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The Silent Sentinel

April 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.

*If You Receive "The Silent Sentinel" By **Regular Mail,***
PLEASE READ THIS

Over the next two months, "The Silent Sentinel" will be attempting to minimize the number of Sentinels sent via the United States Postal System. Our goal is to become as paperless as possible. Consequently, we would like to hear from you ASAP. You may write to Mike Hyman, Editor (physical address and email are on page two) in order to pass on your email address for Sentinel delivery. ***If you are receiving the Sentinel via the Post Office and do not own a computer, don't worry; we will not drop you!*** However, if you are able to receive the Sentinel electronically, please seriously consider switching. Printing costs and postage are increasing--delivery via email can save the Base a substantial amount of money.

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The Silent Sentinel via Email

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

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

NAME: _____

ADDRESS: _____

CITY/STATE/ZIP: _____

EMAIL: _____

TELEPHONE: _____

Would like the SILENT SENTINEL emailed: YES_____ NO_____

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USSVI Base Commander
c/o VFW Post 3787
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*DUE TO LOGISTICS CONSTRAINTS, ALL INPUTS FOR THE SILENT SENTINEL MUST BE IN MY HAND NO LATER THAN **ONE WEEK** AFTER THE MONTHLY MEETING. IF I DO NOT RECEIVE IT BY THIS TIME, THE ITEM WILL NOT GET IN. NO EXCEPTIONS! MIKE*

April 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 10 April, 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
Bob Bissonnette
Anne Marie Gorence
Al Strunk

Submarine Losses in March

Submitted by C J Glassford

SKATE (SS23) - 21 Men on Board
Sunk, on 25 Mar 1915, Following Battery Explosion, Off the Coast of Honolulu, Hawaii : " ALL HANDS LOST "

SEAWOLF (SS28) - 23 Men on Board
Foundered and Sunk, on 12 Mar 1920, Off Santa Margarita Island, California : " 4 MEN LOST "

PERCH (SS 176) - 59 Men on Board:
Scuttled, on 3 Mar1942, after Severe Damage suffered from Japanese Destroyers, Entire Crew ended up in POW Camp :
" SIX MEN DIED IN POW CAMP "

GRAMPUS (SS 207) - 71 Men on Board:
Sunk, on the night of 5 Mar 1943, by Japanese Destroyer, In Blackett Strait :
" ALL HANDS LOST "

TRITON (SS 201) - 74 Men on Board:

Sunk, on 15 March 1943, either by Japanese Destroyer or by Submarine Chaser, North of Admiralty Islands :
" ALL HANDS LOST "

TULLIBEE (SS 284) - 79 Men on Board:
Accidentally Sunk, on 29 March 1944, by Circular run of her own Torpedo, Off Palau, Islands :
" 78 MEN LOST - ONE SURVIVOR "

TRIGGER (SS 237) - 89 Men on Board:
Sunk, on 28 April 1945, by Japanese Patrol Vessel, and Coastal Defense Vessel, In the Nansei Soto Area :
" ALL HANDS LOST "

Commanders Corner

April 2012

Hello All, spring time is upon us again and that's something to be thankful for. We have a lot going on during this spring time...HAPPY BIRTHDAY to the Greatest SUBMARINE FORCE in the WORLD!!!! We are 112 years old and very strong. Coming up on the 20th of April, we are invited to the Old Timers Luncheon/Tolling of the Boats. It's being held at the Harbor Inn on Base starting at 10:30. Please contact the base CMC at 619-553-7161 for RSVP for lunch. On the 21st, CSS-11 is hosting the annual Submarine Birthday Ball. The Principal Point of Contact for this event will be YN1(SS) Jun, who can be reached at 619-553-8725 or kenneth.jun@navy.mil for additional details or reservations. If you desire to mail in your reservations (with $65 per person), please make your checks out to: "Submarine Birthday Ball Committee" and along with the name of the attendees, and mail to:
CSS-11 Bldg 633
Attn: Sub Ball Admin
140 Sylvester Rd.
San Diego, CA 92106

Also on the 21st of April, we will be marching in the Linda Vista Parade. The muster time is 1000. On April 29th, the 5th Sunday of the month, we will be holding our Breakfast from 0800 to 1200 at the VFW. Come on out and enjoy a Great Breakfast or come on out and give us a hand serving Breakfast.

