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4370 Twain Ave.  
San Diego, CA 92120-3404

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Chula Vista, CA



## *The Silent Sentinel*

*June 2010*



### *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.



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### The Silent Sentinel via Email

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

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

NAME: \_\_\_\_\_

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Would like the SILENT SENTINEL emailed: YES \_\_\_\_\_ NO \_\_\_\_\_

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

### ***June Meeting***

Our monthly meetings are held on the second Tuesday of the month at VFW Post 3787, 4370 Twain Ave., San Diego. Our next meeting will be on 8 June, 2010. 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**

No new names reported--and you already know the others. If you know of shipmates who are ill, contact the Base Chaplain (see page 2).

### ***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 “



## 2010 Parade Schedule

**June 5th, 2010 - La Mesa Village Flag Day Parade - 10:00am**

**July 4th, 2010 - Julian Independence Day Parade - Time TBD (either 11:00am or Noon)**

**November 11th, 2010 - San Diego Veterans Day Parade - Time TBD (probably 11:00am)**

## **Base Commanders Corner** **May 2010**

Hello everyone! Hope everyone is doing good and enjoying our crazy weather. Currently I'm in Norfolk VA with work. The weather here has been pretty crazy too. While working on the boat, there was a big tour group of boat sailor and their better halves with a boat reunion. Yes there were a few SUBVETs among them that I have met over the years from the annual conventions. They are still talking about our convention and how good it was. I guess the point is that we did a hell of a Great job on the Convention. And the few that I was able to talk to are going to the next convention. If you have never gone to a convention, it's a great time and the meeting of new friend or catching up with some old shipmates you served with. The Boat reunion was the USS FRANCIS SCOTT KEY SSBN 659.

Our next event we will be hosting with the help of SubVets WWII and Scamp Base is our Annual SubVets Picnic on Sub Base. The last few years we have held it, there has been about 70-90 people that showed up and had a great day in the park. It will be on the 18<sup>th</sup> of July (Sunday) from 9am – 4pm (or when people decide to leave). I'm working on getting 2 tours on a boat there and we will have games and door prizes. All I'm requesting is you bring a small side dish or dessert. Come on out and bring the family for a day in the sun and lots of fun!!!!

We also have the LeMesa Flag Day Parade on the 5<sup>th</sup> of June. The parade starts at 1000 and we will be meeting at 9am. We will also be in the Julian 4<sup>th</sup> of July Parade. We will put out more information on the Julian parade.

Well folks, I think that's all for now. I will not be at the next meeting due to traveling to CT for work. I would like to thank everyone who has supported an event we have held this year!!

Sincerely,

Your Base Commander,

Bob Bissonette

## **Dedication of the Fifty-Two Boat Memorial at the former NTC, San Diego (now Liberty Station) on March 25, 2010 [Photos by Jack Kane]**





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**The La Mesa Day Parade, 24 April 2010 [Photos by Jack Kane]**





## Memorial Day, 2010

by Michael Hyman

The first five books of the Bible (the Pentateuch—or the Torah) contains 613 commandments. Two Hundred Forty-Eight of these are positive (“Thou shalt . . .”) and the other Three-Hundred Sixty-Five are negative (“Thou shalt not . . .”). Included within these dos and don’ts is the directive, “Remember what Amalek did to you . . .” (Deuteronomy 17:25).

Why is such a commandment given? At least three reasons come to mind. First, the Amalekites always attacked the weak and the tired, the ones unable to defend themselves. Second, the Amalekites hated good and loved evil. And third, the Amalekites knew right from wrong—but still chose “the wrong.”

Every tyrant who has ever attempted to destroy the Jewish people—from biblical times to the Modern Era—is considered a form of Amalek—from Haman in the *Book of Esther* on through Hitler, Eichmann, and all the rest. Consequently, remembering the deeds of monsters such as these is a beneficial exercise for multiple reasons, least being to emphasize the point that human nature has not changed one bit over thousands of years.

In these times, there are many self serving individuals, groups, and entities within and outside of the USA who would prefer for various reasons that we forget our history, ignore the sacrifice that our servicemen and servicewomen have made—and are still making—and replace traditional values with more “diverse” thinking—this ranges from the distorted world view that profit is a bad word and capitalism is an evil system to the even more vacuous mindset which suggests that nationalism is a perverse and antiquated idea and that a one-world government is the only hope for human survival—nonetheless, history is *not* on the side of those who profess beliefs such as these; that is, as long as the rest of us remember the deeds of Amalek.

Memorial Day is an opportunity to pay tribute to the men and women who have shed their blood for us. The current day Amalekites would like us, however, to think of these persons as victims—cannon fodder—while at the same hoping that we ignore their own cowardly past—the goal of despots being to demonize the deeds of the truly heroic while at the same time inflating and distorting their own dark past. Do not allow yourself to be deceived by tactics such as these. The fact of the matter is that there is no moral equivalency—nor has there ever been—between the actions of American troops and the deeds of tyrannical regimes.

Our service-people are heroes, each and every one—lets honor them proudly and with heads held high. But let us remember, too, the deeds of Amalek (the Times Square bomber, the Christmas bomber, Nine-Eleven, the 1993 WTC bombing, Saddam Hussein, the USS Cole, the Lockerbie Bomber/Pan Am Flight 103, the Marine Corp. Barracks in Beirut, the American Embassy Hostages in Iran—and the list goes on and on—to the Shores of Tripoli). Consider them both this Memorial Day. As it was in the days of the ancient Israelites, it’s still good advice.

### 13 Female Mids Excited To Be First On Subs

By Lance M. Bacon, *Navy Times*, May 11, 2010

ANNAPOLIS, Md. — The 11 Naval Academy and two NROTC seniors picked to be the first women to serve aboard submarines are looking forward to life in the undersea service.

The Navy’s announcement of the selections came May 6, one week after the change was made official. But these women began getting ready when news broke last fall that a change was coming.

The 11 academy midshipmen, scheduled to graduate later this month, had already received their fleet assignments before being rerouted into the sub force. Eight were to become nuclear officers aboard aircraft carriers, one was to be a conventional surface warfare officer, one was headed to the Marine Corps and one was to be an aviator.

The selectees downplayed their roles as pioneers, but spoke excitedly when talking about the challenge and camaraderie inherent in a sub crew.

“I am really excited about the leadership opportunities and the technical side of submarine service,” said Midshipman 1st Class Marquette Ried, who had originally planned to fly helicopters. “This is the perfect opportunity. The stars aligned, and I was at the right place at the right time.”

Although Ried has never been on a submarine, she smiles wide when discussing “being part of the sub team and leading a division. Deckplate leadership is exactly what I want.”

For Midshipman 1st Class Elizabeth Hudson, breaking barriers has become a way of life. No women attended the academy when her father graduated in 1971, and no women served on subs with him. Now, Hudson is poised to accomplish both.

“If anything, he might have envisioned [his] son was going to grow up and do this, probably not his daughter,” said Hudson, who had planned on becoming a Marine. “He is excited about it now. He was able to relive his glory days coming to reunions here; now he has another five years of that.”

A 24-hour familiarization cruise on an attack sub was what changed Midshipman 1st Class Abigail Gesecki’s mind.

“The crew had a great vibe and a closeness about them that I didn’t think I would find on a carrier with 3,000 people,” she said.

The women expressed no concern about entering a community that has been exclusive to men for 100 years. They said crews were very professional when familiarization tours were conducted for all mids between their sophomore and junior years, and expect the same over the long term. Gesecki, the academy’s indoor track captain, then offered a light-hearted perspective to acknowledge the women’s responsibility in the change.

“I think it is important for us to keep in mind that we’re going to impose a little bit of a change on the sailors now,” she said. “We have to be very conscientious of their daily routines and try to make it as smooth a transition as possible. If we’re going to be using their bathrooms . . . we’re going to have to be quick and expeditious and not stay in there for an hour while they’re all waiting outside.”

Midshipman 1st Class Kristin Lyles added that her fellow mids have been supportive, and sub officers at the academy have been helpful in preparing them for selection boards, nuke school and sub service.

Though 11 academy mids were selected, one will have to wait two years to join the sub fleet. Midshipman 1st Class Kayla Sax was one of 32 Americans, and the only midshipman, to receive a Gates Scholarship for Cambridge University this year. There, she will earn a master’s degree in nuclear engineering.

“By the time I get to a boat, all these other women will be qualified,” she said. “But I worked really hard to earn this scholarship, and the sub force will be there when I get back. With some shortened shore tours I’ll be able to catch up with my year group, so in the long run it works out.”

North Carolina State University seniors Megan Bittner and Karen Achtyl on Friday will graduate magna cum laude and be commissioned as ensigns, and will join the their academy counterparts for 15 months of nuke school — a six-month academic course, six months of operational curriculum and three months at the submarine officer basic course. Up to eight female supply corps officers will also join the submarine force in late 2011.

“I don’t believe the Navy could have picked two finer females to pioneer the entrance of females in the submarine community,” Lt. Col. Timothy Nichols, executive officer of the North Carolina Piedmont Region NROTC consortium, said in a press release.

The female officers will be assigned to one of eight blue and gold crews aboard ballistic- and guided-missile submarines. The assignments involve two submarines on the East Coast and two on the West Coast. The larger Ohio-class subs were selected because the introduction of co-ed crews will not require extensive modifications, as would be required on the smaller attack subs.

#### FIRST TO GO

The 13 women chosen to join the sub force include 11 Naval Academy midshipmen:

- Tabitha Gant, Bowie, Md.
- Abigail Gesecki, Luzerne, Colo.
- Elizabeth Hudson, Plymouth, Mass.
- Peggy LeGrand, Amarillo, Texas
- Rachel Lessard, Newburyport, Mass.
- Kristin Lyles, Fairfax Station, Va.
- Laura Martindale, Roselle, Ill.
- Marquette Ried, Fort Collins, Colo.
- Kayla Sax, Richland, Wash.
- Misty Webster, Wesley Chapel, Fla.
- Jessica Wilcox, Honesdale, Pa.

Two NROTC midshipmen at North Carolina State University also have been picked:

- Megan Bittner, Chesapeake, Va.
- Karen Achtyl, Rochester, N.Y.

## **Five Big-Ticket Pentagon Programs In The Cross Hairs**

*By Sharon Weinberger, AOL News, 11 May 2010*

Defense Secretary Robert Gates' call for a sweeping review of defense spending may or may not lead to a massive overhaul of the so-called military-industrial complex. But it does signal that the Pentagon chief is likely to continue his track record of canceling weapons and technology programs that are over budget and behind schedule.

Already, the Pentagon under Gates' leadership has either canceled or ended production on several programs, such as the F-22 fighter and the ground-based missile defense system. Here are five programs likely to be on the chopping block:

**Expeditionary Fighting Vehicle.** In a speech earlier this month, Gates singled out the Marine Corps' Expeditionary Fighting Vehicle for criticism. The 40-ton vehicle is launched from ships and then skims the water at up to 29 mph, allowing Marines to move ashore. The problem? Among others, the flat-bellied vehicle is extremely vulnerable to the improvised explosive devices that have proved so deadly to U.S. troops in Iraq and Afghanistan. Gates hasn't said whether he will kill the \$13 billion program, but "similar comments preceded Gates' eventual termination of the Army's vaunted Future Combat Systems program and, of course, the Air Force's F-22 Raptor," noted the Marine Corps Times, in an editorial that advocated looking for alternatives. "This does not augur well for the EFV."

**Next-Generation Bomber.** Gates has already canceled the Air Force's previous program to develop a new long-range bomber that would someday replace aircraft like the B-2. This year, however, the Air Force restarted its search for a future bomber, requesting \$200 million to serve essentially as feed money to look at possible options. Given the massive funding required to build an entirely new aircraft, and the lack of any concrete options on the table, this could be the easiest program for Gates to chop.

**New Ballistic Submarine.** It's still in just the concept stage, but the Navy's plans to build a replacement for the Trident submarines is already in peril. The Navy has faced criticism in Congress for refusing to turn over an analysis of alternatives for the future sub, and now the SSBN(X), as it's called, also appears to be at the top of Gates' chopping list. "Current requirements call for a submarine with the size and payload of a [nuclear sub], and the stealth of an attack submarine," Gates said of the Navy's plans.

**Presidential Helicopter.** The Pentagon's plans to replace Marine Corps One, the presidential helicopter, have already been canceled once by Gates, who famously questioned what he saw as its excesses, such as the need for a kitchen. Could he cancel it again? Maybe not, but he is likely to keep an eye out for the type of massive cost increase that plagued the previous program. That may mean some options, such as having the V-22 Osprey, a tilt rotor aircraft, land on the White House lawn, are unlikely at best.

**Joint Strike Fighter.** Gates has already decapitated the leadership of the Pentagon's largest-ever weapons buying program, the F-35 fighter, by replacing the program manager. He has also sharply criticized the F-35's maker, Lockheed Martin, for not controlling costs, which are now expected to exceed \$328 billion. It's unlikely that Gates would cancel outright the program, which is also expected to provide aircraft to a number of key allies, but he could cut the budget or curtail production.

## **Submarine Proliferation: United States Export Behavior**

*Nuclear Threat Initiative, May 11, 2010*

The United States does not export nuclear-powered submarines nor does it operate, produce, or export diesel-powered submarines.[1] U.S. shipbuilder Litton Ingalls (now a subsidiary of Northrop Grumman Shipbuilding) built the U.S. Navy's last conventional submarine in 1959. However, if required, the United States does possess sophisticated diesel-electric submarine designs that can be used for future production.[2]

The U.S. Navy has long opposed the export of submarines on the basis of security concerns. In 1992, the U.S. Congress gave its approval for domestic production of conventional submarines after a surge in international sales for diesel-electric vessels.[2] In response, the Navy submitted a report to Congress stating, "Construction of diesel submarines for export in U.S. shipyards would not support the U.S. submarine shipbuilding base and could encourage future development and operation of diesel submarines to the detriment of our own forces." [2] Despite the navy's objections, however, the U.S. government approved the construction of two diesel-electric submarines for Egypt,

under a license from the German shipbuilder Howaldtswerke-Deutsche Werft.[2] Although Litton Ingalls was to receive this contract, it withdrew in June 1997 after the U.S. Navy voiced concerns over serious security breaches.[2,3] Naval representatives did not want export submarines to be produced at the same yard as advanced nuclear submarines due to the risk of inadvertent technology transfer.[3] The U.S. Navy is also concerned about the effect submarine proliferation will have on the ability of its forces to operate in coastal waters around the world.

