American Submariners Inc.
4370 Twain Ave.
San Diego, CA 92120-3404

Non-Profit Org.
U.S. Postage Paid
Permit No. 445
Chula Vista, CA

The Silent Sentinel

June 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.

Laying the Wreath at Sea off Point Loma on Memorial Day

U.S. Submarine Veterans
San Diego Base

Base Commander
Bob Bissonnette
1525 Walbollen Street
Spring Valley, CA 91977
(H) 619-644-8993
(CELL) 619-251-7095
RBisson250@aol.com

Membership -- Change of Address
Ron Gorence
2563 Roseview Place
San Diego, CA 92105
Home--(619) 264-6995. Cell: (619) 264-3327
mgorence@yahoo.com

Treasurer
David Ball
3804 Wildwood Road
San Diego, CA 92107-3750
619-225-0304
davidball@cox.net

Senior Vice Commander
Bill Earl
2251 Vancouver Ave
San Diego, CA 92104-5350
619-2804053
dinkysan@yahoo.com

Newsletter Editor
Mike HYMAN
3639 Midway Drive, B-320
San Diego, CA 92110-5254
Voice/Fax/Message: (619) 223-9344
stamps@fortunesofwar.com

Assistant Editor / Photographer
Jack Kane
619-602-1801
jkane32@cox.net

Junior Vice Commander
Jim Bilka
310 E. Bradly Ave., Apt 42
El Cajon, CA
92021-8929
619-277-5758
sashanman@yahoo.com

Base Storekeeper
Mike Hyman
3639 Midway Drive, B-320
San Diego, CA 92110-5254
Voice/Fax/Message: (619) 223-9344
stamps@fortunesofwar.com

Chief of the Boat
Fred Fomby
858-735-0026

Secretary
Manny Burciaga
8406 Alado Place
El Cajon, CA 92021-2003
619-921-5877
MannyBurciaga@pointloma.edu

Chaplain
CJ Glassford
4905 Coconino Way
San Diego, CA 92117-2619
858-204-8323
"Cjtmatlarge@san.rr.com

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: _____

CITY/STATE/ZIP: _____

EMAIL: _____

TELEPHONE: _____

Would like the SILENT SENTINEL emailed: YES_____ NO_____

Robert Bissonnette
1525 Walbollen St.
Spring Valley, CA 91977-3748

USSVI Base Commander
c/o VFW Post 3787
4370 Twain Ave.
San Diego, CA 92120-3404

*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*

June Meeting

Our monthly meetings are held on the second Tuesday of the month at VFW Post 3787, 4370 Twain Ave., San Diego. Our June meeting will be on 9 June, 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 Scripps Hospital (25 May 09)
Dennis Mortenson (Gall Bladder Removal, 28 May 09)
Richard Fullen (recuperating in Santee)
Mike Hyman (Crohn's Disease)
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 and Ron Gorence

Submarine Losses in May

Submitted by C J Glassford

SQUALUS (SS 192) - 59 Men on Board :
Foundered, on 23 May 1939, off the Coast of Portsmouth, New Hampshire, Later Salvaged, Raised, Repaired, and Recommissioned, USS SAILFISH (SS 192)
* Crew Rescued by First Successful use of Diving Bell
" 26 MEN LOST - 33 SURVIVORS "

RUNNER (SS 275) - 78 Men on Board :
Sunk, on 28 May 1943, by Causes Unknown, Possibly a Japanese Mine, or Combined Air and Surface Attacks, off Northeastern Honshu, Japan : " ALL HANDS LOST "

LAGARTO (SS 371) - 85 Men on Board :
Sunk, on 3 May 1945, by Japanese Minelayer, In the Gulf of Siam : " ALL HANDS LOST "

STICKLEBACK (SS 415) - 78 Men on Board :
Sunk, on 29 May 1958, after Collision with Destroyer Escort Vessel, USS SILVERSTEIN (DE 534) :
" NO LOSS OF LIFE "

SCORPION (SSN 589) - 99 Men on Board :
Sank, on 27 May 1968, Most Probable Cause of loss was Inadvertent Activation of Torpedo Battery, Resulting in a Possible Hot Run and Torpedo Detonation, Off the Coast of the Azores : " "ALL HANDS LOST

"GUITARRO (SSN 665) - Duty Section on Board :
Sank, on 15 May 1969, Alongside Pier in Navy Shipyard, Vallejo, California, Salvaged and returned to Duty :
" NO LOSS OF LIFE "

BARBELL (SS 580) - 78 Men on Board :
Heavy Seas, on 1 May 1989, Washes Three Sailors from the Deck of the Submarine, while Operating off Kyushu, Japan :
" 2 MEN LOST - 1 MAN RESCUED "

Wheelchairs for Veterans

Tom Warner, one of our members and also a member of *Knights of Columbus* wants us to know that as a Knight, he has access to some wheelchairs for veteranss. The caveat is that the chairs have to go to veterans who need them for non military reasons (the VA will take care of them if it is military related injury).

If you or any other veteran has a need such as this, please do not hesistate to let Tom know. He may be reached at 619-884-8471.

Commander's Corner
June 2009

Hello All, glad to see so many of you at the last meeting. Sorry for the technical problems with my slide show of my trip to Alaska to support APLIS 2009 Ice camp. Both Mike Hacking and I enjoyed the great weather we had to deal with up there. Anyhow I have fixed the problem I had and we will have the slide show at the next meeting. The Memorial Day Service went well and I was happy to see so many of you out there. Thanks for being there and showing your support. I had the opportunity to ride the Torpedo Retriever for the wreath laying and as always was very touching. Pictures to come. If anyone would like a copy of the pictures taken at the Service, please let me know. I will have them at the meeting. A few other members took pictures at the Service as well.

The next BIG event we are hosting is the USSVI National Convention Silent Auction Fund Raiser on 12 June. It will be at the Holiday Inn Bayside from 5-10pm. Lots of food and entertainment. I hope to see you all there for this event. This is our big push to raise funds for the convention. Tickets are $20 a person until 8 June, then $25 a person. If you're not sure you can get tickets at the door.

Let's not forget about the Julian 4th of July Parade and the SUBVETs Picnic on Sub Base on the 19th. It will be a day fun under the sun. Still working on getting tours set-up during the picnic. That's about all for now. Until the next meeting, I wish my shipmates and their families out there, have a Great and Safe Summer!!!

Sincerely,

Your Base Commander, Bob Bissonnette

Membership Report for May-June '09

New Members: Welcome Aboard to: Capt. **Charles Darrell** in Columbia Md, who earned gold dolphins in 1957 aboard the Sabalo (SS-302), **Tom Wilhelm** in Toluca Lake, Ca. (who was one of the sharpest Quartermasters in the US Navy) qualified on Sabalo in 1968 (under my humble guidance, of course), **Rick Smock**, qualified on Sea Poacher in 1968, **Ed Welsh** awarded dolphins in 1962 aboard Charr, **James Wade** on Pickerel in '66, and Cdr. **Charles Tate** who got his 'phins on USS Gato in 1943 and completed eight war patrols on (SS-212). We are honored to add the Commander's name to San Diego's list of WWII heroes and Life Members.

Status: 334 members as of 5/12/09 (Six men removed from rolls for dues delinquency).

Called to Eternal Patrol in '08: On 1/21/09- **James McKenzie** (Qualified on S-20 in WWII); on 1/27/09- **Denny Kriebel** (Qualified on Seadragon); on 3/18/09- **Capt.Lewis Neeb**, (Qualified on Redfish); on 3/20/09- **Lawrence Freske**, (Qualified on Darter).
Rest in Peace, Shipmates.

Any member able to donate any amount, any time, is invited to do so. Make checks out to "USSVI." In *Memo* space write: *Holland Club* (which has no other source), *Scholarship Fund, Welfare Fund,* etc., or just the word *Donation* and mail it to me or any Base Officer.

Supporting our mission: Base/Life member Capt. **Alan Cabot**, a Holland Club inductee this year, donated $100, and **Leland White**, a fellow Life/HC member, donated $50 to our General Fund. This brings the total of membership-related gifts for 2009 to $181. I'll recommend the Board allocate half to the Holland Club, and half to the Base—unless I hear otherwise from donors. Thanks!
ABOI,
RonG

Minutes of San Diego Base Submarine Veterans Meeting, May 12, 2009

Submitted by Manny Burciaga

1900 – Monthly meeting called to order by Base Commander, Bob Bissonnette.
Conducted opening exercises:
Reading of the Creed:
Pledge of Allegiance lead by Fred Fromby:
Base Chaplin lead in prayer and Tolling of the Boats for the month of May:

USS BARBEL (SS580)
USS LAGARTO (SS371)
USS SCORPION (SSN589)
USS SQUALUS (SS192)
USS RUNNER (SS275)
USS STICKLEBACK (SS415)

ALL HANDS OBSERVED A MOMENT OF SILENCE.

Secretary's report: Sailing list shows 40 members present.

Minutes not posted in last month we will correct this soon.

Committee reports:
No change in list, however we are glad to see Mike Hyman here at the meeting.
Charlie Marin is in the Hospital and his status is unknown.
Parade committee:
La Mesa flag day parade, Saturday, May 30, Pre-parade meet at 9:00, start off is
At 10:00 am. We will get more information as it becomes available.
Julian will be having their 4th of July parade and we will put out additional info.
Membership committee:
Ron states we have gained 13 new members this year.
Scholarship fund: 1 June is dead line for applications:
Conventions Committee: We need help, The planning committee will meet
a month before the convention. We have convention patches for 5 dollars tonight
and the convention coins are being made. Please register as soon as possible, if
you are planning to attend. The more we have registered the better it will effect the
venders who want to know how many folks have registered. Just register you
don't need to get a room, they are separate events.
Storekeepers report: I have orders for new patches and vests.
Breakfast committee:
Breakfast will be May 31, the last Sunday of the month, starting at 0800. We
need couple of volunteers, to help out.
1925 Take break.
1935 Meeting called or order by Base commander.
Conducted 50/50 drawing…
Unfinished Business:
Memorial Day services at the Sub Base:
Services will be conducted at 10:00, Monday 25 May. There will be setting
for 250 people.
The USSVI 2009 National Convention Silent Auction Fund Raiser:
This silent auction will be Friday 12 June from 5–10 PM at the Holiday Inn Bayside,
4875 N. Harbor Dr. Cost is 20 dollars in advance, after 8 25 dollars. Located on
the 5th floor, we have tickets available to night. There will be heavy Hors D'oeuvers
and a no host bar. If you would like to rent a room for the evening special rates are available. .
Picnic on July 19th: There is no conformation yet, but we will let you know. We will be
be having the picnic with Scamp base and WWII Vets.
New Business:
Julian day parade: We will get more information on this event.
No other new business.
Good of the order: None
2005 Meeting adjourned by the Base Commander.

Sailing List for May 12, 2009

FRED FROMBY	BILL EARL	DAVID BALL
FRANK WALKER	MERT WELTZIEN	FRED DEWITT
CJ GLASSFORD	RON GORENCE	JACK KANE
NIHIL D SMITH	BOB FARRELL	MIKE MURPHY
BOB BISSONNETTE	MIKE HACKING	TOM WARNER
JIM BILKA	MANNY BURCIAGA	ED WELCH
JOE ACAY	KEITH MCKERN	LIN SCHIMA
RAY FERBRACHE	HARRY MCGILL	BOB CHAPMAN
RICK BITTNER	PETE BERG	PHILL RICHESON
MAX SCHELL	PAUL HITCHCOCK	EVERETT MAUGER
BOB COATES	JIM MALDON	MATT BAUMANN
DON GULIHUR	MIKE HYMANN	CHARLIE TATE
JOEL ELKAM	TOM POLEN	KETH MCKEE

Submarine Related News

USS Hartford Returns to Homeport

From Submarine Group Two Public Affairs, May 21, 2009

GROTON, Conn. – With a big kiss and a little drool, Hospital Corpsman First Class Chris Yaras met his four-week old daughter, Ella Louise, for the first time in person. She was born while he was deployed aboard USS Hartford (SSN 768).

"It's awesome. It feels good to be home," said Yaras. "It was a long ride home."

Yaras and the crew of the Los Angeles class fast-attack submarine returned to Naval Submarine Base, New London today after a month-long surface transit from Bahrain. Hartford is expected to enter Electric Boat shipyard for a thorough inspection to assess required repairs following the March 20 collision with the amphibious transport dock ship USS New Orleans (LPD 18) in the Strait of Hormuz.

Cmdr. Chris Harkins, Deputy Commander, Submarine Squadron 8, commanded Hartford for the transit back stateside. Harkins took command of the submarine after the commanding officer of Hartford during the collision, Cmdr. Ryan Brookhart, was relieved on April 14 by Rear Adm. Michael J. Connor, Commander, Task Force 54 (CTF 54) and Commander, Submarine Group 7.

"I was amazed by the crew. They were still engaged. They welcomed me. They were very responsive, and it made my job a lot easier," said Harkins. "When I relieved, we got to work, got the ship trained up and all the equipment certified. The crew worked as a team. They hung in there and did not give up until we were pierside in Groton."

Harkins will return to his position as Deputy Commander of Submarine Squadron Eight in Norfolk when Cmdr. Robert Dunn takes command of Hartford. The turnover process is underway.

Family members, friends and shipmates dotted the pier to welcome Hartford home.

"They've been gone for a long time. They've been through a pretty traumatic ordeal. We're glad to have them home so we can continue with the recovery process and get the ship back into operational status and ready to go," said Capt. Harvey Guffey, Deputy Commander of Submarine Squadron Four.

The plan for Hartford, according to Guffey, is to allow the families to conduct a normal stand down for about a month. Then the submarine will head to the shipyard for inspection and assessment in July. The recovery and repair plan is still to be determined.

The plan for Chris Yaras, however, is to go to Disney World with his four-year old son.

"Nobody else wants to go. We might go camping, do some fishing. All the stuff you don't get to do while you're out there (on deployment)."

USS New Orleans returned to sea May 13, fully mission capable after completing repairs at the Arab Shipbuilding and Repair Yard (ASRY) Shipyard dry dock in Manama, Bahrain.

Two formal investigations have been completed; a Safety Investigation and a Judge Advocate General Manual (JAGMAN) Investigation. Both are currently undergoing endorsement reviews, which are expected to take several months to complete.

Electric Boat Gets $15.8M Repair Contract for USS Hartford Sub

Defense Industry Daily, May 25, 2009

General Dynamics' Electric Boat Corp. in Groton, CN received a $15.8 million cost-plus-fixed-fee contract for 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 to restore the USS Hartford (SSN 768), an improved Los Angeles-class sub, to full service condition.

The repair work is being performed as a result of a collision between the USS Hartford and the amphibious ship the USS New Orleans (LPD-18) on March 20/09 in the Strait of Hormuz, slightly injuring 15 sailors on board. Both vessels were able to proceed under

their own power after the incident, although the New Orleans suffered a ruptured fuel tank, releasing 25,000 gallons of diesel fuel into the strait.
Electric Boat will perform the work in Quonset Point, RI (70%) and Groton, CN (30%) and expects to complete the repairs by October 2009. Contract funds in the amount of $15.8 million will expire at the end of the current fiscal year. The Naval Sea Systems Command at the Washington Navy Yard, DC, manages the contract.

Coast Guard gets new escort for nuke subs
fortmilltimes.com, May 25, 2009

ST. MARYS, Ga. – The Coast Guard is getting a new cutter for its mission of escorting Trident nuclear submarines as they arrive and depart the Kings Bay Naval Submarine Base.

The 87-foot CGC Sea Dog is scheduled to arrive Monday afternoon to join the Sea Dragon, which arrived at Kings Bay in January 2008. Both are assigned to the U.S. Coast Guard Marine Force Protection Unit.

The Sea Dog, with a crew of 10, is the 73rd Marine Protector Class patrol boat built by Bollinger Shipyards in Lockport, La. Two identical ships are assigned to protect Trident subs assigned to Bangor Naval Submarine Base in Washington.
Base officials plan no ceremony when the Sea Dog arrives. A formal commissioning ceremony will be July 2.

Lasers Could Find Friend or Foe Submarines Underwater
Navy researchers hope to use lasers for sonar detection or communicating with underwater submarines.
By Jeremy Hsu, usnews.com, May 25, 2009

Flashy lasers should not make any sound in space, despite what "Star Trek" and "Star Wars" would have people believe. But lasers aimed underwater can and do create small supersonic explosions.

It's not just a light show. Naval researchers hope to use lasers for sonar detection, or even submarine-to-aircraft communication.

"The lasers we're using in experiments now are pretty compact," said Ted Jones, a physicist at the U.S. Naval Research Laboratory. "They're smaller than desk-sized and could fly on an aircraft."

Radios or other devices that rely on the electromagnetic spectrum don't work underwater, because water does not transmit such waves well. That means submarines cannot communicate from beneath the waves – they have to surface if they want to communicate with home base, planes or other naval ships.

Lasers could fill that communication gap, because water can act as a focusing lens if a laser has the right "frequency chirp." The chirp depends on the arrangement of different color wavelengths within a laser beam, because each color travels at a slightly different speed underwater.

The water's focusing effect squeezes the laser beam so that it gets narrower and narrower, and eventually creates a superheated explosion that can be heard.

"It's a very hot little bubble of steam that expands supersonically, makes a little shockwave, dissipates a bit and then turns into an ordinary acoustic pulse," Jones told LiveScience.

The naval researchers have used modest lasers to create pulses of 210 decibels, which far exceeds the sound of a jet engine or the loudest rock concert imaginable.

Playing with lasers underwater is nothing new for the U.S. Navy, but previous experiments used larger lasers and could only thermally heat the water without the pulse effect.

Much understanding of the acoustic pulse effect came from laser eye surgery, where scientists wanted to reduce the effect. Now Jones and his colleagues want to do the exact opposite and enhance the acoustic shock for a louder sound.

Jones envisions aircraft using lasers to transmit messages to submarines gliding beneath the waves. Or the lasers could allow aircraft to quickly search large areas of ocean with sonar systems, which listen for sound signatures reflected off of underwater objects.

"You put down an array of passive sonar buoys and go back over with same aircraft that dropped those," Jones explained. The aircraft could then use its laser to sweep a wide area and see what the sonar buoys detect.
But before any of that can happen, Jones and his fellow researchers are trying to improve the laser ranges underwater. Their current lasers can travel almost 66 feet (20 m) – not exactly Star Trek material, but still very sci-fi.

U.S. Navy Plans August Test for Conventional Trident-Related Technology
By Elaine M. Grossman, Global Security Newswire, May 21, 2009

WASHINGTON – The U.S. Navy in August plans to conduct a flight test of Trident submarine-launched ballistic missile technologies modified for conventional strike operations, despite congressional admonitions against developing such weapons.

The experiment could help the Pentagon assess the feasibility of equipping the Trident with a conventionally armed and maneuverable re-entry body. The D-5 missile's re-entry body, which normally carries nuclear warheads, would receive a precision guidance system and modified control surfaces to help boost its accuracy.

However, Congress has warned the Defense Department against developing or fielding submarine-based conventional weapons that might be mistaken for nuclear salvos when launched, and moved last year to cancel fiscal 2009 funding for such efforts. It is unclear whether lawmakers would attempt to stop the August flight test from proceeding.

Brief references to the upcoming experiment appear in a Pentagon report on conventional "prompt global strike" research, development and test plans, submitted to Congress last month and obtained by Global Security Newswire.

A second related flight test is scheduled for late 2012 or early 2013, according to the Pentagon's "Research, Development and Testing Plan for Conventional Prompt Global Strike, FY 2008-2013."

The conventional prompt global strike mission area is relatively new, driven by a Pentagon desire to respond more effectively to fleeting targets that might pose serious threats.

Once new weapons are developed and deployed, a U.S. president could order an attack carried out within just 60 minutes against targets halfway around the world. Potential time-sensitive targets might include "the transfer of weapons of mass destruction to terrorists, the preparation for launch of a WMD-armed ballistic missile, or pending employment of an antisatellite weapon," according to the Pentagon document.

Today, the only U.S. weapons readily available for such long-range strikes are tipped with nuclear warheads and thus unlikely to be used, according to defense officials.

The conventional-weapons approach generally enjoys strong congressional support. However, last year Capitol Hill rejected a funding request for conventional Trident as the first weapon system that the Pentagon proposed developing for the mission. Lawmakers have voiced concern that Moscow's misinterpretation of a conventional Trident launch could trigger a nuclear war.

Congress last year eliminated $43 million in Navy funds from a multiservice prompt global strike account.

The move followed action by lawmakers several years ago to ax similar Trident re-entry vehicle modifications that would have given the weapon maneuvering capabilities, which lawmakers have worried could be used for conducting a destabilizing nuclear first strike.

From a technical perspective, such accuracy modifications could be made regardless of whether the re-entry body carried a nuclear or conventional payload, but in recent years Pentagon discussion has focused on the conventional mission.

For the current fiscal year, lawmakers did fund development and testing for other Army and Air Force land-based concepts for the mission in a $74.6 million multiservice funding account.

The fiscal 2009 defense appropriations law also earmarked an additional $21 million for the Army to develop and demonstrate Advanced Hypersonic Weapon technologies and $4.8 million for the Air Force to begin validating its Conventional Strike Missile. The Air Force effort is regarded as more likely to be available for prompt global strike in the near term, with a first weapon potentially fielded as early as 2012.

The $43 million in Navy funds that Congress eliminated in fiscal 2009 was for two technology development efforts related to the Conventional Trident Modification. Most of the funding – $40 million – was to develop a "Medium-Lift Re-entry Body," a larger-scale version of designs for the controversial Trident modification program (see GSN, March 20, 2008).

At the time, critics on Capitol Hill said funding this alternative submarine-delivered weapon would have prolonged international concerns about launch "ambiguity."

The remaining $3 million in eliminated Navy funding was for a related "Life Extension Test Bed-2" flight demonstration in 2009, which also has been described as contributing to the development of the banned conventional Trident missile.

The so-called "LETB-2" is a modification that defense contracting giant Lockheed Martin has proposed making to the Trident D-5 missile's Mk-4 re-entry body, aimed at significantly increasing the weapon's accuracy, according to industry officials.

The Navy intends to carry out the LETB-2 experiment in a longtime strategic missile assessment venue. The trial planned for August is to fly on a Trident D-5 during a "Follow-on Commander in chief Evaluation Test," according to Navy officials.

The commander evaluations, conducted since the 1960s, are "to ensure that the Navy's strategic weapons and command and control systems will always operate as designed, and to provide strategic planners with up-to-date and accurate missile performance data," according to the service.

The event will constitute a test of major components of a conventional prompt global strike system aboard the Trident missile, leveraging earlier Trident "Enhanced Effectiveness" developmental tests, officials say. The 2002 experiments similarly were centered on giving the Navy weapon a maneuvering capability so that it could hit targets with precision accuracy, according to a study released last year by the National Academies of Science.

The August flight test would be "separately funded" using money from "outside" the current $74.6 million defense-wide funding account for conventional prompt global strike, according to the new Pentagon document. The report does not specify from where in the Defense Department budget the funds for the test originated.

The document – approved in early March by then-top defense acquisition official John Young and sent to key congressional committees in early April – notes that Congress had said there would be "no funding for testing, fabrication or deployment of a [Conventional Trident Modification] program."

However, Pentagon officials have interpreted the congressional directive to allow for demonstration funding, as long as it comes from outside the multiservice conventional prompt global strike account.

"The department understands that [defense-wide] funds are not to be used for [Conventional Trident Modification]," the document reads. "Significant work, however, was completed in the CTM program that will be valuable as we move forward with timely technology application to a [conventional prompt global strike] capability. It is our understanding from congressional language and discussions with congressional staffers that leveraging previous CTM subsystems or technologies is permitted – including leveraging of scheduled Trident II (D-5) tests for [conventional prompt global strike] development."

"What they did is get out ahead of Congress and spent money on [conventional Trident] programs for which they didn't have new-start authority," said one former nuclear-weapons officer. "And now, instead of stopping the program, they just keep rolling forward."

The former officer spoke on condition of anonymity, citing the sensitivity of criticizing the Pentagon's approach.

Ironically, Young – a Bush administration appointee replaced April 27 by Ashton Carter – last year publicly cast doubt on the national security value of conventional prompt global strike weapon systems.

During a question-and-answer session with reporters in November, he also voiced skepticism that the Pentagon would cease work on the Conventional Trident Modification effort, suggesting that it might continue under a different project name.

"My experience in the Pentagon is ideas never die, they just get new labels or different things like that," he said. "To the extent that there's an advocacy that has a voice, that voice will find its way as far as it can. So I wouldn't tell you it's dead." For fiscal 2010, President Barack Obama's defense budget request includes $166.9 million for the multiservice prompt global strike funding account. It is unclear how much, if any, of those funds the Pentagon intends to spend on Navy technology development efforts.

Navy Seeks Second Trident Missile Storehouse In Northwest
Inside the Navy, May 25, 2009

The Navy has re-submitted its notice of intent to draft an environmental impact statement (EIS) for the construction of a second wharf to house submarine-launched Trident nuclear missiles in Washington state, a proposal that was postponed last June, according to a May 15 Federal Register notice.

The service had announced on June 10, 2008 that it was seeking approval to build a second explosives handling wharf (EHW) at Naval Base Kitsap-Bangor, which would be adjacent to an existing wharf in Bangor, WA. The Navy soon canceled those plans because the project was "not ready for construction in the current budget cycle and therefore the project will not be funded," the June 30 notice stated.

"The notice of intent was canceled to allow the Navy the opportunity to review and validate the need for the project and identify other alternative solutions to the proposed construction," the most recent notice states. "After a thorough review, the Navy has now revalidated the requirement for a second EHW at NAVBASE Kitsap-Bangor."

The EHW, which would cost about $780 million to build, would house Trident missiles, which are launched from Ohio-class ballistic missile submarines. The structure is a covered facility with cranes used to load or unload weapon system components off submarines.

"The proposed action consists of in-water and land-based construction including a covered ordnance operations area, a support building on the wharf and a warping wharf," the notice states. "A new EHW is needed to ensure the Navy has the facilities required to offload/load missiles and perform routine operations and upgrades necessary to maintain the Trident program."

The Navy is considering two options for the EHW: A deep-water trestle EHW and an onshore trestle EHW. For both alternatives, the EHW would be located in deep water, parallel to and 600 feet from the shore.

"The new EHW would include a covered operations area approximately 600 feet long and 250 feet wide, supplemented by an uncovered wharf extension approximately 700 feet long and 35 feet wide," the notice reads. "The wharf would either be an anchored floating structure or a structure supported by piles."

The Navy is proposing to fund the project in fiscal year 2012, meaning the construction could start no earlier than October 2011, Pat Grzelak, a spokesman for Navy Strategic Systems Programs, said in a May 22 e-mail response to questions from Inside the Navy.

He said it would take about four years to build the EHW.

The Navy will hold three public scoping meetings to receive feedback from the public on the proposal. The meetings will be held in Washington state on June 23 in Poulsbo, June 24 in Port Ludlow and June 25 in Seattle.

Russian Uranium Sale to U.S. Is Planned
By Andrew E. Kramer and Matthew L. Wald, The New York Times, May 25, 2009

MOSCOW – Russia, already a large supplier of nuclear-reactor fuel to Europe and Asia, is expected on Tuesday to sign its first purely commercial contract to supply low-enriched uranium to United States utilities.

With the signing, Russia's nuclear-fuel trade with the United States will shift to a commercial footing, similar to Russia's dealings with other consumers of fuel, like France and the Netherlands, both longtime buyers of Russian uranium.

For the United States, the change is a sign that Washington is acquiescing to the idea of a major Russian role not only in the international nuclear power market, but also in the domestic market. Russia's outsize role in supplying uranium to American utilities had previously been justified because the fuel was a byproduct of a program to eliminate nuclear weapons. Now the Russians will be selling nuclear fuel from virgin uranium.

Yet the contract signing, after North Korea's nuclear test on Monday, also underscores a counterintuitive element of American nonproliferation policies.

The policy of buying diluted, or blended-down, Russian weapons-grade uranium yielded a clear nonproliferation benefit. The new mode – of having the Russians enrich new uranium for United States markets – is not directly beneficial for nuclear security because it does not remove weapons-grade uranium from stockpiles.

Yet by encouraging the commercial availability of Russian enrichment services, the United States deprives other countries of the rationale to have enrichment programs of their own.

The United States continues to want to see Russian weapons material blended down where possible, and is encouraging a largely open market to allow Russian enrichment facilities built for military purposes to become part of the international market for enrichment.

As a legacy of the cold war, Russia possesses about 40 percent of the world's uranium enrichment capacity, much more than it needs to service its domestic reactors, and it has sought direct access to the American utilities market for years.

"We are finally working in the principle of mutual profit," Sergei G. Novikov, a spokesman for the Russian state nuclear energy company, Rosatom, said in an interview about the expected first contract signing.