On April 7th at the American Legion Post in Chula Vista, they are hosting a Tribute to the Submarine Force. The event goes from 2-6pm. There will be food & drinks and entertainment. Not sure what the cost is but it should be a good time. The Post Commander is a Submariner and old shipmate. Hopefully there is room for our float there.

Again I would like to thank everyone for the phone calls, visits, and emails while I was in the hospital. It helps for a speedy recovery.

God Bless to all, try to call a shipmate you haven't heard from in a while, and stay safe in the year to come.
Sincerely,
Bob Bissonnette
Base Commander

Minutes for Submarine Veterans San Diego, 13 March 2012

1900 – Meeting of the Submarine Veterans Inc., San Diego Base was called to order by Base Commander BoB Bassonette.

Conducted opening exercises:
Reading of Our Creed:
Pledge of Allegiance:
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 presented the sailing list – 42 members and guests present.
Treasurer's report was presented to the membership. Report is posted online.

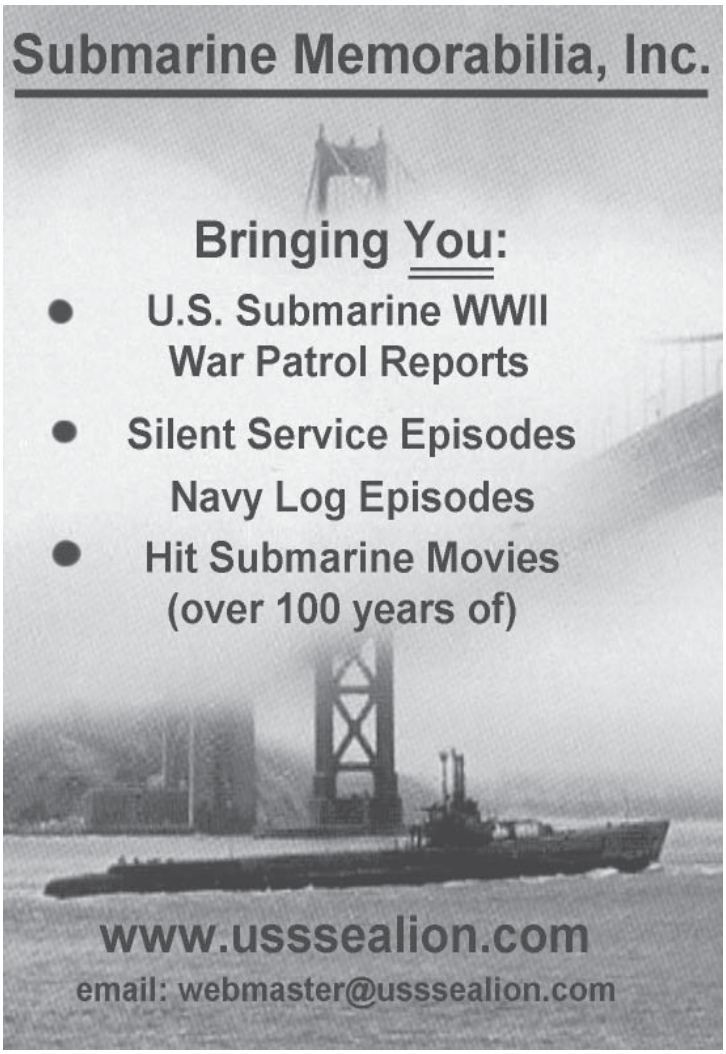
Call for Committee Reports:
Chaplain Binnacle List: Al Strunk.
Parade Committee: Jack Kane presented a list of Parades for this year.

