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The Silent Sentinel

AUGUST 2012

Our Creed and Purpose

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 toward greater accomplishments. Pledge loyalty and patriotism to the United States of America and its Constitution.

In addition to perpetuating the memory of departed shipmates, we shall provide a way for all Submariners to gather for the mutual benefit and enjoyment. Our common heritage as Submariners shall be Strengthened by camaraderie. We support a strong U.S. Submarine Force.

The organization will engage in various projects and deeds that will bring about the perpetual remembrance of those shipmates who have given the supreme sacrifice. The organization will also endeavor to educate all third parties it comes in contact with about the services our submarine brothers performed and how their sacrifices made possible the freedom and lifestyle we enjoy today.

Thank You Fred Fomby

Shipmate Fred Fomby, past San Diego Base Commander and our Silent Sentinel printer, has taken a U.S. Navy Civil Service position. Fred will be out of the United States for the next two years. We at San Diego Base would like to thank Fred for all his years of service to San Diego Base. We look forward to his safe and speedy return.

Mike Hyman, Editor

U.S. Submarine Veterans
San Diego Base

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Assistant Chaplain
Position Open

The Silent Sentinel via Email

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

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

NAME: _____

ADDRESS: _____

CITY/STATE/ZIP: _____

EMAIL: _____

TELEPHONE: _____

Would like the SILENT SENTINEL emailed: YES_____ NO_____

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

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

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

August Meeting

Our monthly meeting is held on the second Tuesday of the month at VFW Post 3787, 4370 Twain Ave., San Diego. Our next meeting will be on 14 August, 2012. 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
Al Strunk
Chuck George

Submarine Losses in July

Originally Compiled by C J Glassford

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

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

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

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

USS Thresher and USS Scorpion

Well, the old saying that the third time's the charm may well apply here. This is my third attempt at getting the dates correct concerning the loss of the Thresher and the Scorpion. The USS Thresher (SSN-593) was lost on 10 April 1963. The USS Scorpion (SSN-589) was lost on 5 June 1968. Hopefully I have gotten it right this time. My apologies—again—for getting it wrong in the first place.

Mike Hyman

Minutes for Submarine Veterans San Diego, 12 June 2012

1900 – Meeting of the Submarine Veterans Inc., San Diego Base was called to order by Vice Base Commander Bill Earl.
Conducted Opening Exercises:
Reading of Our Creed:
Pledge of Allegiance: Lead by Charlie Marin
Chaplin Lead in Prayer:
Conducted Tolling of the Boats:
Observed a moment of Silent Prayer:
Junior Vice Commander recognized past E-Board members, Past Officers and guest present.
Secretary posted the sailing list – 36 members aboard.
Treasurer's report: Treasurer presented, his report it will be posted online and any questions or comments can be submitted to the Treasurer.
Call for Committee Reports:
Chaplain Binnacle List: Al Strunk, Maryann Coates(Ron's wife) passed away May 26 our condolence goes to Ron on his loss.
Please let the Chaplin know if any other members should be on the Binnacle list.
Parade Committee: Jack Kane:
Saturday June 2nd: La Mesa Salute to Old Glory and 100th Anniversary Parade
We had a nice turn out on this event. Last year there were only 50 units represented this year there were 80 units. The parade was a great event.
Sunday June 30: Oceanside Parade
Muster at 1000
We will have a map and additional information on the website.
Wednesday July 4th: Julian Independence Day Parade
Muster at 1030 – Parade at 1200
The American Legion will sponsor a BBQ after the parade.
September 8(tentatively) Poway Heritage Day
Poway parade committee has request our return.
October 20(tentatively) Borrego Springs Parade
Monday November 12th: San Diego Veterans Day Parade
Times TBD – Grand Marshal Lt. Gen Chuck Yeager
Membership Committee: We have 316 members on the roll. We are see a savings on emailing the Sentential vice US Mail. Let us know if want to receive the Sentential via email.
Scholarship Committee: We have two applications ready for review, we need some volunteers to review the applications. This can be done via email. Please let me know if you would like to help.
Storekeeper: We have some items here and patches can be ordered. Let me know if you would like to order anything special.

Breakfast Committee: Next Sub vet breakfast will be 29 July 2012, at 0800 to 1200. As noted last month we have decided to raise the cost of breakfast from 6 dollars to 7 dollars. This raise will help offset the increase cost of food. Fred will be leaving for Bahrain this month and we are in need of someone to take charge of the Breakfast and Midrats.
1925 – Vice Base Commander called for a Break….
1940 – Base Commander called meeting to order.

Unfinished Business

USSVI National Convention will be held 2-9 September at Norfolk, Virginia.
Base Picnic- July 21 at Subbase: 1000. Food will be provided by the base but side dishes are welcomed. Door prizes will also be included. Boat tours will be from 1000 to 1300. (this is dependent on ships availability.) You will need to submit the names of all who attend along with last 4 digits of their Social Security number. We will have to limit the tour to 4 persons per family.

New Business

Vice Base Commander read a Letter of Appreciation from California State Senator, Joel Anderson of the 36 District. The letter thanked the organization for it support and participation in the La Mesa Flag Day Parade.
During the repair of the float it was discovered that the braking system was totally gone and was not repairable. This being the case we should consider purchasing a new flat bed for the float and possible building a completely new float. This idea was presented and many members made comments on type and cost of a new flat bed and float. It was asked that if anyone had experience or new of some options please come forward. It was decided that a committed be formed next meeting to look and ideas and options so we can move forward. Phil R stood and donated a 1000.00 dollar check for the project.

Good of the Order

Ray stood and informed the group that there is an interesting website that some members may be interested in viewing. It is hnsa.org (Historical Naval Ship Association). Webmaster will attempt to link this to our website.
2008 – Meeting adjourned.

Sailing List for 12 June 2012

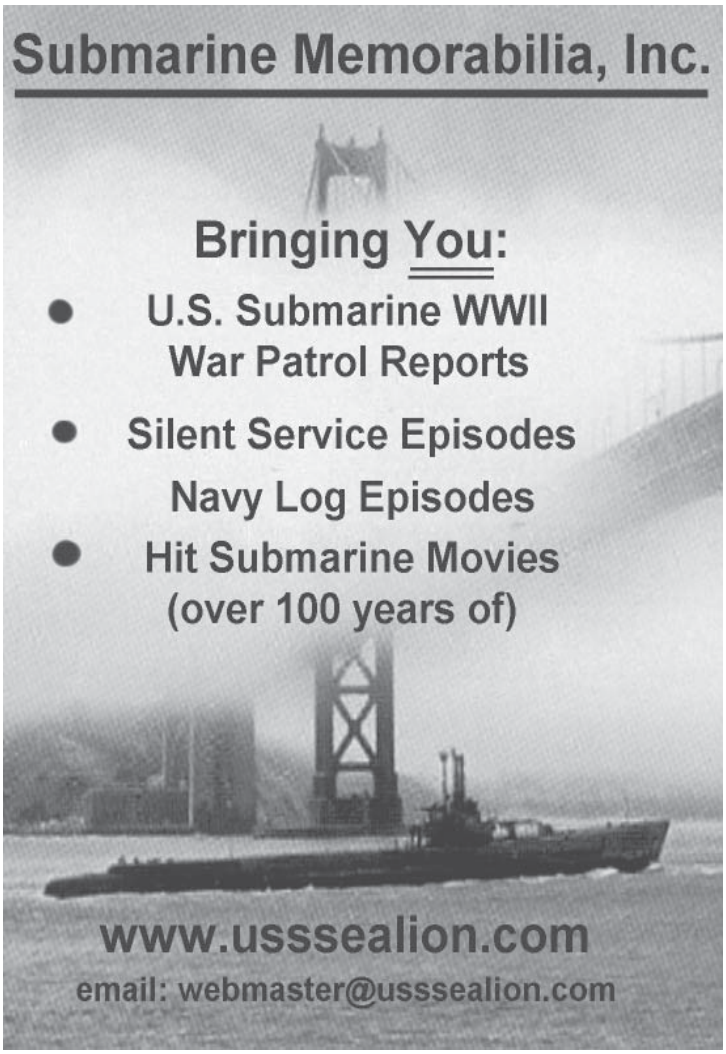
JIM BILKA	NIHIL D SMITH	ED FARLEY
FRED FOMBY	PAUL HITCHCOCK	BOB OBERTING
JACK LESTER	JACK KANE	BILL EARL
BOB COATES	M. BURCIAGA	JACK ADDINGTON
CHARLIE MARIN	D. MORTENSEN	SERGIO FROST
PHILLIP RICHESON	BUD ROLLISON	DAVID BALL
BOB CHAPMAN	JOEL EIKAM	ED WELCH
RAY FERBRACHE	PHILL RICHESON	DAVID WELCH
JOE ACAY	BUD ROLLISON	TOM POLEN
CAL COLERICHEO	DAVID WOODWARD	BOB FARRELL
GLENN GERBRAND	MIKE HYMAN	J J LYNCH
TOM WARNER	DON MATHIOWETZ	CLIFF SMITH

Minutes for Submarine Veterans San Diego, 10 July 2012

1900 – Meeting of the Submarine Veterans Inc., San Diego Base was called to order by Vice Base Commander Bill Earl.

Conducted Opening Exercises:

Reading of Our Creed:
Pledge of Allegiance: Lead by Fred Fomby
Chaplin Lead in Prayer:
Conducted Tolling of the Boats:



Observed a moment of Silent Prayer:
Junior Vice Commander recognized past E-Board members, Past Officers and guest present.
Secretary posted the sailing list – 37 members and guests aboard.
Base Commander presented Holland Club inductees: Robert Carlyle, Salvador Hiponia, Dennis McCreight, Keith Mckee, William Jack Strangle. Other Members not present will be mail their certificates for the Holland Club include Lowell Day, Thomas Branyan, Larry Porter, Charles Groom, Harold Hanselman, Wayne Howie, Jerry Koehert and Tomas Teters.
Treasurer's report: Treasurer presented, his report it will be posted online and any questions or comments can be submitted to the Treasurer. We have set aside 2000.00 dollars for a new trailer and an additional 500.00 dollars for insurance. Plus 1000.00 dollars have been donated by a member for purchasing a trailer.
Call for Committee Reports:
Chaplain Binnacle List: Al Strunk and Jack Lester also Mike Hyman's wife Habarah Hyman is ill.
Please let the Chaplin know if any other members should be on the Binnacle list.
Parade Committee: Jack Kane:
September 8 Poway Heritage Day
Poway parade committee has request our return. More info will be on the website.
October 20 Borrego Springs Parade
Time will be 1000, this is a two day festival and a great event.
Monday November 12th: San Diego Veterans Day Parade
Times TBD – Grand Marshal Lt. Gen Chuck Yeager
Membership Committee: We are attempting to save on emailing the Sentential vice US Mail. Let us know if want to receive the Sentential via email. We are getting a lot of Sentential returned due to bad addresses.
Scholarship Committee: A Scholarship check of 500.00 dollars was awarded by Vice Base Commander and Scholarship Chairman Paul Hitchcock to: Heather Hillenbrand.
Storekeeper: We have some items here and patches can be ordered. Let me know if you would like to order anything special.
Breakfast Committee: Next Sub vet breakfast will be 29 July 2012, at 0800 to 1200. As noted last month we have decided to raise the cost of breakfast from 6 dollars to 7 dollars.
1928 – Vice Base Commander called for a Break….
1940 – Meeting called to order.
Unfinished Business
USSVI National Convention will be held 2-9 September at Norfolk, Virginia.
Base Picnic- July 21 at Sub base: 1000. Food will be provided by the base but side dishes are welcomed. Door prizes will also be included. Boat tours will be from 1000 to 1300. (this is dependent on ships availability.) You will need to submit the names of all who attend along with last 4 digits of their Social Security number. We will have to limit the tour to 4 persons per family.