Techsnabexport, the Russian state company that exports low-enriched uranium, is expected to sign the contract in Moscow with a consortium of American nuclear companies. Techsnabexport declined to identify its American partners or the size of the contract on Monday.

The new contract is separate from a program to dilute surplus weapons uranium into civilian fuel for use in American reactors. Under that so-called megatons to megawatts program, begun in 1993, Russia is already the largest supplier of enriched uranium to American utilities and provides about half of all uranium consumed in civilian reactors in the United States.

Yet Russia has been prohibited from selling directly to the utilities by provisions of American law to prevent dumping at below-market prices, and it was compelled to deal only through a monopoly importer, the United States Enrichment Corporation.

That company was originally part of the United States Department of Energy, and the megaton-to-megawatts deal was a government-to-government agreement. When the United States sold off the enrichment corporation to a private company, the new entity was given a continuing monopoly on the sale of blended-down warhead materials from Russia. The company, USEC, said it paid competitive prices for the material. The Russians, meanwhile, complained that they were being underpaid.

In a negotiated settlement in February 2008, the United States agreed to allow Russia to sell low-enriched uranium directly to domestic utilities without the involvement of the enrichment corporation. But all sales of diluted weapons uranium will still go through the corporation. A spokeswoman for the company said the initial direct Russian sales will be small and will not harm its business.

Nuclear reactors run on uranium that is composed of 3 to 5 percent uranium 235. In nature, uranium is only 0.7 percent uranium 235.

Uranium used in weapons and in the reactors that power nuclear submarines use more than 90 percent uranium 235. "Enrichment" means raising the proportion of 235 compared with the dominant type, 238, and the Russian industry was set up to provide large volumes of high-enriched uranium for weapons and marine reactors.

Russia is a major supplier to the developing world by tapping this cold war-era military industrial base. It has provided 80 tons of low-enriched uranium manufactured into fuel assemblies to Iran for use in that country's Bushehr reactor, for a price of $46 million, according to Atomstroyexport, the Russian contractor building the reactor.

World Nuclear Club Just Keeps Growing

By Robert Fox, sanfranciscosentinel.com, May 25, 2009

The nuclear club just keeps growing, as diplomacy fails to keep out nations such as North Korea, Pakistan and Iran.

The announcement of North Korea's major nuclear test today has caused outrage, but little surprise. Relations had been deteriorating since last month's launch of a communication satellite rocket – taken by some as an ill-disguised ballistic missile test – brought widespread international condemnation.

Today Pyongyang said the improvement of its nuclear arsenal made the Korean peninsula a safer place. "The Democratic People's Republic of Korea successful conducted one more underground nuclear test on May 25 as part of the measures to bolster up its nuclear deterrence for self-defence in every way as requested by its scientists and technicians."

The chairman of the US joint chiefs of staff, Admiral Mike Mullen, said he had been expecting the move for a some days now, particularly after North Korea said it wouldn't return to the six-power talks on nuclear disarmament last week. While the admiral said he didn't think armed conflict was imminent, it is evident that the Obama administration doesn't envisage a resumption of direct talks with Pyongyang soon.

It may be a further symptom of the instability of Kim Jong-il's grasp on power in the reclusive neo-Stalinist state – as Simon Tisdall has written in Comment is free today. The beloved leader is clearly still in bad shape after his stroke last year, and the latest bout of erratic behaviour by Pyongyang may be an early showing of symptoms that the succession battle is already under way.

Today's underground test has significance well beyond the domestic upheavals of North Korea. It is a bad day indeed for the attempt to control the proliferation of nuclear weapons in the run-up to the renewal, and possible replacement, of the current Nuclear Proliferation Treaty (1971) next year.

North Korea seems to have been working for more than a year to improve its nuclear weapons capability both in the weapons themselves and their delivery systems. Today's statement says that the new test was carried out to "correct" the problems encountered with the first underground test of a nuclear device in 2006. Since then the North Korean military has tested several intermediate and intercontinental missiles and rockets, with mixed results.

It looks very much as if we may be on the threshold of the biggest nuclear arms race so far. There are strong indications that Pakistan and Iran are expanding their nuclear capability, as well as North Korea – their historical partner in the exchange of military hardware and technology. If there is no effective international anti-proliferation control, we may well have between 20 and 30 declared and undeclared nuclear powers within 15 years – and several non-state organisations with nuclear technology at their fingertips.

The device detonated today was modest by historical standards, the equivalent of 20 kilotons of TNT, causing the equivalent of an earthquake registering 4.5 on the Richter scale, roughly the same strength of the bombs that devastated the core of Hiroshima and Nagasaki in August 1945. The latest US assessment is that Pyongyang has created enough high-grade fissile material to make at least seven bombs of this capability.

Last week the Pentagon assessed that Pakistan now had between 70 and 100 bombs or warheads of the same capacity, and this is being expanded. Asked at a congressional hearing last week if he thought Pakistan was boosting its nuclear weapons capability, Mullen replied with a terse "yes" and said he could not go into details for security reasons.

As if today's news from North Korea wasn't bad enough, President Mahmoud Ahmadinejad of Iran has issued his note of defiance about his own nuclear programme. He flatly rejected the offer by the US and its allies to discuss a freeze on nuclear fuel enrichment in return for lifting sanctions. He rejected the terms, and said he did not plan to open any talks at all in the near future.

With diplomacy failing to curb the ambitions and programmes of the trio of North Korea, Pakistan and Iran, it is going to be hard to dissuade the aspirants to the nuclear club. Egypt, Saudi Arabia, Turkey and Brazil are likely to be the first off the blocks, but candidates such as Hugo Chavez's Venezuela cannot be ruled out.

This is likely to put pressure on Britain, too, with America pressing for the UK to update its Trident ballistic missile programme in about 2025. America will have to replace its current fleet of Ohio class ballistic missile submarines only 10 years later. The thinking is now that the US navy can only man and deploy between eight and 10 nuclear patrols at the maximum, and the British and French contributions will be vital to mounting their own deterrent activity, particularly round the coasts of Africa and the Gulf.

The costs are likely to be far greater than the £20-25bn projected in the UK government's discussion document on Trident replacement of two years ago. Greenpeace countered that the programme over 50 years could reach £76bn at least.

Already Royal Navy planners are looking at a "Trident Lite" concept whereby the new Trident missiles could be adapted to fit the new class of Astute nuclear submarine.

But would Trident Lite deter a Dear Leader in Pyongyang or the successors of Ahmadinejad in Tehran from their ambitions to get their own nukes?

Bladen D. Claggett, 96

Navy Captain, Submariner Was Hero of Leyte Gulf

By Adam Bernstein, The Washington Post, Thursday, May 21, 2009

Bladen D. Claggett, 96, a retired Navy captain who was a highly decorated veteran of World War II submarine warfare, died May 6 at his home in Bethesda. He had pneumonia.

Capt. Claggett received the Navy Cross, the military's second-highest award for valor, and two awards of the Silver Star while commander of the submarine USS Dace in the Pacific during World War II.

In October 1944, he made the initial report of a Japanese fleet approaching Leyte Gulf near the Philippines, in what would prove one of the largest and most decisive sea battles of the war.

He and another U.S. skipper, David McClintock of the submarine USS Darter, decided to fire on the two columns of enemy ships they had sighted. Capt. Claggett was credited with sinking a Japanese heavy cruiser, among other ships.

After the submarines made their hits, enemy destroyers went after them. Depth charges rained down, and in the confusion, the Darter ran aground on a reef. Hours later, Capt. Claggett rescued the entire crew. The chief problem, he told the press later, was running out of food after the rescue.

"We wound up by existing on mushroom soup and peanut butter sandwiches," he said. "We had 170 men on the Dace, and they were sleeping everywhere, even in the empty torpedo skids, and I couldn't get Cmdr. McClintock out of my bunk the rest of the trip, except for poker. It took us two weeks to get back to Perth, Australia."

Bladen Dulany Claggett was a Frederick native and a 1935 graduate of the U.S. Naval Academy at Annapolis. He retired from the Navy in 1965, after assignments that included command of a submarine division and deputy director for intelligence for the Joint Chiefs of Staff. In retirement, he worked as a maritime consultant.

His memberships included the Chevy Chase Club, the St. Andrews Society and the English-Speaking Union.

His wife of 70 years, Rhea Robinson Claggett, died in 2008. A son, Bladen Claggett Jr., died in 1957.

Survivors include a daughter, Mariamne Vickery of Bethesda, and four grandchildren.

UK to review combat ban for female troops

By David Stringer, Associated Press, May 24, 2009

LONDON – Britain's female soldiers could soon battle enemy forces in face-to-face combat, if a ban on women serving in the most dangerous warfare roles is lifted for the first time.

In keeping with a wider overhaul of equality laws in Britain, military officials are considering whether to allow female troops to be deployed with previously all-male units on perilous missions behind enemy lines.

Armed forces minister Bob Ainsworth said a new study will decide whether to lift a long-standing ban on female soldiers, sailors and air force personnel taking part in close quarter combat.

The review comes amid an examination of gender equality across British society, including moves to expose pay gaps between men and women and to encourage affirmative action.

Britain last reviewed the role of female troops in 2002, when officials concluded that women were less able to carry heavy loads, more prone to injury and had a lower capacity for aggression than men. It said single-gender units also were likely to bond better and work more effectively.

But Brig. Richard Nugee said experience of wars in recent years meant those assumptions needed to be tested again.

"The real point is that we now have practical experience of women in combat in Afghanistan and Iraq, and we want to see, genuinely want to see, what effect that will have on our military," he told the BBC. "This is a very open-minded review. We have no conclusions yet."

Only Israel and the former Soviet Union have deployed women as combat troops in modern history, though Israel hasn't sent women into front line fighting since 1948.

The United States doesn't allow women to serve in infantry or special forces units.

British women played a prominent role in World War II, joining auxiliary units of the regular armed forces and serving as officers with the clandestine Special Operations Executive, members of which were deployed behind enemy lines to disrupt or gather intelligence on the enemy.

Britain's defense ministry said that around 18,000 women currently serve in the U.K.'s armed forces, out of a total of around 188,000 personnel. Scores of women are deployed along front lines, carrying out dangerous tasks such as attack helicopter pilots and medics – but none are involved in infantry missions to track and kill enemy forces.

Since the 1990s, women have been able to serve on ships and as air crew, but are not permitted to work on submarines.

Ainsworth said the new review is legally required under European Union equality laws, but is chiefly an attempt to learn lessons from recent conflicts in Afghanistan and Iraq. The study will interview troops who've served in mixed-gender teams and their commanders to assess the impact on their work.

But he confirmed the study won't consider lifting the ban on women serving aboard submarines.

Fisherman finds sub in his path

A west coast fisherman is to claim for compensation from the MoD after he was forced to evasive action during a NATO exercise which wrecked his nets.

BBC News, May 22, 2009

The Silver Cloud was fishing off Kinlochbervie when it was ordered to turn round because there was a submarine lying directly in its path.

John MacKenzie was forced to turn his boat, which resulted in his brand new nets being torn to shreds.

The Joint Warrior exercise has been ongoing for the past two weeks.

The incident happened in the North Minch on Wednesday.

Mr MacKenzie's claim is being investigated by the MoD.

The ministry of defence said it took safety seriously and surface warships were in contact with fishing boats and any submarines close by.

A spokesman said the Royal Navy had been in touch with the fisherman and Mallaig and Northwest Fishermen's Association.

Mr MacKenzie said that when initially given the order to turn round, he replied saying that was impossible and he had no time to haul the nets.

He was then given a second order which he said was accompanied by a helicopter overhead.

It is understood the submarine was French.

Mr MacKenzie said he has applied for compensation.

The Mallaig and Northwest Fishermen's Association, of which he is a member, said such incidents were rare because the Royal Navy kept them well-informed about such exercises.

They said this incident had been caused by the unpredictable weather but that the Navy had handled the incident well.

The MoD spokesman said: "We are aware of a possible claim for compensation and if a claim is received, the fisherman's account will form part of the investigation as to whether any compensation is due.

"Our priority in the short term, however, is safety of all mariners and initial indications are that no submarine in the exercise closed within 6,000 yards of the fishing vessel."

DSF Cartoon Calendar Contest

Calling all artists! DSF is seeking cartoon submissions for the Dolphin Scholarship Foundation 2010 Submarine Cartoon Calendar Contest.

Drawings are to be of a humorous nature depicting life in the Submarine Service. Entries must be received by May 31, 2009. All drawings must be originals in black ink on white paper in landscape format (8 1/2" x 11"). Computer generated cartoons will also be accepted, but only in black and white format.

Drawings must include, on a separate sheet: artist's name, rank/rate and duty station if active duty, or name, rank and duty station of sponsor if artist is a family member; age if artist is younger than 18; and artist's mailing address, telephone number and email address. A total of 12 drawings will be selected for the 2010 calendar.

Selection will be made in June. A $25 cash award and a complimentary copy of the calendar will be awarded to each winning artist. All drawings become the property of Dolphin Scholarship Foundation and are non-returnable.

Send drawings to Dolphin Scholarship Foundation, 4966 Euclid Road, Suite 109, Virginia Beach, VA 23462. For more information, contact DSF at (757) 671-3200 or admin@dolphinscholarship.org.

More information about Dolphin Scholarship Foundation can be found at its website, www.dolphinscholarship.org.

First Virginia Class Payload Tube Arrives for Installation

NAVSEA News Wire, May 21, 2009

WASHINGTON – Program Executive Office Submarines' Virginia Class Program Office marked a substantial milestone May 15 with the delivery of the first Virginia Payload Tube (VPT).

Built by General Dynamics Electric Boat (GDEB), the VPT arrived at GDEB's Virginia Class shipbuilding partner Northrop Grumman Shipbuiding's Newport News (NGSB-NN) facility for inclusion in Pre Commissioning Unit (PCU) North Dakota's (SSN 784) bow. As part of a teaming arrangement, NGSB-NN builds all Virginia Class bows while GDEB constructs all of the VPTs.

As the lead submarine being built under the third, or Block III contract, North Dakota will be the first Virginia Class submarine equipped with VPTs. Unlike the first 10 Virginias that housed 12 Tomahawk Cruise Missiles in individual Vertical Launch System (VLS) tubes, all Virginias beginning with North Dakota will utilize two, 87.5-inch diameter, 35-plus ton tubes to house and launch the same number of missiles.

"The VPTs allow us to carry the same number of missiles as VLS-equipped Los Angeles and Virginia Class submarines in a more economical way," said Virginia Class Program Manager Capt. Michael Jabaley. "Two VPTs are less expensive to build and maintain than 12 VLS tubes, and when we couple those savings with the new Large Aperture Bow Array, we save $40 million per ship beginning with SSN 788, the first of two ships we start building in fiscal year (FY) 2012," Jabaley concluded.

In addition to acquisition and life cycle savings, the VPTs provide the Submarine Force with greater payload flexibility. "The VPTs provide commonality with the SSGN tubes, so payloads developed for one can go into the other," said Rear Adm. William Hilarides, Program Executive Officer, Submarines. "This affords the submarine force incredible flexibility and versatility to the far future."

The delivery of the first VPT is one of several recent Virginia Class accomplishments. On Dec. 22, 2008, the Navy awarded the eight-ship Block III contract that increases production to two ships per year starting in FY 2011 and realizes the program's cost reduction goals of $2 billion/ship (FY05$) starting with the two FY 2012 ships. Since then, the program completed its Initial Operational Testing and Evaluation in March 2009, and celebrated PCU California's (SSN 781) Keel Laying ceremony on May 1. On May 3, PCU Missouri (SSN 780) reached pressure hull complete only 64 weeks after the delivery of the first hull section to the shipyard - 19 weeks earlier than USS New Hampshire (SSN 778) and less than half the time required for USS Virginia (SSN 774). Further, New Hampshire became the third Virginia Class submarine to conduct an operational deployment prior to undergoing its Post-Shakedown Availability.

In summarizing the Virginia Class' recent accomplishments, Hilarides said that, "The Navy / industry team promised to reach its cost and schedule goals and we are making good on each and every one of them."

Businessman's Shock As MoD Sends Him Submarine Secrets In Twelve Boxes Of Restricted Files

By Andy Dolan, dailymail.co.uk, May 20, 2009

When Mark Chambers was accidentally sent twelve boxes of Ministry of Defence files including submarine blueprints and plans of defence buildings, his first thought was to raise the alarm.

But when he called the MoD to ask what he should do with the 'restricted information' an official told him she had no idea, before her colleague advised him to submit the query via the Ministry's website.

The frustrated metal firm boss instead sent the packages back to the MoD's Bristol base using the same courier that had delivered them to his company in Swadlincote, Derbyshire - prompting an angry call from a defence official demanding to know how he had obtained them.

Today the MoD launched an investigation into the 'embarrassing' blunder. A spokesman said it was believed the files belonged to a firm contracted to work for the MoD.

The files – marked 'MoD: Bristol' – were delivered yesterday to Lecky Metal Ornaments, which manufactures hinges, rivets and metal ornaments for gates and railings.

The firm is currently receiving a high volume of mail as it relocates from Southampton, so staff were not surprised when the TNT delivery vehicle arrived.

Mr Chambers said: 'One of the lads in the warehouse signed for the boxes then rang to tell me. I came down and couldn't believe my eyes – there were 12 big archive boxes addressed to us.

'The first box had drawings of submarines, although I don't think they were nuclear – but then again I'm not an expert.

'There were also lots of floor plans for buildings, some marked "military" others marked "civilian". They were obviously important.

'Inside one box was a notice saying "Do Not Open - Restricted Information". But you had to open the box to see it!

'We've never had any dealings with the MoD so I've got no idea why these documents were sent to us.'

Mr Chambers, 44, immediately called MoD headquarters in London to report the blunder, but was 'gobsmacked' to be advised to report the mistake 'in the box for email answers' on the MoD website.

Determined to ensure the packages were safely back in the custody of the MoD, he instead summoned TNT to return the boxes to sender.

But he was shocked today when he received a call from the MoD in Bristol demanding to know how the files had got into his hands.

'I couldn't believe it – they asked me how I had ended up with them and why I had opened the boxes,' he said. 'I told them that's what I usually do when things are addressed to my company.

'Then they wanted to know why I had handed them back to the courier firm, by that stage I was just confused.

'I just told them it was no longer my concern and left it at that. They should be grateful I had no malicious intent. They are a joke.'

An MoD source said: 'It's embarrassing, but it looks like the documents have come from a firm contracted to the department.'

A spokeswoman for the MoD said: 'We take any reports of this kind extremely seriously and we are investigating urgently.

'Until we have additional information about the data it would be inappropriate to comment further.'

In September, defence chiefs issued an alert to 50,000 current and former RAF staff after personnel files containing career details of pilots, ground staff and civil servants were stolen were stolen from computer hard drives at RAF Innsworth, Gloucestershire.

A senior Whitehall official who left highly classified intelligence documents about Al Qaeda and the Iraqi security forces on a train was fined £2,500 the following month after admitting negligence.

Only One Submarine Left To Defend Australia
By Ian McPhedran, Adelaide Now (AU), May 21, 2009

SUBMARINE woes have hit a new low with just one of six Collins Class craft fit for service.

Experts differ on the security risk this poses for the nation, but they agree that having just one boat available to defend the nation is a terrible return on a $10 billion taxpayer investment.

With HMAS Waller tied up at the Henderson shipyard south of Perth for urgent battery repairs, the only seaworthy sub is HMAS Farncomb.

The other four boats are either out of active service (HMAS Collins) or out of the water for major maintenance known as full cycle docking (HMAS Sheehan, Rankin and Dechaineux).

The latest submarine crisis comes just a month after the navy released a damning report into the management of the submarine force and its overworked crews with a solemn promise to fix the problems.

It also coincides with a $20 billion-plus push to equip the navy with 12 new generation submarines over the next 20 years.

Despite having just one operational vessel, the navy has promised the Government the subs will be available for an extra 160 days of duty next year.

Documents released with the Federal Budget show that the navy plans to increase the number of "unit ready days" for the fleet next year from 762 to 914 or more than 300 days each for three boats.

"There is less docking maintenance scheduled for FY09/10 hence the URD forecast is higher," it said.

Military expert at the Australian Strategic Policy Institute Andrew Davies said many issues needed to be sorted out before the nation invested $20 billion in a new submarine fleet.

"Do we spend more time thinking about buying new things than we do looking after what we have got?" he asked.

When they are working the Collins boats are the Australian Defence Force's most important strategic weapon. However, the subs have been dogged by major technical problems including leaky welds, excessive noise, and unworkable combat systems.

Waller's battery problem, the second inside a year, is reportedly so serious it could cost more than $3 million and take months to fix.

The navy denies any problem with Waller and says the maintenance stop was "scheduled".

Naval War Games Threaten Traquility On Lost Coast
ktvu.com, May 18, 2009

MENDOCINO, Calif. – A remote and windswept area of the Mendocino-Humboldt shore called the Lost Coast is set to become a battleground if the U.S. Navy gets its way.

The sea-faring branch of the U.S. armed forces plans to hold live-fire, anti-submarine war games along the coastline.

"The Navy has the title requirement to train its sailors and airmen before they go into harm's way," said U.S Navy spoke person Kimberly Kler.

Not surprisingly, area environmental activists are making a stand against the Navy's proposed plans.

It is not the right thing to do, said Hawk Rosales of the Intertribal Sinkyone Wilderness Council. "The effects could be irreversible, and that's something we're not willing to allow."

Recently peace activists delivered to Mendocino County Congressman Mike Thompson petitions signed by many opposed to the war games.

"We collected thousands and thousands of signatures protesting the Navy's attempts to militarize the ocean," said Judith Vidiver of the Ocean Protection Coalition.

The Navy acknowledges more than a half million marine mammals — mostly whales and dolphins — could be harmed by explosions and especially by sonar. But environmentalists say the true numbers could be as high as 11 million, even when warships are miles away.

"This technology is known to severely impact marine mammals, easily tens of miles away," said Michael Jasny of the Natural Resources Defense Council.

There were two public hearings held to discuss the subject. Both were barely attended.

Critics say the public hearings were disingenuous and that the Navy was really trying to fly under the radar, employing a kind of stealth maneuver to avoid public scrutiny. Activists say the Navy will not get away with it.

It was truly appalling, said Mendocino resident Meredith Smith. "It had so many frightening aspects and no real information."

Another Mendocino resident, Ron Eich, agreed: "I'm hoping there's going to be more information made available before a decision's made."

Activist Rosalind Peterson pored over the Navy's thousand-page environmental impact statement and raised the alarm.

"I think that everyone along the way kept quiet about this; hoping it would go through without us really knowing and having a voice in the process," said Peterson

The Navy says it wants to expand its anti submarine warfare training because of a growing threat from small, stealthy submarines that run quietly on diesel or advanced non-nuclear power.

40 countries from China to Chile and even Iran now operate such submarines.

"That is…one of the reasons why we train and [a reason] we need to train with sonar," said Navy spokesperson Kler. "To detect diesel submarines."

The Navy says it plans lookouts to watch for marine mammals.

"We are in compliance with the Marine Mammal Protection Act and the Endangered Species Act and under consultation with national marine fisheries service," defended Kler.

In fact, the Navy says it will scale down exercises when animals are spotted. Environmentalists call that mitigation "laughably inadequate."

"The only effective mitigation currently known is for the Navy to stay out of areas that are particularly biologically important," said Jasny. "And that they have refused to do."

Another concern that has arisen is the question of who will cleans up leftover chemicals, depleted uranium and shell casings produced by the war games that will pollute the sea.

"When you're dropping bombs and missiles in the ocean, it's impractical to talk about clean up," said Mendocino County Supervisor John McCowan. "That's really the heart of my concern; the impact that this will have on the commercial and sport fishing industry."

North Coast fishermen are struggling after back-to-back canceled salmon seasons. Second-generation fisherman Bill Forkner says he's all for national security, but is concerned about the impact the war games could have on his livelihood.

"It needs to be done, but you don't want it done in your backyard," said Forkner. "So where do you do it though?"

Around usually serene North Coast towns, the answer from area resident is growing louder: "Not here."

Posters on bulletin boards and newspaper petitions have gone up. And people are beginning to hear about the navy proposal.

The petitions were paid for by long-time resident, first-time political activist and cafe-owner Meredith Smith.

"The idea of taking on the military and all of the fear-mongering that happens with national security and issues we're not allowed to look at in full light makes me even more motivated," said Smith.

Activists are demanding congressional hearings. In fact, member of the Cahto Tribal Council Atta Stevenson said the Navy broke the law by failing to consult with ten coastal tribes that are, in fact, sovereign nations.

"When does it stop, this intrusion from outsiders?" asked Stevenson. "This is our land; always has been."

Hawk Rosales of the Intertribal Sinkyone Wilderness Council promises civil disobedience

"All people have the responsibility to be the caretaker for Mother Earth," said Rosales.

Planes to Shoot Lasers to "Talk" to Submarines?

By Richard Lovett, National Geographic News, May 19, 2009

Lasers that can create loud bangs under the sea might someday replace sonar for sending messages to submarines, Navy physicists have announced.

Conventional sonar mapping uses pulses of sound, which require towed arrays of speakers and receivers.

"You have to pull [the array] with a vessel," said Ted Jones, a plasma physicist with the U.S. Naval Research Laboratory in Washington, D.C.

"It's slow and expensive. It might take hours or even days to search a large area."

The new technique – a 21st-century form of Morse code – uses self-focusing laser beams to superheat BB-size quantities of water up to 70 feet (20 meters) beneath the waves.

The result is "a little piston of steam" that expands at supersonic speeds, creating an underwater bang loud enough to be heard miles away, Jones said.

Laser Search

The laser pings could also be used for any of the other things normally done with sonar, such as searching for underwater objects or mapping the seabed.

To conduct a search, users could disperse passive-sonar buoys, which are designed to listen but not transmit.

Then an airplane could fly overhead, beaming laser-generated pings across the search region.

"You could quickly do a sonar search over a large area," Jones said.

Coming Into Focus

In designing the new technique, the biggest challenge was getting the laser beam to focus its energy on a small enough area to generate the pop.

One trick, Jones said, is to make the beam more intense at its core, so the middle section of the beam heats the water fastest.

That heat causes the light around the core to bend inward until the beam focuses into a tiny point.

At the same time, the laser is made up of different wavelengths of light, which travel through water at slightly different speeds.

If "you put the slowest first and fastest at the end," Jones said, it will quickly build up energy at the focal point until the superheated water goes bang.

Make a Beeline for ETs

Robert J. Sawyer, a Canadian science fiction writer, said that one advantage of using a laser beam to communicate with submarines is that the beam would be difficult to intercept above ground.

Still, anyone with nearby sonar receivers could hear the bangs once the beam entered the water.

More interesting than secrecy, Sawyer said, is the fact that similar laser pings might be an even better means of communication than radio in the search for intelligent extraterrestrials – minus, of course, the water.

"Lasers are more efficient" than radio waves – the medium currently used by the SETI (Search for Extraterrestrial Intelligence) Institute – he said. "There's no point in broadcasting [everywhere] when you can make a beeline.

"So we're talking to our subs the way we're hoping to talk to aliens someday."

Findings presented today in Portland, Oregon, at a meeting of the Acoustical Society of America.

U.S., Russia Begin High-Stakes Nuclear Arms Talks

By Alexander Osipovich, Agence France-Presse, Defense News, May 19, 2009

MOSCOW – The United States and Russia on May 19 began the first round of negotiations aimed at replacing a landmark Cold War-era nuclear disarmament treaty that expires in December, officials said.

The talks on the Strategic Arms Reduction Treaty (START) are a central part of US President Barack Obama's desire to "reset" strained ties with Russia and their result could have far-reaching implications for global security.

They hark back to Cold War days where U.S. and Soviet officials met for tense negotiations on reducing their vast atomic arsenals and lowering the chances of nuclear Armageddon.

Productive negotiations would boost Obama's vision of a world free of atomic weapons and help set the stage for a fence-mending summit in July when Obama travels to Moscow to meet Russian President Dmitry Medvedev.

For Russia, the closed-door talks are also a matter of prestige as they imply strategic parity with the United States as Moscow seeks to play a greater role on the world stage.

Speaking in Geneva, U.N. Secretary General Ban Ki-moon hailed a "new momentum for disarmament" and gave his "best wishes" to the negotiators in Moscow.

A Russian foreign ministry spokesman Igor Lyakin-Frolov, said the talks took place Tuesday and would continue Wednesday as planned. He made clear though there would be little public information about them.

"By agreement of both sides the talks will be discreet and they will only release an agreed joint statement at the end," Lyakin-Frolov told AFP.

The two-day negotiating session marks the formal start of the process though the two sides had several preliminary meetings to help break the ice.

Ahead of the talks, Russian Foreign Minister Sergei Lavrov said he hoped they would be "fruitful" but also cautioned that they would be linked to controversial US missile defence plans in Eastern Europe.