In 2001, Taiwan became a potential customer for U.S.-made submarines after Congress approved an \$18.2 billion arms package that included the construction of eight diesel-electric submarines.[4,5,6,7] The Navy heavily criticized this agreement and approached administration officials to voice their security concerns.[4,6] The U.S. Navy also raised the submarine purchase price to \$12 billion dollars, making it financially unattractive to Taiwan.[6] It was this high price, coupled with Chinese opposition, that ultimately led to the exclusion of submarines from the package.[5,7] In January 2010, the Obama administration announced a U.S.-Taiwan arms deal totaling \$6.4 billion that did not include any diesel-electric submarines.[7]

Sources:

[1] "Submarine FAQs," Chief of Naval Operations: Submarine Warfare Division, navy.mil.

[2] Danielle Revelle and Lora Lumpe, "Third World Submarines," *Scientific American*, August 1994, p16-21.

[3] "Republic of China Navy: Hai Lung II-class Submarine," Federation of American Scientists, 15 August 1999, fas.org.

[4] "Wade Boese, "Bush Approves Major Arms Deal to Taiwan, Defers to Aegis Sale," Arms Control Association, May 2001, armscontrol.org.

[5] Edward Cody, "Politics Puts Hold on Taiwan Arms Purchase," *Washington Post*, 10 October 2004, washingtonpost.com.

[6] Megan Scully, "Navy works stall submarine deal with Taiwan," *Congress Daily*, 6 April 2006.

[7] Michael Ashby and Jeff Abramson, "U.S.-Taiwan Arms Deal Angers China," *Arms Control Today*, March 2010.

## **US Satellites Shadow China's Submarines**

*By Peter J Brown, Asia Times, 12 May 2010*

The People's Liberation Army's Navy (PLAN) submarines cannot spot United States satellites high overhead as the submarines leave their bases at Sanya on Hainan Island, Qingdao in Shandong province and Ningbo in Zhejiang province, and head for deeper water.

Plenty of very deep water can be found in the South China Sea, especially in the zone north of the Spratly Islands, east of the Paracels, and south of the Luzon Strait.

"A more challenging area for submarines to operate undetected is the East China Sea, which is quite shallow from the Chinese coastline up to the Okinawa Trough with a depth of only 30 to 60 fathoms [180 to 360 feet] in most places," said associate professor Peter Dutton with the China Maritime Studies Institute at the US Naval War College.

"Much of the water space [in the South China Sea] is more than 2,000 fathoms deep," said Dutton.

Detecting submarines via satellite is a form of Non-Acoustic Anti-Submarine Warfare (NAASW). Lasers, infrared and other detectors and synthetic aperture radar (SAR) in space may be used as part of this NAASW activity. Satellites might see subtle undersea disturbances caused by submarines, watch wave patterns on or beneath the sea surface, or detect subtle variations in ocean temperature.

This is not to be confused with satellite communications, nor is an "EO" or "Earth Observation" satellite to be confused with "EO" as in an "Electro-Optical" means of detecting submarines.

Over the next 18 months, the US National Reconnaissance Office (NRO) - operator of the US spy satellite fleet - is planning multiple satellite launches, and China must assume that one or more of these new US surveillance satellites will help support US Navy efforts to locate and track PLAN submarines.

Satellites form a network along with undersea sensors and detectors fixed on the sea floor or drifting in the open ocean as well as devices mounted on other submarines, ships, unmanned undersea vehicles (UUVs), aircraft, helicopters and unmanned aerial vehicles (UAVs).

Many are skeptical that satellites can perform NAASW missions effectively, reliably and at reasonable cost.

"The natural disturbances of the sea surface due to wind and tides, it seems to me, are very likely to mask any disturbance due to a submarine passage, and so even if this were a viable detection technique, it seems to me so limited in application that it would not be worth the investment," said one former US Navy sonar expert.

In April, a source told RIA Novosti, a Russian newspaper, that Russia had developed a novel satellite module “used for both defense and civilian purposes, in particular, providing meteorological data”, and it can “carry out remote sensing of the sea and detect submerged submarines”. This will be tested in space perhaps as early as next year. [1]

“Submarine detection, by any means, is a classified and highly guarded topic. The fact that the Russians are talking about it is the most interesting aspect of this announcement,” said Brian Whitehouse, president of Nova Scotia-based OEA Technologies, Inc. He co-authored a paper with Daniel Hutt in 2008 about spaceborne sensors, ocean intelligence, and the maritime battlespace. [2]

The satellite in question is apparently the first of three small Russian Kanopus (Konopus) remote sensing satellites.

“This satellite is planned for 2011 and it will carry an Earth observing payload that includes a sensor for studying the underwater light environment,” said Dr Jonathan McDowell, an astrophysicist at the Massachusetts-based Harvard-Smithsonian Center for Astrophysics who is also the editor of Jonathan’s Space Report. “I cannot evaluate the claim that this will let them detect the wakes of submarines. I do not believe that such technology is being used operationally at the moment. I am not aware of relevant flight experiments, but they may have occurred.”

Russia has previously demonstrated its satellite sub-hunting skills. Swedish satellite expert Sven Grahn identified the Russian Almaz-1 satellite which was launched in 1991 as a submarine-detection satellite that could see the surface wake or trail of a submerged sub. Besides this satellite, the Russians deployed other large, nuclear-powered and radar-equipped ocean surveillance satellites.

“Russian satellites known as RORSATs used radar to track surface ships, but the US Navy was not concerned that our subs could be detected, much less tracked. The signals, even if they existed, would be so wrapped into random noise that extracting any usable intelligence from them proved impossible,” author James Oberg, a top US expert on Soviet and Russian space programs, told Asia Times Online. “The cancellation of that [Soviet] satellite program followed at least three accidental re-entries of debris. The laws of physics compelled them to orbit as low as possible, creating high air drag.”

The theoretical boundary below which satellites cannot successfully maintain their orbits is approximately 160 kilometers above the Earth.

The Soviet space station Mir may have served as a platform for related research activities in the same way that the US Skylab once served as a platform for space radar testing in 1970s.

In the late 1990s, sub-hunting satellites made headlines. An American scientist, Peter Lee, was caught and convicted of passing sensitive information to China about the so-called Radar Ocean Imaging (ROI) joint project which involved the United K and the US. A decision by the US Navy based on concerns about further disclosures about the nature and scope of the ROI project echoes to this day.

“Peter Lee’s case was they had this guy giving this very sensitive data to the Chinese on underwater detection of submarines. They ran into this case where the navy wouldn’t allow a court case against him because of the data. So they had a bargain plea, and he got off, basically. For stealing very high-level stuff, he gets probably, what, a couple of months in a halfway house,” former US ambassador to China, James Lilley, told PBS in 2004. [3]

China obtained relevant information from Russia, too.

“Chinese experts reportedly received technical assistance from Russian satellite experts in years following the Soviet Union’s collapse,” said associate professor Andrew Erickson at the China Maritime Studies Institute. “Specialists at the State Key Laboratory of Satellite Ocean Environmental Dynamics have researched ship detection using [SAR].”

Maritime surveillance became a top priority at the national level when China’s so-called, “863 State High-Technology Development Plan” was activated. And China’s fleet of Haiyang ocean surveillance satellites will grow to three when Haiyang-2A is launched later this year

Prior to the ROI program, the US SEASAT ocean satellite project which was launched by the US National Aeronautics and Space Administration (NASA) in 1978 carried a SAR into space for maritime surveillance purposes. After just over 100 days in space, SEASAT suddenly stopped working due to a short circuit in the design of its solar panels.

“Rumors suggested it had been turned off or sabotaged. There was a claim that SEASAT had mapped a field of World War 2-era shipwrecks on the floor of the English Channel,” said Oberg.

A US Navy oceanographer from Australia, Paul Scully-Power, who became the first oceanographer in space, flew on the space shuttle Challenger (STS - 41G) in 1984. The US Navy later admitted that the mission had successfully detected the undersea or internal waves generated by a submarine which had been tracked successfully at relatively shallow depths. This was deemed, “incredibly important to us” and was reported by the Washington Post in 1985 - quoting a senior US Navy admiral at the time. [4]

In mid-May, by the way, the final flight of the space shuttle Atlantis (STS-132) will include a longtime submariner, US Navy captain Stephen Bowen.

According to naval analyst and author Norman Polmar, certain satellites can track submarine wakes, but are unable to do so continuously nor all the time, and not in all underwater environments. A submarine's depth, and speed along with the characteristics of the ocean bottom and water clarity, among other things, come into play here.

"A submarine is a relatively small, finite object - perhaps 300 to 500 feet [91 meters to 152 meters] in length in most cases - but the submarine's wake is persistent and stretches out for miles," said Polmar.

While the PLAN submarine fleet is the largest and most diverse in Asia, and very soon the fastest growing in the world, the PLAN's nuclear submarines are relatively easy to find. It is the diesel/electric submarines - and those equipped with so-called air-independent propulsion systems in particular - that are much harder to detect.

"The US Office of Naval Intelligence's unclassified July 2009 report on the PLAN suggests that some of the PLAN's diesel submarines are already extremely quiet, but its nuclear submarines remain relatively noisy," said Erickson.

US satellites play an increasingly important communications role in ASW, and are critical to the US Navy's Persistent Littoral Undersea Surveillance Network (PLUSNet), ForceNet and Sea Shield programs, to name a few. In addition, the US Defense Advanced Research Projects Agency (DARPA) is funding the Tactical Relay Information Network which uses lasers to instantly beam vital messages to submerged US subs as they are underway and perhaps chasing down other subs.

This writer speculates that as many as a dozen countries have operated sensors aboard satellites involved in some form of NAASW research. Others may disagree with this assessment.

Whitehouse and Hutt, for example, stated that, "many of these sensors are not of immediate practical benefit to military operations".

Keep in mind that commercial satellite ventures, and public - private partnerships such as Germany's RapidEye AG offer all sorts of satellite imagery.

Smaller, less expensive satellites possibly flying in formation over the ocean may offer significant advantages here. They can train their sensors and cameras on a single spot as they pass by in formation. California-based Microcosm Inc, for example, is developing the NanoEye small-satellite system, which comes equipped with basic or advanced electro-optical and infrared sensor payloads.

"Smaller satellites flying in formation may seem attractive for reasons of cost and coverage, but larger satellites offer far more advantages in terms of real capabilities," said Polmar. "Simply because of their small size, the smaller satellites are less capable, offer less electrical power and you cannot put much on them unlike much larger satellites."

The real advantage comes from the entire satellite-enabled infrastructure - or systems of systems - which links the powerful space-based sensors and detectors with those mounted on surrounding ships, subs, UUVs, aircraft, helicopters and UAVs - including the new "Sea Avenger" - so that all this surveillance data merges together to form a "common undersea picture" which can be instantly shared across the entire ASW community.

Aircraft and UAVs lingering overhead can mimic surveillance satellites, and their presence is an important aspect of the US "Maritime Domain Awareness" strategy. Another option involves inserting additional maritime surveillance assets above conventional aircraft and UAVs, and beneath the satellites.

For example, the US Navy is interested in DARPA's "Integrated Sensor Is the Structure" (ISIS) program, which is, in effect, an integrated stratospheric airship/radar - the stratosphere is found at an altitude of roughly 10 to 50 kilometers above Earth - featuring a 600-kilometer-wide sensor radius. In fact, DARPA included a slide during a briefing last year that showed how a single ISIS on station over the Luzon Strait could conduct surveillance operations covering the entire Strait from Taiwan to the northern Philippines, and almost as far west almost as the coast of China.

"No single sensor/platform combination has all the answers. Every sensor has its limitations. As a result, each application usually involves a suite of sensors, platforms and computer-based models," said Whitehouse and Hutt.

Associate professor Kazuto Suzuki of Hokkaido University's Public Policy School described Japan's Maritime Self Defense Force (MSDF) as "one of the best ASW forces without using satellite capability".

"There is no discussion of a satellite infrastructure for ASW. Satellites are only useful for detecting activities [at submarine bases]. MSDF and the 7th Fleet of the US Navy are sharing the work for ASW, and there is a strong confidence between them," said Suzuki.

However, over the years, Japan has launched many advanced remote sensing/earth observation, meteorological, and engineering test satellites - exactly the types of satellites which are ideally suited for conducting satellite-based NAASW research and development.

One relevant joint NASA-Japan Aerospace Exploration Agency project on the International Space Station recently tested a maritime hyperspectral imager. This coincided with work on the same type of imager done as part of the US Navy's Tactical Space Innovative Naval Prototype program involving so-called TacSats and their maritime satellite links to buoys and "unattended" sensors - perhaps UUV-mounted sensors.

China routinely uses ocean-centric satellite imagery provided by the US, Japanese and Europeans. Their own undersea mapping projects such as one done recently as part of a larger and more comprehensive Chinese survey of the South China Sea rely heavily on access to this data. [5]

The world's vast oceans have not been rendered completely transparent, but for over three decades, satellites have been transforming the way we view them.

As the US Congress scrutinizes the US-Russian START (Strategic Arms Reduction Treaty) successor and possible restrictions on the future use of US submarine launch tubes for anti-missile purposes, new potential threats to submarines need to be examined carefully.

Finally, the sinking in March 2010 of the South Korean destroyer Cheonan - important evidence in the form of "satellite imagery" is surfacing although the investigation is still underway [6] - serves to remind everyone that work must continue to help thwart future surprise attacks.

### **Ukraine Doesn't Plan to Renew Submarine Base, Yanukovich Says**

*By Kateryna Choursina, Bloomberg News, May 13, 2010*

Ukrainian president Viktor Yanukovich said he has no plans to renew the nuclear submarine base at Balaklava on the Crimean peninsula, close to the base of Russia's Black Sea fleet.