New Business

Float committee: Ray Ferbrache is heading up a committee to look into the possibilities of building a new submarine float since the existing float is in need of fixing or replacing. Ray presented some ideas for the project:

1. We recommend the 688 class float, it would be easy to build and construction cost less. It would be about 11 to 12 feet long.

2. In building the float it should be able to carry some individuals along with considering speed of travel. We may need a trailer about 20 to 24feet. We may be able to seek sponsorship but need to be careful about any advertising on the float. We are still in contact with other units that have floats and are getting a lot of good response from other bases on how to proceed and avoid mistakes made by other bases.

Project proposals were place for a vote of membership to proceed with the float project and report back with new information. Members voted affirmative to proceed with the project.

Vice Commander introduced USSVI National Commander, T. Michael Bircumshaw as a special speaker: Commander Bircumshaw presented to the membership some important points his administration would like to see implemented this coming year. Bases with local scholarship funds should be fully supported by the USSVI National. USSVI should fully support local base scholarship funds. Voting: it is vital that each member vote in the national elections it is your privilege to vote for the right candidate. Retention: We need to activate "A Sea daddy program" were new members a brought into the organization helped along being contacted and welcomed to meeting and base functions. We need Sea Daddy's to call on new members and encourage them to attend meeting, this will help in keeping and getting new members. Recruiting: We all need to bring in new individuals who can become part of the organization. Our future depends on new members. The election will be coming up soon and I need to hear from you about how our job is being done and what we can do to improve.

Good of the Order

A short presentation was presented on the dangers of the new mercury light bulbs which are replacing the traditional light bulb. It was shown that if a bulb is broken and you get cut on the glass you could be susceptible to Mercury poisoning. Solutions were given on use and disposal of mercury filled light bulbs. Best solution is to buy as many old light bulbs as you can before they are band from the stores.

2020 – Meeting adjourned.

Sailing List for 10 July 2012

ROBERT CARLYLE	ED FARLEY	KURT GREINER
FRED FOMBY	PAUL HITCHCOCK	BOB OBERTING
JACK LESTER	JACK KANE	BILL EARL
BOB COATES	M. BURCIAGA	JACK ADDINGTON
CHARLIE MARIN	D. MORTENSEN	SERGIO FROST
M. BURCUMSHAW	BUD ROLLISON	DAVID BALL
BOB CHAPMAN	KEITH MCKEE	MIKE COSGROVE
RAY FERBRACHE	PHILL RICHESON	CLIFF SMITH
BENNY WILLIMS	BUD ROLLISON	TOM POLEN
ROY BANNACH	DAVID WOODWARD	BOB FARRELL
RON GORENCE	MIKE HYMAN	J J LYNCH
CHUCK BABCOCK	CHARLIE GREINER	DENNIS MCCREICHT

NH Man Accused Of Setting Navy Sub Afire, Causing $400M In Damage, To Be Back In Court

Associated Press, Aug 1, 2012

PORTLAND, Maine — A civilian worker accused of setting a fire that caused $400 million in damage to a Los Angeles-class attack submarine is returning to court, where he faces arson charges that carry a sentence of up to life in prison.

Casey James Fury, 24, of Portsmouth, N.H., who faces two counts of arson at the Portsmouth Naval Shipyard, was scheduled to appear Wednesday in U.S. District Court in Portland for a probable cause and detention hearing.

The Naval Criminal Investigative Service says Fury, a shipyard worker, confessed to setting a fire inside the USS Miami while it was in dry dock May 23, as well as setting a second blaze outside the sub on June 16.

Fury, a painter and sand blaster, told NCIS investigators that he was suffering from anxiety and set the first fire to avoid completing his shift stripping paint in the submarine's forward torpedo room, according to prosecutors.

The fire quickly got out of control and the steel hull trapped heat, causing superheated smoke and a stubborn fire that took more than 100 firefighters to douse.

It remains to be seen if the nuclear-powered sub will be repaired or scrapped.

An affidavit in federal court indicates Fury walked with investigators through another Los Angeles-class sub, the USS Pasadena, where he demonstrated where he'd set fire to rags on a bunk bed before returning to his post in the torpedo room.

By the time the fire alarm sounded, the smoke in a passageway was so thick that Fury and a co-worker had to find another route to safey, departing through an "escape trunk" farther back on the submarine, the affidavit said.

The submarine was undergoing a 20-month overhaul at the Navy shipyard in Kittery, Maine. The fire was confined to forward compartments and did not reach the back of the submarine where the nuclear propulsion components are located.

Fury said he set the second fire outside the submarine at the dry dock cradle after a text-message exchange with an ex-girlfriend about a man she had started seeing, according to the affidavit. That fire caused little damage.

Accused Sub Arsonist Says He Was 'Blurry' From Prescription Drugs

Shipyard suspect takes many medication

By Elizabeth Dinan, seacoastonline.com, July 25, 2012

KITTERY, Maine — A civilian painter accused of lighting a fire on a nuclear submarine to "get out of work" was taking three prescription drugs and an antihistamine at the time, he told investigators.

"He explained that he was taking Celexa for anxiety and depression, Klonopin for anxiety, Ambien for sleep and Xertec (sic) for allergies," according to a criminal complaint filed against the painter, Casey Fury of Portsmouth.

During an investigation, Fury told a special agent from the Naval Criminal Investigative Service that the cocktail of pharmaceuticals affected his mind, according to federal records. Whether the drugs contributed to Fury allegedly committing arson, or affected his ability to give a "knowing and reliable" confession, could be part of his defense, some lawyers say.

Fury, 24, faces a possible lifetime prison sentence for federal charges alleging he used his BIC lighter to ignite rags aboard the USS Miami, sparking a fire that took 12 hours to extinguish. According to court records, the Navy estimates damage to the $900 million submarine will cost $400 million to fix.

Federal prosecutors say Fury met with an NCIS agent July 20, when he signed a document agreeing to give a voluntary statement and to take a lie detector test, both without a lawyer. It was then, the Navy alleges, Fury confessed to starting the USS Miami blaze, as well as a second, smaller fire on June 16.

Fury was interviewed the day after the May 23 submarine fire and denied any involvement, according to Navy investigators, "because he was scared and because everything was blurry to him and his memory was impaired due to his anxiety and the medications he was taking at the time."

"He may not have known what he was doing," said defense lawyer Mark Stevens. "It's scary stuff."

Use of Ambien alone has been employed as a defense in criminal cases, most notably by Ambien users faced with charges alleging they were driving while intoxicated. According to the U.S. National Library of Medicine, Ambien is a brand name for zolpidem, which is prescribed as a sleep aid and falls within a class of drugs known as "sedative-hypnotics."

The Library of Medicine cites side effects including a "drugged feeling," while Ambien's labels warn users they may

eat, drive or have sex while sleeping, then have no recollection of the acts.

In 2006, Ki Yong O, 36, of Andover, Mass., killed a man during in an Ambien-induced sleep-driving crash, according to Forbes magazine. In November 2007, Forbes reported, a judge acquitted O of vehicular homicide, stating he couldn't find "beyond a reasonable doubt" that O "was voluntarily intoxicated when he operated his motor vehicle."

Fury is being represented by attorney David Beneman, who has declined to discuss the case. But other lawyers say Fury's use of Ambien and other pills could play a role in his defense.

"Sometimes when you mix these drugs, there are unintended consequences," said lawyer Ryan Russman. "I would imagine his counsel will look closely at how all these drugs affected his behavior — his mental state when the crime was committed."

Russman said if he were representing Fury he would consult with a toxicologist about the effects of Ambien and the other drugs on a person's ability to recall events and participate in legal proceedings.

Defense lawyer Alan Cronheim said, to his knowledge, the Ambien defense has only been used successfully in motor vehicle cases because "it affects driving." Whether Fury's alleged use of Ambien and other drugs affected his "conduct" is another issue, he said, and "something his lawyer will look at."

Prosecuting lawyers interviewed for this report had a dimmer view of defenses based on prescription drug use, or reported no first-hand knowledge of such cases.

"We're aware that it's been used as an excuse," Rockingham County Attorney James Reams said of Ambien use.

In his tenure as the county's top prosecutor, Reams said Ambien has only been raised during a criminal case once. In that instance, he said, it was raised by a defense attorney in the context of attempting to discredit a victim by questioning her memory as a result of taking Ambien.

Fury is scheduled to appear for a one-hour bail hearing Aug. 1 in the U.S. District Court of New Hampshire.

Associate Attorney General Jane Young said she hasn't seen any Ambien cases and Portsmouth Police Capt. Cory MacDonald, who is also a prosecutor, said he had no comment about prescription drug use as a defense.

Stevens said he's had two clients who were "driving around in their PJs" after taking Ambien and were charged with driving while intoxicated. He said in both instances the charges were reduced when his clients' use of Ambien was presented as evidence.

"If someone can get in a car, and turn the key, and start driving, and not know they were doing it, it's scary," he said.

Stevens said he'd never take the sleeping pill. "I'd rather go three days without sleep," he said.

Few Warning Signs In Portsmouth Naval Shipyard Arson Case

By Joey Cresta, seacoastonline.com, July 25, 2012

PORTSMOUTH — The Portsmouth Naval Shipyard should not be blamed for failing to see in accused arsonist Casey Fury any warning signs that might have hinted at his state of mind, a former shipyard commander said Tuesday.

Fury, 24, of Portsmouth was arrested on federal charges Monday alleging arson "within special maritime and territorial jurisdiction." Authorities allege Fury admitted to setting two fires in and around the USS Miami submarine, one of which caused $400 million in damage to the vessel, because he had anxiety and "wanted to get out of work."

A picture has started to emerge of Fury as a young man who caused few problems before these incidents. Police Capt. Corey MacDonald said he had no contact with Fury during his time as a school resource officer at Portsmouth High School.

Fury was a Class of 2006 graduate of Portsmouth High, where he participated in band, percussion ensemble and Latin Club. Band director Eric Gagnon confirmed Fury participated in band and said he never saw any "red flags."

"My recollection is that he was a committed, dedicated member," he said of Fury. "There was never any problem with him."

In Osprey Landing, where Fury's family lives, multiple neighbors said they had no negative interactions with him. He would come and go with friends but never caused problems, they said.

One woman described Fury as a "great kid;" another said she saw no reason for alarm, but noted it can be a challenge to see warning signs when someone is on prescription drugs.

According to federal court records, Fury was on a cocktail of prescription drugs: Celexa for anxiety and depression, Klonopin for anxiety and Ambien for sleep, and over-the-counter drug Zyrtec for allergies.