"We believe that the START treaty cannot be discussed in a vacuum," Lavrov was quoted as saying by news agencies late Monday.

"It must reflect the issue of global security, which certainly includes Russia's, and this implies that we must sort out the situation on missile defense," Lavrov added.

Moscow has reacted angrily to U.S. plans to place elements of its planned global missile shield in Poland and the Czech Republic.

Washington has tried to keep missile defense off the negotiating table at the START talks, saying that the shield is not directed against Russia and is instead meant to protect against Iran.

But that rationale was called into question in a report published May 19 by the New York-based EastWest Institute, which said Iran was far away from having long-range missiles and that the shield would not work anyway.

"European missile defenses will not provide dependable protection against an Iranian threat if and when it emerges," the institute said in a statement, citing the report written by a joint U.S.-Russian team of experts.

Obama has pledged to continue with missile defense but only if it is cost-effective and proven to work. The project was strongly backed by his predecessor, George W. Bush.

The Russian daily Vremya Novostei wrote May 19 that it would be "practically impossible" to reach a deal on START unless Obama reconsidered Bush's missile shield.

Even aside from the missile defense issue, negotiators face a tough task as they seek to find a successor agreement to the hugely complex treaty before it expires on December 5.

Talks on START made little progress under Bush, and despite warming ties under Obama, many stumbling blocks remain.

For instance, Moscow wants a broad treaty that limits both nuclear warheads and their carriers, such as missiles and bombers, while Washington prefers to focus only on deployed warheads that are ready for launch.

The U.S. negotiating team in Moscow is led by Assistant Secretary of State Rose Gottemoeller while the Russian team is headed by Anatoly Antonov, head of the foreign ministry department for security and disarmament.

Signed in 1991, START led to deep cuts in the U.S. and Russian atomic arsenals and is seen as a cornerstone of strategic arms control.

Radioactive Sub Leaks Revealed

DefenceManagement.com, May 20, 2009

Radioactive material leaked from submarines into the environment on nine occasions in the last 12 years the MoD has confirmed.

Minister for defence equipment and support Quentin Davies told MPs in a written answer that there have been nine "potentially radioactive" leaks since 1997.

The most recent leak occurred in March at Devonport when radioactive water escaped from HMS Turbulent during the flushing of its reactor's discharge system. The MoD maintained that the leak was confined to the submarine's casing and that no harm was done to the environment.

Other leaks included HMS Trafalgar leaking radioactive coolant into the sea in 2006, and three radioactive leaks from the Vanguard fleet into the river Clyde.

Altogether there were three leaks at Devonport, three at Faslane and three at sea in the last 12 years.

The MoD said that damage to the environment was minimal and that no one was hurt.

The embarrassing revelation has led to accusations that the MoD is overly liberal on submarine safety and the handling of nuclear waste.

Last year 61 gallons of radioactive fluid was spilt into the water at Devonport during the transfer of materials from HMS Trafalgar.

Australia Expands Navy As Chinese Power Grows
By Bonnie Malkin, The Telegraph (UK), May 19, 2009

Australia is conducting the biggest expansion of its navy since the Second World War and will spend an extra £35 billion on the armed forces over the next 20 years.

The latest defence White Paper recommends buying 100 advanced F-35 jet fighters and 12 powerful submarines equipped with cruise missiles, a capability which no other country in the region is believed to possess.

The "potential instability" caused by the emergence of China and India as major world powers was cited as the most pressing reason for this military build-up. In particular, Australian defence planners are believed to be concerned about China's growing naval strength and America's possible retreat as a global power in the decades ahead.

Chinese officials say their country's growing power threatens no-one. Behind the scenes, Beijing is thought to be unhappy about Australia's White Paper, with one Chinese academic saying it was "typical of a Western Cold War mentality".

But the Chinese navy has almost doubled the number of secret, long-distance patrols conducted by its submarines in the past year. The reach of its navy is extending into Australian waters. China is also acquiring new amphibious assault ships that can transport a battalion of troops.

Kevin Rudd, the prime minister, has explicitly denied that Australia is planning for a future war with China. But he said that his government would "make absolutely no apology" for taking whatever steps were needed to guarantee the country's security.

India To Build 32 Airships, Six Submarines In 3 Years: Navy Chief
Xinhua, May 19, 2009

NEW DELHI — India is all set to build on its own at least 32 naval airships and six submarines in three years' time as part of its Navy's modernization program, Indian Navy chief Admiral Suresh Mehta said Tuesday.

"The Indian Navy would build 32 warships and six submarines using indigenous technology by the year 2012," Mehta told the media in the eastern Indian city of Kolkata on the sidelines of commissioning of the Navy's sixth Landing Ship Tank, Airavat, into the Eastern Naval Command.

"The ship can carry 10 Main Battle Tanks, 11 Combat Trucks and 500 Troops. With a significantly enhanced weapon package, latest control systems and better habitability conditions, Airavat delivers considerable punch and amphibious capabilities to the fighting prowess of the Indian Navy," the Indian Navy said in a media release in the national capital.

Submarine Reunion Notices

Class of 593 Reunion, presented by USS Guardfish (SSN 612)
Dates: June 23-27, 2009 - all vets of Thresher class submarines are invited
Location: Radisson Hotel, New London, CT
For more info: Contact: R. E. "Twig" Armstrong, 15 Duckworth Rd., Hebron, NH 03241. You can also call him at (603) 744-2078 or e-mail uss_guardfish@metrocast.net.

USS James Madison (SSBN 627)
Dates: July 8-12, 2009
Location: Silverdale Beach Hotel, Bremerton, WA
For more info: Contact Fred Huwe at fchuwe@cheqnet.net or visit www.ussjamesmadison627.com. You may also contact the hotel at 1-800-544-9799 (ask for USS James Madison reunion rates)

USS Tullibee (SSN 597) Reunion
Date/Time: July 9-12, 2009

Location: Groton, CT (Best Western Mystic Hotel, Mystic, Ct.)
For more info: Contact Bill Keel at bill_597@yahoo.com or (815) 715-9966.

USS James K. Polk (SSBN 645) Reunion
Date/Time: July 16-19, 2009
Location: Ramada Inn, 7401 Northwoods Blvd., North Charleston, SC
For more info: Contact Reunion Coordinator Larry Cox at reunion2009@ussjameskpolk.com. Also visit the reunion information website at www.ussjameskpolk.com.

USS Baton Rouge (SSN 689) & USS Spadefish (SSN 668) Reunion
Date/Time: August 6-9, 2009
Location: Sheraton Waterside Hotel, Norfolk, VA
For more info: Contact Danis Lensch at baton689@aol.com or (757) 249-8707/(757) 289-5915. Reservations can be made by calling 1-888-627-8042 or 1-800-325-3535. Please make your reservations early so we can increase the block of rooms if necessary. Room cut-offs will be July 1, 2009.

USS Dace SSN 247 & SSN 607 Reunion
Dates/Time: August 7-10, 2009
Location: Best Western Hotel, Groton, CT
For more info: Contact Dick Geiler at Mrgitch@comcast.net (860) 889-2846 or Karl Jens at Jenskh@hotmail.com, (860) 445-0124, or visit http://ussdace.org/

USS William H Bates (SSN 680) REGROUPEX 09, hosted by the 82-85 Core Group
Dates: September 4-7, 2009
Location: Town & Country Resort and Convention Center, San Diego, CA
For more info: Visit www.ssn-680.org, or contact Brad Williamson at bradwmson@ssn-680.org or at (269) 405-1083.

U.S. Submarine Veterans, Inc. 2009 National Convention
A joint convention with the International Submariners Association and the Submariners Association of Canada
Dates: Sept 8-12, 2009
Location: Town & Country Resort and Convention Center, San Diego, CA
For more info: Visit http://www.ussvisandiego.org/Convention2009/index.htm or contact Mike Hacking at (858) 495-0562 or mrhacking@san.rr.com. More than 35 boat reunions are also scheduled for the San Diego convention.

The Diesel Fast Attack Boats Reunion
USS Tang (SS 563), USS Trigger (SS 564), USS Wahoo (SS 565), USS Trout (SS 566), USS Gudgeon (SS 567), USS Harder (SS 568) and USS Darter (SS 576)
Date: Sept 8-12, 2009 (in conjunction with the annual USSVI Convention listed above)
Location: Best Western Seven Seas, San Diego, CA
For more info: Contact Dan Craw at (941) 761-2234 or e-mail dcraw1@tampabay.rr.com. Vice Adm. Al Konetzni will be the guest speaker.

USS Narwhal (SSN 671) & S5G Plankowners Reunion
Date: Sept 8-12, 2009 (in conjunction with the annual USSVI Convention listed above)
Location: Town & Country Resort and Convention Center, San Diego, CA
For more info: Please visit http://www.ssn671.org/ for more information and to download a registration form.

USS Grouper (SS/SSK/AGSS 214)
Date: Sept. 8-13 (in conjunction with the annual USSVI Convention listed above)
Location: Town & Country Resort and Convention Center, San Diego, CA
For more info: Please contact Mac McGrath at macagss214@aol.com or call (951) 217-2829.

USS Carbonero (SS 337)
Date: Sept. 10, 2009 (in conjunction with the annual USSVI Convention listed above)
Location: Town & Country Resort and Convention Center, San Diego, CA
For more info: Look for details in the March newsletter, or contact Dan O'Dwyer, 1108 W. Bloomfield Dr. Inverness, FL 34453, call (352) 341-0316, or e-mail at subvet08@tampabay.rr.com.

USS Pogy (SSN 647)
Date: Sept. 10-11, 2009
Location: San Diego, CA
For more info: Contact Jack Burdick at jackburdick@cableone.net.

USS Sealion (a.k.a. Sea Lion) including SS, SSP, ASSP, APSS & LPSS-315
Date: Sept. 11, 2009 at 1830 (in conjunction with the annual USSVI Convention listed above)
Location: Town & Country Resort, San Diego, CA
For details contact: EMC(SS) John Clear, USN Ret., 180 Robin Lane, Port Ludlow, WA 98365, call (360) 437-1143 or email webmaster@usssealion.com.

USS Spinax (SS/SSR 489)
Date: Sept. 14-18, 2009
Location: Holiday Inn Seattle, Renton, WA
For more info: Please send an e-mail to MMCMSSRET@aol.com or call (918) 357-1055. Call 1-800-HOLIDAY for room reservations.

USS Charr (SS 328)
Dates: Sept. 17-20, 2009
Location: Crowne Plaza Convention Center, Portland, OR
For more info: Contact Carl Klein, Secretary/Treasurer, 1900 Rollingwood Road, Baltimore, Md., 21228, call at (410) 747-7292, or e-mail at ckleinsr@gmail.com.

USS Lapon (SS 260 & SSN 661)
Dates: Sept. 24-27, 2009
Location: Landmark Resort, Myrtle Beach, SC
For more info: Visit http://www.usslapon.com, or contact reunion coordinator Raymond Zieverink at (803) 324-1414 or lapon.reunion@yahoo.com.
USS Sargo (SS 583 & SS 188)
Dates: Oct. 1-4, 2009
Location: Best Western Shetland Inn & Suites, San Antonio, TX
For more info: Contact Mike Hacking (Secretary / Treasurer), 858-495-0562, or email mrhacking@san.rr.com

USS Trumpetfish (SS 425)
Dates: Oct. 8-12, 2009
Location: Hyatt Fair Lakes Hotel, Fairfax, VA
For more info: Contact Terry Trump at 843-873-9563 or email ss425@hotmail.com.

New Hull Coatings Cut Fuel Use, Protect Environment
By Office of Naval Research Corporate Strategic Communications, June 5, 2009

WASHINGTON - New hull coatings being developed by the Office of Naval Research (ONR) are showing promise in reducing the build-up of marine crustaceans - namely barnacles - on ships' hulls, optimizing vessel performance and dramatically reducing fuel costs.

Marine growth adds weight and increases drag reducing a vessel's fuel efficiency. The practical problem for ships is simply that biofilm can add up to 20 percent drag and barnacles more than 60 percent. This increases fuel consumption and green house gas emissions. ONR-sponsored biofouling prevention coatings provide an environmentally safe alternative for protecting naval ship hulls, which could also benefit the commercial shipping industry.

"The ultimate solution is to stop the barnacle settlement process before it happens," says Steve McElvany, Ph.D., program manager for ONR's Environment Quality program. "We are really trying to look very far forward to get the ultimate solution that's good for the U.S. Navy and the oceans."

The Naval Surface Warfare Center at Carderock estimates that biofouling reduces vessel speed by up to 10 percent. Vessels can require as much as a 40 percent increase in fuel consumption to counter the added drag. For the Navy, that translates into roughly $1 billion annually in extra fuel costs and maintenance to keep its ships free of barnacles, oysters, algae and other debris.

High-performance naval warships and submarines rely on critical design factors such as top speed, acceleration and hydroacoustic stealth. Previous biofouling prevention methods used toxic coatings, or biocides, to clear barnacle colonies from the ship exteriors. Although effective in the short-term, biocides exact a heavy environmental burden.

By studying the environment, researchers are learning from nature how it beats the "crusty fouler" naturally. And that's where ONR's investment in biofouling prevention technologies has made significant gains.

On the East Coast, ONR is funding research at the University of Florida where Anthony Brennan, Ph.D., professor of material science and engineering, has been investigating why some marine animals, such as whales, harbor barnacles and others, such as sharks, stay relatively clean. Brennan discovered that the unique pattern of shark skin contributed to its ability to fend-off microorganisms.

With this insight, Brennan started modeling shark skin patterns in his lab. The idea led to the development of a new biomimetic technology called Sharklet, which has shown extremely positive results in inhibiting marine growth. The significance of his work really hit home during a visit to Pearl Harbor.

"I saw a Navy ship going by ... flowing with green algae," Brennan said. "I thought that's why we are doing this research, to stop that biofouling ... to give our Navy the ability to perform at a higher level."

The biodiversity of different ocean environments also creates unique challenges. So, across the country on the West Coast, ONR is working with Dr. Shaoyi Jiang, Boeing-Roundhill, professor at the University of Washington, on biofouling prevention coatings that incorporate zwitterionic or mixed-charge compounds.

"The marine environment is very complicated," said Jiang. "It is as complex as the human body."

Zwitterionic compounds are stable, alternating perfectly between positive and negative charges and easy to handle in both laboratory and field tests. They've shown excellent resistance to the attachment of biomolecules and microorganisms. The result is that naturally occurring proteins, bacteria, algae, barnacles and tube worms do not bind to this unique surface.

ONR's innovation in hull coatings will optimize ship performance with an eye toward environmental stewardship. Inventive biofouling prevention systems will help conserve fuel, minimize the Navy's carbon footprint, reduce the risk of transporting invasive aquatic species and prevent toxic biocides from entering surrounding environments.

While both the Sharklet pattern and Zwitterionic coating inhibit the settlement of barnacles, they also inhibit the growth of bacteria. This unique attribute has applications in hospitals and high-touch areas in health care where it is critical to inhibit the survival and transference of bacteria to protect patients from infections.

"This technology spreads beyond the hull of the ship ... there is a great opportunity to extend this technology to the public," said Brennan.

Jiang and Brennan acknowledged the open environment and multidisciplinary research approach that the Office of Naval Research and its program managers encourage from principal investigators.

"The ONR program provides an excellent environment and infrastructure for collaborations," said Jiang.

"ONR has brought together biologists, geneticists, chemists, material engineers, chemical engineers, physicists and we end up sharing.

"It says a lot of our Navy to have that forethought to reach beyond what everybody sees in front of them and go for something new and innovative that will help the Navy and benefit the world."

Pentagon To Put Millions Toward Successor For Troubled Mini Sub

New start planned

By Christopher J. Castelli, Inside the Navy, June 8, 2009

Three years after canceling a troubled effort to build mini submarines for Navy SEALs, the Pentagon is poised to put millions of dollars toward launching a successor program, according to Defense Department budget documents.

Tucked into DOD's fiscal year 2010 budget request is $43.4 million for the new program, dubbed the Joint Multi-Mission Submersible (JMMS). The new program, led by U.S. Special Operations Command, seeks to develop a combatant sub that will keep SEALs dry while clandestinely carrying them long distances underwater.

Amid the mountain of FY-10 budget justification documents released by DOD, a few pages detail plans for the program, noting the new sub will be capable of operating in a wide range of littoral and threat environments and will be tactically transported by specially modified, full-size Navy subs.

The documents assert the new mini sub will provide "improved performance" over its troubled precursor, the Northrop Grumman-made Advanced SEAL Delivery System (ASDS), and will "permit small, highly trained forces to operate in denied areas increasingly controlled by a sophisticated threat."

The $43.4 million in research and development would be used for "pre-design, component development, and management support" work. In FY-10, the program would conduct "materiel solutions analysis" and perform "technology development phase efforts" before starting engineering and manufacturing development for the design of the first new sub.

The acquisition strategy is still in development, according to the budget materials. "Current draft acquisition strategy includes multiple, competitively awarded, pre-design refinement contracts with options for detailed design and construction of the JMMS," the documents state.

Technology risk will be reduced by encouraging reuse of the reliable technology proven in the ASDS, while permitting industry to compete and propose a new design for JMMS, the command notes. "Cost and schedule risk will be reduced by the use of fixed price contracts whenever feasible," the documents state.

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 experienced 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.

That year, Rear Adm. William Hilarides, the Navy's program executive officer for submarines, told Inside the Navy that the cancellation of ASDS showed the Pentagon should not develop new military platforms without involving experts who can define what is needed to accomplish the intended mission.

"We tried, because it was the rage at the time, pure performance contracting," he said, explaining that at the outset of the program, officials described the general capability needed but left the specific characteristics of the platform to be determined.

Beginning without a clear vision of the intended product complicated things, he explained.

"We didn't know exactly what we wanted," Hilarides said. "The company didn't know exactly what we wanted. And at the end, we got there and we went, 'Oh, this isn't what we wanted.' So we didn't really build the community, both in the contractor and in the government, of people who knew how to design this new thing that's not really a submarine. It's not really a deep submergence vehicle. It's a combat submersible. So we didn't have the community and as a result we didn't get what we wanted because we weren't really sure what it was that we wanted."

Robert Martinage, who was appointed May 6 as the principal deputy assistant secretary of defense for special operations/low intensity conflict and interdependent capabilities, advocated for the JMMS program in March when he testified before a House subcommittee in his previous job at the Center for Strategic and Budgetary Assessments.

Given China's maturing anti-access capabilities and the potential scale of this mission, Naval Special Warfare Command's inventory of 10 Mark VIII SEAL Delivery Vehicles and one semi-operational ASDS "is almost certainly inadequate," Martinage wrote in his prepared testimony.

Serious consideration should be given to developing and fielding three Joint Multi-Mission Submersibles for each of Naval Special Warfare Command's two SEAL Delivery Vehicle Teams, he wrote. In flooded SEAL Delivery Vehicles, combat swimmers are exposed to water that can be physically and mentally fatiguing. But a pressurized JMMS would keep them warm and dry, enhancing their tactical readiness, Martinage noted. This factor, along with the increased submerged endurance of the JMMS relative to the flooded vehicles, would make it possible to insert SEALs from a host sub from a much greater distance, he added.

The new mini subs could even be equipped with specialized equipment for manipulating undersea cables and sensor arrays, he noted. A SOCOM spokesman said it is too early to say when the acquisition strategy would be complete.

Plans For New Boomers Far From Finalized

QDR7 treaties will shape sub fleet

By Andrew Scutro, Navy times, June 15, 2009

Although the Navy has asked for $495 million in the 2010 defense budget to begin development of the next ballistic-missile submarine, treaties and pending defense reviews may influence the size and capacity of the final product.

Speaking before the Senate Armed Services subcommittee on strategic forces, Rear Adm. Stephen Johnson, director of Strategic Systems Programs, told lawmakers June 3 that the new boomer design will not be completed before the pending Nuclear Posture Review, due in December.

"It can be guided by the NPR and the other events we talk about," he said, which include the pending Quadrennial Defense Review and ongoing nuclear weapons treaty negotiations with Russia, which restrict the number of war-heads each nation can deploy.

The new class of boomers will replace the Navy's 14 Ohio-class subs, the newest of which, the Louisiana, was delivered in 1996.

"The Ohio-class is a tremendously capable submarine today. It has no particular shortcomings. [The $495 million] request is based on the end of service life of that ship, which has been extended to 40 operational years."

Construction on the new boomers is expected to begin in 2019. Johnson said it's been a long time since anyone has designed or built items such as seagoing ballistic-missile hatches or heavy missile tubes.

While new attack submarines are in production, a boomer's size has different stealth characteristics that need to be considered.

"We have very quiet attack submarines, but they do not have a missile compartment," he said.

"It's just in that section of the ship that we have not looked at in our Navy in almost 40 years."

Because the U.S. and British program navies share the Trident missile program, the British are expected to participate in the new boomer program. There has been some resistance there to maintaining and modernizing an undersea nuclear deterrent force, but a recent news report stated the Ministry of Defense is committed to the program.

Testifying with Johnson were two Air Force generals and Thomas D'Agostino, head of the National Nuclear Security Administration, which oversees the country's nuclear weapons, naval reactor programs and nonproliferation.

French Sub Joins Search For Jet
World News Australia, June 6, 2009

France sent a nuclear sub to assist in the hunt for black boxes lost when an Air France jet carrying 228 people plunged into the Atlantic.

France sent a nuclear sub to assist in the hunt for black boxes lost when an Air France jet carrying 228 people plunged into the Atlantic, as Airbus warned pilots about a possible cause of the tragedy.

The notice, reminding air crews worldwide what to do when speed indicators give conflicting readouts, was sent to pilots of all Airbus airliners and not just of the A330, the model that crashed on Monday, a spokesman said.

The alert came as French air safety investigators said automatic messages broadcast by the Rio to Paris flight just before it plunged into the Atlantic on Monday had shown the plane's systems were giving false readings.

"Airbus overnight sent a reminder to all the companies using its planes on the procedures to follow in the case of inconsistency in speeds measured," a spokesman for the French-based manufacturer told AFP.

With AF 477's black box flight recorders still missing, investigators are focusing on signals sent before the jet went down as it flew through a storm en route from Rio de Janeiro to Paris.

Conflicting data from speed sensors

The plane has several devices that measure speed but the data sent by them differed, said a spokeswoman from the Office of Inquiries and Analysis (BEA), France's air accident investigation authority.

According to David Learmont, editor in chief of Flight International, the decision to issue the warning does not mean that investigators know what happened, but that they have seen similar situations in the past.

"What Airbus is saying is, 'Whatever happened to these pilots, they didn't manage to handle it. We don't know everything that they faced but we know a little bit about the nature of the situation they faced'," he told AFP.

"So all they've done is that they've gone back to the airlines and the pilots and said: have a quick look at this, because it might save your life."

Airbus urged all the pilots to refer to a warning it already issued in July 2001 outlining what to do "in the event of erroneous airspeed in flight or at takeoff or if the airspeed indication is lost".

Such a situation could be caused, the warning stated, if detection equipment known as "radomes" or "pitots" are damaged or obscured in flight.

Pilots are told to turn off the autopilot, maintain flaps in position, check that speedbrakes and landing gear are retracted, apply thrust and adjust the pitch of the aircraft to maintain the right speed while avoiding a stall.

"The aeroplane will reject the autopilot and you have to fly it manually and you have to make decisions about which information your systems are giving you is correct and which is not correct," Learmont said.

Terrorism not ruled out

French Defence Minister Herve Morin told reporters in Paris he has not ruled out an terrorist attack on the plane, although he has not heard of any threats or claims of responsibility being made.

"I've never ruled out terrorism," he said. "There's no element or evidence trail that would allow us to corroborate that, but the inquiry that is underway has never ruled that out."

Morin also said that a French navy nuclear-powered hunter-killer submarine has been sent to the area, where salvage crews are racing to find the wreckage and bodies of passengers in the Atlantic.

"Time is against us," admitted French transport minister Dominique Bussereau. "We must do everything we can to find the flight recorders and certainly enlarge the search zone."

Several Brazilian navy vessels and French and Brazilian planes are scouring waters midway between Brazil and Africa for wreckage, including a seat and what appeared to be a big chunk of fuselage, sighted by air force jets.

Speculation over what caused the accident has ranged from terrorism, to turbulence, to pilot error or a combination of factors.

No mayday call was received, just a series of automatic data transmissions signalling the plane's systems were shutting down one by one, after which it presumably broke up or went into a fatal dive.

Search continues

Brazil's air force has invited Brazilian relatives to its centre of operations in the northeastern city of Recife to observe developments.

Some are to go to Fernando de Noronha, a Brazilian archipelago 400km into the Atlantic that serves as a base for the search and initial collection point for any debris or bodies that might be recovered.

"We want to see how the search operations are going, how the searches are being carried out. It's important for us to see that," said one of them, Nelson Farias, whose son was on the flight.

Recife, on the Brazilian mainland, has prepared a morgue and debris inspection area for anything found.

Plying the Pacific, Subs Surface as Key Tool of Drug Cartels
By William Booth and Juan Forero, Washington Post, June 6, 2009

MEXICO CITY - When anti-narcotics agents first heard that drug cartels were building an armada of submarines to transport cocaine, they thought it was a joke.

Now U.S. law enforcement officials say that more than a third of the cocaine smuggled into the United States from Colombia travels in submersibles.

An experimental oddity just two years ago, these strange semi-submarines are the cutting edge of drug trafficking today. They ferry hundreds of tons of cocaine for powerful Mexican cartels that are taking over the Pacific Ocean route for most northbound shipments, according to the Colombian navy.

The sub-builders are even trying to develop a remote-controlled model, officials say.

"That means no crew. That means just cocaine, or whatever, inside the boat," said Michael Braun, a former chief of operations at the U.S. Drug Enforcement Administration.

The subs are powered by ordinary diesel engines and built of simple fiberglass in clandestine shipyards in the Colombian jungle. U.S. officials expect 70 or more to be launched this year with a potential cargo capacity of 380 tons of cocaine, worth billions of dollars in the United States.

"This is definitely the next generation of smuggling conveyance," said Joseph Ruddy, an assistant U.S. attorney in Tampa who prosecutes narco-mariners.

The submersibles are equipped with technologies that make them difficult to intercept, even though U.S. forces use state-of-the-art submarine warfare strategies against them. Authorities say most slip through their net.

"You try finding a floating log in the middle of the Pacific," one DEA agent said.

U.S. officials and their Colombian counterparts have detected evidence of more than 115 submersible voyages since 2006. They have apprehended the crews of more than 22 submersibles at sea since 2007. Six crews have been arrested this year. The Colombian navy has intercepted or discovered 33 subs since 1993.

U.S. officials fear that the rogue vessels could be used by terrorists intent on reaching the United States with deadly cargos.

Daytime Drift

The vessels do not fully submerge but skim the sea surface. They move quickly at night, then drift like sleeping whales during the day. Under cover of darkness, they slither out of Colombia's shallow rivers and 10 days later rendezvous offshore along the Central American coast, usually near Guatemala, where cocaine is offloaded and the subs are sunk.

Smugglers first experimented with heavy steel subs dubbed "coffin ships" by the Colombians. Trial and error quickly advanced their capabilities.

"These vessels are intelligently designed. They are not very comfortable, but they are now very seaworthy. They are capable of carrying multi-ton cargos. They can travel thousands of miles without refuel or resupply. And they are very hard to detect," said U.S. Coast Guard Rear Adm. Joseph Nimmich, director of the Joint Interagency Task Force South, which pursues drug interdiction in the Caribbean and eastern Pacific Ocean.

Nimmich stood on a dock at the task force's headquarters in Key West, Fla., beside a vessel dubbed Big Foot II. Captured last year 350 miles off the Guatemalan-Mexican coast, the sub had a four-man Colombian crew and 6.4 tons of cocaine aboard, worth more than $100 million.

Almost 60 feet long, the craft employed water-cooled exhaust mufflers to reduce its infrared heat signal. It was camouflaged in blue-gray paint. A small conning tower jutted from the deck at an angle designed to confuse radar signals.

The latest submersibles can go 3,000 miles without refueling.

"You don't want to see one of these trekking up the Hudson River," Ruddy said.

Officials estimate that the subs cost about $1 million to manufacture in Colombia. Colombian officials say some former military personnel might be helping to design, construct and direct the vessels.

Colombian navy Adm. Guillermo Barrera said the subs usually carry 4 to 10 tons of cocaine. They typically have a crew of four — including a captain, an engineer and a seaman, known as "braceros," or "arms," who help steer and unload the cocaine. The fourth crew member is usually a representative of the owner. With cargos worth $100 million or more, "you want to know where they're headed," Barrera said.

According to officials, crews are well compensated, splitting as much as $500,000. The work is dangerous; the subs cross stormy sea lanes without lights, with a shifting ballast of fuel and drugs. The cabins are hot and cramped, with a bucket for a latrine and a floor to sleep on.