"This is a wild guess," Yanukovich told reporters in Kiev today. Balaklava, along the coast from the Russian base at Sevastopol, "has already been demilitarized. A tourist infrastructure is being built there." Russian experts will take part in a "revision" of sites in Crimea, together with Ukraine, "to arrange the fleet in a more compact way" and use the locations for business and social projects, he said.

Ukraine has tightened relations with Russia since Yanukovich was elected in February. The president agreed last month to extend the lease on the navy base in exchange for a reduction in the price Ukraine pays for imported Russian gas, a saving that will help it narrow the budget deficit and unlock financing from the International Monetary Fund.

The Soviet Union in 1957 built an underground terminal in Balaklava harbor with a 600 meter-long tunnel carved into the rock as the main base for the fleet's submarines. It's now the Balaklava Naval Museum Complex, visited by tourists who can examine the gigantic steel doors and bulkheads designed to protect against nuclear fallout.

Expansion of the fleet's base was not on the agenda, Yanukovich said today. The Russian and Ukrainian sides have discussed the renovation of the fleet using Ukrainian shipyards in Mykolayiv and Crimea, he said.

Yanukovich said he talked with Russian President Dmitry Medvedev about the completion and sale of the Ukrayina, a missile-carrying cruiser, which is 96 percent finished. He said the cruiser may be used for the Russian fleet.

### **Run Silent, Run Deep, Just Run Without Me**

*By Mark Hinson, Tallahassee Democrat, May 16, 2010*

In the spring of 1900, the U.S. Navy bought its first submarine. It was a steam-driven, 63-ton, 53-foot-long beauty that cost \$160,000. The big tub was about the same dimensions, weight and price tag as a 2000 Hummer — and probably just as buoyant.

The Navy held a contest to name the 45-horsepower war machine. Rejected entries included the USS Super Grouper, the USS Metal Mullet, the USS Crab Trap, the USS Michael Phelps, the USS Five Dollar Foot-Long Sub and Das Booty. It was finally christened the USS Holland (SS-1), in honor of its inventor, John P. Holland, and not the underrated 1973 album "Holland" by the Beach Boys.

It only took 110 years, but the Navy finally decided earlier this month that it would be OK to let women crash the boys-only party beneath the waves. The first U.S. women will be allowed to serve aboard subs starting in 2012. On my signal — fire torpedo jokes.

I'm glad the Navy finally let the ladies have a turn at playing Capt. Nemo. As long as the Navy isn't cramming me back into one of those claustrophobic tin cans, I say let any gender — male, female, transgendered, genetically altered, confused or combo platter — have a go at it.

Four years ago this week, the Navy invited a bunch of lily-livered, landlubber journalists to ride along on the USS Florida nuclear submarine out of Jacksonville. My name was called to spend one night on the 560-foot long “steel boat” while it prowled around somewhere in the Atlantic Ocean.

“Have I done something wrong?” I asked my editor. “Are you mad at me? Am I being punished? I saw what those giant squids tried to do to Nautilus in that Disney movie.”

No dice, Braveheart. I was sent packing.

My newspaper colleagues Bill Cotterell, Glenn Beil and I drove to dynamic Duval County and spent the night in a haunted Hampton Inn (well, something kept scratching on the walls next door and it wasn't Bill). We all hopped aboard the USS Florida one merry May morning and off we went on our sub mission.

Well, when I say “hopped aboard,” that really means I nervously, shakily, slowly inched my way down the ladder on the side of a four-story missile silo that the submariners used as their front door. When I was a teenager in Marianna, I spider-monkeyed my way up a ladder to the top of the water tower one Saturday night and discovered that my “up” gear worked much better than my “down” gear. A three-toed sloth wearing a tiara and a tutu would have looked more masculine and confident than I did when I entered the innards of the ironclad.

“We all live in a yellow-bellied submarine,” I sang softly to myself on the ladder.

Undog to the rescue

If you're 6 feet tall like I am, the submarine life has some immediate drawbacks. The interior ceilings and walls of a sub are nothing but row upon row of metal tubes, pipes, valves, nuts, bolts and strange steam-punk gadgets that will take a chunk out of your head if you stand up real straight. The tiny doorways were designed by members of the Lollipop Guild. I just went ahead and whacked my head on the first door to get that out of the way.

On the positive side, the men serving aboard the USS Florida were some of the most polite and sharp guys I've ever met. There were no dummies or remedial readers aboard that nuclear submarine — if you didn't count the journalists.

That also means I didn't understand most of the technical jargon that the submariners used. It was an acronym-heavy language that made little sense to an outsider from the topside. One sign on the submarine wall read: “Do not undog the LOC lower hatch until the vent valves SDA-106 and SDA-110 are open.” Wasn't Undog a superhero on Saturday morning cartoons in the '70s?

Platinum pickle patrol

When I was a kid, my older brothers and I pooled our money to buy a “two-person Polaris Nuclear Submarine” from the back pages of a “Sad Sack” comic book. It set us back a whopping \$6.98, which should have been a clue. We had big plans to launch the mini-Merrimack in the Chipola River and travel underwater to Dead Lakes, firing torpedoes at toads along the way. When the \$6.98 Polaris finally arrived, it was nothing more than a miniature model of a submarine built out of folded cardboard.

“We've been had, boys,” my brother Robert said. “‘The Man' has won once again.”

I thought of the paper Polaris when I got to peer through a real periscope and briefly “take the controls” to steer the USS Florida. (Actually, driving the sub was pretty anti-climactic and was a lot like sitting behind a computer control panel on Wall Street.) I think they humored me by putting the sub on autopilot.

The food was also top shelf, and I made friends with the quick-witted Lt. Todd Sullivan, a support officer known as Chops. He ran the mess hall with panache and kept morale high. You don't want a bunch of gloomy jerks or buzzkills aboard if you're spending 90 days inside a platinum pickle with 150 of your closest friends.

If you could forget that you were surrounded by walls of water, the trip was exciting. The biggest thrill came when the captain ran an exercise maneuver called “angles and dangles,” which featured a 20-degree dive that turned the world sideways. It was like being in a funhouse at the fair. Bedtime, though, was more like being in a German Expressionist horror film.

Bunkroom No. 4, which was almost the size of an inverted mini-van, slept nine. My “rack” was on the top. It resembled a coin slot and was about as roomy as the space between the top of my refrigerator and the kitchen cabinets. It took a metal chair and some clumsy gymnastics to launch myself into the Cabinet of Dr. Caligari. I wondered if I could bribe Chops to let me sleep on a table in the mess hall. Please, Chops, help me out of my premature burial.

When my bladder poked me awake at 4 a.m., wanting to know what we were doing in a coffin at the bottom of the sea, I realized that getting out of my berth was going to be harder than getting in. I grabbed hold of some pipes on the ceiling and dragged myself out of the bunk, bruising my ribs in the process. And there I swung in the darkness, feebly trying to find the chair with my feet and kicking like a hanged man.

Girls, if this sounds like fun to you...

## Modern Echocardiography Owes A Salute To The Navy

*Staten Island Advance, May 17, 2010*

STATEN ISLAND, N.Y. - Medicine has not been slow or shy about adapting for its own use the innovations of other disciplines. The space program for example, developed the home digital blood pressure device, originally designed for astronauts.

A recent adaption of aviation's checklist to improve the safety of surgical procedures made the talk-shows and the bestseller list. This week, I highlight the intellectual gifts from the Navy to the practice of echocardiography.

In actual fact, nature pre-empted the Navy by a few million years, as dolphins and bats have always used sound for communication and detection. Man appeared to get into the act around 1912 after the Titanic disaster, when underwater echo-ranging equipment was patented in both England and the United States. During World War I, under great secrecy, the Antisubmarine Division of the Royal Navy developed and deployed submarine detecting equipment, called ASDIC, which used active sound generation and detection of the echoes reflected off underwater structures.

Knowing the speed of sound traveling in water, the time from generation to reception of the reflected sound, determined the distance to the reflecting object, hopefully an enemy submarine. By the time of the outbreak of World War II, the Royal Navy had developed a number of different types of ASDIC equipment and shared the technology with the U.S., where it was called SONAR (Sound Navigation and Ranging), the sound equivalent of RADAR (Radio Detection and Ranging).

### ADAPTING TECHNOLOGY

The adaption of this technology to the development of echocardiography is a lesson in networking.

In 1953 Dr. Inge Edler, head of cardiology at the University Hospital, Lund, Sweden, was searching for a better way to evaluate the function of the mitral valve (located between the heart's upper left holding chamber and lower pumping one). Surgery was available to open a closed valve but not to close a leaking valve, and the diagnostic difference was a matter of life or death.

Fortuitously, Dr. Hellmuth Hertz was working as a graduate student at the University. He was exceedingly well connected, being the son of the Nobel prize winner and director of the Siemens research laboratory. Dr. Edler, enlisted his help, and with a borrowed naval SONAR device from the local shipyard, they began to record the movements of the heart wall and the mitral valve.

Publication of their work set off a multitude of further research and in the ensuing decade, development of the clinical and technical aspects of echocardiography expanded exponentially.

The same principles applied. The ultrahigh frequency sound generated by a probe placed on the chest was reflected off deeper structures in the chest. The longer the time it took for the echo to return (and we are talking in millionths of a second) the deeper the reflecting structure would be.

This allowed a two dimensional picture of the beating heart to be visualized in real-time on a computer screen. Now the motion of the heart walls and the valves could be studied, but the movement of the blood was still invisible. The submarine could be seen, but whether it was moving and how fast remained a mystery.

The answer came in an unexpected way!

### DOPPLER PRINCIPLE

In 1803, in Mozart's Salzburg, Austria, on a cold November night, Christian Andreas was born into the Doppler family which, for generations, had prospered in the stone masonry business. However, he was frail and sickly and as he grew it was apparent that he could not join in the physically exacting family trade, so he became a professor of mathematics.

At the age of 38, he published his most brilliant mathematical concept which has become universally known as the Doppler Principle. You can tell, however, from the title of the paper, "On the colored light of the double stars of the heaven," that he really did not have the echocardiogram in mind.

Doppler considered both light and sound to be propagated in the form of waves or frequencies. He postulated that if the source of the energy and its observer were getting closer, then the frequency would appear to be bunched up and compressed and it would be appreciated at a higher pitch (if it were sound) or a shorter wave length (if it were light). Conversely, if the source were getting further away, the observer would appreciate the sound to be at a lower pitch than the actual emitted sound or, if light, at a longer wave length and redder than the actual emitted light.

The most common example of the principle is the sudden drop in pitch of a train whistle as the train passes the observer. When the Navy incorporated this principle into their SONAR, they could spot the submarine and determine whether it was coming or going and how fast!

Again medicine adapted the Navy's technology and when the echocardiographic probe was modified to measure the frequency of the sound in addition to the timing of the echo it could then utilize the Doppler Principle to tell whether blood was flowing backward or forward through a valve and, if so, how fast. Blood flow and the amount of leakage were now measurable.

By moving the probe to other sites it became possible to quantitate the degree of blockage in the arteries of the neck and the veins of the leg, using the fact that blood flows faster

In the war against disease, it is good to have the Navy on our side.

## **USD Grad One Of First Women To Serve On Submarine**

*Channel 10 News (San Diego), May 19, 2010*

CORONADO, Calif. — A woman about to graduate from the University of San Diego will be one of the first women to serve on a U.S. Navy submarine.

Since high school, Kim Roe knew she was going to join the Navy ROTC program but as she is about to graduate from USD, opportunity has come knocking.

By 2012, women will be able to serve on submarines. Roe, who majored in math at USD, was picked by the Navy to be among the first group of women for submarines.

“It would have been my first choice if women were allowed anyway so I thought this is a great chance to do it,” she said.

Roe will join an elite group of women who were prohibited from serving aboard a ship or submarine not too long ago.

In 1993, aboard the guided missile cruiser USS Fox, Lt. j.g. Holly Russell and Lt. Lisa Scheinfurth were among the first women to ever serve on a combat ship.

“There are a lot of people looking to say hey, how’s it going to go,” said Russell in a 1993 interview.

Currently, women serve on all types of combat ships on a variety of jobs, totaling 15 percent of Navy personnel. On the USS Fox in 1993, it was a first.

“We don’t think of it that way,” said Scheinfurth. “We did our job part of a team, part of team Fox.”

Roe said she sees it the same way.

“I’m hoping I show up, I do my job and they’re more concerned with whether I can do the job,” she said.

Roe will spend at least a year learning the ropes, such as what to do if the sub springs a leak.

Her ROTC commanding officer, Capt. Bill Ault, believes the Navy could not have made a better choice.

“Certainly the submarine force has a long legacy of extremely high standards and she’s going to fit right in,” he said.

Roe wants to work on the sub’s reactor. Twenty four women, all officers will start training and eventually be assigned to submarines at Kings Bay on the East Coast and Bangor, Wash. on the West Coast.

## **NAVSEA Concludes Water Piercing Missile Launcher Testing**

*By Richard Scott, Jane’s Defence, May 20, 2010*

A team from the US Naval Sea Systems Command (NAVSEA) has successfully completed testing on the Water Piercing Missile Launcher (WPML) with a successful launch and fly-out of an AIM-9X surrogate missile at the Naval Surface Warfare Center (NSWC) in Crane, Indiana.

The WPML effort, while not a Department of Defense programme of record, is designed to test and validate the ability of a submerged submarine to engage hostile aircraft and small, fast surface ships with a slightly modified AIM-9X air-to-air missile that could be integrated into the attack and guided missile submarine fleets. A Raytheon-led team is in parallel separately pursuing the Littoral Warfare Weapon (LWW) programme, designed to prove the adaptation of the AIM-9X air-to-air missile for submerged launch. According to NAVSEA’s Undersea Technology Program Office (NAVSEA 073R), WPML technology could provide the submarine force with a universal underwater launch technology capable of employing currently deployed weapons and payloads without significant modification to the weapon itself. This requires a ‘hole’ to be punched through the water column to the broach point at the sea surface.