Retired Navy Capt. Peter Bowman of Kittery, Maine, a former commander of the shipyard, said it is easy to look back now and say authorities should have noticed warning signs before Fury committed the alleged acts, but added it is not always that simple.

"It seems to me that the younger generation (doesn't) display the rather rigorous ethics and common-sense standards that people from previous generations had. In other words, you didn't have to be told you don't light fires because you want to get off early to see your girlfriend," Bowman said.

He said that anyone who goes on a submarine undergoes a variety of training exercises before being authorized to go into certain areas.

"The Navy doesn't let people do those things unless they've got their cards punched," he said.

The public affairs office at the shipyard confirmed Tuesday that Fury was processed for a security clearance in accordance with standard Department of Defense/Department of Navy procedures. All civilian employees are subject to the same procedures, according to shipyard public affairs.

Bowman said it is possible the Navy will have to tighten some of its hiring procedures, but he noted the shipyard needs some relatively low-skilled, but trained individuals to do certain rudimentary jobs. Fury was a painter and sandblaster at the shipyard, according to court documents.

Some observers have said the shipyard should have policies against allowing workers to bring cell phones and lighters aboard a nuclear submarine. Fury allegedly started the May 23 fire that caused $400 million in damage to the USS Miami by igniting rags with a BIC lighter, and allegedly set the second, small fire on June 16 after exchanging text messages with an ex-girlfriend.

According to shipyard public affairs, cell phones without cameras are permitted in the shipyard's industrial area and lighters are not prohibited.

Eric Wertheim, a naval analyst with the U.S. Naval Institute, said Tuesday that more important than assessing blame at this early stage is trying to prevent a similar incident from happening in the future.

"We've seen a lot of issues (showing) the importance of mental health in the military. Maybe even shipyards are going to have to be looking at this stuff," he said.

On the positive side, Wertheim said, the Navy's "submarine community" has shown it is very good at learning from mistakes. "I see no reason to think that this would be an exception," he said.

According to public affairs, the Portsmouth Naval Shipyard "constantly reviews its security policies and procedures to ensure the safest and most secure environment for our people and our shipyard."

India Has Successfully Developed SLBM For INS Arihant

Zeenews.india.com, July 31, 2012

New Delhi: India has successfully developed its first submarine-launched ballistic missile (SLBM) for the indigenous nuclear submarine 'INS Arihant', joining an elite club of nations possessing such weaponry.

The SLBM, which can be launched from Arihant, has been developed successfully, sources said here.

Senior DRDO Scientist and Director of Hyderabad-based Defence Research and Development Laboratory (DRDL) A K Chakrabarti was honoured today by Prime Minister Manmohan Singh at a function here for his "outstanding contributions in the successful development of the first SLBM system for the nuclear powered platform Arihant."

The development of the underwater-launched ballistic missile will help India in completing its nuclear triad under which now it will have the option to strike from air, land and under the sea.

At present, very few countries including the US, Russia, France, China and the UK have the capability to carry out submarine-based ballistic missile strikes.

Specifications with regard to the Indian missile were not immediately known but its strike range is believed to be around 700 kms.

Iranian Threat To Navy Grows

Tehran expands arsenal in Gulf; U.S. might suffer losses in a conflict's first hours

By Joby Warrick, Washington Post, July 27, 2012

Iran is rapidly gaining new capabilities to strike at U.S. warships in the Persian Gulf, amassing an arsenal of sophisticated anti-ship missiles while expanding its fleet of fast-attack boats and submarines, U.S. and Middle Eastern analysts say.

The new systems, many of them developed with foreign assistance, are giving Iran's commanders new confidence that they could quickly damage or destroy U.S. ships if hostilities erupt, the officials say.

Although U.S. Navy officials are convinced that they would prevail in a fight, Iran's advances have fueled concerns about U.S. vulnerabilities during the opening hours of a conflict in the gulf.

Increasingly accurate short-range missiles — combined with Iran's use of "swarm" tactics involving hundreds of heavily armed patrol boats — could strain the defensive capabilities of even the most modern U.S. ships, current and former military analysts say.

In recent weeks, as nuclear talks with world powers have faltered and tensions have risen, Iran has repeated threats to shut down shipping in the oil-rich gulf region. Its leaders also have warned of massive retaliation for any attacks on its nuclear facilities, which the United States believes are civilian covers for an Iranian drive to acquire a nuclear-weapons capability.

Last week, Iran's Foreign Ministry declared that the presence of U.S. warships in the gulf constituted a "real threat" to the region's security.

Pentagon officials have responded by sending more ships, urged on by Congress as well as U.S. allies in the region. This month, the Navy announced that it would deploy the aircraft carrier USS John C. Stennis to the Middle East four months ahead of schedule. The shift will keep two carriers in the gulf region.

The United States also has announced new military exercises in the region, including a mine-sweeping drill in the gulf, and has moved to add new radar stations and land-based missile-defense batteries in Qatar.

Assessing the risks

The likelihood that Iran would risk an all-out attack on a vastly superior U.S. fleet is judged to be small. But Iranian leaders could decide to launch a limited strike if Israel or the United States bombed the country's nuclear facilities. Analysts also cautioned that a conflict could be sparked by an Iranian attempt to close the Strait of Hormuz — the narrow passage through which about 20 percent of the world's oil passes from the Persian Gulf into open seas — in retaliation for international economic sanctions.

In either scenario, Iran's ability to inflict significant damage is substantially greater than it was a decade ago. A Pentagon study in April warned that Iran had made gains in the "lethality and effectiveness" of its arsenal. The Pentagon declined to comment for this article.

Iran's increased power to retaliate has led some military experts to question the wisdom of deploying aircraft carriers and other expensive warships to the gulf if a conflict appears imminent.

A 2009 study prepared for the Naval War College warns of Iran's increasing ability to "execute a massive naval ambush" in the Strait of Hormuz, a narrow waterway dotted with small islands and inlets and perfectly suited for the kind of asymmetric warfare preferred by Iran's commanders.

"If the U.S. chooses to station warships in the Strait of Hormuz during the buildup to conflict, it cedes the decision of when to fight and allows the fight to begin in the most advantageous place for Iran," wrote the study's author, Navy Lt. Cmdr. Colin Boynton. "This could lead to a devastating first salvo on U.S. Navy warships, which would most likely be operating under restrictive rules of engagement."

Since 2009, analysts say, Iran has added defensive and offensive capabilities. Some of them have been on display in recent months in a succession of military drills, including a missile exercise in early July dubbed Great Prophet 7. The exercise included a demonstration of Iran's newly deployed Khalid Farzh anti-ship missile, which has an internal guidance system, a powerful 1,400-pound warhead and a range of 180 miles.

Iran's arsenal already included a variety of anti-ship missiles such as the Chinese-made Silkworm. More recently, Iran has boasted of progress in developing high-speed torpedoes based on Russian designs. Such claims are often exaggerated, but the April Pentagon assessment noted that Iran's arsenal now includes ballistic missiles with "seekers" that enable them to maneuver toward ships during flight.

Modern U.S. warships are equipped with multiple defense systems, such as the ship-based Aegis missile shield. But Iran has sought to neutralize the U.S. technological advantage by honing an ability to strike from multiple directions at once. The emerging strategy relies not only on mobile missile launchers but also on new mini-submarines, helicopters and hundreds of heavily armed small boats known as fast-attack craft.

These highly maneuverable small boats, some barely as long as a subway car, have become a cornerstone of Iran's strategy for defending the gulf against a much larger adversary. The vessels can rapidly deploy Iran's estimated 2,000 anti-ship mines or mass in groups to strike large warships from multiple sides at once, like a cloud of wasps attacking much larger prey.

A Middle Eastern intelligence official who helps coordinate strategy for the gulf with U.S. counterparts said some Navy ships could find themselves in a "360-degree threat environment," simultaneously in the cross hairs of adversaries on land, in the air, at sea and even underwater.

"This is the scenario that is giving people nightmares," said the official, who spoke on the condition of anonymity in discussing strategy for defending against a possible Iranian attack.

The Navy has ordered new systems for defending against small-boat "swarms," including ship-launched unmanned aerial vehicles and special missiles and artillery rounds for use against fast-attack craft. But many of the new defenses will not be deployed for several months, said Michael Eisenstadt, a former military adviser to the Pentagon and the State Department.

"We're behind and we're catching up," Eisenstadt said. "But if there's a conflict in the near term, we may not be completely ready."

U.S. forces would probably recover quickly from any early losses, but Iranian leaders could claim a psychological victory if the world's media carried images of burning U.S. warships in the gulf, Eisenstadt said. Al-Qaeda landed a similar blow in 2000 when suicide bombers on a small boat heavily damaged the destroyer USS Cole in the Yemeni port of Aden, an attack that killed 17 sailors and wounded nearly 40 others.

"A lot of Iranian ships would be at the bottom of the gulf, but [Iran] would be able to point to a victory," Eisenstadt said. "The outcome would never be in doubt when you're dealing with the most powerful military in the world. But in their minds they would have shown the world that if you mess with us, you'll pay a heavy price."

A push for credibility

The Iranian naval buildup is described by U.S. officials as part of an effort by the Islamic Republic to bolster its military credibility in the region.

The Pentagon's April assessment said Iran was making steady progress in developing ballistic missiles capable of striking targets in Israel and beyond. It also said Tehran was enhancing its well-established capacity to launch terrorist attacks using surrogates such as Hezbollah, the Lebanon-based militia movement that operates a network of cells around the world.

U.S. and Israeli intelligence officials have linked Iran and Hezbollah to a string of assassination attempts and terrorist attacks on three continents in the past six months — from the foiled plot to kill a Saudi diplomat in Washington last fall to the deadly bombing of a tour bus filled with Israelis last week in Bulgaria. Current and former U.S. officials say more attacks are likely if Israel launches a preemptive strike on Iran's uranium-enrichment plants.

"Iran has the capacity to attack, from Argentina to Venezuela, in Asia, in Europe and throughout the Middle East," Danielle Pletka, a defense expert at the American Enterprise Institute, said Wednesday in testimony before the Senate Foreign Relations Committee. "It seems naïve to believe it does not have the capacity to launch attacks in the United States."

The arms buildup in the gulf comes as Israeli officials continue to weigh an airstrike that many experts believe would ignite a larger conflict. A stream of Obama administration officials, including Secretary of State Hillary Rodham Clinton and Defense Secretary Leon E. Panetta, have visited Israel in recent weeks to lobby against a unilateral attack. Middle East experts say that Israel has not decided to attack but that the risk of an Israeli strike is rising as hopes of a diplomatic settlement to the nuclear crisis evaporate.

David Makovsky, a Middle East expert with the Washington Institute for Near East Policy, said after discussions with top Israeli officials that he assessed the chances of a strike at "50-50 . . . before the U.S. elections" in November. "There's this feeling that Israel's window is closing."

U.S. ships, meanwhile, continue steaming toward the gulf as the Obama administration seeks to reassure allies in the region and discourage Iran from moving to block the flow of oil through the Strait of Hormuz. U.S. and Middle Eastern officials acknowledge that deployments carry inherent risk, but they say there are no good alternatives.

"It is a dilemma," the Middle East intelligence official said. "When the Navy ships are in the strait, they are vulnerable to attack. But if you were to take them away, the gulf countries would feel more vulnerable. And already they feel very, very vulnerable."