U.S. officials say submersibles are escorted by countersurveillance vessels, disguised as fishing trawlers, that warn them of nearby navy cutters or spotter planes. Nimmich said the sub crews use radios infrequently and speak in code. Until recently, submariners caught by authorities could not be charged in the United States or Colombia if the cocaine was scuttled.

"The vessels are built to sink. When they open the valves, tons of water come in, and in a minute, or a minute and a half, they sink," Barrera said. "There is no evidence, and what starts as a counterdrug operation becomes a rescue operation."

U.S. and Colombian agents have been frustrated in this cat-and-mouse game. "With no drugs found, we couldn't prosecute," said

Ruddy, the assistant U.S. attorney. At least eight crews have been returned to Colombia after rescue, without being charged.

In response, last fall the U.S. Congress passed the Drug Trafficking Vessel Interdiction Act of 2008, which makes it a crime to ply international waters in stateless vessels with the intent of evading detection. The maximum sentence is 15 years. So far, three crews have either entered pleas or been found guilty under the new statute. Colombia has responded with a similar law that awaits final approval.

Accused Builder

Last August, Colombian authorities arrested Gustavo Adolfo de Jes£s Garc¡a, alias "The Engineer," the alleged mastermind of a sub-building syndicate, and Lope Antonio L¢pez, known as "El Gringo," accused of brokering deals with Mexican cartels eager to move tons of cocaine to Mexico via submersibles.

Garc¡a and L¢pez, authorities said, were focused on the manufacturing side of the business, building bigger, stealthier, sleeker vessels. Colombian police say the men were also offering something new — drone subs operated by remote control.

In a recent telephone interview with The Washington Post, L¢pez said from a prison in Colombia that he had nothing to do with the submarine network. But he shed light on how the boat-building enterprise might work.

L¢pez said that in 2007 he was selling fishing boats to Venezuela's government. As part of the job, he headed to Panama City to purchase diesel engines. While there, a friend suggested that he have lunch with a man with Mexican clients. At the lunch, the man asked L¢pez to build semi-submersibles. "They look for someone who could do the fiberglass construction," L¢pez said.

L¢pez insisted he walked out of the meeting when he realized it was about drug trafficking. He was extradited to the United States on drug trafficking charges in May.

First NATO Submarine Rescue Conference in Held South Africa

By Christopher Szabo, Digital Journal, June 7, 2009

The South African Navy's website said Cape Town SMWERG meeting would help the country's submariners learn more about the latest escape and rescue of submarines in distress.

Chief of the Navy, Vice Admiral Johannes Mudimu, said the need for such meetings was highlighted by a collision between two submarines off Europe in February and another one between a submarine and an amphibious ship off the Straight of Hormuz a month later, according to DefenceWeb. Mudimu warned that while neither collision required a rescue operation:

They should come as a warning to us all, not to be complacent and to continue with the important efforts with which the SMERWG is charged.

The S.A. Navy Chief last week marked the 40th anniversary of the country's submarine service: "Being the launching date of our first Daphn,-class submarine."

Mudimu praised the country's new Heroine-class submarines, saying they showed their prowess in:

Extensive international exercises, during which they have proved, time and time again, the true value of the submarine in modern maritime warfare.

The Admiral pointed to a little-known ecological activity of the Navy's submarine service:

They have, furthermore, been busy with patrols in the huge Exclusive Economic Zone of South Africa, including the Exclusive Economic Zone surrounding the Prince Edward Island group, in the southern ocean.

In 2008, the Heroine-class SAS Charlotte Maxeke, completed a fishery patrol to this remote island group, which included a 3,000 nautical mile voyage. The Prince Edward Island group is a key untouched ecological system of the southern ocean. S.A. Navy submarines have also been used to covertly track drug smuggling vessels and gather intelligence on illegal fishing activities.

South Africa is the only sub-Saharan African nation that operates an independent submarine flotilla.

Submariners Recall Close Encounters Of Soviet Kind

The West Australian, June 7, 2009

HMAS Ovens powered slowly through the frigid depths of the Tasman Sea, the crew of the 90mlong Oberon-class submarine manning their posts in silence.

Their enemy, a Soviet submarine sent to spy on the Australian coastline, lurked somewhere nearby.

It was 1971, the height of the Cold War, and the Ovens was busy playing its part in the cloak-and-dagger battle for intelligence supremacy raging between the US and the Soviet Union.

Gosnells resident Fred Lawrence, 64, who was the petty officer in charge of sonar on the Ovens at the time, said their mission had been to stay undetected and keep track of the enemy sub's movements.

"We caught up with her somewhere down near Tasmania," he said. "It was an old Russian submarine. She'd come down out of the Pacific, right down our east coast and came as far west as Albany before she turned around and went back."

Yesterday, Mr Lawrence and nine other original members of the Ovens' 60-strong crew gathered at the WA Maritime Museum, where the submarine now rests on display, to commemorate 40 years since the vessel was launched.

But despite the passage of time, the old sailors remained reluctant to give away too much detail about the missions they ran

during the Cold War, much of which has never been officially acknowledged by the Australian Government.

Mt Hawthorn resident Lloyd Blake, who was a petty officer on the Ovens, said most Australians were oblivious to the secret contribution Australian Cold War submariners had made beneath the waves.

Mr Blake said that during the 60s, Australian sailors training on British submarines had been involved in secret sea battles with Russian vessels on "mystery tours" in the Atlantic and Arctic oceans.

By 1969, Australian Oberon-class subs, such as the Ovens, were leading the espionage war against the Soviets in the southern hemisphere.

Crews would leave port in Australia with no knowledge of their mission and remain submerged for up to six weeks.

"Spooks and language specialists" were passengers, Mr Blake said. "We were able to get within 5m of a big (enemy) ship, photograph her and record her sound signature and slip away totally undetected," he said.

Putting Veterans In The Classroom Fills Many Needs

By Maria Glod The Washington Post, June 5, 2009

WASHINGTON - John Paulson commanded the submarine USS Philadelphia as it glided through the Atlantic Ocean at the height of the Cold War. He has been shot at by pirates. And he was part of a military team that in the 1990s forecast the devastation a nuclear bomb would cause in various scenarios.

One recent afternoon, he tugged at a Slinky, swung a yellow jump rope and dunked a ruler in water — all to keep 22 teenagers rapt.

The Navy veteran says his latest mission — high school physics teacher in Prince William County — is as challenging as the toughest assignments of his 30-year military career. Paulson, 60, transformed from "Captain Paulson" to "Mr. P." through a federal program that offers a stipend to military personnel who launch a career in the classroom.

Troops to Teachers, which has placed about 11,500 teachers nationwide in 15 years, is one way the Obama administration aims to draw more men and minorities into schools and fill demand in the fields of math, science and special education.

About 82 percent of the former soldiers, sailors, Marines and other veterans who sign up are men. (About a quarter of all teachers are men, according to one estimate.) Nearly 40 percent of Troops to Teachers participants are members of racial or ethnic minorities. The program has put more than 2,000 black men into classrooms.

The recruits are producing results. A recent study found that Florida students taught by Troops to Teachers participants made greater gains in reading than peers taught by teachers with similar classroom experience. In math, students in Troops to Teachers classrooms outperformed those in other classes — even when the other teacher had more years under his belt.

"Honestly, at first, we thought a military officer dealing with today's fifth-graders and seventh-graders was not going to be very effective," said William Owings, an Old Dominion University education professor and one of the study's authors. "We found out that is totally untrue. We have come to believe that you're looking at life experience ... that has a lot of crossover into good classroom skills."

When Rob LaPin, 30, left the Army to teach government at the troubled Walbrook High School in Baltimore last year, he and a fellow teacher spent lunchtime roaming the streets to find truants. LaPin was the robotics coach, student government sponsor and, much to the amusement of his friends, cheerleading coach and fashion coach.

"It engrossed me completely," said LaPin, who is working in Iraq as a government contractor but plans to return to teaching. "As a soldier in the classroom, my duty wasn't only to ensure my kids had good grades, but also to prepare them for life."

Gerrald Ash-Banks, 16, said he and his classmates in the robotics club stayed after school with LaPin almost every day. They also met on weekends. And when Ash-Banks and his mother were having trouble, LaPin sat him down for a talk.

"He was like everybody in robotics' father," Ash-Banks said.

Troops to Teachers, launched in 1994 as the military was downsizing, offers up to $5,000 for courses needed to become a teacher, as well as a bonus of up to $5,000. In return, candidates agree to teach at least three years in a school district where many students live in poverty. The program receives $14.4 million a year from the Department of Education but is operated by the Department of Defense.

Rep. Tom Petri, R-Wis., one of the program's creators, sees it as one option for Iraq and Afghanistan veterans. He is leading an effort on Capitol Hill to expand the program to bring Troops to Teachers into more schools in middle-class communities.

"It's really meant to be a broad program to help all schools," Petri said. "Kids really need to get a kind of grounding and a framework so they have some limits and can develop within them. And I think because of their experience, military people are almost uniformly able to do that."

USS Silversides Veteran Charles Swendsen, 93, Returns To His Sub

By Robert C. Burns, The Muskegon Chronicle, June 04, 2009

Charles A. Swendsen's two sons, Dave and Lee, had heard their father talk about his experiences aboard the USS Silversides during World War II, and tried to imagine what it must have been like.

Much less was left to the imagination Thursday morning when they, along with sons of their own, took a personal tour of the Muskegon-based submarine, led by the old man himself.

Having heard lots of his old stories, they became part of a taped interview of their 93-year-old father, conducted for Grand Valley

State University's Veterans History Project, and joined GVSU history professor Doug Montagna in the questioning. The results will be archived at Muskegon's Great Lakes Naval Memorial & Museum and also will be available online at the GVSU Web site and at the Library of Congress.

It was an unusual reunion — one that took Swendsen and his wife of 61 years, Arlene, who live in the Des Moines, Iowa, area, by complete surprise.

Waiting for them when they arrived at the museum — which includes the Silversides — were Dave, his wife Mary Lee and their sons Jim and Dan, from Edina, Minn., as well as Lee with his son Alex, who had flown up from Asheville, N.C.

Swendsen and his wife last visited the boat in 1996. They came to Muskegon with the expectation that it might be his last visit.

"I wish we had done this 20 years ago — when he was a little sharper," Dave said.

Although his hearing and eyesight aren't what they once were, Swendsen is sharper than a lot of 93-year-olds, and his recollections of the Silversides and the people he served with are still quite intact.

He served aboard the sub on its fourth patrol in the Western Pacific, which took place between Dec. 17, 1941, and Jan. 31, 1943. The Silversides sank a tanker and damaged a submarine and two supply ships. Among other notable events, an armed forward torpedo jammed, threatening to explode.

"It was a worrisome day. It could have been bad," said Swendsen. The torpedo was extracted safely when the boat was thrown into full reverse and the torpedo was fired simultaneously.

The fourth patrol was the one during which pharmacist's mate Thomas Moore performed an emergency appendectomy on fireman George Platter. It was a day, Swendsen recalls, when the smell of ether filled the entire boat and made several crew members dizzy. Platter not only survived that, but also being thrown out of his bunk when a bomb exploded above them the very next day.

The dramatic makeshift surgery was immortalized in a 1943 war movie, "Destination Tokyo."

Swendsen very clearly remembers that the chow was incredibly good, living conditions were relatively comfortable, the crew got along well together, despite an occasional "sassy discussion," and that there was a lot of card-playing — mainly acey-deucey, blackjack, cribbage, and poker on paydays.

Among many other things, he learned from personal experience that an exploding depth charge sounds like a shotgun going off next to your head, not the distant muffled sound heard in old war movies. And that eating a big dill pickle relieves seasickness.

As Swendsen recalls, when the Silversides went through an especially harrowing experience, the captain would try to calm the crew's nerves by inviting anyone who seemed to need calming into his stateroom for a little rye whiskey. On the first of these visits, Swendsen told the captain, "Don't fill up to the top." And of course, Burlingame did exactly that, with orders to Swendsen to drink it all before he left. The two then had a conversation about how things had gone.

"I had a little trouble getting back to my bunk," he said.

Whether this anecdote makes it into the oral history is up to GVSU. But Swendsen rarely talked about any of his wartime experiences until his grandson, Jim, asked to interview him for a class project.

"We started thinking we'd better look into this," said his father Dave. "I said we're going to regret it if we don't get here someday."

The Silversides has been under restoration, largely through volunteer effort, since it arrived in Muskegon from Chicago's Navy Pier in 1987. On Thursday, Swendsen said the boat looked pretty much the same as it did in 1942.

Robert Morin Sr., the museum's now-retired director, remembered Swendsen from his last visit here in 1996. Both the boat and the museum itself have seen a great deal of change for the better since then.

"What do you think of the old girl, Charlie?" Morin asked.

"It's fantastic — just like a whole new boat," he replied.

Swendsen did not see a second patrol aboard the Silversides. After going to radioman school, he was transferred to another sub, the USS Haddock. Roy Davenport, his executive officer on the Silversides, had taken command of the Haddock and wanted Swendsen in his radio shack. But the Silversides remains the ship closest to Swendsen's heart.

Bryan Hughes, the museum's executive director, and his staff have been looking forward to Swendsen's return and the surprise reunion that awaited him.

"It was hard to keep it secret," Hughes said.

The Veterans History Project was created by Congress, relying on volunteer groups around the country to collect veterans' stories on behalf of the Library of Congress. One such volunteer group is GVSU, in a cooperative arrangement with the Great Lakes Naval Memorial & Museum.

An Undersea Deterrent?

By Andrew S. Erickson and Michael Chase, Proceedings, June 2009

China's investment in a nuclear-powered ballistic-missile submarine force and the accompanying infrastructure indicates a major effort to take the boats to sea.

Increasingly aggressive Chinese harassment of U.S. survey vessels came to a head on 8 March when five Chinese ships

surrounded the ocean surveillance ship USNS Impeccable (T-AGOS-23), with one Chinese crew member even apparently attempting to snag her towed array with a grappling hook. The Impeccable was operating in international waters 75 miles south of China's new Yalong Bay submarine base on Hainan Island, prompting speculation that the Chinese actions represented a coordinated effort to dissuade the United States from monitoring China's latest nuclear-powered submarines and their area of operations. According to Xiamen University South China Sea expert Li Jinming, "It is well known that the submarine base was established [at Hainan], so it is unacceptable for China to have the U.S. Navy snooping around so close." This incident suggests that Beijing may be particularly sensitive about U.S. activities in this region, in part because it appears poised to become the home base of China's second generation of nuclear-powered ballistic-missile submarines (SSBNs), the Type 094, or Jin-class.

The emergence of the Jin appears to represent a substantial improvement over its first-generation Type 092 Xia SSBN. China may build five Type 094 SSBNs, each of which will be outfitted with 12 developmental JL-2 submarine-launched ballistic missiles (SLBMs) that have an estimated range of at least 7,200 km and are equipped with penetration aids.1 China's single Xia is equipped with short-range (1,770 km) JL-1 SLBMs and it is thought to never have conducted an extended patrol.

Although the transition to the new SSBN is ongoing, recent Internet photos depicting at least two Jin SSBNs suggest that China has reached an unprecedented level of confidence in the sea-based leg of its strategic nuclear forces. Indeed, China's 2008 Defense White Paper states that the People's Liberation Army Navy (PLAN) is enhancing its "nuclear counterattack" capability.2 With the introduction of the DF-31 and DF-31A road-mobile intercontinental ballistic missiles (ICBMs) and the JL-2 missiles on Jin SSBNs, China is thus on the verge of achieving a credible nuclear deterrent based on a survivable second-strike capability.

Recent Developments

While the exact trajectory and scope of China's SSBN development remains unclear, a variety of data points are emerging. The Office of Naval Intelligence (ONI) assesses that although China built only a single Xia SSBN, it will build a "fleet of probably five Type 094 SSBNs . . . to provide more redundancy and capacity for a near-continuous at-sea presence."3 A variety of Chinese publications suggest that the SSBN forces of France and Britain-which have four vessels each, with one at sea at all times, two in refit, and one under maintenance-may serve as models for China and hence possible indications of its plans.4 One Chinese source, however, suggests that China will field six 094 SSBNs, divided into patrolling, deploying, and refitting groups.5 Consistent with this projection, another source suggests that these groups will comprise two SSBNs each.6

It is clear that at least two different hulls have already been launched, based on unusually high-resolution Internet and commercial satellite images that have emerged of one Jin in port at Xiaopingdao, two Jins in the water and perhaps one emerging from production at Huludao, and one at a newly-constructed submarine facility at Yalong Bay near Sanya on Hainan Island.7

Exactly how many different hulls are depicted in these photos remains uncertain, but the images of the facility on Hainan Island appear to provide some hints as to the PLAN's SSBN basing plans. The photo of the Jin at Yalong Bay suggests that the facility may be the base for China's future SSBNs. Images available on Google Earth suggest that the Hainan facility, with its more than 23-meter-wide and over 19-meter-high cave entrance, was designed to accommodate larger submarines such as the Jin, which appears to be about 148 meters long and 12 meters wide. Google Earth imagery of China's nuclear-powered submarine base at Jianggezhuang (with its approximately 13-meter-wide cave entrance) suggests that its maintenance tunnel may be too narrow to accommodate the Jin. There also appear to be few convenient pier locations at other ports for additional submarines. The Hainan facility, by contrast, has three piers and a possible degaussing facility, perhaps offering further rationale for its development as China builds additional submarines.8

China's Motives

Many analysts have focused on the survivability issue as the main reason for China's decision to proceed with the development of the Jin and the JL-2. Given the potential vulnerability of Chinese SSBNs to detection by adversary attack submarines and the challenges of locating dispersed road-mobile missiles, however, it would certainly seem that Chinese decision-makers must also have been considering other factors, including countering missile defense, increasing international nuclear prestige, and inter-service politics.

Chinese strategists appear to calculate that a nuclear dyad-composed of land-based strategic missiles and SLBMs-is required to enhance the credibility of China's nuclear deterrent in line with the requirements of the "effective counter-nuclear deterrence" posture discussed in recent Chinese publications. As "the most survivable type of (nuclear) weapon," an SSBN can allow China to deter third-party intervention in a regional conflict.9 Citing the development of the Jin, one Chinese source states, "If a war erupts across the Taiwan Strait one day, facing the danger of China waging nuclear war, it will be very difficult for America to intervene in the cross-strait military crisis."10

For more than four decades, China's stated policy has been that it will never use nuclear weapons first. Although recent statements by some Chinese commentators suggest that this may be under debate, it has nonetheless been reiterated consistently in several major publications on military strategy and doctrine. Accordingly, we interpret the Chinese comments here to mean not that China would be likely to launch nuclear weapons first in response to U.S. intervention in a China-Taiwan conflict, but rather that Chinese analysts believe strong SSBN capabilities would enhance deterrence by causing Washington to think twice about intervening in a conflict in which escalation control might be difficult.

Another explanation for the Jin is that Chinese planners believe SLBMs launched from certain patrol areas might complicate U.S. missile-defense interception efforts "by being able to launch . . . along azimuths outside the [systems'] engagement zones."11 Toshi Yoshihara of the Naval War College contends that "for at least the next two decades, missile defense . . . will have no answer to a capable SSBN patrolling the open ocean."12 A Chinese analysis likewise states that SSBNs "are more capable of penetrating [missile] defenses."13

Yet another explanation for the decision to deploy the Jin is that Chinese leaders may view the ships as symbols of the PRC's emerging great-power status. The other permanent members of the UN Security Council-France, Britain, Russia, and the United States-all

have modern SSBNs in their fleets, and Beijing may see the deployment of its own as a way to enhance its international prestige. This certainly appears to be true of nuclear-powered submarines in general. One Chinese-published analysis emphasizes the precise correlation between membership in the UN Security Council and the development of nuclear-powered submarines.14 Similarly, former PLAN Commander Admiral Liu Huaqing and others state that such submarines represent one of China's clearest claims to status as a "great power."15

Another possible explanation that should not be discounted is inter-service politics. Little or no empirical information on this topic is available since the politics of China's defense budget process are opaque to outsiders. But, it seems reasonable to speculate that the PLAN leadership may have pushed for the development of the Jin-class to ensure that the navy would have a role to play in the strategic nuclear-deterrence mission, thereby increasing its share of defense spending.

Operational Challenges

Notwithstanding the considerable progress reflected by the launching of at least two Jin SSBNs, the PLAN still faces at least three key challenges before it realizes a secure seaborne second-strike capability: reducing the probability of detection; at sea training of commanders and crew members; and coping with the nuclear command-and-control issues associated with the operation of SSBNs.

Chinese observers are well aware of the challenges of avoiding detection, as reflected by their analysis of capabilities allegedly demonstrated during the Cold War vis-a-vis Soviet submarines. With respect to China's assessment of the Cold War at sea, one particularly noteworthy publication is the Chinese translation of a Russian book, Secrets of Cold War Undersea Espionage, which alleges that "U.S. nuclear and conventional submarines would often lurk along the routes of Soviet warships . . . conducting intelligence activities." This volume also claims that "the SOSUS [Sound Surveillance] system substantially helped the U.S. to cope with the capabilities of the Soviet submarine force," and credits the United States with building an "acoustic signature catalogue (resembling a fingerprint) for Soviet submarines."16

China must recognize that acoustic liabilities hampered Soviet SSBNs' effectiveness, so there is reason to believe that it has worked to address these issues. A variety of evidence-including Chinese research on acoustics, sound isolation couplings, and advanced composite materials; development of a relatively advanced guide-vane propeller by the late 1990s; and employment of advanced seven-blade propellers with cruciform vortex dissipaters in both its indigenous Song-class and imported Kilo-class diesel-powered submarines-suggests that the Jin may have significantly improved propellers and other quieting technology.17

Google Earth photos reveal the Jin to be larger in diameter than the Xia, and larger submarines have historically been quieter because noise reducing efforts and machinery occupy more volume.18 Moreover, subsequent-generation submarines are generally significantly quieter than those of earlier generations, so it may be expected that China has made progress in quieting its submarines as well. Nevertheless, the Jin is still a second-generation SSBN, and those of other nations have faced significant acoustic difficulties. Indeed, despite Russian technology and assistance, China is unlikely to have yet fully exploited all possible technologies given the major challenges involved.

Training is another potential challenge for China's emerging SSBN force. Although digital training and simulations can be useful, the only way other nations have become proficient at submarine operations is to take the boats to sea. Chinese exercises have increased in sophistication in recent years and currently encompass such categories as command and control, navigation, electronic countermeasures, and weapon testing.19

The PLAN has for some time pursued occasional nuclear-powered submarine missions of extended duration. In his memoirs, Admiral Liu Huaqing relates that he raised the priority of long-duration exercises for PLAN nuclear-powered attack submarines to test all parameters of new capabilities.20 Apparently as part of these expanded activities, the author of a recent Chinese publication on the development of the PLAN's nuclear-powered submarine force asserts that the current PLAN Assistant Chief of General Staff, two-star Admiral Sun Jianguo, commanded the nuclear-powered attack submarine Han 403 during a mid-1980s mission of 90 days.21 Another Chinese source states that this mission broke an 84-day undersea endurance record previously held by the USS Nautilus (SSN-571).22

Notwithstanding such reported achievements, and frequent shorter missions, Chinese submarine patrols have been relatively infrequent in most years-though the PLAN conducted 12 patrols in 2008, twice the number of patrols in 2007.23 As Jane's Navy International explains, "A patrol in this vernacular would seem to equate to a sustained seagoing deployment-lasting weeks at a time-to perform a specific task or mission, for instance: to 'track and trail' other submarines; participate in naval defense operations in coastal or extra-coastal areas; collect intelligence; or shadow surface units."24

This increase in patrols and the overall priority accorded to China's submarine force development suggest that the PLAN's submarines are now able to range farther afield on a more frequent basis. Indeed, the evolving missions and growing capabilities of the Chinese submarine force "create the conditions for Beijing to opt for an increased submarine presence in the Western Pacific east of the Ryukyu Island chain."25

While the trajectory of training specifically relevant to deterrent patrols remains opaque, the PLAN is striving to improve the rigor and realism of education and training across the board. Within this context, submarines have clearly been an area of emphasis and the PLAN is using a variety of methods to prepare its sailors for future wars. Official Chinese publications note, for example, that various types of simulators have been used to improve submarine training.26

Communications Hurdle

Establishing and maintaining secure and reliable communications with SSBNs constitutes a major challenge for any country that desires a sea-based deterrent. Chinese military publications emphasize that the central leadership must maintain strict, highly-centralized command and control of nuclear forces at all times and under all circumstances, a principle Beijing will undoubtedly seek to apply to its SSBNs as well as its land-based nuclear forces.27

The Central Military Commission (CMC), the PRC's highest-ranking military decision-making body, which is currently chaired by Hu Jintao, the President of China and general secretary of the Chinese Communist Party, exercises direct command and control over China's strategic missile forces through the Second Artillery Corps. Presumably, the CMC would also exercise direct command and control over deployed SSBNs through the General Staff Department or PLAN headquarters. Indeed, China's 2002 Defense White Paper states that submarines capable of assuming the "strategic nuclear counterattack mission" are under the "direct command" of the CMC.28 Moreover, according to authors John Wilson Lewis and Xue Litai, China's SSBN force, like all other nuclear units, is overseen and coordinated by the Strategic Forces Bureau, under the Operations Department of the General Staff Department. This is intended to ensure that "Only the [Central Military Commission] Chairman . . . has the authority to launch any nuclear weapons after getting the concurrence of the Politburo Standing Committee and the [Central Military Commission]."29

China's submarine force has reportedly employed high-frequency (HF), low-frequency (LF), and very-low-frequency (VLF) communications.30 Researchers are working on a number of technologies that could be useful for secure communications with submarines, as reflected by recent publications discussing the prevention of enemy detection of transmissions between submarines and shore-based headquarters units.

In addition, Chinese analysts have also shown interest in the practices of the U.S. Navy's highly survivable TACAMO (Take Charge and Move Out) air fleet, which uses a wide range of frequencies to receive, verify, and retransmit emergency action messages between the U.S. national command authority and the nuclear triad.31 It remains unclear, however, to what extent centralized SSBN command, control, and communication is possible for China across the range of nuclear scenarios. This suggests another critical problem for the PLAN: ensuring the ability to communicate with SSBNs in an environment in which its command-and-control system has been degraded.

Beyond the problem of ensuring secure and reliable communications, the deployment of SSBNs also entails use-control challenges. Given the strong emphasis on centralized control of nuclear forces that is evident in official Chinese military and defense policy publications, it seems highly unlikely that the PLAN would conduct deterrent patrols without effective use controls. Presumably, China will strive not only to develop a communications capability that is robust enough to ensure at least one-way wartime connectivity between Beijing and the Jin-class SSBNs, but also to minimize the possibility of an accidental or unauthorized launch by implementing some combination of technical and procedural controls.

Notwithstanding the recent series of revelations about China's emerging SSBN force, a number of unanswered questions that have major implications for the future of China's sea-based deterrent remain. Three stand out as particularly important. First is the issue of how many SSBNs China will ultimately build, which will determine deterrence patrol tempos. Second, it remains unclear whether China will attempt to create bastions for its SSBNs in areas close to the mainland or deploy them to more distant patrol areas-a decision which will no doubt be informed in part by the capabilities of the JL-2 SLBM, which remains under development. Third, China is unlikely to reveal any information about its plans for coping with the command-and-control challenges associated with the deployment of a sea-based deterrent force, which could influence crisis stability and the security of China's retaliatory capability.

While these uncertainties remain, the investment already made in SSBN hulls and shore facilities indicates that the program represents a major effort to move beyond the ill-fated Xia and take China's deterrent to sea. In addition, the emergence of photos of at least two Type 094 submarines-and the apparent willingness to allow Western analysts to see them-appears to signal a new level of confidence on Beijing's part, and perhaps even a nascent recognition that modest increases in transparency could actually support China's strategic interests. Continued progress in this direction may be essential to avoiding a repeat of the Cold War at sea waged by the U.S. and Soviet navies in part to secure the undersea portion of their nuclear triads.

Stealth Partners

By Captain Pete Miller, U.S. Navy, Proceedings, June 2009

Traditional roles performed by U.S. Navy attack submarines in coastal Africa are expanding to include training international navies and information-sharing. First reports of their performance give high marks.

It is difficult to find any record of nuclear-powered attack submarine (SSN) operations near the continent of Africa. Certainly traditional missions have been conducted to interdict the flow of narcotics to and from Africa, impede the operations of pirates off the Horn of Africa, or during the Cold War, monitor Soviet military activities off North Africa. Most staffs continue to regard a submarine's potential contributions to operations according to these criteria. SSNs are not generally considered to be integral instruments of global maritime partnerships. Nevertheless, they appear to be evolving into precisely that.