## **Fencing The Defence Of South Asia**

Indian Naval Expansion: Implications for Pakistan

*The Indian Defence, May 19, 2010*

The roots of modern Indian Navy can be traced from the ‘Battle of Swally’, fought between the British East India Company and Portuguese near Surat, Indian Gujarat in 1612. This small navel encounter sufficiently reduced the Portuguese’s hold over the trade and business in India and enabled the British East India Company to enhance its influence. With the arrival of the first fighting ship at this port on September 5, 1612, this navel setup was named as the “The Honourable East India Company’s Marine.” Later this marine force mapped the coastlines of India, Persia, and even Arabia. After passing through various phases and different nomenclatures, in 1934, the Indian Marines became “the Royal Indian Navy” (RIN). After the independence and partition of India, the navel setup was split between India and Pakistan, with the later getting only a negligible portion while bulk taken over by the former. India renamed its navel force as the Indian Navy, and its vessels got re-designation as Indian Naval Ships (INS) in 1950.

The current Indian Navel Headquarters is located at New Delhi having three naval commands; Eastern at Vishakhapatnam, Western at Mumbai and Southern at Kochi (Cochin). It has a joint command (Andaman and Nicobar). By 2012, India is planning to establish a new naval command with the name of, “The Far Eastern Naval command.” With the concept of creating the “blue water navy,” this command would secure the Indian strategic interests in the Southeast Asian region. Indeed, the decision to establish this command was taken in 1995, in a covert meeting between the defence officials of India and United States, who had the nodes of respective heads of the

states. Considering China a joint threat, United States has persuaded India to patrol the Malacca Strait under Proliferation Security Initiative (PSI). Upon its completion, the command will have “a chain of small anchor stations and three main bases.” Since the US would be a major direct and indirect beneficiary of this new naval command, therefore, it has sufficiently funded the India for its development. Apart from the US, Russia is also assisting India in the establishment of the new naval command.

The active strength of the Indian Navy is 58,350 persons. Besides, it has 55,000 reservists. The naval vessels include; sixteen SSK series submarines, eight DDG Destroyers. Indian Navy has twelve Frigates which mainly includes eleven FFG and one FF1- Krishna (UK Leander), used as the training frigate. Besides, Indian Navy has twenty-four Corvettes; twenty-eight Patrol and Coastal Combatants'. It has forty-seven vessels to provide logistic support. Indian Navy has ten Mine countermeasures (MSO 10 Pondicherry-(FSU Natya) and seventeen amphibious flotillas. With over 7,000 Naval Aviation personnel, it has adequate combat naval aviation power to support its marine operations. The Russian origin ten Kilo-class Type 877EM or the Sindhugosh-class- units are the backbone of the Indian naval fleet. In order to enhance its capability, Klub/3M-54E Alfa Cruise Missile system is being retrofitted in this system. Besides, Indian Navy also operates with six Shishumar-class Type 209/1500 vessels, which were designed by Howaldtswerke-Deutsche Werft (HDW) in Germany. HDW Germany built two of these, whereas other two were assembled in Mumbai at the Mazagon Dock. After their trial, these are forming part of the 10th Submarine Squadron, based at Mumbai. Two Foxtrot-class boats, currently being used for the training are also part of this fleet. Besides, the 16 active submarines, Indian Navy is in the process of building six Scorpene-class boats at the indigenous level at Mazagon Dock in Mumbai, under the supervision of French technicians.

The first indigenously built nuclear submarine “Advanced Technology Vessel” (ATV) named as Indian Naval Ship (INS) Arihant was put under sea trial in July 2009. Arihant (means “destroyer of enemies,”) is 367 feet long. The Defence Research and Development Organization (DRDO), the Department of Atomic Energy (DAE), private contractor Larsen and Toubro, and the Indian Navy at Visakhapatnam are jointly undertaking the construction project. India is planning to add 5-6 nuclear capable ATV submarines in its naval fleet for undertaking strategic nuclear role. These vessels would be equipped with 12 Sagarika Submarine Launched Ballistic Missiles (SLBM) with a range of around 700 km. After conceiving the grand designs for the naval development, on the doctrine of US Naval Admiral Alfred Thayer Mahan, India has started thinking on the strategic level. Its Defense Ministry has “took over the Hindustan Shipyard Limited in the port city of Vishakhapatnam to augment its submarine production program.” The traditional Indian partner of the cold war Russian Federation has whole-heartedly helped Indian in the enlargement of its naval armada, with a global vision. More recently, during his visit to New Delhi in March 2010, the Russian Premier Vladimir Putin has concluded a number of agreement including defence ties. He also gave India a political guidance to be felt at the global level. The visit further boosted the Indo-Russian cooperation in the nuclear field. Russian Federation is deeply keen to boost this relationship for an indefinite period.

The Indian Navy operates on a wide area extending from the Arabian Sea through Indian Ocean to the Bay of Bengal. A number of Sea Lines of Communication (SLOC) and strategically significant chokepoints like the Strait of Hormuz, Bab El Mandeb, and the Malacca Straits are located in these waters. The importance of the these waters can be imagined from the fact that over 90 percent foreign Indian trade and over 60 percent global seaborne trade takes place through them. There are even more chances that the global energy trade would increase in the coming years through these trade routes, thus further enhancing the significance of the Indian Navy. As per the ambitious Indian Maritime Doctrine, its navy has the primary task of controlling and protecting these SLOCs. Moreover, operationally it has to operate against the navies of Pakistan and China. The doctrine however, “calls for a stronger deterrent capability against foreign intervention by non-littoral navies, not limited to China only. This strategic reach indeed call for procurement of more sophisticated diesel and nuclear capable submarines, establishing aircraft carrier and developing new cruise missiles. Currently, Indian Navy is operating in area of over 3.5 million square kilometers.

In the field of naval development, Indian ambitions are indeed global. It intends operating at the international waters like the navies of United States, Russia, and United Kingdom. In order to have a strategic impact, it would operate on the principle of submarine-based minimum nuclear deterrent (MND). The Indian ATV programme, leasing of nuclear submarines, and acquisition of air-independent propulsion (AIP) submarines are part of this strategic naval development. India has the experience of leasing the Soviet Submarine Project 670 Skat (NATO name Charlie-I) from 1988 to 1991. Since the previous leasing experience has been a success, therefore India has decided to lease another Russian nuclear-submarine, the Project 971 Schuka-B (NATO name AKula-II). Approximately 300 Indian marines have undergone training of the submarine at a special facility in Sosnovy Bor, near St. Petersburg, Russia. These submarines can launch both anti-submarine and anti-surface torpedoes. Akula submarine can dive up to a depth of 600 meters. It can carry the supplies for itself as well as the people on board that can sustain them for over 100 days. Its operational crews comprises of seventy three members.”

Technically, the Akula-II submarine has a double hull system “composed of an inner pressure hull and an outer light hull. This allows more freedom in the design of the exterior hull shape, resulting in a very hydrodynamic submarine compared to western counterparts at the time. The submarine has the equivalence of the same class of American AN/BQQ-5/6. It is worth mentioning that the K-157 Vepr has attained the status of the first Soviet submarine that was quieter than the latest US attack submarines of that time, which was the Improved Los Angeles class (SSN 751 and later). Indeed, the advancements made by Soviet for quieting the sound of submarines to a considerable level have caused uneasiness in NATO and US. Apart from the centralized weapon system, this version of the submarine has better command and control with high degree of automation, which reduce the strength of the crews. This class is equipped with 28 nuclear capable cruise missiles, which can engage target up to 3000 km. Apart from using this submarine as the training platform for India’s indigenous nuclear submarine fleet; it would help in the refinement of the nuclear operational concepts. “Akula-II nuclear attack submarine is recognized as a state-of-the-art and top of the line weapon system amongst contemporary submarines. Its induction into the Indian Navy will significantly enhance India’s reach and offensive capability and may be used as the

platform for the second strike in the event of a nuclear attack. Besides its own indigenously built nuclear submarines, induction of this Russian version Akula-II submarine would significantly tilt the regional balance of military power in India's favour.

Besides Indian submarines can fire the 'Shaurya' missile indigenously developed by India and has the capability to carry the nuclear warhead. Primarily, it is a canister-launched, solid-fuelled hypersonic surface-to-surface tactical weapon. Its range is 700 to 1900 km and can be pre-programmed to make it difficult for the anti-missile system to intercept it. "Using conventional fuel-air explosive warheads, the missile can cause devastation similar to that of a mini-nuke." It has been optimized for the INS Arishant submarine. Besides, Indian Navy is reinforcing its air power through the induction of MiG-29K (also called Black Panther) maritime fighter planes. These twin-engine aircraft are capable of covering, "a tactical radius of around 2,000 km and fitted with beyond-visual-range missiles, will provide potent air cover to the naval fleet in the Arabian Sea and Indian Ocean. The aircraft is also capable of air-to-air refuelling, which enhances the time on task." India has significantly improved its maritime strike capabilities, all over the Arabian Sea, Bay of Bengal, and the Indian Ocean, through a combination of modern naval vessels and air power achieved through; MiG-29Ks and Sea Harriers, and the Jaguars and Sukhoi SU-30MKI fighters of the Indian Air Force. Besides, the India manages the existing maritime surveillance through aircrafts like; types IL-38, TU-142, and the maritime Dornier-228. India is also launching a naval satellite, which will further improve its existing surveillance and net-centric communications in the Indian Ocean region between the navy's ships, submarines, and aircraft.

Indeed, the Indian naval inventory is a mix of the foreign and the domestic weapons system. The cruise missile systems like; the Klub (SS-N-27) is part of the foreign weapons system. Besides, it has indigenous cruise missile systems like; Sagarika, Lakshya and Lakshya PTA. Development of the Sagarika (Oceanic) started in 1994, as the submarine-launched cruise missile (SLCM). Its range is from 300-1000 km. Yakhont Anti Ship Missile system (BrahMos) is yet another system being completed by NPO and DRDO. "The BrahMos has been tailored to Indian needs and uses a large proportion of Indian designed components and technology, for its fire control systems, Transporter erector launchers, to its onboard naval attack system."

The ongoing Indian naval developments have altogether changed the military balance in the region. Except 1962, Indian military power has always been used against Pakistan. Currently no naval fleets of the neighbouring countries match even the traditional Indian Naval power. Pakistan Navy however has the potential to act as deterrent factor to the traditional Indian Naval capabilities. Nevertheless, with the inductions of nuclear capable submarines like Akula-II and indigenously built INS Arihant, and other modernization, Indian Naval power would be matchless.

It is worth mentioning that India has no direct coast line with China and it has no enmity with other regional countries of the South Asia. Therefore, analysts rightly assume that apart from its global ambitions, this Indian naval power would be used against none other than the Pakistan. The rapidly growing Indian naval power is compelling Pakistan to likewise its naval fleet. In a way, region is getting into the race for the procurement of sophisticated naval equipments. In this regard international community has to play a very important role in making the India to understand that in the long run, this race would have disparaging effects on South Asia as well as for India itself. Let us hope that wisdom prevails and India abandons its hegemonic designs. It needs to feed its poor people, 70 percent of whom are spending their living on less than 1 US dollar a day.

## 'Submarine Detoured In West Sea'

By Lee Hyo-sik, Korea Times, May 20, 2010

A 130 ton-class North Korean submarine that fired a torpedo at the Cheonan was presumed to have gone around the West Sea to infiltrate into waters of the South without being detected, an international team of experts investigating the sinking of the warship said Thursday.

It also reported that after penetrating the South Korean waters, the submarine zeroed in on the Cheonan and launched a torpedo at close range with intent to send it to the bottom and kill those on board.

"After piecing all evidence and intelligence together, we concluded that North Korea's two submarines - a 300 ton-class submarine and a 130 ton-class submarine - were operating in the West Sea on the night of March 26," said vice-admiral Hwang Won-dong who led the intelligence analysis unit at the investigation team.

He said the investigation team concluded that it was the 130-ton class one that fired a torpedo at the Cheonan after analyzing fragments of the torpedo recovered from the scene and gathering other military intelligence.

Hwang said after the provocation, the submarine "promptly" returned to waters north of the Northern Limit Line (NLL) by backtracking the infiltration route. The communist state is known to operate about 70 large-and small-scale submarines.

'No. 1' hand-written mark

"We do not know whether the North observed the Cheonan in advance to attack it. But we believe that North Korean submarines must have undergone prior military drills, including firing a torpedo, in waters similar to those in which the South's frigate was sunk," the vice-admiral said.

He then said it is extremely difficult for the military to defend against submarines, adding the most effective countermeasure against submarines is to keep track of them by checking whether they are stationed at the base or not.

"We detected that a few small submarines and a mother ship supporting them left a North Korean naval base in the West Sea 2-3 days prior to the attack," Hwang said. "But we never expected them to penetrate our waters and attack the Cheonan. This is why we were not adequately prepared at the time of attack."

The submarine went back to its base two to three days after the attack, he said.

After securitizing the wreckage of the 1,200-ton patrol ship and other evidence collected from the scene, including the North Korean torpedo parts, the investigation team concluded that an external underwater explosion caused by the torpedo was responsible for sinking the Cheonan and killing 46 sailors.

It said the “No. 1” hand-written mark on the rear part of the torpedo collected from the sinking site is consistent with markings on a stray North Korean torpedo the South recovered seven years ago. The navy will take a range of measures to beef up its surveillance capability of North Korean submarines.

## **Sole Survivor Of Submarine Crew To Lead Forestville Parade**

*By Jackie Majerus, The Bristol Press, 22 May 10*

BRISTOL — After watching the Forestville Memorial Day parade from the sidelines each year, World War II Navy submarine veteran Allen Bingham will have a different perspective this holiday as the grand marshal.

“I’m really honored to be able to do that,” said Bingham, who served on the original U.S.S. Seawolf as a yeoman second class, or petty officer.

Bingham said he spent two years on the submarine, patrolling in the Pacific, “looking for ships to sink.”

The Seawolf “sank a few,” according to Bingham.

He liked the submarine and just the idea of living under water and being able to come to the surface.

“I enjoyed it,” he said. “I didn’t mind it at all.”

But while on leave off the ship in late 1942, Bingham got sick with tuberculosis, and couldn’t go back aboard. A few days later, the sub sank, and everyone aboard — all his shipmates, many good friends — died.