Commanding The Electromagnetic And Cyber Environment

From Adm. Jonathan W. Greenert, Chief Of Naval Operations Blog, July 24, 2012

The electromagnetic (EM) spectrum is an unseen but integral part of our daily lives. Almost every one of us uses a remote (or EM transmitter) to control our television and unlock our car. We use mobile phones (or EM transceivers) to constantly stay in touch with each other by talking, e-mailing and texting. And, for more than a century we have relied on radio (or an EM receiver) and later television for news and entertainment. Important as the EM spectrum is in our personal lives, however, it is essential to our military operations. Failing to use it effectively can, no… actually it will be the difference between victory and defeat.

Now, we have also seen a merging in the last few years of the EM spectrum and cyberspace. High-bandwidth wireless networks in our homes, businesses and public spaces and satellite internet access for ships at sea and troops on the ground have made the electromagnetic spectrum an integral part of computer networks. Similarly, EM sensors such as radars and radiofrequency listening devices have become integral with the computer networks that control them and process their output.

This new EM and cyber environment presents us with challenges and opportunities in the 21st century similar to the undersea domain in the 20th century. Like the undersea domain, the EM and cyber environment is an area we can use to gain an advantage over our adversaries. To command this new environment, we need the ability to monitor and be aware of the environment, manage our emissions, discretely communicate, find, track and defeat threats, and conduct attacks as needed.

Today we are inextricably connected to the EM and cyber environment, and occasionally we conduct military operations in it. This situation parallels in many ways the period around the First World War, when submarines transited on the surface, preferred to submerge only to clandestinely move into firing position, and then surfaced to attack. In subsequent years, submarines spent more time submerged, and with the advent of nuclear power, no longer need to surface or snorkel. As a matter of survival, we developed an understanding of underwater acoustics and the ocean environment, a culture of sound silencing, and a doctrine of operating under water – eventually turning the undersea environment into a primary warfighting domain.

We need to make a similar advancement in our command of the EM and cyber environment. Our Sailors need to sense, understand and employ the EM and cyber environment in a similar way that submariners (officers and enlisted) eventually mastered acoustics and the undersea domain. Today we understand how specific adversary radars and communications systems work, emissions that indicate a threat or attack, which signals and techniques can defeat those EM systems, and the effects of the atmosphere on EM activity. But this knowledge and capability is discreetly inherent in different – but specific – systems and people, and is not managed in real time. Going forward we will develop the sensors and ability to pull all this information together coherently and continuously.

Our Navy's undersea dominance resulted from the vision, discipline, and determination of Navy leaders and Sailors from World War I to today. They took a new and challenging domain and committed themselves to mastering it. However, they had the benefit of a clear technological and personnel advantage and built on their hard work and sustained investment.

We do not have such a clear advantage with regard to the EM and cyber environment. Unlike the undersea domain, most of the world uses the EM spectrum and cyberspace. Our potential adversaries can leverage commercial innovations to rapidly adapt and develop new capabilities. We need to tap into this same source of innovation. But we will also develop and leverage those strengths

that are impossible to "reverse-engineer" – the skill and perseverance of our Sailors, the expertise and flexibility of our defense research base, our expanding international alliances and partnerships, and our history of adaptation and warfighting success.

We will further discuss this challenge and our efforts to command the electromagnetic and cyber environment in upcoming posts and articles. Stay tuned.

15th Annual RoboSub Competition Wraps Up In San Diego

By Mass Communication Specialist 2nd Class Foster Bamford, Navy Public Affairs Support Element West, July 23, 2012

SAN DIEGO — The Office of Naval Research (ONR) in conjunction with the Association for Unmanned Vehicle Systems International (AUVSI) sponsored the 15th annual RoboSub competition hosted at the Navy's Space and Naval Warfare Systems (SPAWAR) Transducer Evaluation Center in San Diego, July 17-22.

The competition brought together 28 teams of students from 10 countries to compete in an underwater obstacle course using autonomous underwater vehicles that the teams designed.

The goal of the competition, according to the AUVSI website, was to advance the development of autonomous underwater vehicles (AUV) by challenging a new generation of engineers to perform realistic missions in an underwater environment. The event also served to foster ties between young engineers and the organizations developing AUV technologies.

There were teams from the United States, Spain, China, India, Turkey, Japan, Sweden, Iceland, Canada and - for the first time - a team from the Russian Federation.

"This year has been a pretty good year, internationally," said David Novick, Technical Director for AUVSI.

The teams gathered at the pool daily to test their vehicles before their turn on the obstacle course.

"The complexity of these submarines is such that, if 99 percent of it works right, you still have that 1 percent that could ruin the whole thing," said Daryl Davidson, executive director of AUVSI.

The students worked for months designing and testing the machines before arriving at the competition.

"It's all autonomous, so the most they can do after they put it in the water is cross their fingers," said Novick. "There are obstacles that they have to pass over. There's bins where they can drop markers into, and then, finally, they have a couple of octagons where there are acoustic pingers. They can hone in on the pingers and there's an object - this year it's a laurel wreath PVC structure - that they have to retrieve and take to the surface."

The competition was the culmination of long hours of work for the students.

"It's always really exciting because, during the school year, we work really hard on this. Then, when we come here, we get to see a lot of other people who are interested in the same things that we are interested in," said Leah Gum, a student at the University of Southern California. "So not only is there that cool spirit of competition of everyone trying to do the best that they can with their vehicle, but also collaboration because everyone wants to see this field advance further."

At this year's event Cornell University came out on top, with the University of Florida placing second. Team SONIA, a Canadian team from École de Technologie Supérieure took third, the Chinese Harbin Engineering University placed fourth and, first-time competitors, Far Eastern Federal University from the Russian Federation took fifth. A prize of $20,000 was split between the winning teams.

The Department of the Navy's ONR provides the science and technology necessary to maintain the Navy and Marine Corps' technological advantage. Through its affiliates, ONR is a leader in science and technology with engagement in 50 states, 30 countries and 1,035 institutions of higher learning.

AUVSI, established in 1972, is an international non-profit organization dedicated to promoting and supporting the unmanned systems and robotics industry through communication, education and leadership.

The Navy's TRANSDEC pool was built in 1964 and simulates a large body of water, free of echoes, which allows for optimal research conditions.

Russia Scraps Its Final Cold War Submarine

recyclinginternational.com, July 24, 2012

Russia: Russia's State Atomic Energy Corporation Rosatom has signed a contract with Italy for the decommissioning of the last existing Northern Fleet nuclear submarine no longer in operation. The co-operation is part of a financial scheme sustained through the Global Partnership against the spread of weapons and materials of mass destruction, initiated by the G8 countries in 2002.

For years, Russia has been looking for a suitable funder to cover the large-scale scrapping of its remaining retired nuclear-powered submarine fleet. Now, Italy has stepped forward to provide US$ 8.4 million to remove the reactor compartments from the Cold War vessel which is laid up at Nerpa naval yard on the Kola Peninsula.

Some 66 reactor compartments are still to be moved on-shore to the storage location in Saida Bay. The storage facility already holds 47 reactor compartments, with seven more to follow in August and September this year, according to the head of Rosatom's submarine dismantling office Anatoly Zaharchev.

'That is more than 40% of the total reactor compartments in question,' he says. The US$ 181 million facility in Saida Bay was constructed in 2006 specifically to house these particular submarine parts because of the fact that their highly radioactive nature poses a significant safety hazard.

The USA has promised to add in US$ 1.2 million to cover any costs of transporting the spent nuclear fuel from the submarine's two reactors, destined for Russia's reprocessing plant in Mayak.

Meanwhile, Russia reports it has injected 50 million rubles (US$ 1.51 million) in the enterprise during 2012 so as to prepare reactor compartments for storage in Saida Bay; and the same amount will be contributed in 2013 towards the scrapping process.

Iran Atomic Chief Pours Cold Water On N-Ship Idea

Exovera.com, July 22, 2012

TEHRAN, July 22, 2012 (AFP) - Iran's atomic chief on Sunday undercut an idea put forward by some lawmakers to make nuclear-powered submarines and ships, even though he claimed Tehran had the technology to do so later if it wished.

The comments by Fereydoon Abbasi Davani, head of Iran's Atomic Energy Organisation, as reported by the news agency ISNA, poured cold water on a recent draft bill by some Iranian parliamentarians that seeks to give Tehran a reason to produce high-enriched uranium.

"We don't have a plan right now in this area," Abbasi Davani was quoted as saying.

He asserted, though, that "we do have the ability to design such reactors for ships" if a decision was made to go in that direction.

Enrichment is at the heart of the showdown between Iran and the West over Tehran's nuclear programme.

Iran, which currently enriches uranium up to 20 percent, ostensibly to make medical isotopes in its Tehran research reactor, insists its programme is exclusively peaceful.

But the United States and its allies fear that 20-percent enrichment puts Iran just a few technical steps short of being able to produce military-grade uranium of 90-percent or more, which is used in atomic bombs.

Negotiations on the issue reopened this year between Iran and the P5+1 group of nations (the United States, Britain, France, Russia, China, plus Germany) have hit an impasse and been downgraded to a lower level.

Israel and the United States have underlined that military force remains an option should diplomacy and a punishing set of international sanctions fail to make Tehran yield.

Iranian lawmakers signalling their defiance in the face of the pressure floated the idea of their country making nuclear-powered submarines and freighters in what observers took to be an attempt to raise the stakes in the talks.

This month, several lawmakers entered a bill calling on the government to prepare the way for Iran to make nuclear-powered commercial ships — a technological feat seen as both uneconomical and beyond the ability of all but the world's most-advanced nuclear states.

"If it's necessary and the government so decides, we have no problem to advance towards such systems and technologies," Abbasi Davani was quoted as saying.

He said that, in the case of ships, "it's not necessary to have fuel (enriched) beyond 20 percent — there are reactors that work with 3.5 percent or five percent in ships.... But if it's for submarines... higher enriched uranium is needed."

But, he repeated: "Right now, we have no plan to do so. Currently, fuel production to 20 percent is carried out for the Tehran reactor and for another similar reactor we are planning to build."

He also said that "ships with nuclear fuel have environmental problems."

If a decision were ever made to proceed with ship-board nuclear reactors, Abbasi Davani added, "we will hold the necessary coordination with the IAEA," the UN's nuclear watchdog.

Future Of Navy Strategic Deterrents

From Rear Adm. Barry Bruner, Navy Live Blog, July 19, 2012

As Vice Adm. John Richardson, Commander Submarine Forces, discussed in his recent post "Primus in Pace," July 20, 2012 marks the 52nd anniversary of the first submarine-launched Polaris nuclear missile. This event was celebrated with a simple naval message from the commanding officer of USS George Washington (SSBN 598) to President Dwight Eisenhower:

"POLARIS – FROM OUT OF THE DEEP TO TARGET. PERFECT."

For over 50 years, and more than 4,000 strategic patrols, Submariners have quietly and reliably provided the most survivable leg of the strategic deterrent triad. At this very moment, our nation's Submariners are submerged and undetected in our Ohio-class submarines, ready to respond to national tasking.