In recent years, global maritime partnerships have become a hot topic. In February 2008, the National Security Council's Deputies Committee endorsed them as an official initiative, with the Department of Defense as overall lead, the U.S. Department of State responsible for international outreach, and the U.S. Navy as a primary stakeholder and contributor. In a 27 May 2008 e-mail to flag officers and staffs, Admiral Gary Roughead, the Chief of Naval Operations, wrote that global maritime partnerships continue to "contribute to the safety and security of the maritime domain," providing a framework by which "U.S. maritime services will foster and sustain cooperative relationships with more international partners in concert with other U.S. services, U.S. interagency, non-governmental organizations, and private industry."

A leading example of a global maritime partnership in action is the Africa Partnership Station, or APS, which recently conducted a series of training activities in West and Central Africa (WCA), with notable success. The Navy offered courses in 15 subjects to more than 1,500 students drawn from the navies and coast guards of 15 countries. These efforts had an indisputably constructive impact on partner nations' capabilities and helped build many positive professional and personal relationships. While the lead element of the APS was the USS Fort McHenry (LSD-43), a 610-foot amphibious landing ship whose shallow draft and multiple shore connecting points facilitated concurrent operations in several locations, three other Navy ships also played key roles. One of them was the USS Annapolis (SSN-760). Its participation, however, was not achieved without some friction and broken crockery. The addition of an invisible, high-end warship to a cooperative effort involving "partnership" stirred skepticism inside Navy and submarine force circles, the requirement for openness and sharing with African partners colliding with planners who feared the menacing image of a nuclear-powered sub in the midst of maritime security education programs. Skepticism remains, but a close look at the Annapolis' contribution leaves considerably less room for doubt.

Fashioning a Partnership Role for SSNs

In early 2007, Admiral Harry Ulrich, then Commander, U.S. Naval Forces, Europe (COMNAVEUR) challenged the Sixth Fleet staff (CNE-C6F) to think "out of the box." As the planning for what would become the APS intensified, embodied in a series of deployments to WCA, warfighters of all disciplines and various other consultants and Africa experts began conducting wargames, a process during which SSNs were widely viewed as irrelevant. At first glance, this is understandable. In a maritime domain awareness role, SSNs have a limited "awareness envelope" compared with airborne platforms or space-based systems, and at the time they could not be part of any unclassified common operating picture. Furthermore, because few ports in West and Central Africa are deep enough for an SSN, these boats would be limited in their capacity to contribute to shore-focused theater security cooperation activities.

But the greatest skepticism stemmed from a strategic communication perspective: SSNs had "threatening optics" that evoked missile and torpedo strikes, stealthy surveillance, and Cold War intelligence scenarios that militated against sharing information and creating operational partnerships. SSNs didn't take part in activities such as the West African Training Cruise and had no track record of participating in any WCA activities. While a large-deck amphib vessel conducting joint visit, board, search-and-seizure team training; delivering dual-use hospital building materials; and deploying harbor survey teams may convey an impression of theater security cooperation, a black-hulled SSN does not. And in any event, no WCA nations would be establishing a submarine force anytime soon. Of what possible utility would an SSN be in Africa's maritime domain?

Many submariners at CNE-C6F staff, including this writer, were not content to leave that question unanswered. Through fortuitous circumstances, an SSN was available in the same time and location as some planned APS activities. With the encouragement of CNE-C6F leadership, it was determined that an SSN's unique capabilities could be adapted to some of the APS activities contemplated for other ships. For example, even though it provides a smaller maritime domain awareness envelope than other platforms, an SSN can dwell for hours or days and could thus determine operating patterns in an area, for a group of ships, or follow the activities of a single ship for extended periods. What you lose in area, you might gain in duration. This potentially constructive tradeoff could interest partner nations who were trying to clamp down on illegal fishing, illegal immigration, or illicit drug smuggling.

The question became not whether SSNs could in principle make a contribution, but whether partner nations would agree to allow it and if so, whether they would be willing to share their knowledge and information to enhance the SSN's mission. For example, submarine surveillance of illegal fishing would benefit from having the partner nations' fishing license lists. Likewise, local knowledge of illegal drug activity in home waters, or any evolved understanding of human smuggling enterprises near the coast, would facilitate the monitoring of an area for drug or human trafficking.

Change Meets Resistance

After considering the ways in which SSNs could, in theory, add to the APS' value, some opposition concerning their use persisted. The global force management process, the annual mechanism for globally allocating military assets, did not anticipate SSN operations supporting maritime surveillance in Africa. Worldwide SSN allocation is tightly controlled, and missions in CENTCOM and the U.S. Pacific Command's areas of responsibility remain a high priority. However, although initially lower-level staff raised concerns, once they understood the concept of operations, consensus was achieved. At the time, the Navy's global maritime partnership strategy was in its formative stages, and beltway stakeholders were already dealing with other non-traditional APS demands.

The remaining problem involved the release of information. The first answer from OPNAV staffers was that information concerning submarine operations could not be disclosed to any African partner nations, which have no agreements with the United States to share such information. The traditional submarine and intelligence community perspective on sharing would be "don't, at any level." Strategically, the operational stealth of a submarine mission would preclude sharing the plans, operation areas, and missions with any partner whose information security was unproven. Tactically, a partner who would cooperate with the Navy on, for example, a counter-drug mission and expect to receive details on tactics, techniques, and procedures in return could be co-opted by corrupt individuals or institutions, thereby supporting the very corruption that was being targeted. Senior command-level appreciation of the risk involved and a decision to press forward was required.

In the development of APS and the intention to establish a meaningful partnership, early planners recognized the importance of maximizing the exchange of as much information as possible. The organizational red tape required to allow this release of information to African partners threatened many aspects of APS; ultimately, Admiral Harry Ulrich, Commander CNE, and the CNO's guiding principles for global partnerships provided the top cover. When the leadership became convinced that the potential gain from sharing information was worth the risk of exposing the mission, the bureaucracy followed. Intelligence gleaned from SSN operations conducted against illegal

activity, with the collaboration of partner nations in international waters, became a lucrative goal. At the end of the day, there wasn't really that much china to break.

The deployment of the Annapolis as part of the APS afforded the Navy, beyond the substantive gains from information-sharing, a direct opportunity to interact with partner-nation military and civilian leadership. During early APS activities, Commodore John Nowell, Commander of APS, invited fisheries enforcement officers, regional security officers, military commanders, and political leaders from WCA nations out to sea on board SSNs to observe the intelligence-gathering process. The intention was to give them an improved situational awareness of maritime activity. Five successful SSN embarks with officials from as many countries, several of which lasted two days, were executed in the face of the daunting logistical challenges of operating in WCA waters. These embarks enhanced the sense of partnership, transparency, and purpose that the U.S. Navy and regional leaders alike wanted to generate.

Measuring the Results

Over the past year SSNs have conducted multiple patrols in international waters of partner nations, complementing other APS activities, even occasionally operating with U.S. and allied maritime patrol aircraft and surface ships. These patrols have been conducted with the knowledge, encouragement, and informational assistance of partner nations and have indeed provided robust real-time feedback to our WCA partner nations and improved the situational awareness of both the U.S. and its partners. But how is the value of such activity measured? By kilograms of drugs intercepted or tons of fish prevented from being taken illegally? By the number of unique events observed, or by the amount of time spent observing those events?

None of these rather narrow quantitative metrics quite fits the bill. The Navy receives the full benefit from a mission if it meets the commanders' objectives. In West Africa, sharing information and building partnerships is one of the main objectives, intended to serve the long-term political-military aim of consolidating the region's strategic alignment with the United States. Participating APS nations are seeing new partnerships being forged and expanding in a cooperative rather than a hegemonic spirit, and as a result, their initially wary reactions to U.S. Africa Command are softening. Additionally, improving mutual appreciation of the maritime domain in WCA while encouraging the development of partner nations' capabilities are part of the APS commander's guidance and are certainly enhanced by SSN operations there.

APS activity was conducted with 15 African nations, and all 15 nations want APS to return. The APS's appeal only reinforces the United States' strategic commitment to the continent. Given this success, the SSN deployment was well worth the effort.

On the operational and tactical levels, information derived by SSN activity and shared with some West African nations undoubtedly has strengthened the character and depth of combined APS operations. While it may be too early to decide on the optimal mix of forces, resources, and training to maximize the return on our investment on GMP in general and APS in particular, assuming that supporting GMPs remains a key component of our maritime strategy, SSNs will play an important role in them.

Captain Miller served as commanding officer of the USS Springfield (SSN-761). From 2006-08, he served on the combined staff of Commander, Naval Forces, Europe/Africa (CNE-C6F) as the submarine operations officer, contributing to the first deployment of the Africa Partnership Station. He recently reported to the stand-up of U.S. Africa Command in Stuttgart, Germany.

Where Have All the Mush Mortons Gone?

By James R. Holmes, Proceedings, June 2009

The Japanese attack on Pearl Harbor forced the Navy to change its culture. Can it take similar measures in the face of new threats?

Detecting, interpreting, and adapting to trends in the strategic environment is seldom easy for big organizations like the U.S. Navy. Consider East Asia, where the Chinese People's Liberation Army (PLA) is developing an array of weapons and tactics specifically intended to hold U.S. aircraft carriers and their escorts at bay during a conflict in the Taiwan Strait. One revolutionary weapon under development is an antiship ballistic missile (ASBM). Tipped with maneuverable warheads, the ASBM will reportedly boast the range and accuracy to target warships at sea up to 2,500 km distant.1

Such a technology, used in concert with the sizable submarine fleet and other sea-denial capabilities China is assembling, would cast doubt on the survivability of big-deck carriers in a naval war in Asia. Should Chinese defenses gain the upper hand, the United States would face an unpalatable choice. It could reconfigure the Navy for new realities, bolstering its staying power in a fight. It could choose to muddle through, trusting diplomacy to avert conflict. Or it could abandon its position in Asia.

The interplay between defense and offense is nothing new. Indeed, the late Professor Michael Handel counsels in his classic work Masters of War that constant "interaction of the warring states, each searching for a comparative advantage, defines the unique nature of each war" (his emphasis).2 The side able to cope with-or, better yet, get ahead of-perpetual change holds the advantage over a less adaptive foe. But adaptation is not a simple matter of devising superior weaponry. People-not weapons-fight wars.

So, fashioning the right mix of platforms and combat systems is only half the challenge of adaptation. Instilling a culture that encourages enterprise, dynamism, and risk-taking with new systems is just as important to operational success.

Pearl Harbor: Catalyst for Innovation

Why look beyond the carrier task force, which has stood the test of time? Look no further than Alfred Thayer Mahan, the father of the modern Navy, for theoretical help. Mahan defined capital ships in general terms, as "the vessels which, by due proportion of defensive and offensive powers, are capable of taking and giving hard knocks."3 Despite his love affair with big-gun battleships, Mahan foresaw that technological change might overtake them.

If so, the dreadnought would find itself displaced from the center of U.S. naval strategy. The same goes for its descendants. If PLA forces can dish out hard knocks against U.S. task forces at extreme range-and this remains an if-then the ability of naval aviation and Tomahawk shooters to deliver hard knocks of their own will fade. It's time to reconsider whether carriers still meet the Mahanian standard for capital ships or should give way to platforms that do.

World War II furnishes historical precedent on these questions. Codified in war plans developed in the interwar years, U.S. strategy called for the battle fleet to steam across the Pacific Ocean to duel its Japanese counterpart. The Japanese attack on Pearl Harbor, however, deprived the U.S. Pacific Fleet the wherewithal to execute this Mahanian strategy. Without battleships to wrest command of Asian waters from the Imperial Japanese Navy (IJN), the Navy had to improvise.

It got off to a quick start. On the evening of 7 December 1941, with Battleship Row still ablaze, Chief of Naval Operations Harold Stark directed the Pacific Fleet to strike back with the few implements remaining to it-primarily submarines and hastily organized carrier task forces. U.S. forces were to "execute unrestricted air and submarine warfare against Japan," disregarding bad memories of German U-boats' preying on civilian vessels like the Lusitania during World War I.4

The Navy found virtue in necessity. Long viewed as fleet auxiliaries, submarines came into their own as capital ships, able to mete out heavy blows while eluding enemy counterblows.

The undersea offensive ordained by Admiral Stark took a fearful toll on Japanese merchant and naval shipping, choking off the shipborne resources Japan needed to prosecute its own Pacific campaign. But success did not come easy. Finding inventive uses for existing weaponry was part of the challenge, but, as the naval leadership learned, the finest weapon is no better than its user.

Reinventing the culture of the submarine force-the habits and attitudes that constitute "how we do things here" to foster entrepreneurship was essential. Organizational culture is a stubborn thing, especially in an institution like the U.S. Navy, whose enviable record of success seems to ratify longstanding ways of doing things. The default attitude: if it ain't broke, don't fix it.

To modify such attitudes in a hurry, senior leadership changed out timid submarine commanders for those who displayed the requisite qualities. With new people unencumbered by the past came new ways of operating. The Silent Service prevailed despite its mandate to wage war in unforeseen ways. This cultural pivot was especially striking by contrast with the apathy IJN commanders displayed toward protecting Japanese merchant ships against the American onslaught. Victory went to the navy that prospered amid the interactive stresses of high-seas combat.

Has cultural inertia returned to today's Navy? It's worth recalling that the Navy has fought no major engagements since Leyte Gulf in 1944. Current doctrine and systems have not been tested in combat, the true arbiter of what works. If the service does need to innovate, the lessons of the Pacific War may apply.

Damn the Torpedoes!

Submarine design was a bright spot for the Pacific Fleet. The Navy had provided ship designers only sketchy guidance on what to build during the interwar years, so they hedged by constructing multi-mission boats. Fleet boats might be expected to operate in relatively permissive surroundings, namely waters under dispute or already under U.S. control. Or they might find themselves on prolonged cruises, raiding shipping in expanses held by an enemy fleet.

Endurance was a must for subs entrusted with multiple functions-especially in the vastness of the Pacific. Long range and habitability assumed high priority for U.S. naval architects. (For Japanese commentators, ironically, U.S. shipbuilders' emphasis on habitability was proof that Americans were too soft for undersea combat.5) Designed primarily to attack battleships and cruisers, the 2,000-ton Gato-class fleet boats were more than suitable for commerce destruction if deftly handled.6

If the submarines themselves were adequate-no new class was developed, built, or needed during the war-their armament was decidedly substandard. In 1943, for example, the deck log of the USS Wahoo (SS-238) reported firing ten torpedoes at a convoy over a three-day span. The dismal results included a dud, a broach, and eight misses, all attributable to technical shortcomings. "Damn the torpedoes," concluded the log entry sardonically.7

The standard U.S. Navy torpedo, the Mark XIV, was fitted with two exploders. The first, a contact device, would detonate when the fish crashed into an enemy hull. The second, a magnetic-influence device, would explode on sensing the ship's magnetic field. If set to run underneath the keel, the torpedo could break the ship's back without ever striking her hull.

Or that was the theory. In reality, the Mark XIV often ran too deep for the magnetic-influence exploder to detect the ship's presence-hence many of the misses the Wahoo reported-while the contact exploder worked only if it struck a hull at an oblique angle. Perversely, a good solid hit at right angles usually resulted in a dud. Not until September 1943, nearly two years after Pearl Harbor, did engineers troubleshoot and fully correct these faults.8

Technical deficiencies had operational implications. Says historian Clay Blair Jr., defective equipment hampered execution of the undersea campaign while deflating the morale of submarine commanders, for whom derring-do was at a premium:

Skippers emboldened by swift and certain torpedo success, instead of puzzled and dismayed by obvious torpedo failure, might have inflicted crippling damage on the Japanese navy much earlier. The war in the Pacific might have been shortened by many, many months.9

Indeed, Blair maintains that submarine operations unimpaired by nagging hardware problems might have kept Japan from invading the Philippines and the Dutch East Indies at the war's outbreak. Weaponry is no better than its operator-but the most valiant sea warrior can do little without weapons that work.

Throwing Caution to the Wind

The Pacific Fleet managed to reorient its submarine crews for the rigors of commerce raiding, or guerre de course, even while struggling with material woes. Drastic measures were required. The commander of Submarine Forces, Pacific (SUBPAC) protested that his crews were prepared "neither by training nor indoctrination" for guerre de course, which bore scant resemblance to fleet support and went

against Mahanian orthodoxy.10

Sinking lightly armed merchantmen was not a "lesser included" mission after all, easily performed by crews trained for fleet-on-fleet battles. Indeed, it demanded an unusual degree of industry.

Courting risk was not common practice among submariners before 7 December. Why? Conventional wisdom deprecated a submarine's prospects of surviving an encounter with an enemy battle fleet. Its chances were rated at one-in-seven once detected. Undersea craft were also considered highly vulnerable to air attack, so remaining submerged to evade aircraft was central to U.S. tactics.11 Caution was the watchword in prewar doctrine.

After the destruction of the Pacific Fleet battle line, SUBPAC needed skippers who prized endeavor over caution. Cruising on the surface, not sheltering safely underwater, was vital to detecting, tracking, and assailing Japanese merchant shipping.

Fortunately for the Navy, the Silent Service proved highly adaptive, making rapid change in tactics and doctrine possible. Equipped with rudimentary communications gear, submarines operated free of close supervision from SUBPAC. Each boat quickly took on its captain's personality, much as an aircraft commander determines his plane's combat performance.12 This reduced the problem of changing the SUBPAC culture to finding skippers who thrived on independence.

Under stringent measures enacted after Pearl Harbor, skippers were granted two patrols to show results, measured in tonnage sunk. Those who disappointed were summarily replaced. In 1943, fully 30 percent of submarine commanders in the Pacific were relieved for failing to meet SUBPAC's exacting standards.13 With an enterprising skipper (and operational weaponry), on the other hand, a solitary boat could achieve devastating results.

'Wahoo is Expendable'

Case in point: the January 1943 patrol of the USS Wahoo off New Guinea. Secretary of War Henry Stimson had deplored the Navy's "peculiar psychology," which took for granted that "Neptune was God, Mahan his prophet, and the United States Navy the only true Church."14 Unlike many officers reared on prewar doctrine, Lieutenant Commander Dudley "Mush" Morton, skipper of the Wahoo, was refreshingly free of dogma.

Morton was blunt with his crew. "Wahoo is expendable," he informed them as the boat departed Brisbane. "We will take every reasonable precaution, but our mission is to sink enemy shipping."15 According to Forest J. Sterling, the boat's yeoman, these bold words inspired "a different Wahoo":

I could feel the stirring of a strong spirit growing in her. The officers acted differently. The men felt differently. . . . A high degree of confidence in the capabilities and luck of our ship grew on us and we became a little bit cocky. It was a feeling that Wahoo was not only the best damn submarine in the Submarine Force but that she was capable of performing miracles.16

Morton's orders were to reconnoiter the Japanese base at Wewak, in northern New Guinea. On reaching the harbor-and after fashioning a makeshift chart that, as one junior officer reported, "would have made a cartographer shudder"-the skipper informed his astonished crew that he interpreted "reconnoiter" to mean penetrating Wewak and sinking whatever ships were there. After a close-quarters torpedo duel with a Japanese destroyer-the Wahoo had the better of the encounter, but only just barely-the submerged boat withdrew from Wewak and followed the northwesterly convoy route toward Palau.17

The next day, the Wahoo sighted and engaged a four-ship convoy. Morton's after-action report recounted a "ten hour running gun and torpedo battle" in which the boat sank two freighters and a transport and damaged the fourth merchantman, a tanker. SUBPAC credited the Wahoo with sinking 11,300 tons' worth of Japanese shipping. Lieutenant Commander Morton was awarded the Navy Cross.18 Captain Ned Beach concluded, "Morton-and his Wahoo-showed the way to the brethren of the Silent Service."19

The cruise of the Wahoo held lasting relevance. For the Navy to keep abreast of events, top leaders must look for changes to the operating environment, ideally before a Pearl Harbor compels them to improvise on the fly. Foresight will help the leadership determine the traits needed to flourish in new surroundings and seek out operational commanders who embody these traits.

Japanese Lethargy

In Michael Handel's terms, U.S. Navy submarine crews prospered amid interaction, amassing an insurmountable comparative advantage. But the IJN did little to help its own cause, in effect conceding the undersea theater. Only belatedly and halfheartedly did Japanese commanders attempt to counteract American commerce raiding. Antisubmarine detection and weapons technology stagnated.

Organization and tactics were little better.20 Not until late 1944 did the IJN create a Combined Escort Command to protect merchant convoys, while the leadership made little effort to adjust Japanese naval culture to meet the demands of antisubmarine warfare. Beguiled by its Mahanian vision of grand fleet engagements, the IJN allowed U.S. boats to create havoc, sending Japanese resource imports into freefall (see Figure 1).

In short, the Imperial Japanese Navy displayed little of SUBPAC's cultural agility. Sea-power theory was deeply embedded in Japanese naval culture, giving the IJN an unusually stubborn "peculiar psychology" of its own.21 The decisive fleet encounter obsessed the naval establishment, in part because Japanese naval victories over imperial China (1894-95) and Russia (1904-05) had seemed to ratify the Mahanian ideas then in vogue.

No Pearl Harbor jolted Japanese commanders out of their Mahan-inspired orthodoxy. Pearl Harbor had shaken the foundations of U.S. Navy culture, creating opportunities to modify the entrenched outlook Henry Stimson had railed against. Gradual losses of merchant vessels-lesser, unglamorous assets in the eyes of Japanese Mahanians-were easy to overlook by comparison to 7 December, which had left the pride of the U.S. Pacific Fleet in ruins.22

In a sense, then, the Imperial Japanese Navy was worse off not suffering a shock comparable to Pearl Harbor. Gradual, cumulative losses to U.S. submarines never deflected the IJN from pursuing a decisive battle or compelled it to reinvent its antisubmarine practices.

Without a powerful catalyst, Japanese mariners' Mahanian culture persisted-and wartime interaction worked in America's favor.

Retooling Naval Culture Today

American guardianship of the Pacific Ocean sea lanes has served the United States and Asia well since Japan's defeat in 1945. It is worth preserving. The rise of Chinese military power, however, promises to permanently complicate U.S. strategy in the region. U.S. naval leaders should try to get ahead of events rather than reassess and adapt after change takes place. Some questions to ponder:

Will forces forward-deployed at bases like Guam and Okinawa provoke rather than deter China, as the Pacific Fleet provoked Imperial Japan once forward-deployed in Hawaii?

If carriers are as vulnerable as some analysts claim, what should take their place-and can the Navy remake its fleet speedily enough to deter or prevail with this new capital ship?

Is today's Pacific Fleet as adaptable as SUBPAC proved after 7 December? Or is the carrier-centric fleet so embedded in Navy culture as to obstruct necessary change?

The U.S. Navy finds itself in an intellectual quandary akin to that confronted by Japanese strategists during the Pacific War. The Navy must adapt to nonlinear events-reports of new Chinese weaponry or bases, signals of intent from Beijing-whose meaning remains ambiguous but could generate tremendous cumulative effects.

As they strive to keep pace with dynamic surroundings, naval leaders should ask themselves candidly whether the service still encourages the resourcefulness and entrepreneurship of a Mush Morton-and, if not, how to restore those virtues in a fast-changing Asia.

Forgotten Secrets: Nuclear, Biological And Chemical Weapons

Strategy World website , June 4, 2009

American efforts to refurbish their elderly W76 nuclear warheads are being held up by difficulties in manufacturing several components. The warheads were originally manufactured over 25 years ago. Since that time, it was discovered that the necessary details, for manufacturing some of the unique components, has been lost. One of those items, a chemical codenamed Fogbank, could not be created with surviving documents. This problem was eventually overcome, but then similar problems were discovered with some other components. This sort of thing was largely the result of manufacturing details being so highly classified. Normally, manufacturing details for older items can afford to be a little vague, because unclassified components have lots of similar items either still in production, or many people and documents you can consult to quickly reconstruct the needed materials and process details. Not so with classified components for nuclear weapons.

It was two years ago that the nuclear weapons industry proposed a new warhead design for the navy's sea-launched Trident D5 ballistic missiles. This would involve replacing 3,000 W76 warheads that currently equip 336 missiles. That project would cost about $100 billion. The navy preferred to refurbish the W76s, and save a lot of money.

The navy also wanted to build more nuclear submarines, and that was going to be expensive. That includes both Virginia class SSN attack subs, and replacements for the current Ohio class ballistic missile boats. Since the Ohios are expected to serve into the 2020s (they entered service in the 1980s and 90s), the more immediate need is for more Virginias. These 7,800 ton boats cost over $2 billion each. The navy wants at least fifty of them, to replace the aging Los Angeles class boats. The navy needs subs more than it needs new warheads. But the companies and organizations that build and maintain nuclear warheads want the work. Which is more essential?

The case for a new warhead is that this would provide a nuclear weapon that is more reliable, less likely to go off by accident, cheaper to maintain and more difficult to use if one is stolen by terrorists. The navy insisted that the current W76 warheads, produced between 1972 and 1987, were adequate. The W76s are old, but like any piece of expensive machinery, they are carefully maintained. Parts wear out and are replaced. It's components that don't wear out quickly that caused the problem with the refurbishment. These items have been out of production for over two decades.

Most importantly, this warhead has been tested. So we are sure that a W76 will explode when ordered to. Because of a 1992 treaty, nuclear weapons may no longer be tested, even underground. The new warhead would have to be "tested" via simulation. That is not a major obstacle. Simulation of complex systems is now quite common, and reliable. It's one of those unseen technologies that make life so much better for everyone. The nuclear weapons designers, however, believe they have discovered several flaws in the W76 design, things that could be eliminated with a new warhead, even one that will never actually be detonated. One of the flaws is apparently the difficulty of reviving the manufacture of key W76 components like the mysterious fogbank chemical.

Times have been tough for the nuclear weapons crowd since the Cold War ended in 1991. Since then, several treaties have been signed that reduce the American nuclear arsenal. Thus it is bad politics to try and get lots of money for new warheads. This is especially true because most people would like for there to be even fewer warheads. It's the old debate over "how many warheads do you need to get the job done." The U.S. currently has 7,000 nuclear warheads. There are another 8,000 out there (most of them Russian).

Over 15,000 warheads have been taken out of service in the last fifteen years. The U.S. and Russia had so many because both nations had developed tactics that included attempting to knock each others land based missile silos out of action. Any exchange of that many warheads, even if only ten percent of them actually went off, would have destroyed Eurasia and North America. Those tactics are no longer popular, thus you only need a few hundred warheads to pose a credible nuclear threat. The U.S. and Russia have agreed to get try and get each of their warhead inventories down to 2,000 or fewer.

As a result of all this, getting $100 billion for a new generation of warheads was not going to happen. The decision was made to refurbish. Then along came, or didn't, fogbank and other components that were more difficult to recreate than expected.

Maintaining existing warheads costs over a billion dollars a year, with or without crises like lost manufacturing knowledge. That includes money needed for maintaining and upgrading facilities, as well as work on the warheads themselves, and research and development of maintenance requirements and techniques. Nukes are still a big business. But they are not likely to get a lot bigger. A new treaty is proposed that will reduce the nuclear arsenal even further.

Vice Adm. James F. Calvert Dies At 88

By Brian Witte, Associated Press, June 4, 2009

ANNAPOLIS, Md. - Retired Vice Adm. James F. Calvert, a submarine pioneer and author who served in the Navy during World War II before going on to be superintendent of the U.S. Naval Academy where he made innovations to the curriculum, has died, family members said Thursday.

Calvert, who was 88, died of heart failure Wednesday in Bryn Mawr, Pa., said Kemp Battle, his stepson.

"He was a wonderful man and did a lot of dangerous things," his wife, Peggy, said in a telephone interview.

After graduating from Annapolis in 1942, Calvert went straight to work on submarines.

"A career submarine officer who began his service during World War II, he completed nine wartime patrols and later served an instrumental role in the development of modern submarine operations," the academy said in a statement.

He served on the USS Jack for eight war patrols and another on the USS Haddo during World War II. The USS Jack, on which Calvert helped aim the torpedoes, is credited with sinking 15 Japanese ships.

Calvert wrote several books. In his 1995 memoir "Silent Running," Calvert described his experiences in submarine operations in the Pacific during World War II, chasing and sinking enemy ships.

Calvert was the commanding officer of the nuclear-powered USS Skate from December 1957 to September 1959. The submarine became the first to surface at the North Pole in February 1959. Calvert wrote about the experience in a book titled "Surface At The Pole." The trip had been made to test how well a submarine could operate in the Arctic Ocean.

Battle said deciding when to surface through the Arctic ice was "a very tricky moment," because it was unclear what kind of damage the move would cause the submarine.

"It was a very dramatic moment when he decided to pick the spot and go for it," Battle said. "At the time, it was a major feat."

Calvert served as the 46th Naval Academy superintendent from 1968 to 1972.

