expertise was further utilized in advanced anti-submarine warfare training and tactics. Selection for command entailed an intense preparation period in the Naval Reactors Office in Washington, followed by assuming command of the USS Pargo, which he commanded for three years, culminating his uniformed naval career.

Upon retirement from the active duty Navy, Dave started a dual path new career track. He entered law school with the University of Connecticut and also started work as an analyst in the field of underwater acoustics. Very soon, Muriel and Dave Hinkle founded Sonalysts, Inc., and when he had earned his J.D. from law school, they elected to pursue their analytical service start-up instead of entering the practice of law. It was difficult and at times frustrating, but they persevered. The Hinkles were very careful to hire entrepreneurial individuals, mostly former submariners, and the company began to grow. It is now a multidisciplinary company serving a wide range of government and commercial customers. Sonalysts, Inc., has been cited often for superior performance by various governmental agencies. In 1986 the Small Business Administration awarded the company the SBA Administrator's Award for Excellence, and Dave and Muriel were among those honored by President Reagan at a White House reception. In 1994, Dave and Muriel were finalists in the Entrepreneur of the Year competition sponsored by Ernst & Young, IBM, Merrill Lynch, US Trust, and Inc. Magazine. They were also pioneers in the field of employee ownership, creating their ESOP in 1979. This business model has been widely acknowledged as a very important factor in a company's success since, as owners and employees have a personal stake in that success. In 2002 the Chamber of Commerce of Eastern Connecticut awarded Muriel and Dave Hinkle their William Crawford Distinguished Service Award. He was a member of the Naval Submarine League and the Submarine Force Library & Museum Association.

He was also a member of Ariston and the Thames Club. Many years ago he was instrumental in forming the semi-professional football team called the Southeastern Connecticut Seahawks.

David R. Hinkle was a happy man, a hardworking entrepreneur, a loyal friend, a real patriot, and a solid family man. In uniform he was more than a capable mariner, he was that, of course, but also a great deal more. He was technologically competent, militarily innovative, and a real leader of men.

He will be sadly missed by his wife, Muriel; his daughters, Valerie Hinkle Piland, Janet Lee Hinkle, and Sally Russell; also by his sons-in-law, Bud Piland and Nathan Russell, and by his grandchildren, Julie Davis, David Piland, Rebekah Piland, Nathan Piland, and Lillian Hinkle; sister, Marie Tankersley of Portland, Ore.; brothers-in-law, David Nelson and Robert Nelson and his wife, Cathy.

He was predeceased by his parents and his brother, Randall Wayne Hinkle.

Funeral services will be held at 10 a.m. Saturday, Aug. 1, 2009, at the Shepherd of the Sea Navy Chapel, Groton. Burial with full military honors will follow at Elm Grove Cemetery, Route 27, Mystic.

The family will receive friends from 5 to 8 p.m. Friday at Mystic Funeral Home, Route 1, 51 Williams Ave., Mystic.

In lieu of flowers, donations may be made to Hospice Southeastern Connecticut, 227 Dunham St., Norwich CT 06360 or to a charity of one's choice.

The Hinkle family invites you to visit www.mysticfuneralhome.com for directions or to share an online message of condolence.

A related story is available online from The New London Day

<http://www.theday.com/re.aspx?re=bbbed3b85-2e19-4237-bce9-2a065d8da7b8>.

U.S. Submarines Could Retain Nuclear-Armed Cruise Missiles

Global Security Newswire, July 31, 2009

An ongoing review of the U.S. nuclear weapons posture might call for the country to continue arming some of its attack submarines with nuclear-tipped Tomahawk cruise missiles, Kyodo News reported.

Washington will look to friendly nations to help decide whether to retire the weapons, a high-level U.S. official told Kyodo News. Japan has asked the United States to consult with partner governments before rolling back any nonstrategic nuclear-weapon deployments, according to the news service.

One U.S. ally has expressed support for the missiles' deterrent value, the official said without naming the country. Some Japanese officials have contended that the weapons help to counter nuclear threats from China and North Korea.

Nuclear-armed cruise missiles are not ideal weapons because they would require submarines and aircraft to move relatively close to a target, according to some U.S. military analysts. Such weapons typically have fairly short ranges, although some are designed to fly over 1,800 miles.

The Bush administration moved to reassess the use of nuclear-armed cruise missiles – and to consider gradually scrapping the weapons – but the final decision on their deployment has been delayed pending completion of the comprehensive Nuclear Posture Review.

Navy Charts Way Ahead in Arctic

By Bob Freeman, Navy News, July 31, 2009

WASHINGTON – The chief of naval operations created a task force, headed by the Navy's senior oceanographer, to better understand and evaluate the changing climate and its implications for maritime security.

"Task Force Climate Change was initiated ... to assess the Navy's preparedness to respond to emerging requirements and to develop a science-based time line for future Navy actions regarding climate change," explained Rear Adm. David Titley, Navy oceanographer in a July 28 interview on Pentagon Web Radio's audio Web cast, "Armed with Science: Research and Applications for the Modern Military."

"Because the Arctic is changing faster than any other place on the planet, our first deliverable will be a strategic roadmap proposing actions for the Navy regarding the Arctic region," Titley said.

This may include an assessment of how the maritime strategy applies to the Arctic region, potential improvements in infrastructure and recommended investments in force structure and capabilities to prepare for the challenges presented by the changing climate, he explained.

Titley was interviewed while staying in Barrow, Alaska, the northernmost city in the United States, located 350 miles north of the Arctic Circle, where he was joining Rear Adm. Nevin Carr, chief of naval research, for a visit to the Coast Guard Cutter Healy (WAGB-20), an icebreaker supporting scientific research in the Arctic Ocean. The visit was intended to observe retrieval of several bottom-moored buoy sensors funded by the Office of Naval Research.

"Observations from these buoys will give us a better science-based and fact-based understanding of what is going on in the Arctic," Titley explained.

Global climate change may present many challenges to national security, Titley said. Rising sea levels from the melting of glacial and sea ice are of specific interest to the Navy due to the coastal location of many of its bases.

"We need to understand what it will take to protect these valuable investments," he said.

Increasing ocean temperatures may compound the problem.

"As the ocean temperature warms, thermal expansion may be a significant ... and underestimated component of sea level rise," Titley commented.

"We are also very interested in the distribution of extreme weather events," Titley said, explaining that while the mean global temperature may be rising, some regions may experience extreme heating while others are seeing colder-than-normal temperatures.

Titley explained that changing ocean currents and precipitation patterns may produce regional droughts and floods that could have severe consequences for stressed and poor populations, who have the least ability to adapt to a quickly changing environment.

"This could result in an increased potential for large-scale humanitarian assistance and disaster relief efforts," he noted.

The Arctic already is experiencing dramatic changes.

"Since satellite observations began in 1979, we have seen a forty percent decrease in perennial, or multiyear, sea ice," Titley said.

This decline in sea ice, he added, is opening up the Arctic for more human activity, including resource exploration and ecotourism in the near term and the potential for increased commercial shipping and fishing in the decades to come.

"As the climate changes and the sea lanes start to open, the United States Navy has a role to play in maritime security, working with our Coast Guard and international partners to ensure the sea lanes remain open and navigation is free for all," Titley said.

Titley discussed the intricate dynamics of ocean currents influencing the changes that are occurring in the Arctic.

“The more I learn about the complex Arctic environment,” he said, “the more I realize that we still have significant aspects of the basic oceanography to understand before we are going to be able to accurately forecast and model these interactions.”

The Navy has a long history of polar operations, Titley noted, and the earliest indications of decreasing ice thickness were reported by Navy submarines in the 1990s. Since then, he added, the Navy has funded various scientific studies there in collaboration with other federal agencies and numerous partners in the world of academia and research.

Titley pointed out that another example of collaboration is the National Ice Center, a joint operation among the Navy, the National Oceanic and Atmospheric Administration and the Coast Guard. The center charts sea ice worldwide for safety of navigation and operations and their measurements have been crucial to quantifying the changes that are occurring in the Arctic, he said.

Titley said the Navy has many assets that can assist in understanding the changing climate. From a wide array of data-gathering sensors and platforms to super-computing facilities that process the data and create predictions, Navy assets continuously work to provide comprehensive knowledge of the physical environment.

“The naval oceanography program exists to provide environmental information to the operating fleet, allowing it to operate more safely and effectively,” Titley said.

“I like to say that we are operating in nature’s casino; I intend to count the cards,” he quipped.