Over 50% of deployed nuclear warheads today are carried on board Ohio-class submarines. When New Strategic Arms Reduction Treaty (START)limitations come into effect in 2018, that figure will increase to over 70%. In contrast to this, the Ohio-class will begin retiring at a rate of one hull per year starting in 2027. To ensure that our nation's survivable deterrent will continue to be carried by a platform that is survivable, reliable, credible, and persistent for the foreseeable future, the Navy has initiated a detailed design process necessary to support construction of Ohio replacement starting in 2021.

The Ohio replacement SSBN will be a cost-effective recapitalization of our nation's sea-based strategic deterrent. The Ohio replacement plan leverages 50+ years of SSBN design and operation combined with the cost controls of the Virginia-class SSN program to provide an assured response capability in a leaner, more cost effective manner.

In addition to maximizing reuse of Ohio and Virginia components, it will also incorporate new technology and a life of ship reactor core that does not require refueling, to maintain the platform as a viable deterrent into the 2080s. Because of these design improvements, 12 Ohio replacement SSBNs are projected to provide the same at-sea presence as 14 Ohio SSBNs, effectively saving the Navy over $20 billion over the life of the class.

An effective U.S. nuclear sea-based strategic deterrent promotes global security and is an enduring national security imperative. Failure to maintain a survivable, reliable, credible, and persistent strategic deterrent would invite costs too great to contemplate. The Ohio replacement SSBN will fill a role that is absolutely vital to our nation's security, and will maintain the nation's deterrent patrols into the 2080s.

Rear Adm. Barry Bruner is director of the Navy's Undersea Warfare Division. (N97)

Israeli Navy Ensures Operational Readiness of Its Vessels

Defpro.com, July 18, 2012

Routine maintenance of one of the Israeli Navy's most advanced vessels, the Tanin (Crocodile) submarine, was completed this week in a special ceremony. Famous worldwide for its capability to adapt to a wide variety of missions, the submarine was returned to the sea and to routine operational activity. The Israeli Navy invests in the maintenance of its vessels so as to ensure operational readiness and continues preparations to receive additional submarines.

Submarines are deployed for military use for 30 years, and undergo reparations and maintenance treatments every 15 years. The treatment is beneficial to the normal operation of the submarines, which are constantly active. During the treatment, which lasts 22 months, the submarine is completely disassembled, enabling for an extremely thorough repair. "We take apart the submarines, work on them, clean them and repaint," explained Lt. Col. A, commander of the submarine maintenance squad.

"An extremely limited number of militaries possess the knowledge and necessary capabilities to carry out such a repair and even fewer navies perform these treatments," explained commander of the submarine flotilla, Col. G. "The goal is to take apart the submarine and after almost two years put it back together, return it to the sea, and sail. You are the ones who completed this difficult task and I thank you for your high-quality work. Today the Tanin submarine goes out to sea to carry out incredible operations."

The submarine underwent thorough assessments at sea, and after receiving approval from the Israeli Navy Commander, went out to sea.

Maintaining vessels and preparing to receive three additional submarines requires additional manpower, and the Israeli Navy is preparing accordingly. "We must change our perception and fortify our manpower, in order to increase availability of submarines at sea," said dock commander, Col. Eli Shuach at the ceremony. Dozens of soldiers and workers are expected to arrive at the dock, expediting operation.

Israeli Navy Sees Success In Simulator Investment

By Barbara Opall-Rome, Training & Simulation Journal, July 16, 2012

HAIFA, Israel — Intensified investment in simulated training is paying off for the Israel Navy, with officers here crediting operational and tactical submarine trainers and a new battle group bridge simulator for considerable savings and surging readiness.

In a late-June visit to the Israel Navy Training Base here, Lt. Cmdr. Sharon, commander of the service's new bridge simulator, equated four hours of simulated training to a full week at sea.

Beyond obvious hourly savings, Sharon, whose last name was withheld for security reasons, said the simulator allows officers and cadets to train in "extreme combat scenarios" that could not be replicated in live training.

Designed by the Navy and built by Tiltan Systems Engineering, a Petah Tikva, Israel-based firm with offices in Edison, N.J., the bridge has been training cadets here for less than a year in its limited format for individual surface ships. By next month, the Navy expects to complete an array of capability enhancements, including a combat information center that will allow for simultaneous simulated battle group training on all Navy platforms, including submarines.

"We're still in the building phase, but very soon, we'll be able to conduct coordinated combined-force training here," he said.

The system includes an open bridge simulator that replicates speed, maneuverability and other characteristics of surface platforms in an operational environment generated by hundreds of square kilometers of three-dimensional, geo-specific coastline imagery.

It also includes a closed bridge simulator where workstations for radar, navigation, command and control and certain weaponry — including the Typhoon automated weapon stations — are equipped with the same software and display screens used on real platforms. Within a month, a new combat information center simulator will come online to support comprehensive battle group training.

"It's a huge [leap] forward in our advanced training program. Everyone will be able to train in networked operations and coordinated maneuvers at sea or even up to enemy shores," Sharon said.

The bridge simulator joins the Navy's full-motion Dolphin submarine simulator, operational here since 2004, manufactured by Siemens Nederland N.V., and a 2-year-old Dolphin tactical trainer, by dsit Solutions, an Israeli company. Lt. Cmdr. Yisrael, head of the service's training school, estimated that submariners certified for Israel's Dolphin fleet reach operational readiness nearly 20 times faster in the school's operational simulator than they would out at sea.

A specialty operator of a Dolphin steering station, for example, needs 80 hours in the Dolphin operational simulator, as opposed to some four months at sea.

"Obviously, we don't have the force structure, the budget or the manpower to rely on live training. And even if we did, there are certain functions and emergency procedures that should not be learned at sea," said Yisrael, a submariner whose full name was withheld from publication for security reasons.

Yisrael was among the first group of young officers trained in Germany to operate Israel's Dolphin-class fleet, built by the Kiel-based shipbuilding division of Thyssen-Krupp Marine Systems. Three of the diesel-electric submarines have been operational here for a decade, but only in the past two years — with completion of a new Dolphin tactical trainer — has the Navy been able to train Dolphin officers and crew members exclusively in Israel.

Submariners undergo 13 months of preliminary, intermediate and advanced training on the full-motion Dolphin operational simulator. The trainer itself is built by Siemens, but most of the specialty mission stations were developed and manufactured internally by the Navy and use the same command-and-control software and display screens installed in operational submarines.

"Here at our school, they'll learn all the technical aspects and acquire specialty mission certification before moving on to the tactical trainer ... We're seeing a huge impact on readiness from the combined training of the two simulators," Yisrael said.

Retired Rear Adm. Omri Dagul, a former head of Navy Materiel Command, said investments over the past decade in simulated training have already resulted in considerable savings and higher readiness rates. "We understood that these simulators will save a lot of resources and raise the professional level of officers," Dagul said.

He said all three simulators were designed according to specific Navy requirements, with a majority of the subsystems developed in-house by Navy engineers. "We poured years of operational expertise and engineering experience into these simulators to ensure that they acquire most of the skills they receive on land before going out to sea."

Yisrael said he is training the debut force for the fourth enhanced air-independent propulsion (AIP) Dolphin expected here early next year.

CO of attack submarine Pittsburgh fired

Navy Times, Aug. 12

The commanding officer of a Groton, Conn.-based attack submarine was fired Friday for "allegations of personal misconduct," Submarine Group 2 said in a Sunday news release.

Cmdr. Michael Ward, CO of Los Angeles-class submarine Pittsburgh, was fired by Capt. Vernon Parks, commander of Submarine Development Squadron 12, SUBGRU 2 spokeswoman Lt. Cmdr. Jennifer Cragg said.

Cragg, citing an ongoing investigation, declined to comment on the nature of the alleged misconduct or whether it had taken place on Pittsburgh.

It was a short end to Ward's stint in command. He had only taken charge of the crew a week before. He was temporarily relieved by Cmdr. Michael Savageaux, the officer Ward relieved on Aug. 3.

Ward is the Navy's 13th commanding officer fired this year and the fifth the Navy said was fired for misbehavior. The Navy said that Ward had fallen short of the mark and that the penalty was swift.

"Our Navy has a very clear and unambiguous standard regarding the character of our commanding officers, spelled out in the Charge of Command," Parks said, referring to a memo issued last year reiterating the responsibilities of command. "I reviewed this charge with Cmdr. Ward before he assumed command. He understood the Navy's high standards for command leadership and he failed to uphold them."

Underwater Satellites And Autonomous Robots Help The Hunt For Enemy Submarines

By Allison Barrie, foxnews.com, Aug 9, 2012

Underwater satellites, mini-robot sub trackers and an open invitation to join the hunt for submarines in dangerous waters – all US projects underway to defeat the growing threat of enemy submarines.

Submarines may sound like a bit of an old school Hunt for Red October style threat, but Anti-Submarine Warfare planning is still vital.

Diesel-electric submarines are a growing threat for four primary reasons. They can be built a relatively low cost in comparison to traditional platforms and have therefore proliferated in numbers- arguably in numbers that exceed our maritime platforms.

Additionally, the lethality of these diesel electric subs has also grown while their acoustic signatures are lower making them harder to detect.

SATELLITES IN THE OCEAN - DASH

DARPA's Distributed Agile Submarine Hunting or DASH program will detect and locate submarines over vast areas in both deep and shallow water.

DASH is a sort of an underwater version of a satellite capable of operating at extreme depths in open ocean. Known as "subullites," these are being developed for deployment on deep sea enemy sub stake outs.

The underwater satellites will be mobile, quiet and unmanned.

Just like a satellite in the sky, it will have a large field of view- but in this case of the water overhead so that it can scan upwards and from great depths detect the quiet diesel electric subs.

To hunt submarines in the more shallow continental shelf waters, state of the art mobile sensors will hunt from above rather than from below the threat. For this area, non-acoustic sensing will be deployed.

In January of this year, DARPA awarded their third industry contract to develop technologies for submarine detection in shallow coastal waters and harbors without using traditional acoustic submarine-hunting technologies like sonar.

Cortana Corp. was awarded a $496,500 contract for the Shallow Water Agile Submarine Hunting (SWASH) programme aiming to develop non-traditional submarine surveillance that is lightweight, small and requires low power.

DARPA also awarded a $249,735.48 to SRC Inc. last October, and a $367,507 contract last September to Applied Physical Sciences Corp.

If successful, the DASH program will develop breakthrough technology to overcome a range of current challenges from detection and classification over such long ranges through to sustaining energy and communications in the extremely tough operating conditions of deep sea.

Ultimately, DASH will be transitioned to the Navy.

ENEMY SUBMARINE ROBOT TRACKERS

Once an enemy sub is detected by DASH, a small autonomous vessel or "X-ship" will be deployed to stay on the trail of submarines that may pose a threat.

This fleet of submarine surveillance vessels is being developed by DARPA's Anti-Submarine Warfare Continuous Trail Unmanned Vessel or ACTUV.

The goal is for ACTUV to have the capability to detect and continuously track even the most silent diesel electric submarine threats throughout its movements on global range operations.

ACTUV will be autonomous meaning it will be like a seaworthy robot that can independently carry on submarine tracking missions across thousands of miles over a period of months without a human ever stepping on board and with minimal remote supervision.