It was tough to take, Bingham said, and the TB cost him a lung, but he was grateful to survive.

“At least I wasn’t on it,” he said. “We’re thankful for that, I guess.”

A native of Omaha, Neb., Bingham came to New London for his Navy training. He said he liked New England and after more than four years in the service, he attended college in Willimantic and became a teacher.

While in college, he met his wife, Lorraine. They had two sons and a daughter and were married for 49 years before she died more than a decade ago.

Both sons live out of state, but his daughter Cheryl McNeal, lives in Plainville.

Early in his career, he taught in Southington, Bingham said, then moved to Nebraska and taught there for a few years before returning to Bristol and teaching upper elementary students at O’Connell School for about 20 years.

Bingham, 89, said he used to march in the Memorial Day parade with the Disabled American Veterans, but in recent years, he’s been a spectator.

He’s never been a parade marshal, and was surprised and delighted to be asked.

“I’m looking forward to it,” he said.

Bingham said he’s not exactly sure what he’ll be doing as parade marshal, but said he’ll wait to see what parade organizers ask of him. But he does plan to blow a kiss to a special friend watching from the sidelines.

“I can still do that,” he said, chuckling.

## **Brazil To Have Nuclear Sub’s Reactor In 2014: Navy**

*Agence France Presse, 23 May 10*

Brazil will finish the first reactor for its nuclear submarine in 2014, the navy’s nuclear propulsion program chief Andre Ferreira Marques said in an interview Sunday.

The reactor will be powered initially with five-percent enriched uranium and eventually with 20-percent, he said in the interview with the state’s Agencia Brasil news agency.

Brasilia will begin building its nuclear sub in 2016 and complete it in 2021, an adaptation of the Scorpene bought from France.

The sub reactor will be used as a model for future Brazilian nuclear power plant reactors, he added.

Brazil is working toward self-sufficiency in nuclear fuel from 2014, officials said.

## **Russia Defers Bulava Missile Tests**

*From Brahmand.com, 24 May 10*

MOSCOW (BNS): Russia has decided to carry out test launches of its Bulava ballistic missile in November and not in June as planned earlier, an agency report said.

The Russian Navy had earlier intended at least four new test launches of the missile at the end of June, but defense industry experts suggested they would need to build three missiles under identical conditions to establish the causes of the failures, RIA Novosti said.

The news agency quoting Russian Defense Minister Anatoly Serdyukov said, “We should be ready to resume the (Bulava) tests by November, I think.”

Serdyukov said that the problems with the missile apparently originate from the faulty assembly process.

“It all comes from the poor quality of assembly. But each failed launch has experienced different problems,” the minister said.

He hoped that testing of the three identical missiles would allow the experts to pinpoint the cause of failures.

Russia had last tested the missile in early December 2009, which ended in failure. Only five of 12 Bulava launches have been officially reported as being successful, the report said.

The Bulava (SS-NX-30) is a three-stage liquid and solid-propellant submarine-launched ballistic missile (SLBM). It carries up to 10 MIRV warheads and has a range of over 8,000 kilometers (5,000 miles).

The missile has been specifically designed for Russia's new Borey class nuclear submarines.

## **5 Years Later: Sub Base Survived Closure Scare; Future Still Unclear**

*By Ray Hackett, Norwich Bulletin, May 13, 2010*

Last weekend, when Secretary of Defense Robert Gates said in a speech in Kansas that the Pentagon "must cut its overhead and restrain spending," it raised a few eyebrows in Eastern Connecticut.

Although he didn't mention military infrastructure in his speech, his warning that there may be "choices needed that will anger powerful people" gave some here reason to wonder if another round of base closings might be on the horizon.

"That's the way it starts," said John Markowicz, executive director of the Southeastern Connecticut Enterprise Region and the front man of previous efforts to fend off Pentagon attempts to close and realign the Groton submarine base.

"In the past, it's always been the executive branch that has taken the lead on issues that eventually lead to BRACs (Base Closure and Realignment)," Markowicz said.

On list to close

Five years ago today, the Department of Defense released its 2005 list of proposed base closings in the last BRAC round. It recommended that the Groton submarine base be shuttered and its subs and personnel transferred to Newport News, Va., and Kings Bay, Ga.

"In our final report to the president, we recommended a BRAC be conducted every eight to 12 years," Anthony J. Principi, chairman of the 2005 independent BRAC Commission, said. "But I don't think another BRAC is on the horizon, not at least until the economy settles and the unemployment picture improves."

Principi, now senior vice president for governmental affairs for Pfizer, said although a BRAC primarily is intended to save costs so that tax dollars can be better used, the process also ensures the nation's defenses are conforming to ongoing and changing threat assessments.

It was those two considerations that led him and the 2005 commission to reject the Pentagon's recommendation to close the Groton facility, agreeing with the state's contention that the Navy's projected cost savings were flawed and failed to take into consideration the unique synergy that existed here.

"It just didn't add up," Principi said. "The Navy took a narrow look at excess pier space. The commission took a larger, more strategic view and looked at the synergy, the relationship with Electric Boat, the sub school.

"The cost of trying to replicate a sub school, or university you might say, didn't justify the savings that were being projected," he added. "They had cost savings associated with the transfer of 7,000 sailors to Kings Bay estimated at \$4.4 million, but we seriously doubted that. Those sailors weren't being dropped. There was no savings."

Principi said it would be a mistake for the state to rest on that success, however.

"I think everybody, and certainly Connecticut, and the New London-Groton facility, should be prepared for another BRAC, and take the steps to insulate themselves from it," Principi said.

Base improvements

Those steps are being taken.

Since the 2005 BRAC, two new piers have been constructed at the sub base and other improvements made.

"The fundamental criticism of Groton was that it was too old, too cramped," U.S. Rep. Joe Courtney, D-2nd District, said. "Congress has approved the Navy's request for \$80 million worth of improvements at the base. They're clearing out old buildings and upgrading facilities, changes that are important, smart and necessary."

Furthering those efforts, the state and Navy last year entered into a unique partnership in which the state is providing \$7.5 million for boiler replacement and construction of a new diving support facility.

"The Navy has invested millions of dollars transforming New London into the center of excellence for training the entire submarine force, a commitment symbolized by our new submarine escape trainer," said U.S. Sen. Joseph I. Lieberman, I-Conn., a member of the Senate Armed Services Committee. "I will work with Secretary (Robert) Gates to bring defense spending under control, but I'm sure that SUBASE New London will continue to be the submarine capital of the world."

Markowicz believes that unique partnership between the state and the Navy alone should put the base in a "special category" warranting special consideration in any future BRAC round.

"Has the military value of the base improved because of the investments? Yes," he said. "Has it improved enough? I'm not sure."

Still vulnerable

But there is still the issue of cutting defense costs.

"I think, for the base, we're in better shape than we've ever been," Bud Fay, of Groton, said, "but if we're talking about the other threats to the base or EB, based on the secretary's comments about cutting defense spending, I'm concerned."

The Pentagon estimated savings for the 2005 BRAC at \$47 billion. But in the final commission report to the president, Principi said the commission put that figure at closer to \$35 billion — and more likely \$15 billion if the Defense Department continued classifying personnel transfers as savings.

Since then, we've learned the actual savings are even smaller. The Pentagon's original cost estimate to implement its recommended closings and realignment was \$21 billion. The actual cost is higher, now at \$35 billion.

#### Support for subs

But Courtney, a member of the House Armed Services Committee, noted that Gates' comments were aimed more specifically at weapons systems than infrastructure, and if there is a silver lining to the dark cloud he painted, it was his expressed support for the Navy's submarine fleet.

"We must rethink what and how we buy, to shift investments toward systems that provide the ability to see and strike deep along the full spectrum of conflict," Gates said. "This means, among other things, a submarine force with expanded roles that is prepared to conduct more missions deep inside an enemy's battle network. We will also have to increase submarine strike capability and look at smaller and unmanned underwater platforms."

"Quite frankly," Courtney said, "I don't see the administration wanting to fight that initial hurdle, the massive congressional resistance to another BRAC. I can't imagine anyone proposing that."

## Women On Submarines: It's The Education, Stupid

*National Defense Industrial Association Magazine, May 12, 2010*

The Navy's decision to finally allow women to serve aboard submarines has been described as an experiment in social engineering.

But it really isn't. The Navy, for practical reasons, needs female officers in the submarine force. More than trying to be a champion of gender equality, today's high-tech Navy is reaching out to women in no small measure because more females have advanced technical degrees, says Navy Rear Adm. Barry Bruner, commander of the Submarine Group Ten.

Bruner heads the so-called "Task Force for Women in Submarines," which is overseeing the process of integrating women, for the first time, into submarine crews. Women were first assigned to selected noncombatant ships in 1978. In 1994, following the repeal of a combat exclusion law, women were allowed to be assigned to combatant surface ships.

As submarines, and the Navy overall, become more technologically advanced, sailors require higher levels of education. More women than men these days are acquiring technical degrees, so it only makes pragmatic sense for the Navy to bring them aboard, Bruner tells military bloggers in a teleconference this week from Kings Bay, Ga.

Over the last 40 years, the percentage of Navy males who graduate from college with technical degrees has declined from 75 percent to about 45 percent, he says. "And women have gone up to the point where today women are actually gaining more technical degrees than men are," says Bruner. "So we really need to open up the talent pool so that we can maintain the best officers available on the submarine force."

Bruner's Submarine Group Ten has two squadrons, one of ballistic missile submarines and a squadron of cruise missile submarines.

"When you go to nuclear power school, that is, for all intents and purposes, a graduate school for nuclear power," he says. "It would be very tough for any individual who doesn't have a good background in calculus and physics and those technical topics to be able to survive a nuclear power school. It's tough enough for people who have a degree in electrical engineering or chemical engineering or structural engineering. ... So that's really the big thing, is the way our educational pipeline is set up for them to be able to survive, they have to come in there with a pretty good technical base."

Navy leaders in recent years have seen "more and more women getting technical education and fewer and fewer men," says Bruner. "So for us to maintain a great pool for us to pick from of the most talented young people to become officers in the nuclear submarine fleet, we really need to open up our talent pool, because the pool's getting smaller as we move forward."

The move to allow women on submarines has come under criticism from traditionalists who point out that submarines have little room to accommodate separate facilities for men and women. "In private, many will tell you women don't belong in such an atmosphere, they can't cut it, and they would be a distraction to male sailors," Bruner says.

But he is confident that the transition can be achieved successfully. The women who are now being trained will reach their submarines for the first time in late 2011 or early 2012. They'll be assigned to eight submarine crews, two crews on each of two submarines on each coast.

There will be two female trained nuclear officers on each of the eight crews, and additionally there will be a more senior supply officer who will serve both as a mentor for new female ensigns and for male officers in the wardroom, says Bruner.

The Navy has no immediate plans to allow enlisted women in submarines.

At the U.S. Naval Academy, 138 seniors this year were selected to enter the submarine training program. These midshipmen were chosen based on their academic records and knowledge of technical topics. About 20 female seniors will be picked from 2010 graduating classes at schools across the country.

It still remains to be seen whether the Navy's newest class of submarines, the Virginia class, will accept females in their crews. So far that seems unlikely, says Bruner. "We're still looking at that," he says. "The Virginia Class is not built to allow privacy for men and women, so one of the things we have to figure out is what would be the configuration change to the submarine that we'd need to make, and how much would it cost and what would the impact be on the operational ability of the submarine?" he says. "Those are all questions that we're in the process of trying to get answers to. But until we get those answers, we won't be able to come up with a date."

## Quiet Resistance To Women On Subs

By JANIE LORBER, *New York Times*, May 12, 2010

WASHINGTON — Midshipman Jessica Wilcox, who graduates from the United States Naval Academy in Annapolis this month, said she first pictured herself aboard a submarine when she was a “dreamy young person,” long before women were allowed to join the nation’s nuclear submarine service.

Now, she is among the first group of women to be tapped for the elite force, one of the military’s last all-male bastions.

She is ready to break into the fraternity, even though it means being submerged for three months at a time in a space no wider than a motor home, outnumbered 70 to 1 by men, many of whom will not want her there.

“I just feel blessed,” Ms. Wilcox, 21, of Honesdale, Pa., said recently in a phone interview. “Each individual branch of the service has its ups and downs.”

The Navy announced last month that it would place women on submarine crews. By January 2012, after 15 months of training, a total of 19 women will be assigned to four ballistic missile submarines based in Bangor, Wash., and Kings Bay, Ga.

Aboard the ships, the women will share a bedroom so small that only one person can stand up at a time. When they want to use the bathroom — just two showers and two toilets for 15 officers — they will hang a sign on the door that says “women only.” To move from bedroom to bathroom, they will walk corridors so narrow that two sailors cannot pass without pressing against each other.

But while the decision opens a prestigious career path to women and increases the Navy’s recruiting pool for submarine postings, it has been met with quiet resistance within what has long been proudly called “the Silent Service,” according to active-duty and retired submariners.

The development comes amid other changes that threaten 110 years of tradition in the brotherhood, including a ban on smoking on submarines, effective Dec. 31, and the anticipated unwinding of the “don’t ask, don’t tell,” policy that bars openly gay men and lesbians from serving in the military.

John Mason, a retired senior chief petty officer who served aboard four submarines and two surface ships from 1977 to 1994, began preparing an online petition opposing the integration of women this spring. So far, Mr. Mason has collected the signatures and comments of nearly 550 retired and active-duty military personnel, as well as their spouses — all of whom argue that submarines are no place for women.

Privately, many active-duty sailors said they believed that the decision was made for political reasons, not operational ones. A sailor who has served on a fast-attack submarine based in Pearl Harbor since 2005 said that pregnancy would undoubtedly end up disrupting missions and that the cramped ships could not accommodate women.

“The chief of the boat calls it a brotherhood of master mariners — not a brother and sisterhood,” said the sailor, who withheld his name because he was disagreeing with official Navy policy. “If all of a sudden they put females on my submarine, things would change so drastically, I don’t think we would be able to flow as well.”

Mr. Mason said the presence of women on submarines would put an end to the kind of camaraderie “that involves close physical contact, like man hugs and bottom pats” that sailors use to cope with the pressure of extended deployments.