Record number of participants turn out for U.S. Navy Robotic Submarine Competition

By SSC Pacific Public Affairs Office, Navy Compass, August 3, 2009

Media representatives are invited to an Open House at the site of the Twelfth International Autonomous Underwater Vehicle Competition on Friday, July 31, starting at 10 a.m., at the Space and Naval Warfare Systems Center Pacific (SSC Pacific) in Point Loma. The open house will take place at SSC Pacific’s historic Transducer Evaluation Center (TRANSDEC) pool and includes exhibits and demonstrations of current military robotic technologies.

The underwater competition, to be held July 31 through August 2, includes 30 teams from major universities and educational institutions, including collegiate teams from the U.S., Canada, Japan, Korea, and India, as well as two high school teams. A team from San Diego City College will also participate.

The event is open to the public and free of charge, 9 a.m. to 5 p.m. most days. Spectators can watch the teams up close in their tents as they prepare their vehicles for the competition. Signs near SSC Pacific (driving South on Catalina Boulevard toward Cabrillo National Monument) will direct spectators to parking.

To qualify for the competition, each team must design and build an unmanned vehicle capable of navigating realistic underwater missions, such as the precise maneuvers involved in docking at a station, marking a location, and recovering an object. The goal of this event is to help advance the science of autonomous vehicles by challenging a new generation of engineers. Major sponsors of this competition are the Association for Unmanned Vehicle Systems International (AUVSI) and the U.S. Office of Naval Research.

The site of the competition, SSC Pacific’s TRANSDEC pool, built in 1964, is a one-of-a-kind facility that simulates an “ocean” of water, free of echoes, and provides ideal conditions for research.

For more information on the competition, visit the AUVSI website: auvsi.org/competitions/water.cfm. For more information about SSC Pacific programs, visit spawar.navy.mil/pacific/.

To attend the open house, please RSVP to Ed Budzyna in the SSC Pacific Public Affairs Office, at 619-553-2725; ed.budzyna@navy.mil. This e-mail address is being protected from spambots. You need JavaScript enabled to view it.

Developers: Navy Prison Still Has Great Potential

By Robert M. Cook, Foster’s Daily Democrat (N.H.), Aug. 3, 2009

KITTERY, Maine – Developers and economic experts still see a bright future for the Portsmouth Naval Shipyard Prison even after the Navy scuttled the latest effort to redevelop it.

“I think it should be pursued, I really do,” said Paul Schumacher, executive director of the Southern Maine Regional Planning Commission.

He said whether the Navy and a developer created a facility at the prison that generated federal or private-sector jobs, it would benefit the region.

“But you’re really constrained by the security issues. You eliminate a lot of potential uses right off the bat,” Schumacher said.

Many old mill buildings in York County and the Seacoast have been successfully rehabilitated into residential housing, he said. But such a use might not be a good fit for the Navy prison because people can only access it by driving through the shipyard facility.

Russ Thibeault, president of Applied Economic Research in Laconia, said the potential for a successful development at the prison always has existed and will continue to. The prison, located on Seavey Island, overlooks the Atlantic Ocean.

“It is a terrific location, and I think anybody that sees the location gets excited,” Thibeault said.

But he said was not surprised the Navy was unable to move forward with any of the proposals it solicited from developers over the last year.

Any project faces challenges because of the need for an environmental cleanup at the site as well as the security issues, he said.

The latest redevelopment effort was conducted by Navy’s Enhanced Use Lease Program, a privatization effort aimed at leasing no-longer-needed facilities. It was formally canceled on July 24.

“We were unable to conclude that there’s an economically viable proposal that meets all the Navy conditions,” Beth Baker, a Navy spokeswoman in Norfolk, Va., told The Associated Press.

The AP reported that Navy officials declined to describe the three development proposals. Baker said because no contract was awarded, the proposals will remain confidential.

Lisa DeStefano of Lisa DeStefano Architects in Portsmouth, said she always has viewed the Navy prison as a beautiful woman in need of a makeover.

“She sits there, and she does want to have better life, and hopefully better karma than it was intended for,” she said. “I would never give up on it.”

She has worked on many historic buildings in Portsmouth and the Seacoast.

“I would do everything I could to keep the integrity of it,” she said.

Her design would take into account the building’s shell, its intended use and the available green space and entrance way.

“That building is deserving of that,” she said.

The prison, which was built in 1908 and housed as many as 80,000 prisoners, has attracted several developers nationwide who specialize in rehabilitating military structures, turning them either into health care facilities or commercial space used by private companies working for the Department of Defense.

The prison has been closed since 1974. It encompasses 265,000 square feet. The lease would have included 11.6 acres of adjacent land, and the term of the lease can be a maximum of 50 years.

U.S. Rep. Carol Shea-Porter, D-N.H., previously suggested in May 2008 that the U.S. Air Force should consider the Navy prison as a potential site for its Cyber Command.

The Air Force, however, no longer will be establishing a separate cyber command, but instead will provide forces from a new internal organization headquartered in Texas to a joint-service U.S. Cyber Command. Defense Secretary Robert Gates, in a June memo, named Fort Meade, Md., as the preferred location for that command.

Shea-Porter said Thursday that she still favors a use for the prison that generates economic development.

“I am always on the lookout for a good use of the facility. A good defense program located here would bring jobs to the region,” she said in a statement.

Tom Moulton, a partner at the Dunham Group in Portland, Maine, a brokerage firm that works with commercial real estate developers, said he believes the best future use of the Navy prison is a combination of office space, residential units and some retail shops.

He said parts of the Navy prison could be ideal for a 55 and older community, “even in this economy,” where fewer developers can access the kind of financing they did before the recession.

The Navy first tried to redevelop the prison in the late 1990s, when it signed a lease with New Hampshire developer Joseph Sawtelle to transform it into premium office space. That project fell through when Sawtelle died in 2000.

The Sept. 11, 2001, terrorist attacks also curtailed efforts to redevelop the prison because of security concerns. Before the attacks, some developers talked about turning the prison into a luxury hotel with retail shops or high-tech office space.

Thibeault said the prison still would be very good for a health care facility that could produce many high-paying jobs.

He said it also could be used for office space for high-tech companies or even for high-end condominiums.

Despite the latest setback, Thibeault, who called the site “gorgeous” and “attractive,” said he’s confident the prison one day will be redeveloped.

The Anatomy of a Fast-Attack Nuclear Sub

By Paul Edward Parker, Providence (Rhode Island) Journal, August 3, 2009

NORTH KINGSTOWN – Victor McKenna snakes himself into a warren of pipes and metal ducts as the whir of power tools and hiss of welding torches fill the workshop. He stretches a wrench forward, trying to reach a bolt that will secure a piece of sheet metal.

The tiny bolt is one of the simplest parts in the most complex war machine ever made: a Virginia-class fast-attack nuclear submarine. The product of more than half a century of nuclear submarine design, the Virginia class marries the latest in technology – electronic, nuclear and stealth – with modern construction techniques.

The boats are designed to creep into shallow coastal waters and conduct 21st-century warfare while still excelling at a submarine’s traditional mission: attacking other subs and surface ships at sea.

The life of these technological marvels begins in the top secret workshops at Electric Boat’s Quonset Point shipyard, where nearly 2,000 Rhode Islanders fashion hull plate, bend miles of pipe into shape and form sheet metal into everything from beds and lockers to ventilation ducts and air-conditioning components.

The parts made at Quonset – from metal fixtures weighing less than a pound to “supermodules,” a quarter of the 377-foot completed sub, weighing hundreds of tons – are shipped to Electric Boat’s facility in Groton, Conn., or to Northrop Grumman Shipbuilding-Newport News in Virginia, both independent shipyards alternating final assembly of Virginia-class submarines.

The Journal was given unusual access into Electric Boat facilities in Quonset and Groton to view construction of the \$2.2-billion submarines, including the Missouri, which is expected to be christened in several months after more than four years of work by thousands of workers.

The work at Quonset – in areas as small and quiet as doctors’ offices to noisy ones larger than airplane hangars – is nearly as complex as the machine being built.

IN A HUSHED office, engineers use computerized three-dimensional models of the submarines to account for every inch of space in the boat, making sure everything fits and that every part – including the crew of 134 – will work in harmony.

In a shop smelling of oil, machinists grind metal for parts ranging from simple pipe connections to components of the classified nuclear propulsion system.

In a brightly lit, laboratory-clean work area, electronics technicians quietly splice fiber-optic cables and assemble the panels that will control torpedo and missile launchers.

But much of the work at Quonset is accomplished in cavernous, noisy workshops.

Thunder and bright flashes of indoor lightning – from the arc of a welder – punctuate the ever-present scent of burning metal. Drills, grinders and metal punches combine in a symphony of industrial racket. Conversations can only be held by shouting.