Being autonomous, DARPA will be taking steps to ensure that ACTUV is smart enough to independently interact with a submarine directed by thinking humans and has enough situational awareness to comply with maritime laws particularly the "rules of the road" out at sea when it comes to safe navigation.

The program has four phases: Phase 1 is now complete and Phase II that will complete the prototype hunter design kicking off last month on the first of July.

The objective of Phase II will be a design that outstrips the propulsive capability of diesel electric submarines so that the little tracker can keep up with its target, but at a fraction of the size and cost of these far larger subs- to do so will mean exceeding state of the art technology.

In February, Bluefin Robotics, a leader in the design and manufacturing of unmanned underwater vehicles (UUVs), was awarded a Phase II subcontract from Applied Physical Sciences Corp.

Phase 3 will involve building the ACTUV and Phase 4 will test it.

Although the ACTUV program concentrates on tracking in anti-submarine warfare, the technologies developed will have far wider applications for a range of unmanned naval vessels and a far wider spectrum of missions.

INVITE TO JOIN THE HUNT

DARPA deployed crowd sourcing to help identify the best ways to tackle the threat of these super quiet diesel-electric subs.

It through down the gauntlet to Americans issuing an open invitation to join the fight and hunt enemy submarines asking "Can you best an enemy submarine commander so he can't escape into the ocean depths?"

By simply downloading the free Dangerous Waters, DARPA's ACTUV Tactics Simulator, gamers not only had the opportunity to track an enemy sub using ACTUV, but to have the tactics they used to defeat the sub deployed in real life.

To be successful autonomously, ACTUV will need software that gives it the very best methods to achieve its missions- that's where American gamers come in.

Dangerous Waters was programmed with genuine evasion techniques that enemy submarines use. DARPA will take the best solutions players came up with to defeat enemy evasion and use them to increase ACTUVs smarts.

For successfully completing missions and deploying effective tactics, gamers were given points and could keep an eye on their rankings with the official leader board like an underwater version of Top Gun.

After gamers completed each of the simulation tactical trainer scenarios, they submitted their tracking tactics to DARPA for analysis. DARPA will now choose the best tactics it received and build them into the ACTUV prototype.

Enemy submarines will soon have not just DASH and ACTUV technology to face, but the very best of US gamers tactics to counter as well.

Russia's First Borey-Class Subs For Pacific Deployment

RIA Novisti, Aug 8, 2012

Russia's first two Borey-class strategic submarines will be ultimately deployed with the Pacific Fleet says Defense Minister.

The submarines Yury Dolgoruky and the Alexander Nevsky are undertaking test runs in the White Sea and are expected to be commissioned by the end of 2012.

"I am absolutely certain that the first two subs will be initially placed with the Northern Fleet and will be redeployed to the Pacific Fleet after all the infrastructure there is ready," said First Deputy Defense Minister Alexander Sukhorukov recently.

Two more Borey class submarines are under construction at the Sevmash shipyard in the port city of Severodvinsk on the White Sea.

The Russian Navy is expected to receive at least ten Borey class submarines by 2020.

The new submarines, to be armed with Bulava ballistic missiles, will constitute the core of Russia's strategic submarine force after 2018.

Submarines In The Year Of Water Dragon

Power-eng.com, Aug 8, 2012

At present, the international fleet of submarines consists of 450 submarines of various subclasses. Navies of 41 countries have submarines and the quantity of members of this club grows steadily.

Cautious optimism

At the beginning of July of 2012, Navy Commander Admiral Vladimir Vysotsky announced that Russian Navy planned to receive three nuclear submarines by the end of the year. He said, "This is multipurpose nuclear submarine Severodvinsk, this is strategic nuclear submarine Yury Dolgoruky. We also plan to buy the second strategic submarine of this series, Alexander Nevsky." Not a single of the aforementioned submarines reinforced the Navy. There were many reasons from non-readiness of armament to delays in payment for the work. Growth in prices of ship steel, energy and degradation of domestic submarine building in the 1990s had their effect too.

In principle, it is possible to include Yury Dolgoruky into the Navy but only formally. Full arming of the submarine requires not less than 16 Bulava missiles and it is necessary to produce a part of them. Yury Dolgoruky will be adopted in the second quarter of 2012. First of all, it is necessary to conduct audit of all mechanisms of the submarine.

In turn, the delay of Yury Dolgoruky had effect on Alexander Nevsky. Its running tests began only on October 24 of 2011.

Official laying down of the fourth submarine of Borey type of improved project 955A will take place this year. It is also planned to sign contracts on a few submarines more. It was reported that all eight Borey submarines would be built at Sevmash ahead of schedule two years earlier than the deadline outlined by the state armament program until 2020. It is planned to lay down and hand over one submarine of this type per year.

Non-readiness of armament became one of the main reasons for delay of putting into operation of multipurpose nuclear submarine Severodvinsk, the lead submarine of project 885 Yasen. It will be adopted for service at the end of 2012.

Sevmash continues construction of nuclear submarine Kazan, the first series-made submarine of Yasen type. On November 9 of 2011, a contract on construction of four submarines of project 885M Yasen was signed with the Defense Ministry. It will be adopted for service at the end of 2012.

There appeared reported about plans for modernization and rearming of nuclear submarines of project 949 Antey. There are ten submarines of this type in the Russian Navy now. Their main weapons are 24 anti-ship missiles of Granit system that can kill targets at a distance of up to 550 kilometers. A powerful nuclear or conventional 750-kilogram piercing warhead can kill any enemy including aircraft-carriers. However, for target indication Granit needs external space or aviation source. Satellites of Legenda series have exhausted their resource a long time ago. Airplanes are very unreliable means in conditions of active counterparties. So, Granit was removed from production. In accordance with the technical project developed by Rubin design bureau Antey will be rearmed with the newest anti-ship missiles of Onyx and Kalibr systems. According to the firing range and power of the warhead they are inferior to Granit but target indication means being on board of the submarine are sufficient for them. The new missiles will be place in the same launchers as Granit. There will be three or four Kalibr or Onyx missiles in one launcher. In other words, the ammo ration of the submarines will grow by a few hundreds of percents. Besides, the submarine will turn from “aircraft-carrier killer” into a multipurpose one. Kalibr has not only anti-ship but also antisubmarine versions and can also be used for strikes at coastal targets.

Malakhit developed and defended last year a technical project for modernization of nuclear submarines of project 971 Shchuka-B. These submarines constitute the basis of the general-purpose Russian submarine forces now. These submarines will be improved to the level of nuclear submarines of generation 3+. It is already planned to finance the work on modernization to be done by Zvezdochka.

The fate of the three world’s biggest nuclear submarines of project 941 Akula is not clear yet. After modernization the submarines may be armed with 24-30 newest intercontinental ballistic missiles R-29RMU2.1 Liner that have increased capabilities for penetration through antimissile defense or R-30 Bulava.

Bearing in mind the big internal volumes of Akula submarines, it is possible to place up to 300 cruise missiles Granat or their newest modifications there. This means that nuclear submarines of project 941 will become real underwater arsenals that fulfill not only tactical but also strategic tasks but are not subject to limitations of the agreements on reduction of strategic armament.

Design bureaus Rubin and Malakhit are already working on nuclear submarines of the fifth generation. Their concept makes provisions for creation of a unified body both for a multipurpose and for a strategic submarine, which will allow reduction of costs of submarines construction. Submarines of the fifth generation will be outstanding because of reduced noise, high level of automation of the control systems, perfect nuclear reactors and long-range weapons.

Lada: turns of the fate

General Director of Rubin Andrei Dyachkov says that work on diesel electric submarine Lada will be continued. The modernized technical project of the submarine will be ready in 2013 taking into account experience of operation of the lead submarine of this project St. Petersburg and results of tests of its hydroacoustic system in northern seas at big depth planned for 2012. Then Kronshtadt and Sevastopol will be completed according to the already corrected project.

Meanwhile, the Navy decided to return to project 877/636 Paltus aka Varshavyanka aka Kilo that had earned perfect reputation. Diesel electric submarine Rostov-on-Don was laid down at Admiralty Shipyards on November 21 of 2011. This is the second submarine of improved project 06363. From their predecessors these submarines will differ by modern digital control and communication systems, as well as by other electronic systems. They will also receive missiles of ship-to-ship and ship-to-coast classes.

The lead submarine of this project Novorossiysk should be handed over to the Black Sea Fleet in 2013. In total, it is planned to build three or even six such diesel electric submarines for this fleet. The Baltic Fleet wants to get new Paltus submarines too. Sevmash will restart construction of diesel electric submarines this year. Nizhny Novgorod-based Krasnoe Sormovo plant manifests persist wish to return to assembling of diesel electric submarines too.

The stubborn unwillingness of the Navy to place auxiliary air-independent (anaerobic) power plants on such submarines that increase the time of patrolling underwater significantly is confusing. Rubin design bureau is practically completing test bed tests of such power plant with electrochemical generators. Unlike in foreign models, hydrogen for such power plant will be generated right on board. This power plant can use standard diesel fuel and does not require complicated coastal maintenance. However, Rubin develops the power plant according to its own initiative without participation of the Defense Ministry. It is intended for use in export orders.

In September of 2011, the Navy adopted autonomous deepwater vehicle AS-30 Konsul of project 16811 developed by Malakhit and built by Admiralty Shipyards. The naval flag was raised on it in December. The vehicle is not big. Its weight is 26 tons, its length is 8.4

meters and its width and height is 3.9 meters. The speed is three knots. During tests in the northern part of the Atlantic Sea the bathyscaphe with people dived at a depth of 6,270 meters and thus exceeded the record of similar vehicles of Mir type.
The vehicle is intended for underwater technical and rescue missions, placing of responder beacons in depth, delivery of equipment with weight of up to 200 kilograms to the floor and lifting of such equipment and other kinds of work. Using equipment of the carrier ship and manipulators Konsul can do geophysical work.

India's First Nuclear Submarine Set For Sea Trials

The Express Tribune, Aug 8, 2012

NEW DELHI: India on Wednesday said its first home-built nuclear submarine was set for sea trials, as it detailed billion-dollar projects to arm its navy with warships, aircraft and modern weaponry.

The indigenous 6,000-ton INS Arihant (Destroyer of Enemies) was unveiled in 2009 as part of a project to construct five such vessels which would be armed with nuclear-tipped missiles and torpedoes.

"Arihant is steadily progressing towards operationalisation, and we hope to commence sea trials in the coming months," Indian Navy Chief Admiral Nirmal Verma told reporters.

"Our maritime and nuclear doctrine will then be aligned to ensure that our nuclear insurance comes from the sea," Verma said.

Arihant is powered by an 85-megawatt nuclear reactor and can reach 44 kilometres an hour (24 knots), according to defence officials. It will carry a 95-member crew.

The Indian Navy inducted a Russian-leased nuclear submarine into service in April 2012, joining China, France, the United States, Britain and Russia in the elite club of countries with nuclear-powered vessels.

Verma said 43 warships were currently under construction at local shipyards while the first of six Franco-Spanish Scorpene submarines under contract would join the Indian navy in 2015 and the sixth by 2018.
The admiral said the navy was also poised to induct eight Boeing long-range maritime reconnaissance P-8I aircraft next year.