Saturday April 21st: Linda Vista Multicultural Parade
Muster at 1000 – Parade at 1100
Saturday May 19th: Ramona Main Street Parade
Muster at 0900 – Parade at 1000
Saturday June 2nd: La Mesa Salute to Old Glory and 100th Anniversary Parade
Muster at 0900 – Parade at 1000
Wednesday July 4th: Julian Independence Day Parade
Muster at 1030 – Parade at 1200
Monday November 12th: San Diego Veterans Day Parade
Times TBD – Grand Marshal LtGen Chuck Yeager\

Membership Committee: 314 active members, 87 Holland members, Two new members: Warren Branges and Henry M. Chan.
Scholarship Committee: Dead line for applications is April 15 so get your candidates submitted. More information is posted on the website.
Storekeeper: We have some items here and patches can be ordered.
Breakfast Committee: Next Sub vet breakfast will be April 29th. 0800 to 1200. We will be sending out email reminders to all hands.

1926 – Base Commander Called for a Break….
1940 – Base Commander called meeting to order.

Unfinished Business
Food handler's class has been rescheduled. We will have more information at the next meeting.
Old Timers Luncheon and The Submarine Ball will be held on April 20/21. We will get more info out on The Submarine Ball.
The Timers Luncheon will be held at 1030, 20 April. It will be at the Harbor Inn on the back patio. There will be a Tolling of the Boats Ceremony followed by a luncheon. The cost of the Luncheon is 20 dollars.



USSVI National Convention will be held 2-9 September at Norfolk, Virginia.

Good of the Order

There is some Submarine history information and some magazines you
might find interesting.
American Legion Post 434 will be having a Tribute to US Submarine Force on 7 April from 1400 to 1800.
The new Point Loma Sub vets will hold their meetings on Saturday.
Ron G has made up some magazine labels that go over your old address
labels that advertises our organization. This is a good way to advertise our organization and get rid of old magazines. You can then give the magazines to business that will place them in waiting rooms etc.
Jack K discussed the Statue "Unconditional Surrender" located out by the USS Midway. An organization would like to keep it in San Diego, but needs to raise a million dollars to purchase it. If you would like more information on the organization check our website.
Dave Woodward announced the annual reunion of the USS GURNARD.
It will be held in Las Vegas, Nv. For additional information on this event please contact philgreen662@gmail.com or call 608-269-1464 (Home), 608-633-4666 (cell)

An auction was conducted by Base Commander for items from CJ's old collection of submarine memorabilia. All monies collected will be donated to CJ's family members.

2030 – Meeting adjourned.

Sailing List for 13 March 2012

JIM BILKA	BOB BISSONNETTE	TOM WARNER
FRED FOMBY	RAY FERBRACHE	JOEL EIKAM
JACK LESTER	JACK KANE	JIM HARER
DAVID BALL	BOB COATES	M. BURCIAGA
CHARLIE MARIN	PAUL HITCHCOCK	D. MORTENSEN
BOB FARRELL	MERT WELTZIEN	KURT GREINER
ED WELCH	JACK ADDINGTON	RUSS MOHELAVO
TOM POLEN	BOB CHAPMAN	J. GRIENENBERGER
BENNY WILLAIMS	PHILL RICHESON	SERGIO FROST
JUANITA WILLIAMS	JOE PELUSON	RON GORENCE
DAVID KAUPPINEN	D. MCCREIGHT	DAVID WOODWARD
CLIFF BRITT	NIHIL SMITH	BILL EARL
PHILLIP RICHESON	BUD ROLLISON	HENRY M. CHAN
ED FARLEY	WILLIAM JOHNSON	D. MATHIOWETZ
WARREN BRANGES		

Naval Base Point Loma

Cordially invites you to attend the

2012 Old Timers Luncheon

Friday, April 20th at the Harbor Inn
Naval Base Point Loma

$20.00 per person will be collected at the door

10:30	Tolling of the Boats Ceremony
11:00	No-host Social
12:00	Lunch

Please RSVP No Later Than Friday, April 6th by E-mail to:
brian.mcdonough@navy.mil

Please include number of Guests Attending

Missile Subs Delay Is Good News, Bad News Story For Shipbuilders
Defense.aol.com, March 27

The Navy's proposal to delay construction of new ballistic-missile submarines (SSBNs) meant to succeed the current Ohio class is both good and bad news for America's shipbuilders, according to the program manager for the new "boomer" sub. But key members of Congress -– already at odds with the Administration over delays to the Virginia-class submarine — remain skeptical.