At Quonset, much of the work centers on supermodules, constructing finished interiors – including decks and bulkheads, machinery and equipment, piping and wiring – and sliding them into sections of hull.

The hull includes the skeleton and skin of the ship. It keeps air in and water out and withstands the crushing pressure of deep water. The maximum depth for Missouri and its sister ships is classified. The Navy will only say that it's more than 800 feet and less than the bottom of the ocean.

THE HULL BEGINS as flat pieces of steel plate. Like many of the critical specifications of the submarine, the exact composition and thickness of the metal are classified. The steel has been certified as SUBSAFE, having passed a quality-control program initiated after the 1963 loss of the nuclear submarine Thresher and all 129 onboard. Any part of a submarine that, if it fails, can result in loss of life or of the boat is subject to the SUBSAFE program.

The flat steel plates are fed through the rollers of a 5,000-ton press, curving them into shape. Curved plates are positioned in a fixture, a circular, swimming-pool-sized holder, and welded together to form a cylinder, reinforcing rings welded inside each to give it the strength to resist crushing.

Several cylinders are welded end-to-end to reach a height of about 30 feet in the vertical fixture. The connected cylinders are turned horizontal and welded into supermodules, some up to 100 feet long.

These supermodules will be outfitted with components built outside the hulls.

Interior construction is more complex. Compartments ranging from the mundane, such as dining areas and crew quarters, to the high-tech, such as the engine room and combat-systems areas, have to be fashioned and outfitted.

Much of the work begins in Department 921, where steel is fabricated.



you look at welding in general, that's the life's blood of what we do. That's what holds our cylinders together, our hulls together," says George Andrescavage, the department superintendent from the Chepachet section of Glocester. The work of the welders is subject to a variety of high-tech quality tests, including radiographic, ultrasonic and magnetic particle tests.

As Andrescavage speaks, he stands on what will become a deck in the command and control system module of the Minnesota. On this day, the module is little more than the flat steel of the deck and a single doorway.

Near the other end of the cavernous workshop that holds Department 921, James Reynolds, of Hope Valley, and Roger Hinrichs, of Coventry, work on high-pressure air flasks.

The flasks are shaped like a medicine capsule, but taller than a person. Like medicine, the contents of the air flasks could save the lives of the sailors aboard a nuclear submarine. The air is stored at high pressure – the exact pressure classified – and can be used to blow all the water out of the sub’s ballast tanks when the boat needs to surface quickly in an emergency.

AMONG THE MOST important parts aboard a submarine are pipes. They carry drinking water and waste water, supply water to the nuclear propulsion system to make steam, and move air and water in and out of the sub’s ballast tanks.

The job of fashioning and installing pipes – called pipefitting – was, like many aspects of submarine building, a time-consuming job before computers carried the brunt of ship-design work. Pipes had to be bent inside the hull or fashioned from several angled parts to snake their way around obstacles already installed in the boat.

Now, work that could have taken hours can be done in minutes by machine in the workshop.

“The computer knows the shape,” says Timothy Shelton, a pipe bender from North Kingstown. He tells a computer which pipe to make, and the computer guides a machine that rotates the pipe into position, bends it to the correct angle and moves it forward precisely for the next bend. It can fashion a complicated pipe with a dozen bends in less than a minute and a half.

After being bent and cleaned, the pipes are assembled as packages on jigs, blue metal frames that mimic the structure of the pipes’ future home.

The distinctive blue of the jigs is significant. Because metal used in submarine construction has to be top quality, Electric Boat and the Navy want to be sure that everything used to build the boat has been thoroughly inspected. So, metal fixtures in the factory that are not approved for use in sub building are colored blue.

These “pipe packages” – assembled and removed from their jigs – will go into supermodules, such as the one containing the command and control system module, where they serve such things as bathrooms, air conditioning and torpedo launch systems.

While the Minnesota’s command and control system module in Department 921 is little more than framework, the same module for the Mississippi in Department 915 buzzes with activity.

Department 915 is where hull sections are formed and interiors are slid into place.

It’s housed in Building 2003 – a building 112 feet tall that covers nearly three times the size of the baseball field at Fenway Park.

It is also where Victor McKenna works. McKenna, 37, of West Warwick, a sheet metal technician, has worked on subs for the last seven years, leaving for two tours of duty in Iraq and Guantanamo Bay, Cuba, with the Army National Guard.

Most of the Cranston native’s work is in the command and control systems module and the supermodule where sub crews will eat and sleep, known as 2B-to-5. He installs ductwork and associated parts, including work on the Mississippi.

“Sometimes it’s like you turn wrenches all day,” he says. “Other times it’s a lot more complex and a lot more thought goes into it.”

UNLIKE MOST interiors, the command module will not be inserted into a hull section before being barged to Groton. The module – like the one for the Missouri sent more than a year ago – will be wrapped and sent separately to Groton for the installation of electronics and testing. Eventually, the command and control module will be inserted into the bow supermodule by either Groton or Newport News, whichever is finishing the boat.

The command and control module includes three decks: the command and control center on the center deck, crew’s quarters above and the torpedo room below.

The arrangement of the command center is new to the Virginia class. Because older classes had periscopes, the simplest place to build the command center was on an upper deck. But Virginia-class submarines use electronic cameras mounted on a mast that can be raised above the ocean’s surface. The images from those cameras can be displayed on view screens anywhere in the sub.

Like everywhere else in the sub, the crew’s quarters above the command center is small, seemingly inadequate for the 24 men that will live there for several months at a time. Bays of bunks line either side of a passageway smaller than the width of an adult’s shoulders. Each bay has three stacked bunks.

Eight bays line the passageway, each 6 feet wide, the bunks 6 feet long. What if a sailor is taller than 6 feet?

“He, uh, bends his knees,” says John Dugan, of Pawtucket, the sheet metal supervisor overseeing work on this module. “And there’s a lot of those guys on a sub, so they learn to, you know, live within their means.”

The plush digs go to the sub’s commanding officer and executive officer. They have private rooms adjoining each other along a passageway a few steps from the command center.

Bruce Hopkins, a sheet metal mechanic finishing the officers’ quarters on the Mississippi, estimates the commander has a room of about 8 feet by 4 feet. “Then, after all the equipment and furniture is in, he’s got a pathway to walk through, about a 2-foot path,” says Hopkins, of North Scituate. “This is a big room throughout the boat.”

ON FEB. 23, 2009, the supermodule 2B-to-5, which houses crews quarters, the galley and machinery on the Missouri, sits waiting for its trip to Groton for final assembly. Many of the 150 people who worked on it over the last four years pose in its massive shadow for a “class photo” outside Building 2003.

“It’s the last module to leave Quonset Point for the 780 hull,” module superintendent Rick Phillips, of West Warwick, says, using the numeric designation for Missouri. “It’s a lot of months of six and seven days a week, a lot of hard work for the team. I feel proud. I feel great to send it out.”

In the picture is Victor McKenna, who installed ventilation equipment in the supermodule. He credits the engineers who designed the boat with making sure all the equipment fits while leaving room for the sailors who will man the ship. That's not always exactly the case for the workers who build it. "Sometimes we're stepping on each other; we're in each other's way," says McKenna. "It's pretty much sardines in a tin can."

After the picture, riggers take the mammoth supermodule on a twisting path through a half-mile of shipyard, past raw steel that waits to become part of future subs.

The trip ends at the Sea Shuttle, a barge which stands on three legs that have been jacked down to concrete pads on the floor of Narragansett Bay. Without the legs, the barge could tip when workers drive the 100-foot-long, 1,700-ton supermodule onboard.

The supermodule is tied to the barge with wire rope, ready for the trip to Groton, 51 miles away by water.

The next evening, the supermodule rides up the Thames River toward the Electric Boat dock. Three weeks earlier, the bow of the Missouri – supermodule 1-to-2A – arrived from Newport News. When the 2B-to-5 reaches the dock, all four giant pieces of Missouri will be at Groton for final assembly.

BUT LONG BEFORE this milestone, crew members chosen for the Missouri were already starting to put their future ship through its paces. More than a year before the final parts arrived, the boat's command and control system module had been shipped from Quonset and into one of the most secret buildings at Groton's riverside shipyard – the COATS facility.

COATS is a revolutionary concept in submarine construction.

In the past, a sub was nearly finished, perhaps even already in the water, when workers installed the electronics systems that control the boat, give it eyes and ears and the ability to fire weapons. The equipment had to be carried in through hatches and installed in the sub's cramped confines, adding to the time it took. Also, because installation and testing came near the end of construction, the process could prolong completion of the boat.

But with COATS, equipment is installed and tested more than a year before the command center module is inserted into its supermodule. In fact, the "OAT" in COATS stands for "off-hull assembly and testing," according to Joan Sienkiwicz, an engineer and project manager in the facility.