Navy Tests Ocean Drones In RI's Narragansett Bay

By Michael Melia, Associated Press, Aug 7, 2012

NEWPORT, R.I. — I Just beneath the placid, sailboat-dotted surface of Narragansett Bay, torpedo-shaped vehicles spin and pivot to their own rhythm, carrying out missions programmed by their U.S. Navy masters.

The bay known as a playground for the rich is the testing ground for the Naval Undersea Warfare Center in Newport, where the Navy is working toward its goal of achieving a squadron of self-driven, undersea vehicles.

One of the gadgets recently navigated its own way from Woods Hole, Mass., to Newport, completing several pre-set tasks in what the military calls an unprecedented feat.

Technology under consideration by the military is often tested aboard cylinder-shaped vehicles with a diameter of about 20 inches. But the center also tests its own prototypes, including one dubbed Razor, which can propel itself by using flippers, like a turtle, for stealth.

The Navy hopes its drones will eventually pilot themselves across oceans. The vehicles are already used to detect mines and map the ocean floor and, with tweaks over the next several years, the military says they will be applied more to intelligence gathering and, in the more distant future, anti-submarine warfare.

"We do see these autonomous undersea vehicles as game changers," said Christopher Egan, a program manager at NUWC.

Compared with aerial drones, the undersea vehicles can be challenging to control from a distance. The water distorts the transmission of signals, and the drones have to contend with boat traffic, swirling currents, and obstacles on the ocean floor.

They are typically powered by batteries, but their endurance has been sharply limited by the lack of a stronger power source that will allow for safe handling by sailors who deploy and collect the devices aboard submarines.

With advances in alternative energy sources, particularly fuel cells, the Navy says it is close to achieving a fully independent drone. By 2017, the Navy aims to have a large, unmanned vehicle that can stay out for 70 days. Within the next decade, it wants to field its first full squadron.

"We've seen the advances of unmanned aerial vehicles and what that provides to the war fighter," said Navy Capt. Brian Howes, who is involved in planning for the vehicles as commander of Submarine Development Squadron 5 in Washington state. "We're pushing the technology to have the same leap for our unmanned undersea vehicles."

In a time of tight federal budgets, the Navy also sees drones as a cost-effective way to extend the reach of its submarine fleet, which has been gradually shrinking in size since the end of the Cold War.

Norman Friedman, a New York-based naval analyst, said the unmanned undersea vehicles — or UUVs — are a necessary investment. Whether they deliver on their promise, he said, will depend on success at finding the right power plant.

"The big obstacle is going to be energy," he said. "I don't get the feeling anyone has jumped up and said this is not a problem anymore."

The bay is perfect environment with shallow water, varied features on the bottom and commercial traffic, Egan said. At times, however, the engineers have to contend with interference from pleasure boaters, including one man who was approached by a Navy vessel after trying to grab a vehicle near the surface.

"We've had occasional interactions where a boat operator sees an opportunity to maybe snap up a cool device," Egan said. "We've had to deter them on occasion."

The Navy has used unmanned vehicles to simulate enemy submarines for training purposes since the 1970s, but officials say they have made dramatic leaps in autonomy.

The vehicle that completed the 26-hour voyage from Cape Cod to Newport in October 2010, for example, plotted its own course without relying on GPS positioning or other communications, Egan said. Guiding itself by features on the sea floor, it passed through the pylons of a bridge, circumnavigated the island of Jamestown and surfaced in a pre-determined spot inside the harbor.

The laboratory at the Naval Undersea Warfare Center, which has 65 engineers and scientists dedicated to UUVs, works closely with private companies, academic institutions and other government agencies involved in similar research. The gadgets have a wide range of applications beyond the military, as demonstrated last year by vehicles that recovered the flight data recorder from an Air France plane that crashed in the mid-Atlantic.

The submarine community is particularly eager to see what the vehicles can do. Electric Boat in Groton, Conn., has designed a module to help future attack subs deploy and recover the drones, transporting them through the payload tubes.

"If you can do reconnaissance with multiple UUVs or one UUV, then in effect you extend the area the submarine touches," Friedman said.

China Brief Volume: 12 Issue: 15

A Pair of Type-094 Jin-Class Submarines

By: Benjamin S. Purser, III

After decades of largely unsuccessful effort, China's submarine-based nuclear deterrent finally is taking shape with the Type-094, or Jin-class, nuclear-powered ballistic missile submarine (SSBN) and its intended armament, the JL-2 submarine-launched ballistic missile (SLBM). The 2012 Department of Defense report on Chinese military and security developments indicates that although Jin-class submarines have started entering service with the PLAN, China has not yet completed development of the JL-2, preventing the maturation of its long-desired sea-based nuclear deterrent. [1]. Regardless, Beijing continues to dedicate resources to this program, as reflected by the construction of a specialized tunnel on Hainan Island that many observers believe is intended to position the PLAN's new SSBNs for deep-water patrols in the contested waters of the South China Sea (Strategic Security Blog, April 24, 2008). As soon as technical details of the JL-2 fall into place, China finally will possess a submarine-based nuclear deterrent—one that would fall far short of the nuclear deterrence capabilities of the US Navy's SSBNs—but would nonetheless give China an operational nuclear dyad that also would include the land-based missiles of the PLA's Second Artillery Force.

China's Long Search for a Sea-Based Nuclear Deterrent

While U.S. and Soviet submariners spent the 1960's and 1970's making huge headway in the development of an underwater nuclear deterrent, the Cultural Revolution targeted many foreign-trained engineers like Huang Xuhua, a lead submarine designer. At times, protecting China's scientific and technological expertise required the personal intervention of senior leaders. In addition to such personalized attacks, this period was also fraught with systemic and technical disasters: "overall, the Cultural Revolution had a devastating impact on the development of China's submarine force" [2]. For domestic political reasons, China thus struggled during the years most associated with progress in nuclear deterrence in the United States and USSR.

After the Cultural Revolution ended, the PLAN worked to make up for lost time and eventually made great strides in the mid- and late-1970s—deploying their first nuclear-powered attack submarine (SSN), the Type 091, or Han-class, in 1974. In the following decades, the Chinese acquired Soviet and French technology to improve the capabilities of their submarine force dramatically. They bought components (e.g. French DUUX-5 sonars), submarine designs (i.e.. those of the Type-031 Golf-class SSG test platform still in use today and those of the Romeo-class SS also still operational), and entire submarines (e.g. the dozen Kilo-class submarines, each with its own collection of weapons). There is also increasing evidence that China pursued foreign expertise even when the respective governments were not willing to assist; it thus seems increasingly likely that Beijing has—in addition to pursuing overt cooperation and acquisitions—managed a long-term clandestine collection campaign designed to support their submarine fleet's modernization and expansion (Pravda, June 25; RIA Novosti, June 20; The Diplomat, December 11, 2011). With such foreign knowledge and materiel, China has pieced together a substantive and capable submarine force.

The sea-based nuclear deterrent, however, progressed at a painfully slow pace, leading to the Xia-class SSBN, which Beijing only deployed within coastal waters. In 1982, the PLAN also successfully tested China's first submarine-launched ballistic missile, the JL-1 from its North Sea Fleet-based Golf-class SLBM test platform, the Great Wall 200, which official Chinese media recently lauded as the "vanguard" of SLBM test launches (Science & Technology Daily, January 23, 2011). The Xia was designed to carry twelve CSS-NX-3 (JL-1) SLBMs—each with a relatively short maximum range of about 1,600km (1,000+ miles)—but the Xia has never conducted a deterrent patrol and is not considered operationally deployed [3].

Yet, problems with follow-on platforms and armaments remain. In 2003, Chinese fishermen found a "crippled, half-submerged" Ming-class submarine floating adrift. After the hatch was opened, the fishermen found all 70 crew members suffocated inside (Wen Hui Bao, May 7, 2003). While the disastrous loss of Ming 361, and of all her crew, has proven the exception and not the rule for China's submarine force in the twenty-first century, important problems are not yet resolved. Most importantly, the PLAN has done well with the Jin-class itself, but each submarine only matters so much as it can silently patrol the deep with its twelve JL-2 SLBMs, which have an estimated range of at least 7,200 km and are equipped with penetration aids designed to defeat enemy missile defense systems [4]. According to the Department of Defense's 2010 report on Chinese military developments, "The first of the new Jin-class (Type 094) SSBN appears ready, but the associated JL-2 SLBM appears to have encountered difficulty, failing several of what should have been the final round of flight tests." Consequently, the 2010 report stated, "the date when the Jin-class SSBN/JL-2 SLBM combination will be operational is uncertain" [5]. The 2012 report presents a more optimistic assessment, indicating, although the JL-2 program "has faced repeated delays," it "may reach initial operating capability within the next two years." When deployed, the report notes, "The Jin-class SSBN and the JL-2 will give the PLA Navy its first credible sea-based nuclear capability" [6].

Current Status of the Jin SSBN and JL-2 SLBM

According to China's 2010 defense white paper, the PLAN is enhancing its "strategic deterrence and counterattack" capabilities, a clear reference to the Type-094 SSBN and JL-2 SLBM combination [7]. Indeed, the Type-094 appears to be a major improvement over China's first-generation Xia, even though an unclassified report by the Office of Naval Intelligence indicates it is somewhat noisier than Russia's older Delta III SSBNs (Strategic Security Blog, November 21, 2009).

Perhaps in part as a result of its thus far disappointing experience with the Xia, China seems to be aiming to build enough Type-094 SSBNs to enable the PLAN to conduct near-continuous deterrent patrols if desired. The U.S. Office of Naval Intelligence (ONI) assesses China will build a "fleet of probably five Type-094 SSBNs ... to provide more redundancy and capacity for a near-continuous at-sea presence" [8]. A variety of Chinese publications, normally citing ONI products and adding few details, suggest the relatively small SSBN forces of Britain and France may serve as models for China [9].

It is clear that multiple hulls have already been launched, based on internet photos and commercial satellite images depicting Jin-class SSBNs at the PLAN's Xiaopingdao and Jianggezhuang naval bases, Huludao shipyard as well as a recently-constructed submarine facility at Yalong Bay near Sanya on Hainan Island (Strategic Security Blog, June 2, 2011). The images of the facility on Hainan Island provided some hints as to the PLAN's SSBN basing plans. Indeed, the photo of the Jin at Yalong Bay—specifically the dimensions of them and the support facilities that they include—suggests the facility may be the key base for China's future SSBN forces.

Expected Future Developments

As China's progress toward an undersea deterrent continues, a series of important questions will arise. First, the Type-094 and JL-2 combination, when the SSBN and SLBM are finally operationally deployed, will represent a major step forward in China's long quest for a sea-based nuclear deterrent to complement its land-based strategic missiles, but it may not be the final chapter of this story. Indeed, the Jin ultimately may represent a waypoint, and not the final destination, in China's long quest for a sea-based leg of its nuclear deterrent. China has yet to reveal its plans, but media reports in Taiwan suggest Beijing eventually may develop and deploy a follow-on SSBN and SLBM combination: the Type 096 SSBN and JL-3 SLBM (Taipei Times, May 23, 2011).