Pushing construction start on the 12 so-called "Ohio Replacement" subs to 2021 from 2019 could raise costs, though by how much is not clear, Brian Wilson from General Dynamics' Electric Boat told AOL Defense. On the other hand, the delay could give designers more time to refine the new subs' blueprints, potentially avoiding costly complications in construction, Wilson said. "It is two more years of design effort, so there is the possibility of ensuring we have the most mature design in place."

Electric Boat already employs 4,000 people on the Ohio Replacement program, according to shipyard spokesman Bob Hamilton, a figure that will surely rise as the submarines begin to enter production in a few years' time. The comparable Virginia attack-submarine program employs 6,000 people at Electric Boat. Electric Boat and the Newport News shipyard in Virginia have together produced between one and two submarines a year in recent years.

With so many jobs at stake, sub boosters in Congress don't want to take any chances with the Ohio replacement. "Some folks want to push the next-generation SSBNs into the future ... to save money," remarked George Behan, a staffer for Rep. Norm Dicks (D-Wash.), the ranking member of the House Appropriations Committee's defense subcommittee. "The problem is you risk the industrial base," Behan said. The Republican-controlled U.S. House of Representatives is debating a proposed defense budget that adds $25 billion to the White House's roughly $525 budget submission and could reverse some of the Navy's recent shipbuilding changes.

It's not clear whether the Democrat-controlled U.S. Senate will also support reversing the Ohio Replacement's delay. Sen. Joe Lieberman, a Connecticut independent who sits on the Armed Services Committee and whose state is home to Electric Boat and Groton submarine base, has opposed other cuts to sub production and could take a stance against the boomer delay. Lieberman has spoken out against the Pentagon's January Defense Strategic Guidance, which codified changes to submarine build plans. "The changes outlined today greatly increase the risk that an adversary would calculate that we would not necessarily devote maximum effort to fighting back against them," Lieberman wrote in a statement following the guidance's release.

The Navy originally wanted 14 new boomers to replace the 14 Ohios. (Eighteen Ohios were built between 1976 and 1997 but the Navy recently converted four into conventional guided-missile subs.) To save money the Navy cut the new boomer class to just 12 vessels. Retired Rear Adm. Frank Lacroix estimated that design and production of the reduced class could set back the taxpayer $100 billion. In its more recent 30-year shipbuilding plan, the Navy admitted the cost of acquiring new boomers could put the annual ship construction budget $2 billion over historical averages in the 2020s and 2030s, potentially threatening other ship programs.

The two-year Ohio Replacement delay the Navy announced as part of the Defense Strategic Guidance helped protect near-term shipbuilding plans, but it could also create a gap between the planned retirement of the Ohios (as their nuclear reactors wear out) and the completion of the replacement vessels in the 2030s. "We believe this risk can be managed," the Navy asserted.

Electric Boat's Wilson is equally sanguine about the boomer delay. "Across the submarine industry this does represent a bit of a slowdown," he told AOL Defense. "It does create issues trying to ensure the industrial base and the people designing the components for us are able to conduct the work in a manner that supports the evolving maturity of the ship design."

"But there's a chance that design work on the submarine could benefit," he added. Specifically, the Ohio Replacement could mine advancements introduced on the latest Virginia models as the latter come on-line over the next decade or so. "I steal — I should say, reuse — everything I can from the Virginia."

Official: State's future at stake if Groton submarine base closes
The Day, March 27

The entire state has a stake in the future of the Naval Submarine Base in Groton and the defense industry, according to the head of the state's Office of Military Affairs.

Executive Director Bob Ross gave a presentation Tuesday at the governor's monthly meeting with the commissioners of the state agencies in Hartford. He said after that it's valuable for everyone to know "the big picture of military affairs in the state."

"So many people understand what's at stake and want to see the base survive and thrive," Ross said.

The Groton base has a $4.5 billion annual economic impact, with 15,000 jobs tied to the installation. The defense industry has a $25 billion statewide annual economic impact, or 10 percent of the state's economy, and employs 50,000 people, Ross said.