"We test with both real ship equipment – antennas, the periscope or photonics mast, with simulation equipment to replace what's not here because the whole ship is not here," says Sienkiwicz, of Pawcatuck, Conn.

When the simulation equipment is set up, the command center is so realistic that the ship's crew trains on the actual equipment they will use at sea. The stations for the pilot and copilot, the sailors who have their hands on the joysticks that control the sub, are fully functional. So are the sonar station and the weapons-firing station.

WHILE THE WORK in COATS is important, the main action goes on inside Building 260, a 140-foot-tall structure large enough to hold three complete Virginia-class submarines, each 377 feet long and 34 feet across.

Late in 2008, the two supermodules that make up the back half of the Missouri arrived at the barge dock. Workers unloaded the supermodules and drove them into Building 260 using a system of strongbacks and transfer cars. Strongbacks are giant metal frames with brackets on top to hold the curved shape of the hull section. The transfer cars fit under the strongbacks and ride on rails in the factory floor. They allow the massive supermodules – and even the 7,800-ton finished submarine – to be maneuvered inside the factory.

After the aft supermodule arrived, workers installed the shaft that will drive the propulsor – a modern version of a propeller. Then, they used the transfer cars to align that supermodule with the one that goes in front of it.

"We paired these two quarters of the submarine together, and we welded all the way around, first on the inside, and then out here on the outside of the hull," says Mike Nowak, ship manager for the Missouri as he leads a tour of Building 260 in early April.

"At this point, two quarters of the submarine became a half, the entire aft end of the submarine."

The aft half holds the nuclear reactor, engine room, ballast tanks, propulsor, and rudder and stern planes, which steer the boat left and right and up and down. On the other side of Building 260, the front half of Missouri rests on strongbacks.

This includes a bow section that arrived from Newport News in early February and the 2B-to-5 assembled in Quonset Point.

"Saturday, after lunch, we're going to drive the whole bow half of the ship out of the building, and then we're going to move it south, back into the building, south again into position to make my two halves one submarine," says Nowak, of Mystic, Conn. "By Monday after lunch, all the steel will be touching."

Less than a month later, on May 1, the welding is complete. Fifty-one months after starting as steel plate and sheet metal, Missouri is a whole submarine, though interior work – connecting pipes and cables between sections and other details – remains.

MANY POINTS along the way from flat steel to sleek submarine are marked with ceremony. But Victor McKenna has attended only one. He took his wife and two young sons to the keel laying for the Missouri, a rare chance for his family to see the place he works.

"It is an awesome weapon, the complexity of it and the amount of people who work on it to do the job," he says.

When the Missouri is christened later this year, the sheet metal technician will not likely be there. "You spend a year on the boat, and the last thing you want to do is go see it again," he says.

Before that day, the Missouri will be driven from Building 260 to the water of the Thames River. In the days of smaller submarines, the boats were slid down rails to splash into the river. But the Virginia class and other modern subs are too heavy. Instead, the Missouri will meet the water in Graving Dock 3.

The 40-million-gallon chamber, 617 feet long, 96 feet wide and 63 feet deep, has a gate at one end that opens to the river. This allows the shipbuilders to flood the empty dock, open the gate and float the sub into the river.

At the bottom of the dock lies a hollow concrete pontoon. The pontoon can be adjusted so it floats or sinks when the dock is flooded.

When Missouri is finished toward the end of 2009, workers will flood the dock, a process that takes 12 hours, and bring the pontoon level with the adjacent pier. The pontoon will then be shifted to rest on concrete columns that hold it steady as the submarine is driven onto it.

After the boat is on the pontoon, the platform is shifted off the columns, and the dock is drained, causing the pontoon and sub to descend. When the pontoon reaches the bottom, workers adjust it so it won't float. The dock will be refilled, and Missouri will float off the pontoon, a free floating vessel.

While this "floatoff" is a significant milestone, the real celebrating will come in early December, when Missouri officially receives its name during its christening, complete with a bottle of champagne smashed on the hull – actually, a striker bar mounted on the sub's sail just for the christening.

Some finishing work and comprehensive testing will follow, and then Electric Boat will hand the sub over to the Navy for sea trials. After about a year, Missouri will return to Groton, bound for Graving Dock 1 or 2 for a PSA, or post-shakedown availability.

"PSA is basically the one-year checkup that we do on the boat," says Tony Calkins, of Stonington, Conn., who is managing the PSA for the North Carolina. "We do any repairs necessary that the ship finds during that one year. It's basically the warranty period."

About a year after coming in, Missouri will join the active service, patrolling the world's oceans and hugging its coasts for a lifespan that's expected to surpass 30 years.

A MODERN MISSION: Virginia-class submarines are among the most technologically advanced machines ever built. The sub equals or exceeds the stealth of its predecessor, the Seawolf, the quietest and hardest sub to detect before Virginia. But Virginia adds capabilities well beyond the more heavily armed Seawolf.

The Navy has four classes of subs among the 251 active commissioned ships of all types on the Naval Vessel Register. Three of the sub classes, Los Angeles, Seawolf and Virginia, are attack subs. The other class, Ohio, is divided into two types of boats, one firing nuclear ballistic missiles and the other firing guided missiles.

Five Virginia-class subs are listed as active commissioned ships. A total of 30 Virginia subs are planned, of which 18 have already been contracted for by the Navy, including the 5 in service and 6 under construction.

Like submarines of the Cold War era, Virginia was designed to attack surface ships and other submarines on the high seas. But it also is built to creep into shallow coastal waters and conduct 21st-century warfare, including:

- Attack shore targets with Tomahawk cruise missiles.
- Conduct surveillance on land areas, coastal water and foreign navies on the high seas.
- Deliver and support special forces for land and sea missions.
- Lay mines and map minefields. More work ahead

In 2011, Electric Boat will start building two Virginia-class subs a year. It will mean hundreds of more jobs at Quonset Point.

The mission: Silent and deadly

By Paul Edward Parker, Providence (Rhode Island) Journal, August 3, 2009

Virginia-class submarines are among the most technologically advanced machines ever built. The sub equals or exceeds the stealth of its predecessor, the Seawolf, the quietest and hardest sub to detect before Virginia. But Virginia adds capabilities well beyond the more heavily armed Seawolf.

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- Deliver and support special forces for land and sea missions; and
- Lay mines and map minefields.

Secrets: The Navy wouldn't let us see or photograph key components

Over the course of three months, The Providence Journal and projo.com were granted unprecedented access by a news organization to the classified factories in Quonset Point and Groton where Electric Boat builds nuclear submarines. The Journal obtained permission to photograph, video and write about aspects of construction never seen by those outside EB. Even so, security remained strict, and Navy officials reviewed photographs and videos before the Journal's cameras were allowed to leave the facility. The Navy's oversight of the Journal's reporting extended only to those raw images.

The basics: Air and water; in and out

By Paul Edward Parker, Providence (Rhode Island) Journal, August 3, 2009

The basic concept of submarines has changed little since a company that would become Electric Boat began work on the Navy's first commissioned submarine in 1896. Air and water are pumped in and out of ballast tanks to make the ship lighter or heavier than the surrounding sea, causing it to rise or sink.

Beyond that, today's nuclear subs bear little resemblance to their predecessors. World War II-era subs ran on diesel engines, which required air to operate. While on the surface, the subs ran their diesel engines to charge batteries, which would power the sub while submerged. That meant that subs of that time could only dive for a few hours before they had to come back to the surface, making them vulnerable to attack.

That changed in 1954 with the Nautilus, the first nuclear-powered submarine. Today's subs can stay submerged for months at a time because their nuclear reactors don't need air to work.

The Virginia-class attack submarines have pushed technology further. The iconic periscope, a fixture on subs for more than a century, is gone. It has been replaced by a photonics mast, a retractable tower fitted with digital cameras and other sensors, whose images can be routed to any number of viewing screens in the ship's control center, which resembles the bridge of the starship Enterprise from Star Trek.

And sailors no longer pilot the sub with steering-wheel-like controls. Instead, the pilot and copilot steer the sub with computer joysticks, like an incredibly life-like video game.



Inside an attack sub under construction. Journal photo by Sandor Bodo

An example of that is Virginia payload tubes, or VPTs. The first 10 boats of the class are equipped with 12 vertical launch system tubes loaded with Tomahawk cruise missiles.

Beginning with the North Dakota, which is under construction, the 12 launch tubes will be replaced with two VPTs.

At more than 7 feet in diameter, the VPTs are much larger than the launch tubes, but two VPTs can launch the same number of missiles as 12 vertical launch tubes.