For all of his adventures and accomplishments at sea, Battle said he believes Calvert was even prouder of his work at the helm of the academy.

During his tenure, he put an emphasis on increasing the academy's ability to recruit top civilian faculty members.

"He felt very strongly that the education of young men demanded balance, so he fought for civilian teachers and was very proud of that," Battle said. "He was very proud of that legacy."

He also implemented the academy's academic majors program, which broadened the academy's curriculum beyond engineering to include other majors such as political science.

Calvert also created the academy's James Forrestal Lecture in 1970, which focuses on leadership and has been given by prominent political, athletic and military leaders, including former Secretary of State Henry Kissinger, football coach Dick Vermeil and Supreme Court Justice Antonin Scalia.

"He really was interested in the development of the minds of leaders," Battle said.

After retiring from the Navy, Calvert worked as an assistant to the chairman of Texaco. He also was a senior executive at Combustion Engineering in Stamford, Conn.

Calvert is survived by his wife of 41 years, Peggy, and their four sons Craig, David, John and Kemp Battle. He also is survived by two sons Jim and Charles from his previous marriage to his first wife Nancy, who died in 1965.

How to Avoid a Submarine Mishap

By Vice Admiral Al Konetzni, U.S. Navy (Retired), Proceedings, June 2009

It may not work every time, but empowering junior members of the crew to make decisions creates an atmosphere on board that could avert a catastrophe.

Submarine operations have always been inherently dangerous. Patrols in shallow, congested waters and in close proximity of competitor submarines and surface ships; constantly changing weather and acoustic conditions; high-pressure steam and other energetic systems; and a nuclear propulsion plant within the confines of an underwater tube make the submarine business a risky affair.

Risks have been mitigated over the years by a process that selects and trains some of the best people our nation has to offer. These men are team players who thrive on challenges. They are taught from their first day as submariners to be inquisitive, to adhere and truly understand procedures, and to seek continuous personal and team improvement.

The process and its people seem to work quite well. The submarine service stands as a model for safety and continuous improvement. In fact, the force has been used in benchmarking other hazardous types of work over the years. Its procedural adherence, integrated safety management, and conduct of operations philosophies have been used as models by government and industry alike.

No Monday-Morning Quarterbacking

Recently I was questioned about submarine safety and operations in the Persian Gulf that went something like "Should our submarines continue to operate in the shallow and crowded waters of the Persian Gulf after considering the March 2009 collision between the submarine USS Hartford (SSN-768) and the amphibious ship USS New Orleans (LPD-18) and the January 2007 collision between the submarine USS Newport News (SSN-750) and a Japanese merchant ship?" Without knowledge of the events that led up to these incidents, it would be inappropriate to comment on the technical and behavioral aspects of each accident. To do so would not be helpful and only add to the second-guessing and Monday-morning quarterbacking that occurs after any untoward operational event. This second-guessing often does more harm than good, as it can blur the actual lessons learned and appropriate way ahead.

In answering the question, I took two distinct tacks. My first reply entailed submarine operations in general. I stated that for years our Navy has operated proficiently in the littorals. Extended operations in water depths well less than the length of the submarine with contact densities well over 50 vessels is commonplace and has not caused an increase in submarine incidents.

I then proceeded to take another tack that involved my experiences regarding safety in hazardous operating conditions inside and out of the Navy. My lessons may or may not have had a bearing on the two recent incidents, but I am willing to bet that had these been on the minds of personnel involved in the mishaps, things may have turned out differently. For that matter, they may prove helpful to all who command at sea.

I am convinced that accidents are more likely to occur when crew ownership of ship safety is insufficient. As a result, organizational factors, unsafe supervision, unsafe act preconditions, and finally unsafe acts can more readily align like holes in a block of Swiss cheese to create the necessary environment for a mishap or accident. Commanders can better insulate themselves from this alignment of holes by creating a proper shipboard environment of ownership. This environment is not created overnight but starts with the realization that safe operations are not about programs and regulations but about Sailors and their relationship with the command. Our leaders must seek to grow an environment of openness and candor.

Just as Vital as the Old Man

It is important that the junior member in the control room understand that he is as vital to the success of the ship as the Old Man. This very fact saved my ship, the USS Grayling (SSN-646), in 1983 on a windy and rainy day in Tangier Bay, Morocco, when the anchor chain broke and the ship moved rapidly to shoal water. I always bragged that my guys were well trained; in reality, what averted disaster is the fact that several young Sailors (one unqualified) felt empowered to speak up and take action early. As a result, propulsion was rapidly restored, and the ship left the Tangier Bay anchorage safely, but undermanned (two-thirds of the crew were on liberty).

Equally important is the understanding of classical risk management, which involves five steps:

Identify hazards.
Assess hazards.
Make risk decisions.
Implement controls.
Supervise.

These steps are indeed helpful, but my personal belief is that the skipper needs to have a good personal understanding of his crew's state of training, readiness, and health at all times. This allows the commander to draw a "virtual risk" line that he may be willing to cross when his team is truly ready and the benefits of the action outweigh the costs. If the benefits don't outweigh the costs or the skipper's risk line indicates some team weaknesses, acceptance of unnecessary risk would be unwarranted, and as a result, more planning would be necessary to mitigate the risk.

Decisions' Impact

It is critical that all senior leaders, including our commanding officers, think through the results of policy changes. This analysis requires a long-range view. We don't do this well in the armed forces or in corporate America. The vital question is, "what impact could my decision today have tomorrow, next year, or perhaps five years out?" One good example is "rate consolidation" in the submarine force. The Navy combined the quartermaster, electronics technician, and interior communications ratings in the 1990s. Did this action strengthen or weaken navigation party performance over the next decade? I think the jury is still out on that decision.

A more recent example of failure to take the long view on safety involves my company, a nuclear environmental cleanup firm. In 2003, we sent out a memo that stated, "to make more efficient use of our talented 300-person union work force, all personnel will be allowed to qualify to operate our heavy equipment." After a rash of incidents involving fork lifts in 2006, I finally realized that we had too many "qualified" operators and reduced the operator pool to 32 top performers. There has not been a heavy-equipment incident since proper policies were instituted.

The U.S. submarine force is more than able to operate in the shallow, densely packed confines of the Persian Gulf. The nation can ill afford to have these critical men-of-war not operate in that area and other shallow seas around the globe. After all, our Navy is all about providing access.

On the other hand, our Navy needs to work to create shipboard atmospheres that provide for officers and crew to manage safety together; atmospheres where safety is no longer a priority but a value! When this occurs, "forceful backup" becomes a reality; intellectual

dissent is viewed as an asset; and safety at sea is enhanced.

Changing the Face of Undersea Warfare
By Captain David Portner, U.S. Navy (Retired), Proceedings, June 2009

Sometimes a scalpel is a better tool than an ax. The Navy sees such promise in a miniature torpedo.

As a senior research engineer with Penn State University Applied Research Lab, I assure readers that I am not endorsing a specific design of the very lightweight torpedo, but rather highlighting the unique benefits that such a weapon could bring to a variety of missions in general.

Spring 2021

It was a sight not seen since the last world war. The largest armada of ships to sail into battle began to break through the early morning haze, 82 ships in all, including their newest carrier, commissioned just nine months earlier. The world was shocked at the events of the last year. Saber-rattling they called it. Little did they know that Operation Leaping Dragon had been in execution for more than three years. Two decades of planning were soon to come to fruition in a glorious and swift invasion. The Americans and their pompous claims to defend the rogue nation will arrive too late to be of any assistance. The occupation will be complete in three days, and the feeble U.S. carrier force will be more than two days away from the engagement.

The admiral, looking across the array of ships from the carrier bridge, could not help but smile at the brilliance of the events unfolding. He did not notice the beginning of the attack against his force. A seemingly imperceptible shift in the formation on the port side-two cruisers, a troop transport, and a destroyer began to slow, while another destroyer rolled into a hard port turn, as if in retreat. It was the crackle of radio reports entering the bridge that caused his attention to shift.

"Admiral," the young bridge officer announced, "the cruiser Razorback reports loss of all engines. The cruiser Fortune reports the same." The admiral turned quickly in the direction of the two troubled warships just as a destroyer collided with a supply ship, the destroyer's bow slicing deep into the side of the large vessel. A fire erupted. A shout from the starboard bridge shifted the admiral's attention to the other side of the armada. Four more ships were slowing rapidly, disrupting the formation as other ships maneuvered to avoid the stricken vessels. The admiral's mind raced-What is this? How could this happen to so many ships at such an inopportune time? Then he saw it-a small spray of water just astern of a cruiser, which then rapidly slowed. Something had exploded under the stern of that now-crippled ship. Within ten minutes, more than half of the ships in the mighty armada were dead in the water. Ten others had collided, causing one to settle rapidly by the bow and igniting a ferocious fire on the supply ship carrying fuel for the invasion force.

The reality of their situation came to the admiral some time ago; he was under attack from an unseen foe, a submarine, he surmised, or more accurately several submarines. But what was this new weapon that seems to disable rather than destroy? Several ships reported hearing high-speed screws of torpedoes, but the explosions, which disabled his fleet, were not the size typical of submarine-launched torpedoes. And for so many ships to be attacked in such a short period would mean he must be opposed by a fleet of such submarines. Not a single ship had been sunk by the attack, yet his entire force was in turmoil. Success was no longer a certainty. Yet turning back would bring dishonor and disgrace.

What the admiral didn't know would shake him to the core. Just two American submarines had carried out this attack, each using only four of its on-board torpedo inventory.

A Naval Scalpel

This is a glimpse of the potential for changing the face of undersea warfare. Up to now, submarine-launched weapons followed one axiom-bigger is better. The destructive force of one torpedo can break apart and sink a cruiser within minutes. A single cruise missile can level a multi-storied building. A ballistic missile can level a city. Submarines are rarely used in maritime intervention operations except in a supporting role because of the extreme damaging force of their arsenal. You cannot use an axe when a scalpel is needed.

The rapid advance of technology can provide the submarine with just such a scalpel. The opportunity exists to augment the destructive capability of large-warhead torpedoes with a small, highly accurate and agile torpedo, built to disable rather than destroy. The rapid sinking of an enemy ship leaves the foe with a significant loss but an easy decision: acknowledge their sacrifice but carry on with the mission. In contrast, the disabling of an enemy ship not only removes that asset from the pending fight, but also leaves the group commander with a strategic decision; leave the vessel behind, provide it a guard, or take it in tow. The latter two options remove other assets and slow the progress of the fight. If left behind, the vessel becomes an obstacle to other ships and disrupts the easy movement of the formation. In the confusion, collisions are possible, with added potential for fires and flooding.

Known as the Common Very Lightweight Torpedo (CVLWT), this new breed of torpedo is a small, short-range rapid-attack weapon. Pennsylvania State University Applied Research Laboratory is developing it under the sponsorship of the Office of Naval Research and the Undersea Defensive Systems Program Office, as an anti-torpedo torpedo. Required to be fast and agile, it is smaller than the current lightweight torpedo: 6.75 inches in diameter, about 9 feet long, and one-third the weight of the Mark 46 lightweight torpedo. The key to its performance is a state-of-the-art-processing architecture known as the Torpedo Intelligent Controller. This architecture uses a form of fuzzy logic to track multiple targets and find the target of interest with surprising accuracy.

The CVLWT can be designed to allow the launch platform to pre-program the attack point on the hull of the target ship (propellers, rudder, or a specific location such as a magazine or main propulsion space). This allows the selection of a less-than-lethal attack, where the target ship is disabled and the crew stranded with minimal loss of life. The weapon could be employed individually for short-range encounters, or in a multi-warhead, independently targeted configuration using the Mark 48 heavyweight torpedo propulsion for

significantly longer range attacks. The combination of Mark 48 propulsion driven by the CVLWT guidance and control has been proven in dozens of in-water development tests. With its advanced sonar processing, the very lightweight torpedo has demonstrated proven performance in salvo launches and through collaborative tactics can independently target multiple units of an opposing force.

New ASW Tool

This capability is also highly suited for antisubmarine warfare when faced with a foe hiding in a rugged, shallow terrain or under the Arctic ice canopy. The multi-warhead configuration can be designed to target multiple potential contacts in the area of the hiding submarine, greatly increasing the opportunity of a hit. Although the smaller warhead may not sink the target submarine, it will inflict significant damage, which will make the sub react, thus flushing the prey from the security of its hiding place.

Additionally, in situations where multiple false contacts are not an issue, the multi-warhead heavyweight weapon could target the single-threat submarine with all its CVLWTs, having them detonate at different locations along the submarine's hull.

The CVLWT employs a high power density, closed-cycle propulsion system that gives it very high speed and maneuverability over a significant range. Its compact size gives the added benefit of low weight and low cost as compared to most conventional lightweight torpedoes, making it suitable for employment by aircraft, ships, and submarines. Its high maneuverability and surgical accuracy allow employment of a much smaller warhead to render a consistent mission kill while minimizing human loss. The enemy becomes discouraged and defeated by their inability to transit the seas and press the attack.

The CVLWT would augment the current torpedo inventory, not be a replacement. The larger-warhead weapons are necessary to deal with warships and submarines that are already in position for attack, or continue to press the attack even after they are disabled. But the addition of this mid-level offensive capability increases the options available to the surface, submarine, and aviation communities in dealing with an aggressor in a more controlled manner when the political or strategic environment calls for limited engagement or modified restraint to defuse a volatile situation with minimal loss of life. It also could provide an effective defense to swarm tactics of small boats, allowing multiple engagements with a smaller weapon to rapidly reduce the number of units at sufficient standoff range.

Leveraging the Sub's Stealth

The value of this weapon shines through in classic maritime interdiction operations. In many cases, a submarine is the only platform positioned to observe illegal or terrorist-related activities on a ship at sea. This is because the presence of aircraft or surface ships is readily detected by the offending ship, and plans are altered. Once other forces are ordered in, illicit activity ceases, and participating ships depart before these forces arrive. A submarine armed with this type of weapon would allow the on-scene commander to order a disabling strike that would prevent the threat ship from escaping while minimizing loss of life. The disabled craft would be unable to evade surface forces, which could then board and seize cargo or personnel. For a hostage or highjack situation, this torpedo would disable the pirated ship, rendering it incapable of being used as a weapon similar to the airliners of 9/11. In an air-drop configuration, this same ability to disable a ship could be conducted by any number of aircraft or unmanned aerial vehicles.

Homeland security and port protection would also benefit from this torpedo. It could be employed from fixed launchers around domestic ports and vital shoreline facilities, such as power-generation plants, against rogue vessels. The same capability could be carried to foreign ports to provide protection to U.S. forces overseas. The very lightweight torpedo can augment other non-destructive security measures while providing a final line of defense if those methods fail. In these scenarios, the limited range of the weapon is a benefit to avoid attacks against friendly shipping in the area while providing maximum protection for the assigned facility.

The torpedo's lightweight design makes it ideally suited for employment from unmanned aerial vehicles. Its smaller size increases the number of torpedoes an aircraft can carry by a factor of three-an inventory advantage that any pilot will agree adds substantially to mission success. The torpedo is designed to minimize mutual interference when multiple weapons are employed. This increases the probability of a hit and reduces fratricide among weapons. With the ability of precisely selecting the point on the target to hit, the attacker can scale the level of attack based on the situation. This type of response would be valuable in some situations, such as the MS Achille Lauro passenger ship highjacking in 1985.

As the mission of our armed forces evolves from large, campaign-level actions against highly capable and armed forces to the asymmetric threats appearing today, it is necessary to transform our undersea arsenal to provide for limited engagement with effective disabling capability while minimizing casualties to passengers and crew who may be presumed innocent. A highly accurate, light-weight torpedo, which can be employed from a myriad of platforms, selectively attack multiple points along a ship or submarine hull, and deter the actions of both elite and rogue forces, is just the weapon that is needed for this new era of asymmetric warfare.

Captain Portner retired from the U.S. Navy in November 2007 after 26 years of submarine service including command at sea and assignment as the Major Program Manager for Undersea Weapons. He is a senior research engineer with Penn State University Applied Research Lab supporting the Navy Torpedo Defense Program Office.

Why Does Brazil Need Nuclear Submarines?

By Paul D. Taylor, Proceedings, June 2009

Brazil's developing nuclear program shows its increasing global prominence.

The National Defense Strategy the government of Brazil released on 17 December 2008 provides little plausible military justification for the recently accelerated nuclear-powered submarine project.1 The document stresses that this traditionally peaceful country has no problems with its neighbors, acknowledging that it has been difficult, therefore, to find a rationale for building forces and training for

defense. Brazil had not previously attempted to elaborate an explicit national defense strategy, so why does it need nuclear submarines? The answer is apparently more related to political and economic factors associated with grand strategy than to requirements of naval strategy.

Brazil's new national-defense concept lays out three maritime goals-sea denial, control of maritime areas, and power projection-and includes several references to the development of nuclear submarines. But it does nothing to provide an adequate naval justification of the enormous investment the project will require. President Luiz Inacio Lula da Silva has argued that Brazil "will have a nuclear submarine because it is a necessity for a country that not only has the maritime coast that we have but also has the petroleum riches that were recently discovered in the deep sea pre-salt layer."2

On 10 July 2007, the president announced plans to fund the construction of a nuclear-powered attack submarine. This project promised to fulfill a longstanding Brazilian aspiration for which considerable investments had already been made. The navy had begun a program in 1979 to build a dual-use nuclear reactor suitable to propel a submarine and generate electricity for civilian consumers. At the same time, the service undertook a fuel cycle project to give Brazil autonomy in the enrichment of uranium, which it produces domestically.

Speaking later to the chiefs of the armed forces, President Lula commented that when he took office in 2003, the country lacked credit, unemployment was high, and Brazil seemed to have lost hope of becoming a great nation. Since then the gross domestic product had grown, the budget had expanded, unemployment had decreased, and three decades of military downsizing could now be reversed.

In fact, Brazil's GDP grew at the rate of 5.7 percent in 2007, driven significantly by booming exports of minerals and foodstuffs to China and India. Those exports figured among the more than 95 percent of Brazilian foreign trade transported by maritime means. The nation has also recently enjoyed the euphoria of massive new offshore discoveries of oil and gas that could make it a major exporter of petroleum within a decade.

Lula asserted that Brazil's economy had developed enough for him to present a plan of recuperation for the armed forces and for the defense industry. He said he did not know any country desiring respect that did not have well-equipped and ready armed forces. Additionally, Brazil has a long-established, responsible, and peaceful nuclear power program that includes several plants.

The Submarine Project

The Brazilian program features three distinct phases. The first concentrates on the nuclear-fuel cycle. Currently, yellow cake produced in the first step of uranium enrichment is shipped from Brazil to Canada for processing into hexafluoride gas, which then goes to Europe for enrichment by a British-Dutch-German consortium. Admiral Julio Soares de Moura Neto, chief of the Brazilian Navy, estimates that his country will be able to complete the full uranium enrichment process by 2010.

Construction of a naval reactor, the second phase of the program, is under way. The government has committed some U.S. $525 million to be spent in installments over eight years.

The final phase is construction of the submarine itself. Despite Brazil's established record in shipbuilding, leaders recognize that the sophisticated technology required for a nuclear-sub hull will have to be acquired abroad. In pursuit of partners, the ministers of defense and of strategic affairs, Nelson Jobim and Roberto Mangabeira Unger, along with Admiral Moura Neto, have traveled to France and Russia to discuss cooperation on manufacturing in Brazil.

Reportedly, the Russians expressed a willingness to sell a submarine, but they disappointed Brazilian officials by refusing to share the technology to build one. Visiting Brazil in December 2008, French President Nicolas Sarkozy signed a "strategic partnership" agreement providing for transfer of technology to Brazil for construction there of four diesel-powered Scorpine attack submarines as well as joint development of the hull for a nuclear submarine. An announcement by the Brazilian Ministry of Defense emphasized that Brazil would develop all of the nuclear part. The naval component of the bilateral agreement was reported to be worth U.S. $5.7 billion.

Strategically Speaking

President Lula's comments about past difficulties in funding military modernization during economic lows reveal only one aspect of the history. Civilian political leaders, especially those of the center left including the President's Workers' Party, were not anxious to provide resources to the same military establishment that suspended democratic practices and ruled Brazil from 1964 until 1985. Many politicians still smart from that period's physical and political abuses.

Defense Minister Jobim explained to the Chamber of Deputies that nuclear submarines would be used to protect offshore oil platforms. Carrying the point further, Vice President Jose Alencar said that Brazil needed to "produce and employ nuclear submarines in its naval fleet to protect riches located on the continental shelf and discourage any aggressive foreign actions in Brazilian waters."3 He explained that the country was unprepared to patrol adequately an area of more than 4 million square kilometers, and that nuclear submarines would give the country a deterrent capability that it lacked. Alencar specifically rejected rumors in the press that the 2008 U.S. reactivation of it 4th Fleet, which had aroused intense concern in some circles, had figured in the Brazilian decision to acquire nuclear submarines. While Brazil's overall relations with the United States have been cordial, and the two countries enjoy a strong commercial relationship, fear of domination from the North is an enduring feature of the Brazilian political psyche.

The main characteristics that distinguish nuclear submarines from other naval platforms are their ability to stay submerged for long periods and to operate over great distances without refueling. So natural questions are whether these attributes are relevant to the proposed missions, and whether investment in these submarines is a cost-effective approach. Four missions seem possible: the two stated purposes plus two potential uses.

Protection of Offshore Oil Platforms: Submarines are not well suited to this task. Other options include surface ships and maritime patrol aircraft. Lula recently underscored the importance of constructing patrol boats for this purpose. A fleet of small, fast surface ships could be built for the price of a single nuclear submarine and would also present a visible deterrent to anyone attempting to jeopardize Brazilian control of the platforms. A submarine could be effective in collecting evidence of criminal activity against underwater installa-

tions, including oil pipelines, should that be a problem.

Patrolling the Exclusive Economic Zone: A nuclear submarine, with its stealth and speed, could exemplify the defense minister's concept of mobility by permitting an actual presence instead of merely "being able to be present."4 However, these attributes are not unique to nuclear submarines, which carry high costs for acquisition, training, and maintenance. Recognizing that the sub would be but one element of coastal patrols, Admiral Moura Neto described it as useful because it can "remain permanently under the water; only the human factor restricts it in terms of crew fatigue, etc."5

This mission has received high priority, as described by Rear Admiral Antonio Ruy de Almeida Silva. When he was director of the Brazilian Naval War College, he wrote:

The Navy has actually strongly defended a larger participation in the effort to protect the maritime area under national jurisdiction, suggestively named Amazania Azul (the Blue Amazon). Keeping control of this maritime area is a big challenge that grows as sea-related activities, connected to the exploitation of living and non-living resources, increase as happens with oil exploration in the Brazilian continental shelf.6

The term Blue Amazon picks up on the long-standing Brazilian preoccupation that a paucity of state presence in the vast Amazon Basin (the Green Amazon) represents a vulnerability to foreign exploitation. The navy has sought to make the parallel point that maritime domain awareness must be increased, along with other measures to defend Brazil's maritime space. The National Defense Strategy lays great stress on stronger defense of the Amazon region, both inland and offshore.

Deterrence of a State Threat: The stealth of nuclear submarines suits them ideally to the deterrence mission, a fundamental assumption of the National Defense Strategy according to Defense Minister Jobim. But there has been little, if any, public discussion of a threat that needs to be deterred in the way that might involve a nuclear submarine. Aside from its combat division fighting with the U.S. Fifth Army in Italy in 1944, the country has not engaged militarily with a foreign country in well over a century.

Submarines are ideal platforms for defending against other subs, and a case could be made that Venezuela's recent agreement with Russia to acquire modern diesel submarines presents a hypothetical threat to Brazil during the next 40 to 50 years, the projected lifespan of new nuclear submarines.7 Latin American leaders have been reticent to discuss any anxieties about their neighbors. Not surprisingly, Jobim categorically denied that Brazil would start an arms race with Venezuela.

Power Projection and Protection of Sea Lines of Communication: Whatever has motivated Brazil's program, its success would give the country a strategic capability to project power to help friends or deter adversaries anywhere in the world. In current foreign policy, aspirations to use this capability at long distances from the coast are not evident. But the ability to do so could influence the thinking of a future government. One contingency that could be developed would be greater naval involvement with African countries bordering the South Atlantic, which participate in the South Atlantic Peace and Cooperation Area. This was created in 1986 at Brazil's initiative, through a resolution in the United Nations General Assembly.

Additional Likely Considerations

Technological Development and Military Exports: The new document identifies restructuring of Brazil's defense industry as a principal objective, calling it "inseparable from national development strategy." President Lula linked this to the nuclear submarine program, possibly hoping to replicate the success of Embraer (Empresa Brasileira de Aeronautica SA). That company developed an aircraft industry that adapted military technology to civilian uses. In 1969, the air force led the effort to create a company to build and export its military-designed Bandeirante commuter aircraft. In that case, "An aeronautics industry was justified as necessary to facilitate the continued growth and expansion of the nation. An aerospace complex was a sign of industrialization and international prestige."8

Recognizing a symbiosis between military and industrial development, the Franco-Brazilian agreement on submarine construction provides for the transfer of French technology to not only the navy but also Brazilian firms, of which there are 30 supplying 36,000 items. It also envisions construction of a shipyard dedicated to the manufacture of nuclear submarines, and a new base for their use.

The defense minister emphasizes the strategic importance of a capable national-defense industry with autonomous technology. Discussing the new strategy, the minister of strategic affairs, Mangabeira Unger, said Brazil "wants to build a state-of-the-art weapons industry, one that would become an active exporter of arms."9 That aspiration recalls the not-so-distant past. Arms exports have declined in recent years, but between 1975 and 1998, Brazil exported U.S. $963 million worth of military aircraft, along with armored vehicles valued at $1.7 billion. The nuclear submarine project, because of the dual-use nature of its reactor development, has been touted as holding the promise of enhancing both civilian and military exports.

Politics, Respect, and the United Nations Security Council: The new defense strategy can also be seen as a step in the implementation of an increasingly proactive foreign policy. One objective of this policy is to increase Brazil's international influence by fulfilling a longtime aspiration: a permanent seat on the U.N. Security Council. Since reform of the United Nations came to the fore under the sponsorship of Secretary General Kofi Annan in the early 2000s, Brazil emerged as a prime candidate, along with Germany, India, and Japan, albeit without the veto right of the original five permanent (P-5) members. All the new candidates made the case that their countries had far greater prominence than when the United Nations was founded. But in each case, regional rivals have posed objections to their selection as permanent members of the UNSC.

Opposition to Brazil's candidacy has come from Mexico, Chile, and Argentina. Argentina has proposed a permanent seat for Latin America, the occupancy of which would be rotated among regional countries.10 Brazil's leadership of the U.N. stabilization mission in Haiti was seen as a way to burnish its claim. Like Brazil, Argentina and Chile have participated in U.N. peacekeeping operations, but Mexico has not.

If permanent membership were increased to include Brazil, Germany, India, and Japan, the Security Council would encompass all of the 9 largest national economies in the world. India and Brazil represent the second and fifth most populous countries respectively. Together with the P-5, the 9 countries rank among the 12 with the largest military expenditures. Of the candidates, only India has nuclear weapons. The P-5 all have nuclear ballistic-missile and attack submarines in their force structures. India reportedly plans to lease a nuclear attack submarine from Russia while it builds another.

Brazil's acquisition of a nuclear submarine capability would add an argument to the case that it so far exceeds the strength of its regional neighbors that it is a natural choice for a permanent seat. Speaking on the Day of the Sailor, Lula said that with the sub, "in a few years, Brazil will be one of the select group of nations that possess this indispensable capability for effective deterrence."11 Brazil's sponsorship of the recently formed South American Defense Council can partly be seen as a diplomatic attempt to enhance its influence with neighbors. Figure 1 shows the relative strength of the countries' major attributes at this time.

A Challenge to Brazil: Building a nuclear submarine represents a substantial capital investment for a country still facing major developmental challenges, in which about a third of the population lives below poverty level. Expenditures for acquisition of the sub would be only the beginning of outlays, with the cost of educating the cadre required to develop and staff the vessels following closely.

Operation and maintenance would also pose challenges, especially in light of the considerable expense of maintaining safety in a nuclear propulsion plant. On this point, other countries with subs have an interest in the safety of Brazil's, because an accident could adversely affect the way nuclear propulsion is perceived elsewhere. On the other hand, the country has a positive record to date of handling nuclear power, as mentioned previously.

The resource requirements of the Brazilian program will compete with other priorities in its military. Some well-placed commentators have noted that the major powers resolved in the second half of the 20th century to reject conventional submarines and opt for nuclear propulsion. Yet, they argue, "conventional submarines are cheaper, more economical to maintain and operate, quieter and more versatile than nuclear submarines."12

In a democracy, those wishing to justify an expensive new public program employ all relevant arguments. For Brazilians, technological advancement and export potential are strong considerations, just as they are in the United States. The appealing symbolism of acquiring cutting-edge technology to enhance a country's international prestige is understandable and normal.