The Defense Department is calling for two new rounds of closures, in 2013 and again in 2015. The Groton base was nearly closed during the 2005 Base Realignment and Closure process.

And many of the manufacturers will be affected as the defense budget shrinks. More than 600 Connecticut-based companies supply parts and services for the Virginia-class submarine program. The proposed budget calls for building one Virginia-class submarine in 2014 instead of two and two submarines in 2018 instead of one. But, Ross said, while the Defense Department will spend about 10 percent less in Connecticut over the next five years, other states are facing as much as a 35 percent cut.

And Ross said he believes the base will fare well when Congress approves another BRAC. About $150 million has been spent on infrastructure improvements since 2005, 12 percent of the archaic infrastructure has been demolished, and the relationship between the base and the local community is strong, he said.

"I'm looking forward to the next BRAC," Ross said during the presentation. "We're going to do very well. I'm convinced."

He concluded the talk by saying that "everybody wins if the base survives."

"It's good for the state of Connecticut, good for the Navy and good for the nation," he said.

Asked after if he was as confident about the base's future as Ross, Gov. Dannel P. Malloy said, "We're in much better shape" now. Malloy said Secretary of the Navy Ray Mabus uses Connecticut as an example of how a state should maintain a relationship with a military base.

The state was the first state to give the Navy money to fully fund construction projects at a military base.

Malloy and Mabus met on Monday.

Despite these positive signs, Malloy said, the state has to do "everything in our power to be ready."

Restore the 2014 sub
The Day, March 28

Following the Navy's lead, Congress has made the strategic decision that construction of two Virginia-class attack submarines over the next several years is necessary to maintain a submarine fleet sufficient to meet national security needs. A proposal by the Obama administration to build only one Virginia-class submarine in 2014 before resuming the normal construction schedule can therefore only be viewed as a budgetary decision, not a strategic one. Yet by that measure it fails as well.

Congress should reject the administration's recommendation and fully fund two-per-year submarine construction.

Cleary what the administration hopes to accomplish is short-term savings in a single fiscal year. Of course it would cost less to build one submarine than two. These submarines are expensive, the latest - the eighth Virginia-class submarine USS California - cost $2.4 billion, roughly $500 million more than the State Department will spend this year on all international peacekeeping activities. But the point, of course, is to keep the peace by discouraging any nation from even trying to challenge U.S. Naval superiority.

And the point of having a steady production schedule is efficiency. The administration's budget proposal calls for as many submarines overall, but with one constructed in 2014 and two, instead of one, in 2018. That blip in 2014 will disrupt construction supply schedules, cause temporary layoffs and subsequent rehiring and, in the Navy's own estimation, add $600 million to production costs over the long run.

Working jointly, Electric Boat and Newport News Shipbuilding in Virginia have established a strong record by delivering submarines on time and within budgets established in conjunction with the Pentagon. It would be a mistake to introduce disorder to the Virginia-class construction schedule for this seemingly arbitrary decision to cut one submarine from the 2014 budget. For savings, the administration has numerous over-budget, and behind-schedule weapon's programs to target.

Connecticut's congressional delegation should make it a priority to fight for restoration of a second Virginia-class submarine in the 2014 budget.

Moscow May Help India Build Closed-Cycle Submarines
RIA NOVOSTI, March 27

NEW DELHI - Russia has offered help India build air-independent (closed cycle) propulsion systems for installation in Amur 1650 class submarines and also to equip future possible joint Indian-Russian built vessels, Viktor Komardin, the deputy head of Rosoboronexport's delegation said at the Defexpo Indian defense show on Tuesday.

The Amur 1650 is one of several contenders, including the Scorpene (France), Type 214 (Germany) and S-80 (Spain) in a tender for the Indian Navy for six subamrines with a total value of $11.8 billion.

"Russia is currently completing tests of a new air-indepedent propulsion system, which could be installed not only on the Amur 1650 but on jointly developed boats," Komardin said. "This is a critical factor for the Indians. So our chances here are good," he added.