The VPTs make the subs less expensive — only two sets of launch equipment and hatches need to be built instead of 12 — and give the Navy greater flexibility.

The VPTs can hold several modules, one of which launches cruise missiles. But other modules could accomplish objectives such as launching unmanned aircraft or special-operations equipment, such as small watercraft.

Working outside the hull

By Paul Edward Parker, Providence (Rhode Island) Journal, August 3, 2009

Before Electric Boat pioneered modular submarine construction in the 1970s, submarines were built as a complete hull. Everything — deck material, pipes, wires, equipment — had to be carried into the boat through openings in the hull. Crews worked in cramped areas that were difficult to ventilate.

Under the modular system, Electric Boat began building submarines in sections, or modules. Each section is more-or-less a complete part of the sub, as if the finished boat had been cut into slices. The sections are then lined up and welded together.

With the Virginia class, EB is taking the process one step further, constructing “supermodules,” each consisting of two or more modules.

Under a teaming arrangement, EB works with Northrop Grumman Shipbuilding-Newport News to build the Virginia class subs, each shipyard making various parts and each alternating final assembly of each sub. The Navy has teamed the competitors to maintain sub-building expertise at two companies.

The Virginia class subs have 10 modules – numbered 1, 2A, 2B and 3 through 9 – and shipped for final construction as 4 supermodules:

- **Supermodule 1-to-2A:** Includes the bow cone, sonar arrays, torpedo room, missile launch tubes, the command and control center and the sail, the streamlined tower that projects above the cylinder of the submarine. It is assembled by Newport News, with command and control module supplied by Electric Boat.
- **Supermodule 2B-to-5:** Includes crew quarters, galleys and machinery. Assembled by EB, with habitability module supplied by Newport News.
- **Supermodule 6-to-7:** Includes the nuclear reactor and engines. Assembled by EB, with reactor supplied by the Navy.
- **Supermodule 8-to-9:** Includes ballast tanks, the propulsor shaft, rudder, horizontal control planes and the propulsor. Assembled by Newport News, with propulsor installed by shipyard that finishes the boat.

Propulsion: Don't ask, EB won't tell

By Paul Edward Parker, Providence (Rhode Island) Journal, August 3, 2009

One of the most highly guarded secrets aboard a nuclear submarine is what makes it go.

Though the details are classified, a nuclear-powered submarine is essentially a steamship. Heat from the nuclear reactor is captured to make steam, which turns the main engines and electrical generators.

The ship is pushed through the water by a “propulsor” that turns at the end of the propulsion shaft outside the stern of the boat. More conventional propellers once pushed nuclear submarines before the Virginia class switched to the water jet propulsor. The design is, of course, classified, but some analysts have likened the propulsor to a giant Jet-ski motor.

Many wartime submarines had aquatic animal names and these recent additions to the museum's growing menagerie include a solid copper terrapin from HMS Terrapin and a bizarre wooden carved sunfish from the officers' mess of HMS Sunfish. These new exhibits have been added to the silver salmon from HMS Salmon, a stuffed ocelot from HMS Ocelot and a narwhal's tusk from HMS Narwhal.

Museum Archivist George Malcolmson said “The objects give us a fascinating insight into the quirky sense of humour of our submariners.”

“The beautifully made copper terrapin brought to mind the story of the submarine HMS Thorough's many pets. Former crew relate that they were continually stumbling over their real nine inch long tortoise at night in the subdued lighting, so a platform was built on his back to take a battery and a port (red) and starboard (green) steaming light, from then on his position course and speed were apparent at a glance.”

“During HMS Thorough's war in the Far East the crew also liberated three dogs and a cockerel they nicknamed named Ebenezer and an unpopular chipmunk who continually nipped peoples bare toes.

“While in silent routine stalking Japanese surface forces Ebenezer once let out a loud “Cock a Doodle” and was quickly stuffed protesting into a sack. We can only wonder what the Japanese Asdic operator reported to his superiors! “

Other pets onboard submarines over the years have included: White Mice, Rats, Cats & Dogs, Parrots, Rabbits, Goats, Snakes and even a Reindeer which can be seen in the photographic archive at the Submarine Museum. The Royal Navy Submarine Museum in Gosport, Hampshire is open every day and was set up as the “submarine memorial complex” with a key objective to commemorate the lives of the Royal Navy Submarine Service. For more information on a visit to the Royal Navy Submarine Museum and the new coffee shop overlooking Portsmouth Harbour visit www.rnsubmus.co.uk or call 023 92510354.

Cutting the metal

By Paul Edward Parker, Providence (Rhode Island) Journal, August 3, 2009

Electric Boat uses a variety of methods for cutting metal. The method chosen depends on the size and properties of the metal and the shape of the part to be cut.

Among the more advanced methods are:

Plasma cutters

A high-speed stream of inert gas is passed through an electric arc, which converts the gas to plasma. The extreme heat of the plasma slices through metal like the proverbial hot knife through butter.

Laser cutters

Computer-controlled lasers slice through sheet metal. In one machine, laser cutting is combined with computer-controlled punches that shape the metal. For example, the machine can cut slits for an electrical cabinet, and the punch can pound out the area near the slit to form a ventilation louver.

Water jet

A stream of water with abrasive grit at pressures of about 50,000 pounds per square inch blasts through steel several inches thick.



A plasma cutter slices through steel at Quonset. Journal photo by Steve Szydowski

ABOUT THE AUTHOR: Paul Edward Parker is a 22-year veteran of The Providence Journal. He has covered more than a dozen communities in that time, including North Kingstown, home to Electric Boat’s Quonset Point facility. He also has been the computer-assisted reporting specialist on the newspaper’s investigative team, where he contributed to the paper’s coverage of the Station nightclub fire, which was a finalist for the Pulitzer Prize for Public Service. Before settling on a career as a reporter, he studied physics and engineering at the University of Connecticut.

EDITOR’S NOTE: A video accompanying this story can be found at <http://www.projo.com/extra/2009/nuclearsub/>. Our thanks to retired Rear Adm. John D. Butler for letting us know about this extended feature on building a Virginia Class submarine.

Soviet Juliett – ready to be scrapped

Threat Axis, Aug. 4, 2009

Sitting tied to a pier in Providence Rhode Island – is a ex-Soviet “Juliett” class cruise missile submarine – waiting to either be restored or stripped in preparation to be scrapped.

This sub has had a interesting post-Cold War history. It was originally acquired by a Finish businessman in 1993 to be used as a off-beat restaurant/bar and tourist attraction in Helsinki. This attempt did not generate the \$\$\$ that the promoter had hoped for – so in 1998 the boat was leased to a Canadian promoter who wanted to set the boat up as a tourist attraction in Tampa Bay Florida. The intended location did not have the depth needed to moor the Juliett – so it was moved to a more remote location. Lack of business caused the Canadian promoter to declare bankruptcy and the ownership of the sub reverted to the original Finnish owner.

But he didn’t want the submarine back and tried to sell it on Ebay for \$1 million dollars. No takers. The submarine ended up being chartered for use in the filming of the Harrison Ford movie “K-19: The Widowmaker” and was towed to Nova Scotia, Canada.

In 2002 – the submarine was purchased by the USS Saratoga Museum Foundation and towed from Nova Scotia to Providence Rhode Island, and was on display there from August 2002 until April 2007 when it sunk in a storm (while tied to the pier).

Between June 2008 and August 2008 – US Navy salvage divers brought the submarine back to the surface after it had been on the bottom for over a year. An evaluation of the interior after its time on the bottom – showed that enough damage had been done such that another restoration was not a “financially viable option for the group”. The group announced in December (2008) that they would sell the submarine off to someone who had the resources to restore it – and if that failed – the submarine would be stripped of any historically significant materials – and then taken away for scrap in January 2009.

But – as this picture (below) of the submarine tied up in July 2009 shows – that the submarine has yet to be scrapped. It is unclear where the process stands. Either there is someone out there who has bid on it – or the scrapper is just keeping it there until they have time to work on it.

Sub Albuquerque Preps For San Diego Home

Navy Times, August 4, 2009

SAN DIEGO - West Coast sailors will welcome another fast-attack submarine to their local fleet when Albuquerque and its crew pull into San Diego Bay on Thursday, Navy officials said Tuesday.

The afternoon arrival of Albuquerque will mark the end of a homeport change for the sub's crew of about 140, who departed their previous home at the naval submarine base in Groton, Conn., said officials with Submarine Squadron 11, based at Point Loma Naval Base in San Diego.

The arrival of the Los Angeles-class boat at Point Loma is another marker in the Navy's decision to base 60 percent of its submarine force in the Pacific region, as directed by the 2006 Quadrennial Defense Review.