The issue of allowing women on submarines has been considered and rejected several times since 1994 when women were allowed to serve on surface ships, usually with the argument that it was too expensive to retrofit submarines for both sexes. Several allied countries allow women to serve aboard submarines, but their ships rarely deploy for as long as American ones.

Rear Adm. Barry L. Bruner, who led a task force investigating the issue, has addressed the controversy on his blog, saying the integration of women was necessary to maintain American dominance beneath the seas.

“We’ve looked hard at the impediments to successful implementation of the plan,” Admiral Bruner, the commander of Submarine Group 10, based at Kings Bay, wrote when the policy was changed. “Given the need and the more open attitude of the current generation of submariners, I continue to feel that this change to policy is needed to maintain the readiness of the most operationally active Submarine Service in the world.”

At first, female officers will be assigned only to the Navy’s largest submarines, known as boomers, equipped with long-range nuclear-tipped missiles. The Navy will then consider allowing enlisted women to join the submarine force and whether to make the necessary changes to accommodate women on the smaller fast-attack submarines.

Misty Webster, another midshipman bound for submarine service, conceded that the size of the submarines could make integrating more complicated, though she said women at the Naval Academy never felt they were denied opportunities under the old policy.

More important, Ms. Webster, 21, of Wesley Chapel, Fla., said that after she spent a full day on a submarine, she felt as though she had found her niche.

“I felt like I fit in more than in any other community in the Navy,” she said.

## Iran Wraps Up Navy Drill In Southern Waters, Terming It “Successful”

by Mehdi Bagheri, *Xinhua*, May 12, 2010

TEHRAN — Iran wrapped up its eight-day navy drill in its southern waters on Wednesday, calling the drill “successful.”

According to official IRNA news agency, the drill came to an end after eight days of massive exercise with the parade of Army Naval forces including Iranian warships and hovercraft, heavy and light submarines as well as Iranian Air Force warplanes and helicopters.

Spokesman of Iran's navy drill Gasem Rostamabadi said the country's naval force carried out the exercises and operations of its eight-day war game "successfully."

"Over 150 exercises and operations by Iran's ground, air and naval forces were carried out successfully in the massive navy drill," Rostamabadi was quoted by IRNA as saying. "All the exercises were successful," he said, adding that "This war game can be regarded as a turning point in using domestic achievements including lightweight

## Is the U.S. Prepared to Face Midget Subs?

By Joe Pappalardo, *Popular Mechanics*, 25 May 2010

Don't let the funny, politically incorrect name fool you: Midget subs are a real threat. In the hands of North Korean and Iranian navies, these small vessels make good platforms for ambushes—and the U.S. Navy is clearly ready to hone its anti-submarine skills.

War tensions have been high since last week's announcement by the South Korean government that a 60-foot North Korean submarine fired a torpedo that sank a South Korean corvette and killed 46 sailors at the end of March. The South Koreans stated that a Yeono-class (alternatively spelled "Yono") midget submarine fired the torpedo in March. (They also field a larger midget submarine, the Sang-O, that fits 15 sailors. At least one of these subs was also on patrol when the attack happened, according to an international team of investigators looking into the incident with South Korea.) The attack occurred in 150 feet of water, enough room for the midget submarine to maneuver.

Any sub that weighs less than 150 tons is called a midget. They can't travel too far on their own, and depend on support vessels to extend their range. In shallow water, where sonar returns are cluttered, they can prove quiet and sneaky. Often this means they can lay mines or insert commandos on beaches. According to statements by South Korea, attacks from midget subs can also include torpedoes. Iran is known to operate midget subs, and after buying a handful from North Korea, it is believed to be making its own.

A civilian ship hired to dredge the area of the attack found remains of what the government labeled a CHT-02D torpedo, made in North Korea. That torpedo would have a big enough warhead—250 kilograms—to destroy the corvette. Government reports state that the ship's sonar did not detect the submarine or the torpedo.

That is what concerns the U.S. Navy. Two things heighten the risk of a similar ambush by midget submarines against U.S. ships: the complex sonar picture of shallow water where these small subs can operate, and a post-Cold War decrease in anti-submarine training. "Instead of a large number of Soviet nuclear-powered submarines on the open ocean, advanced conventional submarines operating in the littorals have emerged as the most serious threat to U.S. forwardly deployed forces, military sealift and merchant shipping," Milan Vego, professor of operations at the Joint Military Operations Department at the Naval War College, wrote in a recent piece for *Armed Forces Journal*. "The emerging threats ... are minisubmarines, swimmer-delivery vehicles, remotely operated vehicles and autonomous underwater vehicles."

This week the Pentagon announced it would step up its anti-submarine training, engaging in exercises with South Korea. The decision is "a result of the findings of this recent incident," Pentagon spokesman Bryan Whitman told reporters. But crash courses in sub hunting may not help much; professionals admit it's an art as much as a science. The United States' sub-hunting abilities have atrophied since the Soviet Union dissolved. One obstacle to revamping anti-submarine training is bringing it out of simulators and into the real world. It takes a lot of effort to conduct a real sub hunt, but these skills need to be continuously honed. "The skills for successful conduct of anti-submarine warfare (ASW) must be maintained; otherwise, they will quickly atrophy," Vego warns.

The Navy has done a better job spending money on technology that can locate submarines. During the Cold War, permanent networks of sensors on the sea floor helped keep tabs on Soviet submarines. Similar networks have not been established or upgraded for use in new hotspots. "Undersea surveillance systems developed during the Cold War have limited effectiveness today," Vego says.

It appears the South Koreans share that lethargy, but South Korean officials now say a permanent snooping system will be installed. South Korean Lt. Gen. Park Jung-e said at a media briefing that "our plan is to reinforce submarine measures by establishing a submarine detection system in areas that are vulnerable."

The United States is also fielding a deployable piece of underwater detection technology, called the Advanced Deployable System (ADS), that is built for shallow-water emergencies. The system proposes to use expendable, battery-powered passive acoustic arrays that are connected with fiberoptic cables. The system will be integrated into the Navy's much-delayed but recently commissioned Littoral Combat Ship.

## US Admiral Warns Over Beijing's 'Assertiveness'

By Kathrin Hille, *Financial Times*, 26 May 2010

Beijing – The commander of US forces in the Pacific has warned that China's military is more aggressively asserting its territorial claims in regional waters.

Admiral Robert Willard told the *Financial Times*: "There has been an assertiveness that has been growing over time, particularly in the South China Sea and in the East China Sea."

He said China's extensive claims to islands and waters in the region were "generating increasing concern broadly across the region and require address".

The admiral's remarks follow complaints by Japan in recent weeks about aggressive behaviour from a Chinese coastguard vessel in contested waters and a Chinese military helicopter in international waters.

Some of China's neighbours have been watching the People's Liberation Army's modernisation and efforts at expanding the navy's reach with unease, and defence experts see this expansion as one factor behind a developing arms race in south-east Asia .

Adm Willard said the US viewed China's growing influence in Asia as positive. But Beijing needed to be more transparent, not only with the US but also with its neighbours.

Adm Willard was speaking ahead of talks with Ma Xiaotian, deputy chief of general staff of the PLA, the first meeting between senior US and Chinese military officers since Beijing suspended bilateral military-to-military dialogue in January after US arms sales to Taiwan.

"US-China military dialogue is officially still in suspension," said Adm Willard, who visited Beijing at the invitation of Hillary Clinton, secretary of state, in the context of the Strategic and Economic Dialogue, the bilateral exchanges that concluded yesterday.

But he interpreted the fact that Beijing had agreed to his presence as a sign it viewed some high-level exchanges as beneficial.

"What was very striking yesterday was my impression of the very advanced, sophisticated and mature dialogue that's occurring across a wide range of subjects between China and the US," he said.

"That is in contrast with a very immature military-to-military relationship."

## **Brazil Closer To Control The Whole Industrial Cycle Of Uranium Processing**

*Merco Press, 25 May 2010*

Brazil will be ready to control the whole industrial cycle of uranium processing, from extraction of the radioactive mineral to its final conversion into fuel, in large volumes, by the end of the year, according to military sources.

The Coordinator of the Nuclear Propulsion Program belonging to the Brazilian Navy Captain André Luis Ferreira quoted by the government news Agency Brazil said that once the country has the necessary technology to complete the nuclear cycle, this will grant the country independence from other suppliers in the process of uranium enrichment.

It is scheduled that the first phase of a plant for the production of uranium hexafluoride, from which enriched uranium is developed, should be completed at the military complex or Aramar in the state of Sao Paulo sometime late this year.

Captain Ferreira said that residues generated from the hexafluoride process will be treated several times to minimize the environment impact.

The announcement of the hexafluoride plant occurs just a week after President Lula da Silva together with the Turkish Prime Minister helped strike a deal with Iran regarding its nuclear fuel which has triggered an ongoing international diplomatic confrontation. Iran's nuclear fuel according to the agreement reached will be partly enriched in Turkey.

Lula da Silva has repeatedly defended Iran's right to develop its own nuclear program for peaceful purposes. Similarly Vice-president Jose Alencar had publicly defended Brazil's right to develop nuclear weapons as a dissuasive element and for the defence of its own territory and natural resources particularly the rich offshore oil deposits. This includes the construction of nuclear powered submersibles, which is a long cherished project of the Brazilian navy.

Brazil has two nuclear plants in the city of Angra do Reis, state of Rio de Janeiro which contributes with 3% of power to the national grid. Since uranium enrichment in Brazil on an industrial scale only begun this year but mostly on an experimental basis, most of the enriched fuel at 4%, for the current power plants comes from overseas.

Ferreira also said that the new processing plant will help the navy have its first reactor for the country's first nuclear submarine by 2014. The reactor will in a first stage function with uranium enriched 5% that will later increase to 20%.

"The Navy's reactor will help as a model for future nuclear plants ", said Ferreira. He also anticipated that Brazil should reach nuclear fuel self sufficiency by 2014 and the first nuclear powered submarine will begin to be constructed in Brazil in 2016, to be finished and launched by 2021. The submarine will be developed with French technology and is based on the Scorpone submersibles model.

## **A US Nuclear Submarine Crosses Into Strait Of Hormuz**

*DEBKAFfile , May 27, 2010*

US nuclear-submarine in Persian Gulf waters Tehran reports that an Iranian naval patrol Thursday, May 27, detected a US nuclear submarine sailing through the strategic Strait of Hormuz, through which most of the oil produced by Persian Gulf states passes on its way to world markets. debkafile's Iranian sources report Tehran has placed its navy and army on high alert.

Western intelligence and naval sources confirm that a nuclear-armed American submarine has in fact entered the Persian Gulf. This confirms debkafile's report of May 20 that the Obama administration had decided to boost US military strength in the Mediterranean and Persian Gulf regions in the short term with an extra air and naval strike forces and 6,000 Marine and sea combatants. Carrier Strike Group 10, headed by the USS Harry S. Truman aircraft carrier, was due to sail out of the US Navy base at Norfolk, Virginia Friday, May 21.

On arrival, it was to raise the number of US carriers off Iranian shores to two.

Thursday's arrival of a US nuclear submarine also ties in with the currently rising military tensions along Israel's borders with Syria and Lebanon.

Up until now, President Barack Obama kept just one aircraft carrier stationed off the coast of Iran, the USS Dwight D. Eisenhower in the Arabian Sea, in pursuit of his policy of diplomatic engagement with Tehran.

## **Report: Israel To Deploy Nuclear-Armed Submarines Off Iran Coast**

*Ha'aretz, May 30, 2010*

Sunday Times quotes IDF official saying the 3 German-made long range submarines will gather intelligence, act as deterrent and potentially land Mossad agents.

According to the Times report, one submarine had been sent over Israeli fears that ballistic missiles developed by Iran, and in the possession of Syria and Hezbollah, could be used to hit strategic sites within Israel, such as air bases and missile launchers.

Dolphin, Tekuma, and Leviathan, all German-made Dolphin class submarines of the 7th navy Flotilla, have been reported as frequenting the Gulf in the past, however, according to the Sunday Times report, this new deployment is meant to ensure a permanent naval presence near the Iranian coastline.

A flotilla officer told the Times that the deployed submarines were meant to act as a deterrent, gather intelligence and potentially to land Mossad agents.

“We’re a solid base for collecting sensitive information, as we can stay for a long time in one place,” the officer said.

The flotilla’s commander, identified only as “Colonel O,” was quoted by the Times as saying that the submarine force was “an underwater assault force. We’re operating deep and far, very far, from our borders.”

The submarines could be used if Iran continues its program to produce a nuclear bomb. “The 1,500km range of the submarines’ cruise missiles can reach any target in Iran,” a navy officer told the Times.

Apparently responding to the reported Israeli activity, an Iranian admiral told the Times: “Anyone who wishes to do an evil act in the Persian Gulf will receive a forceful response from us.”

Last July, defense sources reported that an Israeli submarine had sailed the Suez Canal to the Red Sea last month, describing the unusual maneuver as a show of strategic reach in the face of Iran.

Israel has long kept its three Dolphin-class submarines, which are widely assumed to carry nuclear missiles, away from Suez so as not to expose them to the gaze of Egyptian harbormasters.

## **‘Israeli Subs With Nukes In Gulf’**

*Jerusalem Post, May 30, 2010*

Israel is planning to permanently station a submarine carrying nuclear cruise missiles in the Persian Gulf, the Sunday Times reported on Sunday.

Israeli submarines have visited the Gulf before, but the decision has now been taken to ensure a permanent presence of at least one of the vessels.

The paper claims that the government has decided to station at least one of three submarines armed with nuclear missiles permanently within striking distance of Iran in the Persian Gulf.

According to the article the submarines are moving to the Persian Gulf in response to the growing missile threat to Israel from Syria, Iran and Hizbullah.

Israeli submarines are known to periodically visit the area but this is the first report that they may be permanently stationed there.

The diesel powered submarines are Dolphin class and were built in Germany to Israeli specifications.

## **Seoul Turns To Twitter To Combat Skeptics**

*By Christian Oliver and Kang Buseong, Financial Times, May 31, 2010*

South Korea is battling to stem public doubts that North Korea sank one of its warships in March through a mixture of police investigations, public education and Twitter.