Another question concerns the roles of the Second Artillery and the PLAN. Although the Second Artillery Force has traditionally occupied a preeminent position as China's "core force for strategic deterrence," that role could change along with the PLAN's progress in sea-based nuclear deterrence [10]. Yet, the Second Artillery's land-based missile force offers Chinese leadership greater transparency and constant control. The nature of submarine deterrence creates an important disconnect between national leadership and warfighters: the men deployed on future Jin patrols will remain incommunicado and un-located for prolonged periods of time as the survivability that comes from stealth is the main advantage of SSBNs. In the current political environment, the inability for civilian leaders to remain constantly informed—and in control—of SSBN operations may push them beyond their comfort zone if Beijing maintains routine deterrent patrols. The combination of the SAF's proven track record of experience handling nuclear weapons and its deployment of increasingly survivable mobile forces suggests that the Second Artillery will remain China's preeminent strategic deterrence force.

Another closely related issue is how the relationship between the SAF and the PLAN may evolve after the Jin and JL-2 combination reaches initial operational capability and becomes an integral component of China's nuclear force. Chinese military publications that describe the Second Artillery's role in nuclear deterrence and nuclear counterattacks indicate that SAF nuclear missile strikes can be conducted as an "independent nuclear counterattack campaign" (duli he fanji zhanyi) or as a major part of a "joint nuclear counterattack campaign" (lianhe he fanji zhanyi) [11]. The latter would seem to imply a requirement for the PLAN and Second Artillery to plan jointly in peacetime and to coordinate deterrence and strike operations in wartime. An alternative could be coordination and de-confliction at the level of the General Staff Department (GSD) or Central Military Commission (CMC).

Still another question concerns the armament of future Chinese SSBNs. Another possibility is that China could follow in the footsteps of the United States, which converted some of its SSBNs into SSGNs to carry conventional land-attack cruise missiles, by deploying conventional strategic strike capabilities of its own. For example, former U.S. Air Force foreign area officer Mark Stokes has suggested China could choose to increase the flexibility of it sea-based deterrent by arming one or more of if its SSBNs with conventional weapons—perhaps anti-ship ballistic missiles (ASBMs) or land-attack cruise missiles (LACMs) (Defense News, January 16).

The Xia itself also presents some unanswered questions as it seems China has not entirely given up on its much-maligned first-generation SSBN. Indeed, as Hans Kristensen has observed, the Xia recently underwent a multi-year overhaul at the PLAN's Jianggezhuang Naval Base. This presumably represents a substantial investment, but the purpose for which China's navy plans to use the boat remains unclear at this point (Strategic Security Blog, August 3, 2008).

Perhaps the most important question at the moment is how China will employ its new Type-094 SSBNs when the long-awaited JL-2 is finally available. As Hans Kristensen writes, "it is unclear how China intends to utilize the Jin-class submarines once they become operational." Potential patrol locations (a bastion strategy or further out in the Pacific Ocean), number of simultaneously deployed boats, and weapons load-outs remain critical unknowns. The biggest question of all may be whether the PLAN will conduct routine peacetime deterrence patrols with nuclear weapons. Some skeptics suggest the Jin-class boats "are unlikely to be deployed with nuclear weapons on board in peacetime like U.S. missile submarines" (Strategic Security Blog, June 2, 2011). Instead, China could "use them as surge capability in times of crisis." Nonetheless, other observers think it is much more likely that China will deploy its new SSBNs loaded out with their nuclear-armed SLBMs to conduct deterrence patrols on a regular basis [12].

In all, after decades in search of a modern sea-based nuclear deterrent capability, it appears China's undersea deterrent finally is taking shape. Although a number of key questions remain unanswered, the PLAN's gradual progress has by now prepared the region and the world for the likelihood that Beijing will soon possess an underwater nuclear deterrent as a complement to the SAF's land-based nuclear missile forces. When China resolves its technical difficulties with the JL-2, the PLAN will be positioned to immediately deploy a near-constant sea-based nuclear deterrent presence, subject to the desires of Chinese Communist Party (CCP) and PLA leaders. The deployment of such a capability has the potential to strengthen China's strategic position by contributing to its desire for a more "effective" nuclear force to support a credible second strike deterrent posture, but it could also further complicate the already complex strategic dynamics in the region [13]. *(Sorry—references for footnotes were not included in my source for this article. Mike, Editor).*

Long-Endurance Unmanned Submarine Development Heats Up With Propulsion Contract To General Atomics

Militaryaerospace.com, Aug 3, 2012

ARLINGTON, Va., 3 Aug. 2012. Unmanned vehicles specialist General Atomics in San Diego is joining a list of unmanned underwater vehicle (UUV) experts that are developing an advanced propulsion system to power U.S. Navy UUVs on covert missions lasting for more than two months.

The Office of Naval Research (ONR) in Arlington, Va., has awarded General Atomics a potential $20 million contract to develop energy section technology for the Navy's Large Displacement Unmanned Underwater Vehicle Innovative Naval Prototype (LDUUV INP) program.

The LDUUV INP program seeks to develop a large unmanned submarine able to operate in the open ocean and in coastal waters and harbors on missions lasting more than 70 days to gather intelligence, surveillance, and reconnaissance (ISR) information. The LDUUV INP program is in place to develop UUV autonomy and long-endurance propulsion systems for large UUVs.

General Atomics joins Lynntech Inc. in College Station, Texas, and NexTech Materials Ltd. in Lewis Center, Ohio, in an ONR project to develop advanced propulsion for future large UUVs.

The ONR contract to General Atomics, announced on 20 July, is for a minimum of $25,000 and a maximum of $20 million. The Lynntech contract, announced in May, and the contract to NexTech, announced in June, each are for $18 million.

General Atomics — best known for the company's work on unmanned aerial vehicles (UUVs), will help develop technology leading to an energy-dense air-independent rechargeable or refuelable energy system for a future large unmanned submarine. The LDUUV propulsion system will provide 817 to 1,800 kilowatts of power, measure 120 inches long, and provide power for 46 to 70 days.

In late April ONR officials announced plans to award a $5.9 million three-year contract to Hydroid Inc. in Pocasset, Mass., to develop an autonomy testing system for the LDUUV INP) program.

Answers Sought In China's Salvaging Of British Submarine

The China Post, Aug 6, 2012

BEIJING—A lifelong scuba diving obsession led Steven Schwankert to the tale of the HMS Poseidon and the startling discovery that the British submarine, which sank off the northeastern coast of China in the 1930s, had been raised by the Chinese in 1972. That revelation lies at the heart of Schwankert's upcoming book, "The Real Poseidon Adventure: China's Secret Salvage of Britain's Lost Submarine" and an accompanying documentary film chronicling his search for answers about what became of the sunken vessel.

The seven-year transcontinental quest saw frustrations, triumphs and deeply emotional experiences, none more so than bringing together descendants of the Poseidon's crew and sharing with them new information about the submarine's fate.

"I only wish we'd been able to find more relatives. It feels like we've taken on this incredible responsibility of being custodians of this history," said the 42-year-old Schwankert, an American journalist and diving instructor who has lived in Beijing for more than a decade.

The Poseidon was barely two years old and among the most modern submarines in the British fleet when it arrived at a leased British naval base on Liugong Island, 4 kilometers (2.5 miles) offshore from the port of Weihai. While conducting exercises on June 9, 1931, the captain inadvertently turned into a Chinese cargo ship that had altered course in the same direction to avoid hitting the submarine, which was traveling on the surface.

Its hull shattered, the Poseidon sank within four minutes, coming to rest on the sea floor 30 meters (100 feet) below. Thirty men scrambled out of hatches before it went down, but 26 remained inside, eight in the watertight forward torpedo room.

In a daring move, the eight popped the hatch and attempted to surface using a Davis lung, an early forerunner of scuba gear that included a store of pure oxygen and a kind of canvas brake to prevent rising too quickly. Led by Petty Officer Patrick Willis, six of them made it to the surface, the first-ever such escape in the history of submarining.

That led to a shift in standard navy procedure from waiting for rescue to immediately seeking escape, along with the later development of escape chambers to allow surfacing without suffering from the bends caused by a too-rapid ascent.

The Poseidon tragedy received wide publicity at the time, in part because of the court martial of the captain, Lt. Cmdr. Bernard Galpin, who was found culpable. A feature film was made about the events. But the accident was afterward consigned to history, eclipsed by the ensuing drama of World War II and dogged by a stigma surrounding naval deaths during peacetime.

Schwankert and documentary makers Arthur and Luther Jones sought to fill in gaps in the story both at Weihai and Britain's naval archives. The book and film are fleshed out by discussions with descendants, two of whom later travel to the site of the sinking to lay a wreath and search for a memorial to the men who died.

It was in 2006, about a year into the project, that Schwankert first came across references online that the Chinese had raised the sub. He tracked down an account of the salvage operation in a 2002 Chinese naval magazine.

As the project evolved, a key question emerged: Why had China opted to salvage the sub? Naval convention frowns upon such secret operations.

Although Schwankert never definitively answers the question, it wasn't for lack of trying.

He attempted several times to interview the two engineers in charge of the 1972 operation, finally seeking to meet them under the pretext of presenting gifts from Poseidon descendants. Each time he was rebuffed.

His research prompted Britain's Defense Ministry to ask China for details. Chinese authorities confirmed the salvage operation but said poor record-keeping and the passage of time had left no additional information.

Schwankert considers a number of possible motives, including recycling the steel hull or studying the submarine's construction. But he believes it most likely that China wanted to test salvage techniques at a time when its navy was preparing to launch a modern submarine fleet.

Schwankert happened on the story of the Poseidon while researching the possibility of diving wrecks from the 1894-1895 Sino-Japanese War.

"I feel absolutely, stupidly lucky for stumbling on it," he said.

That 2005 discovery prompted him to contact longtime friend Arthur Jones, who was attracted as much by the subject matter as by Schwankert's enthusiasm, as witnessed on an early visit to Weihai.

"The idea of a personal obsession — that really drew me in," Jones said by phone from his home in Shanghai.

Along with documenting Schwankert's quest for answers, the film uses footage from the 1930s. Poignant moments show descendants watching old newsreels of the events, including David Clarke seeing footage for the first time of his grandfather, survivor Reginald Clarke, receiving a medal.

"You can really see how those events continue to have ramifications over people's lives," said Jones, who hopes to begin showing the documentary, "The Poseidon Project," at festivals later this year.

The book and film come at a time when China is beginning to rediscover its naval history, as illustrated by the extensive publicity given to the ongoing excavation of the almost 2,000-year-old Nanhai One merchant vessel.

"The discoveries in the next five years will be mind-blowing, something like the discovery of the terracotta warriors but at sea," Schwankert said.

"The Real Poseidon Adventure: China's Secret Salvage of Britain's Lost Submarine" is due out in 2013 from Hong Kong University Press.

Britain Looks To Submarine Drones

Irish Times, Aug 6, 2012

NATO'S SUCCESS with airborne drones has placed a focus on unmanned maritime vehicles for surveillance and combat. The British Ministry of Defence (MoD) is seeking to develop a new generation of unmanned maritime drones that would be used for anti-submarine warfare and possible missile attacks on enemy ships.

A fleet of Royal Navy unmanned underwater vehicles is already being used in the Gulf to help prevent Iran from laying mines in important sea lanes, and ministers are considering whether similar devices could be used to tackle pirates off the coast of Somalia. Documents show that the MoD is hoping to improve drone capabilities, having seen how effective they have been for Nato against the Taliban.