Albuquerque will join five other submarines currently based at Point Loma with the squadron: Jefferson City, San Francisco, Topeka, Asheville and Hampton.

Droids For Bottom Dwellers

StrategyPage.com, August 5, 2009

The U.S. Navy has revealed that its four "commando subs" are carrying robotic aerial (UAV) and underwater (UUV) vehicles. The Sea Stalker is a torpedo shaped UUV that is deployed via the frogman deployment capsule on the deck of the sub. The 45 pound Scan Eagle UAV is already used by navy surface ships, and by marines on land. The fifteen pound Buster UAV is also being used by the subs, apparently from the deck, or from ashore by SEALs. With four hour endurance, and able to operate 40 kilometers from its radio control gear, Buster can easily be taken ashore.

As of last year, the U.S. Navy has completed the conversion of four Ohio class ballistic missile submarines (SSBNs), to cruise missile submarines (SSGN). Each of these boats now carries 154 Tomahawk cruise missiles, and provides space (for living, working and training) for 66 commandos (usually SEALs) and their equipment (including all those UAVs).

The idea of converting ballistic missile subs, that would have to be scrapped to fulfill disarmament agreements, has been bouncing around since the 1990s. After September 11, 2001, the idea got some traction. The navy submariners love this one, because they lost a lot of their reason for being, with the end of the Cold War.

The United States had built a powerful nuclear submarine force during the Cold War, but with the rapid disappearance of the Soviet navy in the 1990s, there was little reason to keep over a hundred U.S. nuclear subs in commission. These boats are expensive, costing over a billion each to build and over a million dollars a week to operate. The four Ohio class SSBN, after conversion, each now have at least twenty years of life left in them.

The idea of a sub, armed with 154 highly accurate cruise missiles, and capable of rapidly traveling under water (ignoring weather, or observation) at a speed of over 1,200 kilometers a day, to a far off hot spot, had great appeal in the post-Cold War world. The ability to carry a large force of commandos as well was also appealing. The Ohio SSGNs can also carry a wide variety of electronic sensors and other data collecting gear. Thus in one sub you have your choice of hammer or scalpel. More capable cruise missiles are in the works as well. Whether or not this multi-billion dollar investment will pay off remains to be seen. But it's certainly a bold move, and the navy already knows that Tomahawks and SEALs work.

As when it was an SSBN, SSGNs will have two crews (each with 159 personnel, not including commandoes), which will switch places in the boat every 3-4 months, flying out to far off locations like Guam for the swap. The four SSGNs will apparently spend most of their time on intelligence collecting missions. As such, it may be a while before you hear any details. Two of these boats are based in the Pacific, and two in the Atlantic.

CPO Promotions At Lowest Rate In A Decade

By Lisa M. Novak, Stars and Stripes, August 5, 2009

NAPLES, Italy - Nearly 3,700 sailors will pin on the chief petty officer rank next month, according to a Navywide message, fewer than 20 percent of eligible candidates.

Advancement to senior enlisted leadership positions is becoming more competitive and is at its lowest in about a decade, Navy spokeswoman Lt. Candice Tresch said last month.

"Now that the Navy has entered a period of stabilizing the force, we are closely monitoring the number of billets and advancement opportunity to ensure a balanced force in terms of skills, seniority and experience and to align advancement rates with the number of available billets," she said.

Sailors in career specialties such as explosive ordnance disposal, electronics technicians specializing in submarine navigation equipment and machinists mates who maintain weapons systems fared the best - with advancement rates between 50 percent and 60 percent of those eligible for promotion, according to the Navy's Bureau of Personnel.

On the other end of the spectrum were machinery repairmen and cryptologic technicians. Only one percent of all eligible maintenance crypto-techs were on the annual chiefs list, while no machinery repairmen made the cut.

The primary reason for the disparity in promotion rates can be attributed to the number of vacancies in each career field. If there was only one vacant E-7 slot in the EOD field, for example, then only one E-6 could be promoted.

Of the 19,000 petty officers first class who were eligible, just 19 percent will be promoted to chief in fiscal 2010, a small drop from the current fiscal year.

Since 2004, the Navy has reduced the size of its force, including a 10 percent reduction in E-7 (chief petty officer) billets, Tresch said.

Following the announcement, those eligible for promotion begin a six-week training period, which includes classroom instruction, naval history, physical fitness training and leadership mentoring. At the end of the six weeks, all 3,700 sailors will be "frocked," meaning their pay will increase at various times throughout the year, but all will be considered equal in seniority.

The jump from E-6 to E-7 represents one of the biggest career milestones in the military.

Unlike other branches of the service, those who make it to the Navy's senior enlisted ranks immediately begin a training regimen to prepare them for a new set of leadership roles, a new peer group, new expectations and even a new uniform.

"As a junior sailor, wet behind the ears, I saw that the chiefs ran the Navy," said Chief Petty Officer Vince Griego, who was promoted to chief in 2003 and is currently based in Naples. "Any time you had a question, you went to the chief. I wanted to be that guy.

"The chiefs are successful because they work together. It's not about individuals; it's about having a successful team that networks and looks out for each other," Griego said.

Update to North Carolina Sub Vets License Plates

From Jerry Leppart, July 24, 2009

The bill to create a North Carolina submarine veterans personalized license plate was amended to another bill authorizing several specialty plates for N.C.

All bills in NC must pass three readings in the state Senate, which was completed July 15, 2009. It is now in the House Finance Committee for three readings. If the bill is passed by this committee, it goes to the House Floor for a vote.

If the bill gets this far, there's no reason to think it wouldn't pass and then to the Governor for her signature. After that, I will send out the applications to all those who have sent me a sign-up e-mail.

It will still take approximately three months for the SUBVET plates to be produced, but we're a long way from when we started in Feb. There's light at the end of the tunnel.

For more information or to sign up to be notified when the plates are available for order, please contact Jerry Leppart at jleppart@mindspring.com.

Russian Subs Were Tracked For Days, U.S. Military Says

By Kate Wiltrout, Virginian-Pilot, August 6, 2009

It's been years since Russian subs came calling so close to U.S. shores, but the lack of practice apparently didn't hurt those tasked with spotting undersea intruders. According to a military spokesman, sophisticated surveillance detected a pair of nuclear submarines heading across the Atlantic a full week before news of their patrols broke Tuesday.

Strangely enough, it could be a win-win for the longtime rivals: Pentagon officials seem pleased that the boats' presence didn't come as a surprise, and they insist it's no big deal. The Russian navy, meanwhile, gains some credibility after years of embarrassing setbacks.

"They've been out there, and we've been monitoring them in our area of responsibility for a little over a week," said Lt. Cmdr. Gary Ross, a spokesman for U.S. Northern Command and the North American Aerospace Defense Command, or NORAD.

"This certainly isn't cause for alarm, and we respect the right of every sovereign nation to operate freely in international waters, just as we do around the world," Ross said.

The Pentagon seemed so unfazed by the news that a spokesman almost sounded like an Olympic athlete welcoming a rival back into the competition, relieved to see someone push the game to a higher level.

"While it is interesting and noteworthy that they are in this part of the world, it doesn't pose any threat and it doesn't cause any concern," Geoff Morrell, a Pentagon spokesman, told reporters at a briefing Wednesday.

Morrell said it has been roughly a decade since Russian subs got this close to the continental United States.

His response, when asked by reporters what the subs were doing, was tongue-in-cheek: "It's a wonderful time of year to visit the United States."

A military official with knowledge of the matter said the two subs are at least 200 miles off the coast, somewhere between the mid-Atlantic and Florida. They're pretty far apart from one another, said the official, who requested anonymity because he wasn't authorized to discuss details.

According to international law, national boundaries extend 12 miles offshore; outside of that, vessels are free to transit.

Ross wouldn't provide details about how the subs were spotted but said the Navy's Norfolk-based Fleet Forces Command works closely with NORAD and the Northern Command, both based in Colorado Springs, Colo., on issues of "maritime domain awareness."

Eric Wertheim, author and editor of the U.S. Naval Institute's *Combat Fleets of the World*, thinks the Russian government wasn't too upset the subs were detected: It's free advertising.

"The purpose is not only to exercise their military, but to show their world they're able to do this," Wertheim said. "These kind of things happen from a very high level. I'm sure a lot more people at higher levels were involved in the decision to do this."

He said Russia is also looking to boost its military sales to nations such as India, which plans to lease an Akula-class sub from Russia.

"If the rest of the world doesn't see that Russian subs are capable of operating, they would look to the West" to buy, Wertheim said.

Russia has long sold military hardware to China, which used to be its top client. But in the past five years, the Chinese have concentrated on building their own ships and submarines.