Although an international investigation concluded a North Korean submarine sank the corvette, killing 46 sailors, a vocal body of South Koreans believes the findings are part of a conspiracy orchestrated by Washington and South Korea’s conservative president, Lee Myung-bak, who faces mid-term elections this week.

The government is alarmed that many of the doubters are students and leftwingers, who rocked the nation in 2008 by using cyberspace and text messages to mobilise massive street protests over the import of US beef. Opposition lawmakers have also accused Mr Lee of a cover-up.

In an effort to dispel their doubts, the defence ministry says it plans to take 70 college reporters, bloggers and leading tweeters around the shattered hull of the corvette on June 8.

“There are people who are casting a suspicious eye on the investigation result and lay out false claims,” said Yu Myung-hwan, the foreign minister. “It is sad and very regrettable.”

Seoul police said four people were facing charges of spreading “false information” and that 11 others were under investigation. The police examined text messages saying Mr Lee was planning a pre-emptive strike on North Korea and that nationwide conscription was imminent. One man had pretended to be a surviving sailor from the warship, saying the vessel had hit a reef.

Although no one is in detention, under the telecommunications law, which is frequently used in security cases, spreading false information can carry a jail term.

Even before the sinking, South Korea's web policies had come under fierce attack from international groups advocating freedom of speech. The country's most famous blogger, Minerva, was arrested and briefly detained early last year, for spooking financial markets with what Seoul called "false rumours".

Leftwing web groups, in which anti-Americanism runs deep, have claimed that a US ship collided with the corvette or that a US submarine torpedoed it. Mr Lee, they argue, is not only covering up the truth but using the incident to pillory the left before regional elections on Wednesday.

According to Seoul prosecutors, the highest-profile figure under investigation, facing charges of defamation from the navy, is Shin Sang-chul, who was appointed to the investigative committee on the sinking by the opposition but was removed before its conclusion. He has been quoted saying the ship hit a reef and that South Korea fabricated evidence by scrawling Korean script on the torpedo.

Seoul strenuously denies the allegations and says its technical evidence is a "smoking gun" that will take Pyongyang to the UN Security Council. Seoul has also said it is tracking web users for signs that North Korea is using agents to spread dissent and possibly arrange terrorist attacks.

## North Korean Submarine Helmsman Breaks 14-Year Silence

By Shin Joo Hyun, Daily NK, June 1, 2010

Lee Kwang Soo is now 46. He is also the sole captured crew member from a Sango class submarine which ran aground on a South Korean beach during an espionage mission in September, 1996, triggering a lengthy manhunt in which a large number of people, both South and North Korean, died. After his arrest, Lee settled down in South Korea, receiving a Master's degree from Kyungnam University in 2005. He has not made a single appearance in the South Korean domestic or international media for almost 14 years.

However, incredulous at the fact that suspicions keep arising in South Korea about the Cheonan investigation findings even after the presentation of clear evidence, and troubled by claims made by the National Defense Commission on May 28th that the Cheonan incident was a fabrication, Lee decided to break his silence in an interview with The Daily NK.

For security reasons, he met The Daily NK secretly in a Seoul hotel on May 31st. There, he offered his expert opinion, based on his service to the North Korean navy and what is now known as the General Bureau of Reconnaissance.

First, we discussed the submarines that Lee saw in his time in North Korea. "I have seen 130-ton Yeoneo class submarines several times," he explained, refuting the North Korean claim to possessing no such vessels. "I received helmsman training for submarines from Romeo class down to midget subs; the Yeoneo class sub is a modified version of the Yugo class."

"Yugo class submarines have a torpedo tube, but the Yeoneo class does not. Yeoneo class subs have a medium-sized torpedo fitted to both sides and are launched by applying an electrical charge."

"The 4th Naval Squadron on Mayang Island, South Hamkyung Province, has a repairs center for submarines," he continued. "When you enter the place, it feels like the home of North Korean submarines. Submarines are repaired according to the size of the problem: major, medium and minor repairs. In that place, I saw submarines from 130-tons up to Romeo class."

According to Lee, North Korea categorizes submarines as large, medium, small and midget. A 130-ton vessel, he explained, is categorized as a small submarine, not a midget submarine, which is how it is categorized by the South Korean navy.

While he has never heard of North Korea preparing a catalogue to export either torpedoes or submarines, Lee says he did see some Cubans visit a submarine and hovercraft manufacturing plant next to Shinpo Dockyard in South Hamkyung Province, which he says is disguised as Bongdae boiler factory. When Lee asked the site personnel about the visitors, he was apparently told, "They are here to purchase submarines."

Lee also said he heard about human torpedo units, explaining, "They belong to the sea sniper brigades of the East Sea and West Sea fleets. Each fleet has one suicide unit. They travel on the submarine in the beginning but, from a certain point they ride on the torpedo and direct it to its target. Torpedo carriers are told that they can escape, however, in reality it is very difficult."

Next, Lee categorically rejected another National Defense Commission claim, that which relates to the capabilities of these small submarines and their torpedoes. "North Korea's assertion that a 130-ton submarine cannot carry a 1.7-ton torpedo in a 'C' formation to attack and then retreat is false," he said bluntly.

He explained, "For a 130-ton submarine to penetrate the West Sea by sailing alone through the East Sea and to return; that is impossible. However, if it travels with a command vessel disguised as a trawler, then even that is not difficult. If the command vessel enters West Sea coastal waters then deploys the submarine, it will be challenging for South Korea to spot. As the announcement of the joint investigation team suggested, North Korea must have disguised a vessel as a regular fishing boat then entered the coastal waters around Baengnyeong Island in order to launch the submarine.

Lee added that when he was in North Korea, he saw just such a command ship. Such vessels are stripped down to be able to hold small and midget submarines, he explained.

North Korea has a "command ship-subordinate ship" unit run by the General Bureau of Reconnaissance at Sepo-ri, Rakwon, South Hamkyung Province, he said. When Lee went there, he said he saw a complete camouflaged command ship built by North Korea, however, he heard it had technical problems and never saw it completed as he was dispatched to South Korea soon after in September, 1996.

Based on this knowledge, Lee had a hunch as soon as the Cheonan incident happened that it would turn out to have been the responsibility of a North Korean small submarine, because a torpedo fired by a larger submarine makes a noise which can reveal its location.

Lee explained more. “A torpedo fired from a submarine contains more than 1 ton of high explosives, and, therefore, when pushed out by the compressed air in the tube the noise created is significant. A torpedo is designed to be pushed out by compressed air and then the propellant used to spin the propeller. Therefore, firing a torpedo is possible, but easily detected. The most important condition for infiltration is secrecy, which means North Korea will not use any method that creates much noise.”

On an alternative possibility, that of the Cheonan being sunk by a mine, he explained, “The laying of an influence mine is extremely difficult, and the explosive power of a mine is more than 5 times that of a torpedo. So, judging by the destroyed Cheonan, the possibility of this being the cause is very low.”

In any case, Lee is totally convinced by the marking, “1-beon” on the torpedo drive shaft, saying it is a normal thing in North Korea and represents irrefutable evidence of his nation’s culpability.

He commented, “In North Korea, even torpedoes are repaired by hand. For maintenance, a torpedo needs to be disassembled then checked for defects, rust must be removed, and other maintenance done. When a torpedo is being disassembled, sometimes a part can be lost or confused with another part of another torpedo. That is why they mark them with numbers and assemble them accordingly. The same method is used when they repair the detonator on an influence torpedo. The torpedo detonator only weighs about three kilograms, yet still it is disassembled and reassembled. So, it must be numbered several times.”

“When numbering a submarine we generally use ‘ho’,” he added, “but for the repair of parts we use ‘beon’.

Lee is sure that North Korea felt confident of getting away with the sinking of the Cheonan, and he offered two reasons for this opinion. First, he pointed out that spotting a submarine infiltrating in either the East Sea or the West Sea is not easy.

For example, when The Daily NK asked Lee how many times he had entered South Korean waters before his last excursion to Gangneung in 1996, he was unsure, saying, “It is difficult to say.”

He added that, secondly, “North Korea was sure that finding evidence would be difficult so they must also have thought that feigning innocence would be possible. When South Korea finally salvaged the front and back halves of the sunken ship and found evidence using trawlers, they must have been taken aback.”

Lee stated, “In 1985, in the coastal waters around Yiwon, the collision of a ship and a submarine took place which sank the submarine. However, they could not retrieve the bodies from the submarine even though it was in shallow water; similar to the level from which South Korea salvaged a North Korean submarine off Sokcho in 1998. Therefore, based only on their own technological level, they believed that the perfect crime was possible.”

Lee believes the involvement of the General Bureau of Reconnaissance in all such missions is absolutely inevitable, and added compelling evidence of Kim Jong Il’s own involvement, too. “Day-to-day commands are issued by Major General Kim Young Chul,” he said, “but many processes require the approval of Kim Jong Il.

“When I was being sent to Gangneung, Kim Dae Sik, the chief of the Reconnaissance Bureau at the time, commanded all strategy and training,” he went on. “A few days prior to deployment, Kim visited me and read a hand-written letter from Kim Jong Il. He told me to ‘be successful and then return to base,’ and gave me foreign liquor. I believe this time would have been the same.”

Lee says he believes that the reason North Korea attacked the Cheonan was to “retaliate for the humiliation of the Daechung Naval Battle,” and speculated that Kim Jong Il was trying to display his authority to the military and public officials by taking revenge on South Korea. However, he added, “North Korea has no intention of occupying the West Sea and changing the Northern Limit Line (NLL). During my days in the then Reconnaissance Bureau, I never once heard anything about recovering the NLL. That is just an attempt to build up tensions; since they lost the naval battle they took revenge by submarine, which is their strength.”

Finally, Lee commented on public suspicions that North Korea might not have been responsible for the Cheonan sinking, calling it a source of consternation.

“I do understand,” he said, “that a person has the right to think freely, however, there are some parts I cannot understand. 46 South Korean soldiers have died, and they need to find the cause and punish those who are responsible, yet people seem only to be interested in doubting the government. This is a simple case that even the helmsman of North Korean submarine can understand, so why can’t general citizens understand this? I believe it is due to an excess of sympathy for North Korea in South Korean society.”

## **Offices Searched In French Arms Sale To Malaysia: Source**

*Agence France-Presse, June 1, 2010*

PARIS — French financial police have searched the offices of naval arms manufacturer DCNS and industrial group Thales in connection with a probe into the sale of submarines to Malaysia, a judicial source said Tuesday.

Documents were seized in the operation, which was carried out last week, the source added.

Thales declined to comment on the matter.

DCNS told AFP it “neither confirms nor denies this information.”

“A judicial investigation is under way and we can make no comment.”

The Paris prosecutor’s office in March opened an investigation into the 2002 sale following a complaint lodged last year by the Malaysian human rights group Suaram.

The group alleges that Armaris, a subsidiary of Thales and the DCN, as the DCNS was formerly known, paid a commission of 114 million euros (140 million dollars) to the Malaysian company Perimekar, linked to people close to now Prime Minister Najib Razak.

Razak in 2002 was defence minister and was responsible for negotiating the contract.

Since 2000, the payment of commissions on contracts linked to foreign leaders amounts to corruption under French law.

The DCN in 2002 joined Thales and Spanish naval construction group Navantia in a contract to sell Malaysia three submarines for around one billion euros.

A spokesman for the Malaysian prime minister's office in late April insisted there was "no case" to answer.

He maintained that the deal had been free of graft and that Perimekar had not improperly benefited from it.

## **Israeli Nuclear Missile Boats Off Iranian Coast**

*Strategy Page, June 1, 2010*

Israel is stationing three of its five Dolphin class submarines in the Red Sea, and will keep one of them operating off the Iranian coast at all times. These subs will be armed with cruise missiles (equipped with nuclear warheads).

Last year, Israel has received two more German built Dolphin class submarines, giving it a total of five (the others were received 9-10 years ago). The older boats have since been upgraded to include larger fuel capacity, converting more torpedo tubes to the larger 650mm size, and installing new electronics. The fuel and torpedo tube mods appear to have something to do with stationing the subs off the coast of Iran. Larger torpedo tubes allow the subs to carry longer range missiles. The larger fuel capacity makes it easier to move Dolphins from the Mediterranean to the Indian ocean. Although Israel has a naval base on the Red Sea, Egypt had, until recently, had not allowed Israeli subs to use the Suez canal. So the Dolphins were modified to go around Africa, if they had to. But now the Egyptians, who are also feuding with Iran, regularly allow Israeli subs to use the canal.

Larger fuel capacity also allows the subs to spend more time on station off the Iranian coast. Currently the Dolphins can stay at sea for about 40 days (moving at about 14 kilometers an hour, on the surface, for up to 8,000 kilometers). Larger fuel capacity extends range to over 10,000 kilometers, and endurance to about 50 days.

The two new Dolphins cost about \$650 million each, with Germany picking up a third of the cost, as part of their reparations for World War II atrocities against Jews. The Dolphins have a fuel cell based propulsion system which enable them to stay under waters for over a week at a time. The Dolphins are also very quiet, and very difficult for the Iranians to hunt down and destroy. The first three Dolphins didn't have the AIP (Air Independent Propulsion) system.

Israel equipped its new Dolphin class submarines with nuclear cruise missiles in 2002. Israel also fitted their 135 kilometer range Harpoon missiles with nuclear warheads. These missiles are fired from the subs torpedo tubes. The 1,625 ton Dolphins can carry 16 torpedoes or missiles and have ten forward torpedo tubes (four of them the larger 650mm -26 inch- size). The Dolphins are considered the most modern non-nuclear subs in the world. The first three cost \$320 million each. All have a crew of 35 and can dive to a depth of more than 600 feet. The Dolphin design is based on the German 209 class subs, but has been so heavily modified that it is considered a different class.

The Israelis have developed a cruise missile, which has a range of 1,500 kilometers and carries a 200 kiloton nuclear warhead. The objective of deploying nukes on subs is to further enhance deterrence to any nation launching a nuclear strike against Israel. If one of the Dolphins are always at sea, even a first strike against Israel would not prevent a nuclear strike by submarine launched nukes.