The fact that the implications of nuclear subs for Brazilian maritime strategy are not clear at this time does not mean that they will not be important in the future. Such platforms and especially their ability to project the lethal power of torpedoes and cruise missiles anywhere in the world would outflank other Brazilian naval capability and could provide the impetus for an aggressive program to acquire complementary assets to support a strategy of global power projection.

This development would reflect-or could drive-a major reformulation of Brazil's grand strategy. Conversely, the nuclear submarines could end up as symbols of a technological achievement without a correspondingly significant change in military strategy. That symbolism could be reminiscent of the world tour of Theodore Roosevelt's Great White Fleet, which heralded the arrival of a nascent power with the prosperity and industrial prowess to operate globally. Although a nuclear submarine is stealthy by nature, its surfacing in a distant port could rapidly signal Brazil's achievement of a new level of prominence.

Robot Submarine Dives To The Deepest Part Of The Ocean Controlled By A 7-Mile Cable As Thin As Single Human Hair

By Claire Bates, Daily Mail (United Kingdom), June 4, 2009

A robotic submarine has dived 6.8miles to reach the deepest known part of the ocean, becoming just the third craft in history to explore the Mariana Trench in the western Pacific Ocean.

Scientists hope the craft will help them answers some of the 'big questions' such as the relationship between the sea floor and climate change.

The unmanned craft dubbed Nereus after a Greek sea god, withstood pressures 1,000 times that of the Earth's surface during its voyage on May 31st.

It spent more than 10 hours hovering 'like a helicopter' near the bottom and was remotely operated by pilots aboard a surface ship via a lightweight fibre-optic tether as thin as a human hair.

This allowed the robot to send back live video to the ship and to collect samples with its manipulator arm, which experts hope will reveal more about tectonic plate collisions.

It weighs nearly three tons in the air and is about 14 feet long and nearly eight feet wide. It is powered by more than 4,000 lithium-ion batteries.

It was developed by the Woods Hole Oceanographic Institution - a private and non-profit research company based in America.

Robot sub developer Andy Bowen said: 'Reaching such extreme depths represents the pinnacle of technical challenges and the team is very pleased Nereus has been successful in reaching the very bottom to return imagery and samples from such a hostile world.'

Traditional robotic systems use steel-reinforced cables to power the vehicle but such a cable would snap under its own weight in the Mariana Trench. Instead a fibre-optic cable similar in diameter to a human hair was used, covered with a thin protective jacket of plastic.

The Nereus was diving off the coast of the Philippines

Much of the ocean's depth remains unexplored and WHOI scientists hope the Nereus will provide a unique tool to gather images and samples from virtually anywhere under the waves.

WHOI biologist Tim Shank said: 'Our true achievement is not just getting to the deepest point in our ocean, but unleashing a capability that now enables deep exploration, unencumbered by a heavy tether and surface ship, to scientifically investigate some of the most dynamically-rich geological and biological systems on Earth.'

In the latest dive Nereus studied the Challenger Deep in the Mariana Trench which forms the boundary between two tectonic plates. Here the Pacific Plate is subducted beneath the small Mariana Plate.

It is also part of the Pacific Ring of Fire, a 25,000-mile area where most of the world's volcanic eruptions and earthquakes occur.

Louis Whitcomb from The Johns Hopkins University who developed the sub's navigation system said: 'We hope that Nereus will help scientists investigate some of the 'big questions' of our time - questions of vital societal importance such as the relation between seafloor dynamics and global climate change. '

Only two other vehicles have succeeded in reaching the trench: the U.S. Navy-built bathyscaphe Trieste, which carried Jacques Piccard and Don Walsh there in 1960, and the Japanese-built robot Kaiko, which made three unmanned expeditions to the trench between 1995 and 1998.

Neither of these is presently available to the scientific community. Trieste was retired in 1966, and Kaiko was lost at sea in 2003.

Russian Boomers Bumble Along

StrategyPage.com, June 3, 2009

Only eight of the twelve existing Russian Delta IV SSBNs (ballistic missile nuclear subs, or "boomers") are available for service. Russia wants to have about a dozen of the new Borei class boats, to replace the current Delta IV class SSBNs. The Delta IVs are getting old, and have only about a decade of useful service left. Currently, it appears that the navy will get at eight Boreis. These new boats are expensive, and the navy wants to build some aircraft carriers.

There are still more delays for the new Russian Borei class SSBN. This boat, the Yuri Dolgoruky, was launched over a year ago, and was to have begun sea trials late last year, then in January of this year, then by the end of May. It still hasn't happened. Major delays were introduced because of an accident on a new Akula SSN last November. There, a sailor hit the wrong switch and accidently triggered a fire suppressant system in a compartment where several dozen people were sleeping, killing twenty of them. The safety system was poorly designed, making it too easy for someone to do what the sailor did. Such design problems are common in Russian ships, and the additional months of inspections and modifications for the Borei is another attempt to eliminate such problems. There were also some problems with welds on the hull, and the nuclear power plant.

The first of its new Borei class subs was moved to a dry dock two years ago, for additional work. This ship, the Yuri Dolgoruky, was supposed to have been launched three years ago. But there were technical problems that delayed it until now. Construction of the Yuri Dolgoruky began thirteen years ago, but money shortages, and technical issues, slowed progress.

The first of three new Borei Class boats will be based in the Pacific, sometime early in the next decade. During the Cold War, most of Russias SSBNs were based in the north, at several bases east of the Norwegian border, and facing the Arctic ocean. But now Russia is spending over $350 million to expand and improve its submarine base on Kamchatka island. This will enable its new SSBNs to threaten China, as well as the United States.

This is the first new Russian boomer to enter service in 18 years, and the first new Russian sub design since the end of the Cold War. The second ship in the class, the Alexander Nevsky, is also nearing completion. Construction on the third, the Vladimir Monomakh, began two years ago.

The Boreis are closer in design to the Delta IVs, than to the more recent, and much larger, Typhoon boats. The Boreis are 558 feet long and 44 feet wide. Surface displacement is 15,000 tons, and twelve Bulava SLBMs (Sea Launched Ballistic Missile) are carried. Work on the Yuri Dolgoruky was delayed for several years because the first missile being designed for it did not work out. A successful land based missile, the Topol-M, was quickly modified for submarine use. The Bulava was a larger missile, cutting the Boreis capacity from twenty to twelve missiles. The boat also has four torpedo tubes, and twelve torpedoes or torpedo tube launched missiles. The Borei also sports a huge sonar dome in the bow.

The Boreis have a crew of 107, with half of them being officers (a common Russian practice when it comes to high tech ships like nuclear subs). Each of these boats will cost at least two billion dollars. This high cost, by Russian standards, is partly because many factories that supplied parts for Russian subs were in parts of the Soviet Union that are not now within the borders of present day Russia. So new factories had to be built. All components of the Boreis, and their missiles, will be built in Russia. A dozen (or eight) of these boats probably won't be completed for at least a decade.

Another problem is the reliability of the new Bulava missile, which, so far, has failed five of its ten test launches. The Bulava is believed to be fundamentally sound, but it could be another year, or more, before all the kinks are worked out. The Yuri Dolgoruky might be ready before its ballistic missiles are, which is not unusual for a new class of SSBN, carrying a new missile.

Welding Inspector Admits Falsifying Reports, Says He 'Made A Big Mistake'
By Peter Frost, Daily Press, June 2, 2009

NEWPORT NEWS - The welding inspector accused of falsifying reports at Northrop Grumman Corp.'s Newport News shipyard admitted on Monday that he signed off on the quality of welded joints on U.S. Navy vessels that he didn't inspect.

Robert Ruks, who began as an inspector at the local yard in 2005, said he regrets his actions but didn't offer an explanation as to why he falsified the documents.

"I made a mistake. I made a big mistake," Ruks said in an interview with the Daily Press. "I'd just like to get this over with and leave my family out of this."

Ruks, who said he is about 30 years old, confirmed he'd been fired from his job after admitting to a supervisor that he didn't complete inspections on at least three welds despite having filed paperwork indicating he had done so.

He confirmed that he was contacted by the Naval Criminal Investigative Service, also known as NCIS, the federal agency investigating the issue. Ruks said he is cooperating with NCIS and is unsure if he will face any charges as a result of the probe.

In his four years as an inspector at the shipyard, Ruks worked on at least 13 Navy vessels being built or repaired in Newport News - including four carriers and nine submarines - according to the Navy. The majority of his inspections were performed on submarines.

During that time, Ruks, an hourly employee who worked on the first shift, inspected and signed off on thousands of structural and piping welds, the Navy said.

Each Navy vessel built in Newport News requires hundreds of thousands of welds to construct. Inspectors like Ruks follow welders and fitters, using special equipment to determine if the welds are completed correctly. They look for cracks and other imperfections that could threaten the long-term integrity and stability of joints.

Because Ruks admitted to not inspecting some of the welds he was assigned to scrutinize, the Navy and the shipyard have no way of knowing if those welds are structurally sound.

When asked how long he had been falsifying documents and whether his inspections included welds on critical systems of submarines, such as the hull, ballast tanks or internal piping, Ruks declined to comment, saying he didn't want to anger the shipyard by releasing details of an ongoing investigation.

Northrop, which did not confirm Ruks' identity on Monday, said on Friday that the welding inspector admitted on May 14 to signing off on three weld inspections without having performed them. The company said a co-worker told Ruks' supervisor about the falsified documents.

Northrop told the Navy about the problems a day later, prompting a joint probe that will stretch far beyond the three welds found to be uninspected.

"All of the welds inspected by this inspector are being evaluated," said Patricia K. Dolan, a Navy spokeswoman.

Along with submarine-building partner General Dynamics Electric Boat, Northrop must submit a weld reinspection plan to the Navy. Once the Navy grants its approval, Northrop and Electric Boat will be responsible for conducting the inspections, Dolan said.

Margaret G. Mitchell-Jones, a Northrop spokeswoman, declined substantive comment on the specifics of the investigation but said the company is cooperating with the government.

The company has classified the falsified documents as an isolated incident.

Ruks seemed to confirm the shipyard's assessment. When asked if other inspectors routinely falsified documents related to weld inspections, Ruks said: "As far as I know, no one else did this. No one else was involved in any way."

The former inspector, who has yet to find another job pending the outcome of the NCIS probe, declined to offer any other specifics on the case, other than to say: "I feel bad about what I did, especially in regard to submarines. I just want this to be over."

What happened

Robert Ruks, a former Northrop Grumman weld inspector, admitted to signing false reports on welds he did not inspect.

What's next

The Naval Criminal Investigative Service, or NCIS, is investigating the issue to determine whether to take action against the worker or the company.

Ohio Radio Club Remembers World War II Submarine
By the Associated Press, Dayton Daily News, June 1, 2009

CLEVELAND - Bill Chaikin leaned forward and stretched out his right arm, his shoulders nearly brushing the dusty radio equipment filling the cramped room inside the steel hull. He set three fingers on a nearby telegraph key and started fishing.

His digits danced down and up and down again, drumming out a call in dots and dashes: "This is the World War II submarine USS Cod. W-8-C-O-D ..."

The South Euclid man pressed on for more than a minute, then listened for someone to tap back. It didn't take long.

"When you get out there and say you're in a submarine," Chaikin said, "everyone wants to talk to you."

It's the bait that Chaikin and others in an amateur-radio club use to share the story of the Cod, which patrolled the South Pacific from 1943 until the war ended two years later. It sank dozens of enemy ships, including a Japanese destroyer, during seven missions through the salty waters.

Today, the decommissioned vessel - the only unmodified U.S. submarine of its era - spends its days moored on Lake Erie near the East Ninth Street pier. This year marks its 50th anniversary in Cleveland.

But that past ... it shouldn't be forgotten, said Chaikin, 52, an Army veteran who signed on at the Cod a decade ago.

So the club members sign on most weekends from the submarine's radio room, throwing out a line to other radio operators. The crew made more than 650 contacts - some via Morse code, others by voice - around the globe last year.

On a recent Sunday, Chaikin chatted with more than a dozen radio operators in a few hours and dropped details of the Cod in each exchange. An operator in Eureka, Mont., learned that the submarine spent 415 days on patrol. Another in Hollywood, Calif., heard about the Cod's 88,254 miles sailed.

"That's just amazing to have a station like yours out there," the California man said.

The radio operators in the club know they're lucky, too: "How many other guys have a World War II submarine as their clubhouse?" said Tom Gimmartino, 46, of Lakewood, a five-year member. "It really is incredible to sit in here and go out on the air."

The radio equipment in use is almost all vintage, right down to the long-wire antennae strung 8 feet over the submarine's decking. It stretches 85 feet along the starboard side.

The main difference today? Primarily, the work conditions.

"Nobody's dropping charges on us," Chaikin said.

More than 3,600 men died aboard the 52 U.S. submarines declared "overdue and presumed lost" after not making it back to base during World War II. Roughly one of every five submarines deployed ended up lost at sea, according to the Navy. American submariners suffered the highest casualty rate in the military.

It's that sacrifice that the radio operators try to honor by keeping the Cod's radio crackling.

"It's about respect," said Bill Lewis, 52, of Garfield Heights, an Army veteran who started using the Cod's radio five years ago, "respect for the guys who did this when it counted."

Documentary On World War II Submarine Brings Answers

Manitowoc-Built Sub Was Lost In 1945

WISN.com, June 1, 2009

MANITOWOC, Wis. - In 1945, a Navy submarine was lost at sea. For six decades, there was no word on the crew's fate.

It's a real-life mystery with roots in Wisconsin.

The USS Lagarto, which was build in Manitowoc, was finally found in 2005, bringing a lost part of the Wisconsin coastline's deep maritime history to life. It is now the subject of a documentary that aired on public television last week.

"Manitowoc was renowned for ship building," said Norma Bishop, executive director of the Wisconsin Maritime Museum. "(It) had been building since the days of the schooners."

That reputation put Manitowoc on the map with the military. In the buildup to World War II, the military came calling. Other military vessels had already been built in Manitowoc, but an unusual request was made. The war department wanted submarines, and it wanted them made in Wisconsin.

"The department wanted a port that was inland, relatively safe from attack unlike the coasts where they were manufacturing most of the vessels," Bishop said.

The people of Manitowoc got to work, averaging about one submarine a month - 28 in all. But four of those subs never made it back from battle.

Bill Kenney's grandfather was among those lost on the Lagarto, one of those four subs.

"That was always the biggest recollection that I had was people would say, 'Oh my God, you look so much like your grandfather,'" Kenney said.

Other people's accounts are all he has to go on. His grandfather, Bill Mabin was a signalman on the USS Lagarto. When it vanished in early May, 1945, Mabin was a young man with a wife and toddler back home.

"He was this guy that went and fought very bravely, valiantly for our country," Kenney said. "I just always associated him with movies I would see - war movies that I might have seen with my dad as a kid. I would say, 'God, that must be what my grandfather was like.'"

Answers came to the surface 60 years after the crew disappeared. To find Lagarto, Wisconsin submarine veterans used Japanese war records to narrow down coordinates. A diver they hired then talked with fishermen who lost their expensive nets in the gulf of Thailand. Chuck Coppola, a journalist and filmmaker, was part of the team that worked with the Wisconsin maritime museum to create a documentary about Lagarto.

"He lined up all the coordinates of all the people he spoke with and the Japanese war records and on his very first dive he found the USS Lagarto," Coppola said.

The team brought in technical divers and videographers to spend several days beneath the surface, grabbing every picture detail possible of the 300-foot sub.

"(We wanted) to try and determine what happened," Coppola said. "What caused this submarine to never come back? And more to the point, why didn't anyone try to escape? None of the hatches were open, and this was in waters that it was possible to escape in."

Just more than 200 feet down, Lagarto is now a sacred resting place. She sits upright, with a rupture in the portside bow - an apparent wound from a depth charge. Lagarto spent less than a year at sea. Its demise came in the final months of the war.

"It's not just a World War II submarine, Bishop said. "It's about families who send their loved ones off, fretting and worrying for them, realizing that they have to make the sacrifice and hoping it will not be the ultimate one."

It would be the ultimate sacrifice for the 86 man crew and their families.

Exploring Lagarto taps into six decades of mystery. The discovery closes one door and opens another. Bill Kenney is learning more about the grandfather he never knew and his mother is learning about the father she lost.

"It was important for her to know where his final resting place was," Kenney said. "It was important for her to know that the submarine went down fighting. So it really was from the standpoint of how it affected my mom and giving her that kind of comfort that she needed."

Bill's brother and sister were both able to go with the film crew to the sub's location. Bill said he would love to go to the spot himself, but it would be tough. It's a massive undertaking to get to the middle of the Gulf of Thailand. The important thing is his family and all the others now know where the submarine came to rest.

Every year, the Lagarto families get together in Manitowoc.

The documentary, "Lost and Found: Legacy of USS Lagarto," aired several times last week on public television.

Editor's note: A video story that accompanies this story can be found at this link: http://www.wisn.com/video/19622372/index.html

Iran Commissions Stealth Submarine

UPI, June 1, 2009

BANDAR ABBAS, Iran - Iran commissioned three new Ghadir-class submarines for its naval fleet at a Monday ceremony, bringing the total number of the sonar-evading vessels to seven.

Iranian Defense Minister Mostafa Mohammad Najjar turned the three submarines over to naval officials at the Bandar Abbas port city near the Straits of Hormuz.

Reports of the submarine in the Iranian Student News Agency say the launch is an effort to "arm the military with new strong capabilities."

The Ghadir class is a smaller vessel with a displacement of around 120 tons. The semiofficial Fars News Agency in 2007 said the Ghadir class was equipped with stealth technology.

The news comes amid a flurry of Iranian defense activity. Iran in May inaugurated a production line for a military hovercraft, dubbed the Younes 6.

Meanwhile, Iran announced the military production of some 20 other military devices, including laser systems and electronic warfare devices. Production also began on a 40mm anti-cruise cannon dubbed Fath, which is capable of reaching targets as far as 7 miles away with a firing rate of 300 rounds per minute.

The Sejjil-2 surface-to-surface solid-fuel missile, meanwhile, was launched in May with a range capable of reaching Israel.

Home-Made Submarine Joins Iran's Naval Fleet

Fars News Agency (Iran), June 1, 2009

TEHRAN - An Iranian home-made submarine, named Ghadir 948, joined the naval brigade of the First Zone of the Iranian Navy on Monday.

Speaking on the sidelines of a ceremony to mark the launch of operation of Ghadir 948 submarine, Iranian Defense Minister Brigadier General Mostafa Mohammad Najjar said, "The Islamic Iran has succeeded in making great achievements alone and through reliance on domestic knowledge in a way that it has caused surprise among leaders of the arrogant powers."

He referred to the capability of the Iranian defense ministry in designing, manufacturing and supplying different types of weaponry to the armed forces, and said the expert personnel of the ministry are capable of supplying all types of needs of the Navy, Air Force and the Ground Force 100% domestically.

Describing enemies' efforts in the last three decades since the Islamic Revolution to deter Iran's progress, Najjar stressed that these pressures caused the country's progress and development in political, economic, military and defense fields.

He also underlined that developing technologies in different areas, including production of missiles, artilleries, submarines, naval vessels and others, requires the participation and exchange of information and experience among several countries in the West, but "Iran

could gain those technologies through reliance on Iranian specialists".

In November, Iran announced that its first domestically built Ghadir class submarine launched operation.

The Iranian military said that the submarine can easily evade detection as it is equipped with sonar-evading technology and can fire missiles and torpedoes simultaneously.

The navy chief, Rear Admiral Habibollah Sayyari said in November that Ghadir-class submarines are the second Iranian-built underwater craft outfitted with "state-of-the-art electronic equipment." He said it took 10 years to build the submarine.

Iran has been pushing an arms development program in recent years in a bid to reach self-sufficiency. It has produced its own jet fighters and armored vehicles as well as radar-avoiding missiles and other high-tech weapons.

Last week, the Iranian defense minister inaugurated the production line of home-made Younes 6 hovercrafts.

During the Younes 6 production inauguration ceremony, Najjar said that production of military tools and equipment in the country has tripled in recent years following proper planning by his ministry.

Also two weeks ago, Iran started production of 30 important military tools and equipment, including electronic, telecommunication and radar devices.

"These new production lines and products are related to electronic warfare, anti-electronic warfare, radar and sonar systems, air and sea cruising and positioning, electro optical and laser systems and different advanced and thermal night goggles, military communication and simulators," Najjar stated during an inaugural ceremony held for the launch of operation of the production lines of the said devices.

Najjar reiterated at the same ceremony that Iran has produced advanced electronic warfare and anti-electronic warfare and radar systems, including information gathering, wiretapping, orientation, spotting and positioning systems which operate in different (radio) bands, process different kinds of information and have the capability to identify enemy data, spot enemy transmitters and confuse or paralyze them.

Fear and Loathing in the Post-Naval Era

By Barrett Tillman, Naval Research Institute, May 29, 2009

Since the United States has not fought a real naval battle since World War II, justifying the high cost of a large Fleet of warships and aircraft is a tall order.

Why do we have a Navy?

You have to hunt for it on navy.mil, but the official Web site states: "The mission of the Navy is to maintain, train and equip combat-ready naval forces capable of winning wars, deterring aggression and maintaining freedom of the seas." In the current political environment, however, a more pointed question is: "Why do we have such a big Navy when we hardly ever use it?"

If that question has not been asked since the 2008 election, stand by. It is certainly going to be posed before next year's midterms. But it is more likely to be phrased as: "What do we get for the hundreds of billions of dollars we pay for having a Navy and Marine Corps?"

Currently, the Navy inventory includes some 280 combatant, logistics, and support vessels, plus 3,700 aircraft. But-more important to many-We the People employ 340,000 active-duty Navy personnel and 68,000 reservists plus 175,000 active-duty Marines and 39,600 reservists. This is not to mention185,000 Navy Department civilians.

The current administration is on record as advocating a reduction in military spending between 10 and 25 percent, preferring to rely on diplomacy in hot spots such as Afghanistan, Iraq, and Iran. Early this year Representative Barney Frank (D-MA), chairman of the House Finance Committee, wrote:

It is possible to debate how strong America should be militarily in relation to the rest of the world. But that is not a debate that needs to be entered into to reduce the military budget by a large amount. If, beginning one year from now, we were to cut military spending by 25 percent from its projected levels, we would still be immeasurably stronger than any combination of nations with whom we might be engaged.

President Barack Obama was less specific after the election, posting identical statements about naval policy on his personal and White House Web sites:

We must recapitalize our naval forces, replacing aging ships and modernizing existing platforms, while adapting them to the 21st century. Obama and Biden will add to the Maritime Pre-Positioning Force Squadrons to support operations ashore and invest in smaller, more capable ships, providing the agility to operate close to shore and the reach to rapidly deploy Marines to global crises.

The White House site did not address specifics about spending levels or percentage of reductions, but blue-water operations are notably absent from the President's naval agenda.

Clearly, the threat to America's conventional naval force structure looms hull-up on the political horizon. The question for naval professionals and their supporters therefore becomes: How do we justify a large blue-water Navy that has not fought a war at sea in three generations?

Hard Aground

If we found ourselves with 320 ships tomorrow, what would we do with the extras? Or, in the public relations arena, does it

even matter? Where public opinion counts, it's not hard to conclude that perception trumps reality. As the popular Internet mantra says, "The Army and Marine Corps are at war. America is at the mall." So where does that leave the Navy?

To many observers, it leaves the service hard aground in the post-naval era. If "the naval era" is defined as the era of sea control, it ended in 1945-the last year of Fleet-size combat operations. Because the most recent sea battle worthy of the name occurred in October 1944, we are now into the seventh decade of the post-naval era.

The global war on terrorism is essentially a rifle fight. As much as partisans rankle at the notion, navies are largely irrelevant to its conduct, and the Air Force has been marginalized. In fact, unmanned aerial systems represent the growth industry, approaching the importance of manned aircraft. Meanwhile, the air superiority mission is nearly extinct: American pilots have shot down only 55 hostile aircraft in 36 years, the last one in 1999.

But the problem extends far beyond hardware to the fundamental realm of roles and missions. In a revealing document, the Department of Defense does not consider conventional warfighting a priority-land, sea, or air. In fact, the 2006 Quadrennial Defense Review listed four missions under "Operationalizing the National Defense Strategy":

Defeating terrorist networks.
Defending the homeland in depth.
Shaping the choices of countries at strategic crossroads.
Preventing the acquisition or use of weapons of mass destruction.

An inbound question, low and fast out of left field: If not even DOD is concerned about conventional warfare, why do we persist in building a warfighting Fleet? We need to ask that question of ourselves so we can attempt to answer it when it's inevitably raised by doubters with their hands on the purse strings.

Clearly the Navy has a public-relations problem, since the taxpayers have opted for "change," including less military spending. Shaping public opinion to support the current force structure poses a daunting task, tacitly admitted in the Navy's official PR vehicle, an annual presentation depicting the service's activities. The 2008 version contains some 118 images, of which four involved firing live ordnance (none in combat) while 20 or more depicted humanitarian or relief missions.

It was not always such.

Centuries of Combat

During the 16th through 18th centuries, conflict at sea was more or less constant. It peaked in the 17th century when naval actions occurred in at least 79 of those 100 years. Following Trafalgar in 1805, sea battles or engagements diminished with the Royal Navy's supremacy but still occurred in at least 27 of the next 65 years, from Asia to North America.

No naval actions since 1945 have required combat fleets to protect sea lanes-the very reason navies exist. Instead, light forces have proved most useful, escorting tankers in the Persian Gulf and currently combating pirates off Africa. Meanwhile, only isolated engagements have occurred in odd places at random intervals. In 1967 the Egyptian Navy inaugurated the missile age in war at sea by sinking an Israeli destroyer, but there have been no naval surface-to-surface missile engagements since. In the 1971 Indo-Pakistani clash, the Indians sank a French-built Paki submarine, and one of her sisters torpedoed a British-built Indian destroyer.

More than ten years later off the Falklands, HMS Conqueror torpedoed the 44-year-old cruiser General Belgrano, which had survived the Japanese attack on Pearl Harbor as the USS Phoenix (CL-46). It was the second and last time since World War II that a submarine had sunk an enemy ship.

In 1988, U.S. Navy ships and aircraft conducted Operation Praying Mantis, sinking an Iranian frigate, a gunboat, and three speedboats. The captain of the USS Enterprise (CVN-65) termed it "the largest American sea battle since World War II." Though a grandiose description, it was nonetheless accurate-and remains so today.

Pundits might counter the notion of the post-naval era by noting that amphibious operations have occurred since World War II. But they are rare: the most notable subsequent cross-beach operations were Inchon (United States, 1950), Suez (Anglo-French, 1956), and the Falklands (British, 1982), and none was seriously opposed on the beach. A forced entry such as Tarawa or Iwo Jima has not occurred in 64 years and does not appear likely in the immediate future. Consequently, some critics question the need for the Marine Corps' new expeditionary fighting vehicle (EFV). Indeed, the Marines emphasize aerial lift to avoid the fight at the high tide mark, hence the tiltrotor MV-22 Osprey.

Deterrence and Presence

In the absence of power projection, navies default to lesser tasks. "Presence" is an age-old naval mission, better known as "showing the flag." More colorfully, it was called "gunboat diplomacy," with the duty gunboat or (in especially touchy situations) a naval squadron appearing offshore to quell restless natives or opponents with a show of force.

The U.S. Navy's Cold War mission of deterrence largely vanished with the collapse of the Soviet Union 20 years ago. The reason is disturbingly simple: there is no peer opponent to be deterred. That leaves the service with a reduced menu of options for justifying its enormous expense.

Moreover, if you get Sailors and Marines aside and ask them about their military experience, many express dissatisfaction. They allude to disaster relief as "pizza delivery" - not the reason they enlisted.

What, then, is the purpose of "this people's Navy," and how should it be employed? Moreover, how has the use of a navy been

perceived throughout history?

In his 1987 treatise, The Western Way of War, Victor Davis Hanson described Greek hoplite influence on Western military thought, emphasizing the concept of the decisive battle. The Hellenic states of the 4th century BC regarded decisive battle as necessary, avoiding prolonged attrition and adverse agricultural-economic effects. No less was true of Western naval thought, epitomized in the early 20th-century doctrine of a decisive battle, whether in the North Sea or mid-Pacific. The world's leading navies accepted the idea, building ships, fleets, strategy, tactics, and doctrine around it. For Imperial Japan, it led to disaster at Midway in June 1942.