Russia also might want to burnish its naval image after a series of blunders and disasters. Last fall, an Akula-class submarine caught fire during sea trials, killing three crew members and 17 shipbuilders.

A failed missile test last month- the sixth since 2005 - also embarrassed the once-proud Russian navy. The long-range weapon was fired from a submarine in the Arctic.

Wertheim called the discovery of the subs "a wake-up call" but noted it was ultimately a good-news story: Word of their presence came from the U.S. Navy, not the Russians.

It also reminds defense leaders and politicians of the need for a robust Navy at a time when ground forces in two wars draw bigger headlines.

"Hunting subs was an important business, a big business, in the Cold War. It's becoming more and more of a priority again," Wertheim said.

"While all that stuff is going on in Iraq and Afghanistan, you have the Navy holding threats at bay, and they're doing a very good job of it, but it's not always reported in the media."

Local Navy officials wouldn't talk about whether Hampton Roads-based sailors were involved in the detection and tracking of the subs.

But it's likely.

Personnel at Virginia Beach's Dam Neck annex, sub-unit of Oceana Naval Air Station, are trained to detect submarines using something called the Integrated Undersea Surveillance System.

Watchstanders at Dam Neck's Naval Ocean Processing Facility listen to undersea noise and analyze its origins according to signature frequencies.

They used to be a lot busier.

During the Cold War, Soviet subs routinely patrolled off the U.S. coast (and vice versa) and boats from both nations engaged in cat-and-mouse, hide-and-seek games, sometimes for weeks at a time.

But since the collapse of the Soviet Union in 1991 and the downsizing of the Russian military, it's rare for acoustic experts to detect the telltale sounds of nearby Russian boats, or for Navy surveillance planes like the P-3 Orion to pick up signals that they're in the neighborhood.

Repair Bill For Collision Sub Soars

Marine Log, August 5, 2009

The Navy faces an ever growing bill for the costs of repairs to USS Hartford (SSN 768), the submarine involved in a collision with the amphibious transport dock ship USS New Orleans (LPD 18) in the Strait of Hormuz back in March. The final tally looks like it could well exceed \$100 million.

General Dynamics, Electric Boat Corp., Groton, Conn., was today awarded a \$65,200,000 cost-plus-fixed-fee contract for installation of a hull patch, bridge access trunk, sail and port retractable bow plane, as well as perform mandatory corrective maintenance actions required for the repair and restoration of USS Hartford (SSN 768). Work will be performed in Groton, Conn., (90 percent) and Quonset, R.I., (10 percent), and is expected to be completed by September 2010. Contract funds in the amount of \$31,950,000 will expire at the end of the current fiscal year. The contract was not competitively procured. The Naval Sea Systems Command, Washington, D.C., is the contracting activity (N00024-09-C-4413).

This latest award follows a \$21,600,000 modification in July to a previously awarded \$15,800,000 cost-plus-fixed-fee contract. The modification covered off-hull fabrication of the port retractable bow plane, and material procurement and off-hull fabrication of the sail for the Hartford. The \$15.8 million contract, prior to the modification, covered advance planning and off-hull fabrication of the

replacement hull patch and bridge access trunk, advance planning and material procurement for the port retractable bow plane, and advance planning for the sail for restoration of the Hartford (SSN 768) to full service condition. After the March collision, the commanding officer of Hartford, CDR. Ryan Brookhart, was relieved of his command. He was not the first commander of the Hartford to have that experience. In 2003, the then commander, CDR Christopher R. Van Metre, and Captain Greg Parker, Commodore of Submarine Squadron 22, were relieved of command and sent back to the United States after the Hartford ran aground on October 25, while performing routine maneuvers in the harbor of La Maddalena, Sardinia.

No Operational Subs, Bombers or ICBMs to Be Cut in START Follow-On Talks

By Jason Sherman, *Inside Defense*, August 5, 2009

The Defense Department will not agree to dismantle any operational strategic nuclear delivery systems as part of ongoing negotiations between Washington and Moscow over a follow-on pact to the Strategic Arms Reduction Treaty (START), which the two sides hope to hammer out by December, according to a senior Pentagon official.

James Miller, principal deputy under secretary of defense for policy, said in an exclusive interview with InsideDefense.com that while Pentagon officials are exploring a wide range of changes to U.S. nuclear posture – including how to further reduce the role of nuclear weapons in the national defense strategy – the U.S. military intends for now to hold steady the size of the missile, submarine and bomber force.

On July 6, President Obama and Russian President Dmitry Medvedev signed a framework for a follow-on to the 1991 arms treaty, set to expire in December, that would set the number of strategic nuclear delivery systems between 500 – Russia's objective – and 1,100, Washington's target. The two sides also agreed the follow-on treaty would reduce the number of operationally deployed warheads maintained by each nation to between 1,500 and 1,675.

The U.S. position that Obama carried into that agreement in Moscow was the result of analysis led by the Defense Department as part of early work on the Nuclear Posture Review, said Miller.

"The Nuclear Posture Review has proceeded and driven positions taken in the START-follow on negotiations," he said. "It has been a DOD-led review, with interagency involvement. And our senior leaders, including our secretary and the Joint Chiefs of Staff, have been involved and have approved the recommendations that have gone forward."

The 1,100 strategic delivery vehicles the United States advanced as a target in the negotiations includes hundreds of systems that are no longer used for nuclear missions, including many that the Defense Department has no plans to ever operate again.

However, the START treaty lays out highly technical rules for counting launchers: Each deployed intercontinental ballistic missile and associated launcher, each deployed submarine-launched ICBM and its associated launcher, and each deployed heavy bomber is counted as a single delivery vehicle – no matter whether they are outfitted with nuclear or conventional warheads.

"Under those counting rules, a number of systems that we've used in the past and don't currently use or intend to use are counted," Miller said in an interview at the Pentagon on July 24. "All told, there are several hundred of those phantom vehicles."

Among these are 50 empty MX missile silos and 50 Minuteman silos that have been decommissioned. Under the treaty, 96 launch tubes on four Trident-class submarines which have been converted to fire conventional cruise missiles are still counted.

The Air Force has parked a number of bombers at the Davis-Monthan Air Force Base, AZ, boneyard, including 51 B-52Gs, 13 B-52Hs and 16 B-1Bs, according to Theresa Pittman, a spokeswoman for the Air Force unit that maintains the facility. The Pentagon has dismantled 46 B-52s in accordance with the START treaty, she said.

The Air Force's entire operational B-1 bomber force – 66 aircraft as of May, none of which are configured to carry nuclear warheads – is counted under the START treaty.

"To the extent these phantom delivery vehicles can be taken off the books, that allows us to go down and preserve the flexibility of our force mix," Miller said.

The number of operational strategic nuclear delivery systems is classified, he said, adding, "What I'll say is, it is a couple- to several-hundred less than the countable number."

Miller said the NPR analysis that informed the U.S. position in the START follow-on discussions would allow the Defense Department to retain enough nuclear warheads and delivery systems to preserve the nuclear triad.

The analysis examined a range of options to reduce warhead numbers below caps set in 2001 by Russia and the United States under the Strategic Offensive Reductions Treaty, which aims to reduce the number of operationally deployed nuclear warheads to between 1,700 and 2,200.

"We looked at a range of several different specific numbers below that level; we looked at them in the context of some very stressing scenarios involving potential nuclear conflict, involving challenges to each of the systems, each of the legs of the triad," Miller said.

He declined to say whether the U.S. position on the number of nuclear warheads in the agreement Obama and Medvedev signed was the higher or lower objective, only that it was the result of a thorough vetting by the Defense Department which provided for the retention of a "robust triad" capability.

"The resulting analysis was provided to the senior leadership and the position that we ended up with and recommended to the negotiators was the one supported by the [defense] secretary and the Joint Chiefs of Staff," he added, noting it was a "very extensive analysis of the possibilities for the future across a wide range of scenarios."

Miller said one option being considered would involve reducing the number of warheads loaded on each Minuteman missile. "It is something we're definitely looking at," he said.

He also signaled that the Nuclear Posture Review likely would call for retaining all three legs of the nuclear triad.

"As the NPR continues we will look at a full range of options," Miller said. "There is a very good case for retaining diversity in our nuclear-delivery systems. And the details of that will depend in part on the overall strategy and guidance that we're making adjustments to. I wouldn't preclude any outcome. But, I guess, as a hint of where we're heading, we recognize that diversity in delivery systems is important."

Ted Warner, a Pentagon veteran who was assistant secretary of defense for strategy and threat reduction from 1997 to 2000, has returned to the Defense Department to be the military's point man in START follow-on negotiations, which are led by the State Department.