## **21st Century Stealth Sub**

*National Geographic Channel, June 2, 2010*

Countless movies and novels have fictionalized the secret brotherhood of the submariner. But few of us outside this close-knit community ever get to witness what really goes on deep beneath the ocean waves. Take an unprecedented journey with the US Navy's latest weapon in the global fight against terrorism: the SSGN or 'guided missile submarine.' National Geographic Channel joins Captain Randy Crites and the crew of the USS Florida as they engage in a covert Joint Operations mission with Special Forces: sneaking Navy SEALs on to shore to identify a terrorist target, and taking it out with guided missiles - fired from the submarine itself. Get an in-depth look at the technology that allows this sub to go deeper, remain submerged longer, and stay quieter than previous generations of submarines. And witness the secret weapons that lay hidden within her hull, allowing her to enable Special Forces deployments anywhere, anytime. This is a new weapon for a new war. Come aboard as National Geographic takes a ride on the 21st Century Stealth Sub. The program airs Thursday June 24 at 8 pm on the National Geographic Channel.

Read more: [channel.nationalgeographic.com/series/naked-science/4254/Overview#ixzz0pgzFWzJm](http://channel.nationalgeographic.com/series/naked-science/4254/Overview#ixzz0pgzFWzJm)

## **President Sarkozy Named By Inquiry Into Pakistan Submarine Payments**

*By Charles Bremner, London Times, June 3, 2010*

President Sarkozy was caught up in a long-simmering kickbacks scandal yesterday when police in Luxembourg named him as the creator of a company that handled tens of millions of pounds in illegal funds.

An inquiry appears to implicate Mr Sarkozy in a case involving the sale of French submarines to Pakistan in 1994. It will strengthen suspicions of French investigators that money from the contract was funnelled to finance a 1995 presidential campaign managed by Mr Sarkozy, who was then Budget Minister.

Two French judges believe that a dispute between France and Pakistan over unpaid commissions led Pakistani agents to bomb a bus carrying French-employed shipyard workers in Karachi in 2002. Fourteen people died in the attack, 11 of them French. The attack was originally blamed on al-Qaeda.

Last year Mr Sarkozy dismissed as fantasy allegations that money intended for secret commissions to middlemen during the sale of the submarines had been used to finance the 1995 campaign of Edouard Balladur. Mr Balladur, then the Prime Minister, was backed by Mr Sarkozy in an unsuccessful race against Jacques Chirac. After Mr Chirac won, he halted further payment of the submarine commissions, it has emerged from the French inquiry.

A parliamentary investigation has determined that £80 million in commissions was paid by DCN, France's naval shipyards, to middlemen in the submarine deal. At the time, such commissions were not illegal in France but kickbacks, known as "retro-commissions", were.

Luxembourg police said that, in 1994, Mr Sarkozy "directly supervised" the creation of a Luxembourg offshore company called Heine. Its purpose was to channel the secret payments.

**"Eventually, part of the funds that passed through Luxembourg came back to France to finance French political campaigns," the police report said.**

"In 1995, references lead us to believe in the existence of a form of retro-commission to pay for political campaigns in France . . ."

"We stress that Edouard Balladur was a candidate in the 1995 presidential election against Chirac . . . he was supported by part of the RPR [Gaullist party], including Nicolas Sarkozy."

The President is immune from legal action while in office and there was little sense of political crisis in Paris yesterday. There was no comment from the Elysée Palace.

## **U.S. Naval Institute "Proceedings" Editor's Page**

*By Paul Merzlak, U.S. Naval Institute "Proceedings" Magazine, June 1, 2010*

Few would dispute that Admiral Hyman G. Rickover cast a large shadow over the late 20th-century U.S. Navy. Not many flag officers in the long and storied history of the service generated as much controversy. Recognized as the father of the Nuclear Navy, some critics contend it was Rickover's influence that caused the shift to a greater emphasis on technical expertise and engineering skills in the Navy, eventually pushing aside the successors to the colorful men of the World War II diesel boats. That transformation can be seen even in popular culture when one observes the change in how submarine skippers have been portrayed on the silver screen. Think of Clark Gable's obsessed Commander "Rich" Richardson in *Run Silent, Run Deep* and compare him with *The Hunt for Red October's* cool Bart Mancuso, captain of the USS Dallas.

Although considered a tyrant by some, Rickover wanted only the best for the new Nuclear Navy. His arduous interview and selection process for nuclear-power-trained officers became legendary. Many of the stories from these exchanges have never been corroborated. One successful survivor of a Rickover interview is longtime *Proceedings* contributor retired Captain William Toti. In this issue, he takes us with him to the office of the "Kindly Old Gentleman" (Rickover's tongue-in-cheek nickname among his disciples) and verifies several of the famous over-the-top tales that emanated from the process. It's easy to see how one could love or hate the admiral, perhaps even both at the same time.

One suspects, though, that Rickover might not be too fond of the argument put forth this month by Naval War College Professor Milan Vego. In "The Right Submarines for Lurking in the Littorals" he advocates a mixed force of nuclear-powered attack submarines and conventionally powered antisubmarine boats (SSKs). If the Navy is serious about operating in the littorals, SSKs will be vital to that mission, according to Dr. Vego. He sees these boats as an important complement to the nuclear submarine force in the coming era of fiscal constraint, not an alternative.

Submarine safety has been a topic of discussion in recent years as there have been a number of mishaps involving the force. Considering the challenges inherent in peacetime operations, one can imagine the added complications a wartime antisubmarine warfare (ASW) environment would present. Retired Commander Michael Dobbs and Robert Wong discuss prevention of mutual interference and waterspace management, two key concepts of undersea command and control. They offer sound solutions for streamlining these processes.

Troy Bentz continues the discussion of antisubmarine warfare in "Fight or Flight?" While ASW was always identified as one of the littoral combat ship's (LCS) main roles, the author maintains that the LCS is perhaps the best vessel in the Navy for this task. Its speed, maneuverability, cost, and size make it more survivable against torpedo attack and therefore a more logical candidate to put in harm's way than an Aegis-equipped destroyer.

One of the great benefits of Admiral Rickover's Nuclear Navy is that it reduced the U.S. military's consumption of oil. But today, the U.S. Navy nonetheless is the largest consumer of diesel fuel in the world, while the Department of Defense is still the planet's largest oil consumer. As Lieutenant (junior grade) Douglas Marsh points out in this issue, the time is now, not later, for the Navy to wean itself off its lethal oil dependence. Oil, he notes, is an ever-more finite resource, the use of which entails all sorts of baggage, from dependence on foreign potentates to the natural disasters that can sometimes occur (witness the Gulf of Mexico at present). The Secretary of the Navy's efforts to create and deploy a "Great Green Fleet" could not be more timely, and everything from nuclear energy to alternative fuels must be brought to bear.

Last month featured senior Navy leadership's views on the recent Quadrennial Defense Review. Now, Naval War College Professor Thomas Mahnken weighs in with "Striving for Balance in Defense," his take on what the review did not address as thoroughly as it should have. Namely, what is missing or is simply too vague is our strategy for dealing with potential future threats from North Korea, Iran, and China, while simultaneously winning the conflicts we're already in. It is a delicate balancing act, to be sure. But we fail to strike that balance at our peril.

## **Did An American Mine Sink South Korean Ship?**

*By Yoichi Shimatsu, New American Media, June 3, 2010*

BEIJING - South Korean Prime Minister Lee Myung-bak has claimed "overwhelming evidence" that a North Korean torpedo sank the corvette Cheonan on March 26, killing 46 sailors. U.S. Secretary of State Hillary Clinton claimed that there's "overwhelming evidence" in favor of the theory that North Korea sank the South Korean Navy warship Cheonan. But the articles of proof presented so far by military investigators to an official inquiry board have been scanty and inconsistent.

There's yet another possibility, that a U.S. rising mine sank the Cheonan in a friendly-fire accident.

In the recent U.S.-China strategic talks in Shanghai and Beijing, the Chinese side dismissed the official scenario presented by the Americans and their South Korean allies as not credible. This conclusion was based on an independent technical assessment by the Chinese military, according to a Beijing-based military affairs consultant to the People Liberation Army.

Hardly any of the relevant facts that counter the official verdict have made headline news in either South Korea or its senior ally, the United States.

The first telltale sign of an official smokescreen involves the location of the Cheonan sinking - Byeongnyeong Island (pronounced Pyongnang) in the Yellow Sea. On the westernmost fringe of South Korean territory, the island is dominated by a joint U.S.-Korean base for anti-submarine warfare (ASW) operations. The sea channel between Byeongnyeong and the North Korean coast is narrow enough for both sides to be in artillery range of each other.

Anti-sub warfare is based on sonar and acoustic detection of underwater craft. Since civilian traffic is not routed through the channel, the noiseless conditions are near-perfect for picking up the slightest agitation, for example from a torpedo and any submarine that might fire it.

North Korea admits it does not possess an underwater craft stealthy enough to slip past the advanced sonar and audio arrays around Byeongnyeong Island, explained North Korean intelligence analyst Kim Myong Chol in a news release. "The sinking took place not in North Korean waters but well inside tightly guarded South Korean waters, where a slow-moving North Korean submarine would have great difficulty operating covertly and safely, unless it was equipped with AIP (air-independent propulsion) technology."

The Cheonan sinking occurred in the aftermath of the March 11-18 Foal Eagle Exercise, which included anti-submarine maneuvers by a joint U.S.-South Korean squadron of five missile ships. A mystery surrounds the continued presence of the U.S. missile cruisers for more than eight days after the ASW exercise ended.

Only one reporter, Joohee Cho of ABC News, picked up the key fact that the Foal Eagle flotilla curiously included the USNS *Salvor*, a diving-support ship with a crew of 12 Navy divers. The lack of any minesweepers during the exercise leaves only one possibility: the *Salvor* was laying bottom mines.

Ever since an American cruiser was damaged by one of Saddam Hussein's rising mines, also known as bottom mines, in the Iraq War, the U.S. Navy has pushed a crash program to develop a new generation of mines. The U.S. Naval Mine and Anti-Submarine Warfare Command has also been focused on developing counterparts to the fearsome Chinese naval "assassin's mace," which is propelled by a rocket engine.

A rising mine, which is effective only in shallow waters, rests atop a small platform on the sea floor under a camouflage of sand and gravel. Its detection system uses acoustics and magnetic readings to pick up enemy ships and submarines. When activated, jets of compressed air or solid-fuel rockets lift the bomb, which self-guides toward the magnetic center of the target. The blast rips the keel, splitting the ship or submarine into two neat pieces, just as was done to the *RKOS Cheonan*.

A lateral-fired torpedo, in contrast, "holes" the target's hull, tilting the vessel in the classic war movie manner. The South Korean government displayed to the press the intact propeller shaft of a torpedo that supposedly struck the *Cheonan*. Since torpedoes travel between 40-50 knots per hour (which is faster than collision tests for cars), a drive shaft would crumble upon impacting the hull and its bearing and struts would be shattered or bent by the high-powered blast.

The initial South Korean review stated that the explosive was gunpowder, which would conform to North Korea's crude munitions. This claim was later overturned by the inquiry board, which found the chemical residues to be similar to German advanced explosives. Due to sanctions against Pyongyang and its few allies, it is hardly credible that North Korea could obtain NATO-grade ordnance.

Thus, the mystery centers on the USNS *Salvor*, which happened to be yet right near Byeongnyeong Island at the time of the *Cheonan* sinking and far from its home base, Pearl Harbor. The inquiry board in Seoul has not questioned the officers and divers of the *Salvor*, which oddly is not under the command of the 7th Fleet but controlled by the innocuous-sounding Military Sealift Command. Diving-support ships like the *Salvor* are closely connected with the Office of Naval Intelligence since their duties include secret operations such as retrieving weapons from sunken foreign ships, scouting harbor channels and laying mines, as when the *Salvor* trained Royal Thai Marine divers in mine-laying in the Gulf of Thailand in 2006, for example.

The Salvor's presence points to an inadvertent release of a rising mine, perhaps because its activation system was not switched off. A human error or technical glitch is very much within the realm of possibility due to the swift current and strong tides that race through the Byeongnyeong Channel. The arduous task of mooring the launch platforms to the sea floor allows the divers precious little time for double-checking the electronic systems.

If indeed it was an American rising mine that sank the Cheonan, it would constitute a friendly-fire accident. That in itself is not grounds for a criminal investigation against the presidential office and, at worst, amounts only to negligence by the military. However, any attempt to falsify evidence and engage in a media cover-up for political purposes constitutes tampering, fraud, perjury and possibly treason.

Yoichi Shimatsu, former editor of the Japan Times, is an environmental consultant and a commentator on Asian affairs for CCTV-9 Dialogue.

## **Iranian Speedboats Versus Israeli Nukes**

*By Kevin Whiteman, Baltimore Examiner, June 5, 2010*

Iran is ready for its speedboat navy to take on the Israeli fleet.

"Iran's navy forces are ready to escort the peace flotilla to Gaza with all their powers and capabilities," said Ali Shirazi of Iran's Revolutionary Guards.

"If the Supreme Leader issues an order for this then the Revolutionary Guard naval forces will do their best to secure the ships," Shirazi said. "It is Iran's duty to defend the innocent people of Gaza."

Why Be Scared Of A Dolphin?

The Israeli Navy in the meantime has deployed three submarines equipped with nuclear cruise missiles to Iranian waters.

The nuclear-armed vessels Israeli Naval Ships Dolphin, Tekuma and Leviathan have previously been deployed to the Persian Gulf according to The Sunday Times of London, and according to the British-based paper, the Israeli Navy has fresh plans to keep at least one of the nuclear weapons capable subs in the region permanently.

Speaking on grounds of anonymity, an Israeli flotilla commander stated, "We're operating deep and far... very far, from our borders."

Another unidentified Israeli Naval Officer said, "The 1,500km range of the submarines' cruise missiles can reach any target in Iran."

Nuke You Very Much. You're Welcome

It has been estimated that Israeli subs can carry as many as 16 Popeye Turbo nuclear missiles, each missile alone is estimated to have the explosive power of roughly half a million pounds of TNT.