Whatever the doctrine, institutional knowledge of war at sea is a precious commodity, increasingly rare: the junior officers who fought at Leyte Gulf retired between the 1960s and the early 1980s. The average American World War II veteran was born in 1919, making the median age 90 at this writing while the teenaged Sailors of VJ-Day now are in their early 80s. Therefore, personal knowledge of such events is vanishing at an accelerated rate and will be gone in a decade. While few would claim that the specifics of the Leyte Gulf battle apply in the 21st century, Navy supporters should realize that as "the greatest" officers and Sailors depart the scene, so does much of the population disposed to support the service politically. (Only about one-third of Naval Institute members were alive in 1944.)

The China Scenario

In attempting to justify a Cold War force structure, many military pundits cling to the military stature of China as proof of a possible large conventional-war scenario against a pseudo-peer rival. Since only China possesses anything remotely approaching the prospect of challenging American hegemony-and only in Asian waters-Beijing ergo becomes the "threat" that justifies maintaining the Cold War force structure.

China's development of the DF-21 long-range antiship ballistic missile, presumably intended for American carriers, has drawn much attention. Yet even granting the perfection of such a weapon, the most obvious question goes begging: why would China use it? Why would Beijing start a war with its number-two trading partner-a war that would ruin both economies?

Furthermore, the U.S. Navy owns nearly as many major combatants as Russia and China combined. In tonnage, we hold a 2.6 to 1 advantage over them. No other coalition-actual or imagined-even comes close. But we need to ask ourselves: does that matter? In today's world the most urgent naval threat consists not of ships, subs, or aircraft, but of mines-and pirates.11

While nobody is saying that the world's navies should stress their 18th-century antipiracy roles, we might consider where we are today in light of where we have been-and possibly learn some lessons.

The Ghosts of Tsushima

Where will the greatest learning opportunity arise in 21st-century warfare?

Perhaps at sea.

Today, as then, a new generation of ships, weapons, tactics, and doctrine remain untried in combat. In fact, entire generations of naval hardware have come and gone with not one drop of blood shed. We never know how well we have prepared until we have to sink and perhaps be sunk.

A prediction: if it happens, we will be surprised and frustrated. History shows that peacetime expectations almost never are realized in combat. Even more troubling, Americans traditionally drift toward isolationism, seeking a perennial "peace dividend" after every conflict from World War I onward, including (even especially) the Cold War.

We are now in much the same position as a century ago: the Russo-Japanese War of 1904-05. When the Emperor's and the Tsar's fleets clashed in Tsushima Strait, neither side had experience in modern naval combat on that scale. Actually, nobody did. True, the Yankees had drubbed the Spanish in Cuban and Philippine waters only seven years before, but the number and quality of the combatants paled in comparison to Tsushima. Santiago Bay involved nine armored warships; Manila Bay merely six. At Tsushima the scale on both sides dwarfed the combined American and Spanish forces. Japan fielded 31 battleships and cruisers; Russia 19. Both fleets possessed new combatants of 12,000 to 13,000 tons with 12-inch rifles. The difference was that Japan had spent the interim period far better than Russia had. The results showed in combat: Admiral Togo Heihachiro's practiced gunners sank more than 20 Russian ships while his force lost three torpedo boats.

The results were eye-openers for the global naval community. Seen in context, prior to 1898 there had been no real naval battles since the American Civil War, and those were small. The main events had been Turko-Greek feuding and occasional South American posturing, often with no ship losses. Nobody really knew what to expect of early 20th-century combat until it actually occurred. In fact, Tsushima set the standard for much that followed. At Jutland in 1916, in the definitive dreadnought clash, the Royal Navy scored about 3 percent hits and steamed home licking its wounds, having lost 14 ships to Germany's 11. Prewar gunnery exercises had generated much higher expectations when in fact 5 percent hits would have been exceptional. But the British did not know that.

The U.S. Navy learned much the same lessons in World War II, belatedly realizing that the gamesmanship that won peacetime gunnery pennants rarely produced ship-killing results in combat.

Today, we find ourselves in a similar situation. Counting from 1967 we are 40-plus years into the missile age of naval warfare, but there have been only a handful of small engagements since then. As of this writing, most likely the first missile-era naval battle will involve nations other than the United States. China still looms large in the Pentagon's menu of scenarios, but where blue-water combat might occur between the Americans and the Chinese remains extremely dubious. More than ever, China versus Taiwan appears unlikely,

considering their much-improved relations. However, China versus other players is conceivable, as is the perennial prospect of India-Pakistan. But if history is any indicator, a genuine war at sea may come out of port field, with unlikely antagonists (witness Britain-Argentina).

It stands to reason that after more than 60 years, another noteworthy clash at sea is likely. History indicates that it will just as likely be a small, isolated event as part of a larger campaign in a strategic location. But whenever or wherever it occurs, stand by to be surprised.

Sea Blindness?

In an interdependent global economy, world trade flourishes with largely unrestricted access to the oceans. Seafaring nations have enjoyed such benefits for generations now-so much so that the world's population takes maritime trade entirely for granted.

And yet Americans might take note of a private British Web site, savetheroyalnavy.org. The avowed purpose is "to provide a major increase in funding to redress decades of cuts and neglect." In part, the orgainization's site says, "We think Britain can avoid future conflict by maintaining peace and stability through armed deterrence. We reject the arguments . . . advocating unilateral disarmament as dangerous and unrealistic. Unless we attain the utopian fantasy of worldwide multilateral disarmament we must retain forces to protect ourselves."

Admiral Sir Jonathon Band, First Sea Lord, recently referred to "sea blindness" being endemic in the UK and across the western world. He notes that 95 percent of global trade passes through nine vulnerable chokepoints. That geopolitical fact goes hand in glove with the Save the Royal Navy site, "Aiming to educate the public about Britain's need for strong naval forces and to raise awareness of the dangers of allowing the navy to decline."

Unfortunately, it's a hard sell. After all, what are the dangers? Loss of sea control? To whom? By what naval power or alliance of powers? Interdiction of seaborne commerce? By whom? To what naval power or alliance? Deterrence? Against whom? What naval power or alliance?

While the U.S. Navy's current status is nowhere as grim as the Royal Navy's, the likelihood of serious cutbacks exists in the current and future political atmosphere.

Whatever the details, whatever the numbers, the service's future rests with those of us who support the idea as well as the institution of the U.S. Navy. We need to be able to answer the question: "Why do we still have such a big navy when we hardly ever use it?"

We ignore that query at our peril. So let the discussion begin.

Federal fugitive in court here after 21 years on the lam

By Frank Green, The Richmond Times Dispatch, April 21, 2009

A bent and limping John C. Curtiss this morning made his first appearance in federal court in Richmond since he disappeared shortly before he was to be sentenced almost 21 years ago.

Curtiss, 65, a one-time defense contractor said to have risked the lives of service men and women, was facing 105 years in prison in a hearing set for May 23, 1988, before U.S. District Judge Robert R. Merhige Jr.

But Curtiss, free on bond, never showed up.

Wearing shackles and striped jail garb, the gray, balding, bearded – but tanned – Curtiss, assisting himself with a cane, shuffled to a podium this morning and pleaded not guilty to a charge of failing to appear for his sentencing back in 1988.

Officials said he was apprehended by Bahamian authorities last October during a routine immigration check that raised suspicions about his claimed Australian nationality. Fingerprints identified him as a U.S. fugitive and he was returned to the U.S. on March 25.

"It feels good ... it was a bad case," said Roger W. Frydrychowski, the former U.S. Attorney who prosecuted Curtiss, and who is now retired. Mike Powell, the former Defense Criminal Investigative Services agent who investigated the case was also in the courtroom.

In 1988, Frydrychowski said Curtiss' criminal conduct, "posed substantial risks to the safety of American service men and women and to the ... readiness of American forces worldwide."

A jury convicted Curtiss, of Warren, Mich., on 21 charges stemming from sales of inferior electrical contact brushes to the government. Already been barred from government contracts, Curtiss traded under two "front" companies.

The brushes were sent to U.S. bases worldwide for use in Poseidon nuclear submarines, in fighter aircraft and in various weapons and equipment.

A sentencing memorandum written by Frydrychowski said Curtiss "displayed an arrogant and callous disregard for human life" by providing defective electrical parts to the Defense Department.

Frydrychowski referred to trial testimony indicating that the electrical contact brushes supplied to submarines broke apart and could have caused electrical arcing, a sudden explosion of carbon dust in the air.

His new lawyer, Amy Leigh Austin, with the office of the federal public defender, told U.S. District Judge Richard L. Williams that Curtiss now has unspecified health problems.

Williams set July 14 for Curtiss' sentencing on the old convictions and his trial on the fugitive charge for which he is facing an additional maximum sentence of five years. Assistant U.S. Attorney John S. Davis asked that Curtiss remain in custody.

This morning's appearance was held in the new, Spottswood W. Robinson III and Robert R. Merhige Jr. United States Courthouse.

Exclusive: U.S. Nuclear Deterrence Policy at Critical Crossroads
Will a Weaker Policy Make Us Safer?
By Peter Huessy, Family Security Matters, April 21, 2009

U.S. nuclear deterrence policy is at a critical crossroads, perhaps not seen since the dawn of the nuclear age. This is a result of a number of factors that have simultaneously come to the fore. These include the proliferation of nuclear programs in North Korea and Iran; the reaction of the American people to the extended fight in Iraq and Afghanistan that has resulted in "war weariness"; the continued assertion by critics of U.S. foreign policy that the primary cause of the terrorist attacks against the United States has been the presence of U.S. forces overseas and an over aggressive defense policy including our nuclear weapons deployments; and the growing sense that a game changing strategy was necessary to eliminate the growing threat of nuclear terrorism.

A new strategic analysis has emerged in this environment that sees U.S. nuclear weapons not as the guarantor of extended deterrence to our allies and friends, nor as the most critical element of our security policy. Former Secretary of Defense Les Aspin has presaged this view when he wrote about the threat of nuclear armed rogue states such as Iraq, Iran and others who with but a handful of such weapons could prevent the United States from coming to the defense of its allies. He saw the U.S. nuclear deterrent as not being worth very much. States with lots of nuclear weapons could no longer control or deter those nations with but a handful of such weapons.

Though he left us too early, others expanded on Aspin's viewpoint. Nuclear weapons began to be seen as the cause of proliferation itself – how could the United States maintain its status as a nuclear power while at the same time urging other nations to get rid of their nuclear weapons? With the end of the Soviet Union and the Cold War, it became less apparent what our nuclear deterrent forces were designed to do, absent the former Soviet threat to invade Western Europe with its massive Warsaw Pact conventional armed advantage. What were they now designed to deter?

Further adding to the changing view of nuclear weapons were the nuclear test explosions of India and Pakistan during the latter part of the 1990s. This was coupled with the U.S. Senate defeat of the ratification of the CTBT, or the Comprehensive test Ban Treaty. Added to that was the failure of the Russian Duma to ratify the START II treaty in the same form as had been approved by the US Senate, further stalling the reduction in US and Russian nuclear arsenals to the 3,500 warhead level, some 9000 warheads lower than the deployed weapons in the U.S. arsenal in 1980.

Although the Bush administration successfully reduced Russian and U.S. deployed nuclear arsenals to no more than 2,200 warheads, it received little credit. Unfortunately, the extended wars in Iraq and Afghanistan overcame any perceived benefit to the sharp reduction in nuclear weapons, even the elimination of the Libyan nuclear program and the initial deployment of missile defenses. All of these things made America safer, but the perception appeared to be otherwise.

And it was not that the U.S. had not "won" in either Afghanistan or Iraq. We had eliminated the Taliban and Saddam, two key objectives. But the length of the conflicts and their difficulty came to dominate the news. As Chris Mathews explained, if the wars had gone relatively well, we, the press, explained Mathews, wouldn't have paid any attention.

Unwilling to defend a war whose unpopularity steadily climbed, previous supporters and now opponents of the war explained the conflict through resort to numerous conspiracy theories – that the war to eliminate Saddam Hussein was trumped up in order to steal Iraqi oil or to perpetuate a "war machine" to increase Pentagon spending, or to institute laws such as the Patriot Act to stifle political dissent. So dominant and acrimonious did Iraq become in the debates over defense spending and defense policy, other key elements were put on the back burner. But this also affected the debate – low level as it was – on nuclear weapons policy.

On nuclear issues, for example, the Bush administration was unwilling to make a continued strong case for its nuclear posture review, including the 2002 Moscow treaty agreement with Russia, the U.S. missile defense architecture and proposals to sustain the nuclear infrastructure. Opponents saw the review as little changed from previous administrations, and even charged the administration with blurring the line between nuclear and conventional forces, (untrue in fact). Further problems emerged because there was insufficient high-level administration interest in the subject, which in turn was exacerbated by a decades-long neglect of nuclear matters following the end of the Cold War. This neglect was heightened during the Clinton administration when two successive senior military commanders of U.S. nuclear forces questioned the utility of our nuclear deterrent.

This neglect had the unfortunate effect of largely leaving the nuclear playing field to critics – those who sought the diminution of the US nuclear arsenal and the elimination of any modernization of the force. For example, two U.S. academics wrote that the U.S. had secured an overwhelming nuclear advantage over the Russians, in part due to the relative low level of Russian investment in its aging nuclear forces following the elimination of the former Soviet Union. They claimed the U.S. had deliberately engineered the Moscow Treaty to give America a pre-emptive first strike capability against the Russian nuclear forces, sufficient in capability to eliminate all but a handful of Russian warheads. And these remaining weapons, they explained, would easily be disposed of by the planned US missile defense systems.

While the Russians in practice seemed oblivious to this supposedly lethal threat as they continually deployed their submarine forces not at sea but tied up at their dock-side berths, close military advisers to President Yeltsin and then President Putin claimed the U.S. was indeed seeking the capability to destroy all of Russia's military capability with a nuclear weapons strike in a bid to turn the former Soviet Union into what they described as a vast "natural resource mine", from which the U.S. would extract by fiat oil, gas, gold, molybdenum,

and other important raw materials. [Although it was never explained who would work in such an environment saturated with nuclear fallout].

The implication, of course, of the charge the U.S. was seeking a first strike capability was that the U.S. nuclear arsenal was far greater in size or capability than was warranted by simple deterrence needs. While this entire argument completely ignored the nuclear modernization effort engineered by Vladimir Putin while chief of staff to President Yeltsin and later as President of Russia, it was at the top of the list of the concerns of the "weakness brings peace" crowd, otherwise known as "arms control" groups by the drive-by media.

In a major piece of scholarship, Mark Schneider of the National Institute of Public Policy published in Comparative Strategy a full analysis of Putin's expanded Russian nuclear programs, including earth penetrating weapons as well as low-yield weapons capable of tactical or battlefield use. To make up for a rapidly declining conventional capability, Russian military doctrine emphasized the primacy of nuclear weapons and even viewed their use against nuclear or non-nuclear armed states as central to Russian military doctrine. It was even described as a "de-escalatory tactic." By the late 1990s, some ten years after these initiatives, the Russians could credibly claim that over 80% of their nuclear arsenal by 2016 would be fully modernized.

But the absence of any serious debate over the extent of and implications of Russian strategic nuclear modernization left most American policy makers ignorant of this growing threat. The assumption had been that Russian investment in military matters in general had degraded seriously. It was in this context that it became perceived wisdom that Russia, because of its economic woes, could not maintain a nuclear force in excess of 1,000 deployed nuclear warheads. This was based in large part in an off-hand comment by a Russian official of the force level Russia could maintain without additional investment in its nuclear arsenal over the immediate future. This was adopted by serious observers of the strategic nuclear environment as well as by more casual editorial writers. Over one million citations can be found for "1,000 nuclear warheads" as the magic number to which the United States should rapidly repair. But as Sen. Jon Kyl, Arizona Republican and second ranking Republican member of the U.S. Senate observed April 21st in a speech sponsored by the National Defense University Foundation and the National Defense Industrial Association, what is the basis for assuming reducing to such a low number is consistent with US security and maintaining America's deterrent? There is none, he explained.

To many, it may seem that 1,000 nuclear weapons, however deployed, are plenty to maintain deterrence. But the key is how would such numbers be deployed, and how you could maintain their security and safety. For example, each U.S. Trident submarine can carry roughly 200 warheads. Five submarines would be sufficient therefore to deploy 1,000 warheads, which probably 1-2 of these submarines being at sea at any one time. This means, however, that a scientific breakthrough allowing the oceans to become transparent puts our entire deterrent at risk. Those submarines in port can easily be destroyed. Those at sea could be attrited over time. On the other hand, one could deploy all 1,000 warheads of land-based missiles, each with one-warhead. To realistically take out such a force in a first strike would take somewhere in the neighborhood of 2,000 warheads, far in excess of the number allowed under an arms control regime which limited each side to 1,000.

However, depending upon one technology for your nuclear deterrent invites real trouble. What if there is a technological failure, where a key component of either your land or sea-based ballistic missile fleet becomes degraded or shows early failures? This would put the nation's security at serious risk. And that is why throughout the nuclear age the U.S. has deployed a triad of nuclear forces, which now include 450- land based Minuteman missiles, 14 Trident submarines carrying some 336 D-5 missiles and an assortment of B-2 and B-52 strategic nuclear bombers.

Those who see U.S. military primacy as either immoral or dangerous want U.S. nuclear deployments on each of our missiles not to be able to "upload," what they term as "excess warhead capacity." Under the Moscow Treaty of 2002, there are not limits placed directly on the missiles and bombers we deployed but on the imputed total warhead deployments given the number of missiles and bombers in the U.S. inventory. So we could have 450 Minuteman missiles but most deployed with one warhead. In fact, on many of these missiles, the U.S. affixed a special bulk-head which requires extensive work, over many months to be able to change the warhead loadings from one back to the three the Minuteman usually deployed over its now 30 year lifetime.

Those who wish to limit U.S. power want a new treaty to require all missiles and bombers to count under arms control rules at their maximum loading capability. In the case of missiles, this is usually the number of "dummy" warheads carried during a flight test at any one time. The D-5 missiles can carry up to eight warheads, but is now deployed with a range of between 3-4 warheads. In this way, the U.S. has met the Moscow Treaty requirement to reach the 2,200 deployed warhead totals by 2012.

But using the rules being proposed, a force of some 1,000 warheads could allow the U.S. to deploy some 333 Minuteman missiles, but no submarines or bombers. Conversely, we could deploy five submarines but no ICBMs or bombers. If each of the Triad legs was reduced proportionately, and counted at the maximum load possible, we would end up with a force of 90 ICBMs, 68 SLBMs on three submarines, and less than a dozen bombers. In the parlance of the strategic nuclear strategist, the Russians would have 1000 warheads aimed at roughly 100 aim points – ICBM silos, submarines, and bomber bases combined. In a crisis, the temptation to go first would be significant and could lead to grave instability in a crisis, even the outbreak of war.

On the other hand, allowing the U.S. and Russia to deploy fewer nuclear weapons on each of their missiles than their maximum capability, the U.S. could deploy its existing force of 450 Minuteman, 14 submarines and some dozens of strategic bombers, limit strategic warhead deployments to even as low as 1,500 warheads, while at the same time allowing the ramp-up of our arsenals if the security situation changes. Prudence requires the latter capability be maintained, because with close to 500 nuclear inventory aim-points, no adversary under say a 1,500 warhead regime or even 1000 warheads, will have the realistic capacity, even theoretical, to take out the other countries' nuclear arsenal in a surprise or sudden "bolt out of the blue" attack. Any attack designed to destroy as much of an adversary and his nuclear capability as possible would require one's forces to be generated. This would be seen by U.S. satellites, warning us to put more of our submarines at sea and our bombers on alert. Reducing nuclear weapons to artificially low

numbers also increases the risk of the rise of an additional peer competitor such as the PRC, further compounding an already unstable international environment.

Thus, forcing the U.S. to deploy all countable warheads at their maximum loading simply increases strategic instability. Allowing an upload capability is important as an insurance policy, but there is an additional consideration that bears examination. Critics of U.S. nuclear policy are calling for the U.S. to eliminate any "additional nuclear weapons" in our non-deployed stockpile so that even if we maintain a larger nuclear force of missiles and submarines in order to lessen the chance of a pre-emptive, decapitating strike, and load such a force at less than the maximum capability, no upload would be possible.

But there is one glaring weakness with this suggestion. Tactical or battlefield nuclear weapons are not included. They have been taken off the table by the United States. And Russia does not want to talk about such warheads which it has by the thousands while the U.S. has only hundreds. Thus in the context where such tactical nuclear weapons are not counted in the next arms control regime, the Russians will be able to add such tactical warheads to their strategic platforms and upload, while the U.S. would be frozen at our deployed weapons levels. These tactical nuclear weapons have the same physics package as strategic weapons. Thus, instead of 1,000-1,500 Russian weapons aimed at 100-500 U.S. nuclear targets, the Russians would have in excess of 3000 warheads, a 6-40 to 1 ratio. This compares to roughly 4 to 1 today under the Moscow Treaty of 2002 with each side having 2200 deployed warheads.

Finally, the 1000 notional warhead level suffers from not having been rigorously examined by the congressionally mandated Strategic Forces Commission, the Nuclear Posture Review or the Quadrennial Defense Review. It apparently is a number that has been plucked out of thin air, simply because it ends in "zero" and is less than the number now deployed by the United States. Even upon cursory examination, it has little attractiveness, and would most probably dramatically increase strategic instability, worsen crisis stability, and undermine U.S. security. Given the push within the so-called arms control community for a force level with no uploading capability and no non-deployed stockpile, including no limits on tactical nuclear warheads, such a force level would gravely harm US security and undermine the deterrent value of the U.S. nuclear forces and their value as an extended deterrent for our allies, thirty one of which now depend upon us for such protection.

In addition, if the most serious security problem facing the U.S. is the rogue state with a nuclear weapons capability, such as North Korea and Iran armed with ballistic missiles and allied with terror groups, concentrating on reducing US and Russia deployed nuclear arsenals is a policy that has things backward. Our nuclear deterrent is required to curtail the hegemonic ambitions of North Korea and Iran, to the extent they can be deterred. Leaving ourselves weakened under foolish and artificial counting rules would not help with either Iran or North Korea.

Arms control gimmicks should thus be left at the school house door, and not brought into the halls of government power, where the wrong decision could get us all killed. The attractiveness of announcing some "game-changing" position on nuclear weapons policy in order to entrance North Korea, Iran and their terrorist allies into giving up their nuclear weapons ambitions simply doesn't pass the smell test.

In reality, there is little if any evidence to conclude that a weakened U.S. nuclear weapons policy, curtailed modernization, or unstable deployments would positively affect the gathering threats from nuclear terrorism on the part of the "wicked" in the world. We should not be tearing down our deterrent in the hope that a dramatically changing U.S. policy will magically transform our world. A strong, robust, flexible, and stable US nuclear deterrent remains a key pillar in upholding the peace and security of the free world.

Eight years ago, Donald and Fred Kagan introduced their new book, While America Sleeps, at a National Defense University event some eight months prior to 9/11. They said:

"Experience reveals that when the states most interested in preserving the peace are weaker than dissatisfied states willing to advance their cause through war, the result is war and that a foreign policy not backed by sufficient force is doomed to failure. But these are unwelcome lessons that impose unwelcome responsibilities. The absence of an immediate threat permits democracies to focus on domestic discontent. Maintaining a secure international climate through adequate military power seems an unnecessary luxury."

FamilySecurityMatters.org Contributing Editor Peter Huessy is President of GeoStrategic Analysis, a defense consulting company in Potomac, Maryland.

My thanks to Dean Lohmeyer and to Todd Schaffer at ComSubFor, Norfolk, VA providing much of the submarine news presented above! Mike Hyman, Ed.

USSVI 2009 National Convention Silent Auction Fund Raiser

Special Room Rates for $105 per night + tax. Rates can be extended if needed. Please call 800-662-8899 or 619-224-3621 for reservations. Call before 29 May and mention our event

FREE PARKING
Lots of items to Bid on!!!

Friday 12 June 2009 5-10PM

Holiday Inn Bayside, 4875 N. Harbor Dr

Heavy Hors D'oeuvers and No-Host Bar

Cost $20 in advance, After 8 June $25(pick-up at the door)

Please contact Bob Bissonnette for tickets at 619-251-7095 or 619-553-7444

Please make check out to: 2009 USSVI Convention

Mail to: Bob Bissonnette, 1525 Walbollen St., Spring Valley CA 91977-3748

Dean Corporate Entertainment, LLC

presents

"The Anthony Dean Band"

We provide complete Title 10 entertainment packages to military commands and associations, as well as veterans associations:

- Cocktail Pianist
- Dinner Jazz Combo
- PA/Sound System and Support for Ceremonies
- Brass Quintet for Ceremonies
- Dance Band
- DJ

We perform at military balls, receptions, weddings, etc.

Dean Corporate Entertainment, LLC

Anthony Dean, Executive Officer 619-616-1327

Mission Statement:

To provide excellent event musical support and professional entertainment at reasonable prices to military and veteran's organizations affected by US Code Title 10, while striving to provide quality jobs to civilian professional musicians.

USSVI CONVENTION SPONSOR INFORMATION

Contact:
Mike Hacking

2009 USSVI Convention
P.O. Box 420159
San Diego, CA 92142-0159

(858) 495-0562

mrhacking@san.rr.com

2009 United States Submarine Veterans, Inc.
National Convention

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.

LEVELS OF SPONSOR PARTICIPATION

2009 United States Submarine Veterans, Inc.
National Convention

September 8 – 12, 2009
Town & Country Resort and Convention Center
San Diego, CA

Levels	Contribution Level
Admiral	$ 25,000
Full-page ad in the Convention Program*	
Full-page ad in each of the quarterly publications of the American Submariner leading up to the Convention ($6,000 value)*	
Recognition in the Convention Program as Admiral level sponsor	
Seating for 16 (2 Reserved Tables for 8 each) at the Annual Awards Banquet	
Banner advertising in conventions halls and / convention lobby	
Captain	$ 15,000
Half-page ad in the Convention Program*	
Half-page ad in each of the quarterly publications of the American Submariner leading up to the Convention ($4,000 value)*	
Recognition in the Convention Program as Captain level sponsor	
Seating for 8 at the Annual Awards Banquet	
Banner advertising in conventions halls and / convention lobby	
Commander	$ 10,000
Quarter-page ad in the Convention Program*	
Quarter-page ad in each of the quarterly publications of the American Submariner leading up to the Convention ($2,800 value)*	
Recognition in the Convention Program as Commander level sponsor	
Seating for 4 at the Annual Awards Banquet	
Banner advertising in conventions halls and / convention lobby	
Lieutenant	$ 5,000
Quarter-page ad in the Convention Program*	
One-Sixth-page ad in each of the quarterly publications of the American Submariner leading up to the Convention ($1,600 value)*	
Recognition in the Convention Program as Lieutenant level sponsor	
Seating for 2 at the Annual Awards Banquet	
Ensign	$ 1,000
Quarter-page ad in the Convention Program*	
Recognition in the Convention Program as Ensign level sponsor	
Warrant	$ 500
Recognition in the Convention Program as Warrant level sponsor	
Chief Petty Officer	$ 250
Recognition in the Convention Program as Chief Petty Officer level sponsor	
Petty Officer	$ 100
Recognition in the Convention Program as Petty Officer level sponsor	
Seaman	$ 25
Recognition in the Convention Program as Seaman level sponsor	

Note: **To support preparation of Convention Program and recognition items the deadline for all donations is May 1, 2009. American Submariner publication deadlines are: Oct 1, 2008; Dec 15, 2008; Apr 1, 2009; and Jun 15, 2009.**

* Sponsor responsible for providing camera-ready artwork for Convention Program and / or American Submariner Magazine.

Website: www.ussvisandiego.org/Convention2009/index.htm

SPONSOR REGISTRATION

2009 United States Submarine Veterans, Inc.
National Convention

September 8 – 12, 2009
Town & Country Resort and Convention Center
San Diego, CA

Name of Company / Organization _____

Contact Name _____

Address _____

City _____ State _____ ZIP Code _____

Phone _____ Email _____

☐ $ _____	Admiral Sponsor	$ 25,000 Level
☐ $ _____	Captain Sponsor	$ 15,000 Level
☐ $ _____	Commander Sponsor	$ 10,000 Level
☐ $ _____	Lieutenant Sponsor	$ 5,000 Level
☐ $ _____	Ensign Sponsor	$ 1,000 Level
☐ $ _____	Warrant Sponsor	$ 500 Level
☐ $ _____	CPO Sponsor	$ 250 Level
☐ $ _____	Petty Officer Sponsor	$ 100 Level
☐ $ _____	Seaman Sponsor	$ 25 Level

Make checks payable to: "2009 USSVI Convention"

Mail to:

2009 USSVI Convention
P.O. Box 420159
San Diego, CA 92142-0159

For Credit Card payments – contact us!

Note: **To support preparation of Convention Program and recognition items the deadline for all donations is May 1, 2009. American Submariner publication deadlines are: Oct 1, 2008; Dec 15, 2008; Apr 1, 2009; and Jun 15, 2009.**

Website: www.ussvisandiego.org/Convention2009/index.htm