Miller said the Pentagon is looking for the START follow-on treaty "to allow both sides to mix their forces as they see fit," marking a change from START, which puts specific limitations on different types of forces.

"What we'd like to do is establish a basis with the Russians that allows us to continue the most important verification provisions of START," Miller said. "We're both looking for ways to reduce costs associated with that. But the transparency allowed by the treaty and inspections and exchange of data has been very helpful and helps reduce the chances that either side engages in worst-case analysis of the other."

In addition, hammering out a new treaty with Russia is an important dimension in efforts to burnish the U.S. government's leadership credentials, he said.

"The fact that we're working together is important," Miller said. "Given that we [the United States and Russia] account for 90 percent plus of the nuclear weapons in the world today, we want to encourage others to reduce their nuclear weapons. We want to strengthen the nuclear Nonproliferation Treaty regime. And taking action in reducing our own numbers is part of our obligation under the NPT and part of what it will take to make progress."

Russia Sends A Message

By David Satter, National Review Online, August 5, 2009

The two Russian nuclear submarines that have been reported off the East Coast are not a military threat. They are in international waters and have not taken any provocative actions. Nonetheless, they convey a message. In the wake of President Obama's visit to Moscow and Vice President Biden's prediction that Russia's weakness will produce conciliatory behavior, the submarines demonstrate that the Kremlin has no intention of changing its aggressive stance toward the U.S.

Since the Moscow summit, the Russians have given a number of indications that there will be no "reset" of relations on the Russian side. On July 15, Chechen human-rights activist Natalya Estemirova was murdered. Although Russian president Dmitry Medvedev publicly condemned the murder, Moscow police dispersed a gathering demanding a serious investigation once attention had shifted from the case. On Saturday, the Russian defense ministry accused Georgia of shooting at Russian troops in the breakaway region of South Ossetia, and threatened an armed response. Now, for perhaps the first time in 15 years, Russian attack submarines have appeared off the American coast.

On August 4, Medvedev called Obama to wish him a happy birthday. According to the Russian news agency Interfax, the Kremlin said that Obama "highly praised the new way of communication at the top level," and that both sides stressed "the need to preserve trusting relations." Amid all the happy talk, the appearance of Russian submarines shows that only a minimal degree of trust is possible in relations with a government that operates on two levels – the level of dissimulation and the level of reality – both with its own people and with the outside world.

A Tale of Two Submarines

By Joe Buff, Defensetech.org, August 7, 2009

The NY Times triggered a stir of reporting, analysis, and sheer speculation on August 5 with "Russian Subs Patrolling Off East Coast of U.S." The bare facts, confirmed by official spokesmen from both countries are these: An Akula and an Akula II, fast-attack (SSN-type) nuclear powered subs among the very best in the Russian Navy inventory, have been sailing submerged on separate but concurrent long-distance voyages within about 200 nautical miles of the United States East Coast. One is supposed to have proceeded on toward Cuba, a destination highly favored by Soviet sailors for shore leave way back when.

The other sub reportedly is still nearby.

A flood of commentary in print and on-line media rapidly became available since the NY Times broke the news. There've been various assertions made about the possible Kremlin agenda(s) behind these deployments — so "rare" since the end of the Cold War — along with prognosticating about the possible significance to America's 21st century defense posture. My own careful reading of 10 different pieces shows that opinions are varying across the map, literally and figuratively.

The NY Times said these sub patrols "raised concerns inside the Pentagon," although the U.S. Navy's Integrated Undersea Surveillance System did detect and track both subs from early on. Neo-Communist Pravda.ru's sensationalized headline said "Two Russian Nuclear Submarines Make USA Shake With Fear," which hardly seems to be the case. The Daily Mail (UK) called them

“rogue subs,” though it sounds like they’re anything but that. DOD Press Secretary Geoff Morrell emphasized that “it doesn’t pose any threat and it doesn’t cause any concern.” Russia’s deputy chief of general staff, General Anatoly Nogovitsyn, stated “any hysteria in such a case is inappropriate.” He went on to emphasize that “The navy should not stay idle at its moorings” - something with which that great American seapower theorist and practitioner A. T. Mahan would have wholeheartedly agreed. All involved emphasized that the Russian subs’ behavior was fully in compliance with international law.

Even so, as respected naval commentator Norman Polmar points out, it’s been about 15 years since the Russian Navy is known publicly to have been able to and/or wanted to send nuclear subs on missions so far from home. Articles that DefenseTech readers can go read for themselves discuss and interpret possible connections to Russia’s recent greatly stepped-up long range flights of strategic bombers, Russia’s efforts to sell or lease its nuclear subs to foreign nations such as China and India, Russia’s desire to overcome the embarrassment of recent fatal accidents and test failures involving some of its other main naval assets, President Obama’s efforts to reset relations with Russia’s President Medvedev and Prime Minister Putin, recently tense relations between Russia and NATO for various reasons and political posturing by the Kremlin mainly for domestic consumption.

What I haven’t seen discussed elsewhere yet – and granted, here I’m speculating myself – is the possible connection between the sorties by the Akula and Akula II and Washington’s current and ongoing deliberations about America’s present and future defense spending. During the Cold War, to oversimplify things, President Reagan helped bring down the Soviet Union by fomenting a strategic arms race that the wobbly Soviet economy simply couldn’t afford to keep up with. Nuclear submarine cat-and-mouse operations on each other’s doorsteps, and in deep water, were a crucial part of this non-lethal use of naval force to leverage the soft power of financial competition. Now that America is profoundly challenged by huge conflicting social and defense demands in the midst of persisting recession, is Russia trying to do a bit of the same thing to us? And is this gambit simply part of the jockeying for strategic position that’s bound to occur between nations, as relative winners and losers emerge from the Great Recession into whatever geopolitical scenarios play out next? Surely Russia watched with interest the heated controversies during our last presidential campaign, about military power projection versus home front progressiveness.

One way or the other, the tale of two Akulas gives added urgency to programs – approved so far by the House of Representatives, but not yet voted on by the full Senate – to double the annual rate of construction of the world-beating Virginia-class SSN, and begin serious R&D for the next-generation SSBN. What single event might be more persuasive to the U.S. Senate than this clear demonstration that the Russian Submarine Force is making an assertive global comeback?

Personally, I think that if an attempt at putting bigtime financial pressure on America was really ever part of Russia’s intent, then it’s going to have some unintended consequences. Though admittedly fiscally challenged and politically polarized right now, about everything from deficit spending and tax policy to health care and jobs, if we can avoid any outright blunders ours will for the foreseeable future remain the strongest economy and military in the world.

WAR BENEATH THE WAVES is the story of USS Billfish and a 15-hour depth charge attack she endured on Armistice Day, 1943, in the Makassar Strait. During that attack, the skipper lost it, the XO was overcome by bad air, and the third in command lost it even worse and had to be sedated. That left the fourth senior officer aboard Lt. Charlie Rush in charge. With the help of a couple of chiefs and the rest of the crew, he was able to get the boat out of that mess with some very daring and innovative maneuvers. The story of cowardice and courage is one of the most amazing I have yet run across, and was untold until 2002. That was when Rush was attempting to get recognition for the two chiefs, and the former officer who was writing those citations did one for Rush to receive the Navy Cross.

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Mike Hacking

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(858) 495-0562

mrhacking@san.rr.com

September 8 – 12, 2009

Town & Country Resort and Convention Center
San Diego, CA

The 2009 convention in San Diego is being hosted by the San Diego Base and the USS Scamp Base of the United States Submarine Veterans, Inc. (USSVI). USSVI is a fraternal veteran's association whose creed is:

"To perpetuate the memory of our shipmates who gave their lives in the pursuit of duties while serving their country. That their dedication, deeds and supreme sacrifice be a constant source of motivation toward greater accomplishments. Pledge loyalty and patriotism to the United States Government."



Joining USSVI in San Diego will be members of the International Submariners Association (who will be holding their 46th International Congress), U.S. World War II Submarine Veterans, and veterans from the Canadian Submariners Association. With the participation of the local military community this convention will be one of the largest gatherings of submariners in history!

We are seeking your support to make this a truly historic occasion. Your donation to the 2009 USSVI Convention will benefit all Submarine Veterans and their families who will be attending this gathering of Submarine Veterans from around the world.



Website: www.ussvisandiego.org/Convention2009/index.htm

The United States Submarine Veterans, Inc. (USSVI - our national organization), the San Diego Base and the USS Scamp Base (hosts of the convention) are 501(c)19 veteran organizations, as designated by the Internal Revenue Service.

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2009 United States Submarine Veterans, Inc. National Convention

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