Rosoboronexport, Russia's defense sales holding, has already offered India its Amur 1650 boat, which started trials with the Russian navy in 2010. The Amur has an armament of multirole torpedos and Klub anti-ship missiles, and can also strike land-targets with advanced cruise missiles, which may include the India-Russian Brahmos. "These missiles which the Indians want can only be supplied by Russia," Komardin said.

The Amur 1650 has a good chance of winning the tender, Komardin claimed, thanks to its ability to remain submerged for over 25 days using its air-independent propulsion, and also its long-range weaponry. Similar foreign boats can only stay submerged for 15-20 days.

Russia is currently evaluating the Lada class air-independent submarine, a derivative of the Amur 1650. In 2010 the Lada class submarine St Petersburg entered service with the Russian Fleet.

The Russian Fleet Commander Admiral Vladimir Vysotsky told RIA Novosti previously that the first Russian air-independent boat, based on a similar design, the Projet 677 class, could enter service in 2014. Two such hulls are currently under construction at the Admiralteiskie Verfi shipyard in St Petersburg, which could be fitted with a closed-cycle propulsion system.

An air-independent propulsion system is currently being rapidly developed by specialists from the Rubin submarine design bureau. Air-independent submarines, usually using hydrogen-orygen fuel cells, are quieter than conventional diesel-electric boats, and do not have to surface or use snorkel tubes to breathe air, which makes them vulnerable to detection by radar and other sensors.

Fair Tax Would 'Reboot' Economy, Libertarian Leader Johnson Says
Navy sees submarines as 'untouchable,' former New Mexico governor notes
By James Mosher, Norwich Bulletin, Mar 26, 2012

Norwich, Conn. — Libertarian Party presidential candidate Gary Johnson's balanced budget plan calls for a 43 percent cut in military spending, but he says the U.S. Navy views submarines, a key Eastern Connecticut industry, as crucial.

"I'm not pandering to you," the former New Mexico governor said during a meeting with The Bulletin's editorial board on Monday. "But the Navy views the submarine force as untouchable."

Not all of Connecticut's military contracting businesses would escape the budget knife, Johnson said. He hedged on whether a redesign of Trident submarines would be supported by his administration. He said he supports maintaining veterans' benefits.

"This is a mutual sacrifice deal," said Johnson, 59, who was the Republican governor of New Mexico from 1995 until 2003 before joining the Libertarian Party last year. "This is shared sacrifice."

The Fair Tax, which would eliminate federal taxes including levies on corporations, would "reboot the American economy," Johnson said. The Fair Tax would provide enough revenue to fix Social Security's financing problem, he said.

The federal Medicare and Medicaid systems face "big problems" in coming years, Johnson said. He called for a "free-market approach," labeling the current system "as far from a free-market approach as you can get."

The national departments of Education, Homeland Security, and Housing and Urban Development are slated for elimination in Johnson's budget plans. He said he would get rid of the Department of Education "in a heartbeat," which would allow student performance to improve.

Having vetoed 750 bills as governor, Johnson said he would take the same approach as president, adding that "gridlock" stops many bad laws.

Johnson's first stop in Eastern Connecticut was a breakfast meeting at Olde Tymes Restaurant in Norwich. Among the guests was Susan Prusack, of Coventry, whose sister, Kate Prusack, a New Mexico resident, is engaged to Johnson. Libertarian Party of Connecticut Chairman Dan Reale, who lives in Plainfield, was also present.

First for restaurant

Johnson is the first presidential candidate to visit Olde Tymes, restaurant owner Rodney Green said.

"It's great to have him," said Green, whose brother lives in New Mexico. "Regardless of your political views, it's nice to have him here."

The former governor spoke in the upstairs section of the West Main Street restaurant to about 12 people. Johnson's theme of "social liberalism and fiscal conservatism" was applauded by Robert Beasley, of Norwich. Beasley said he will vote for the Libertarian nominee, whether or not it's Johnson, if former Sen. Rick Santorum of Pennsylvania is the Republican nominee.

Johnson criticized Republicans for talking too much on social issues.

"I think the world vilifies the Republican Party for its focus on social issues," Johnson said, adding that he "fundamentally supports" abortion rights and gay marriage, which he calls "marriage equality."

When asked during his conference at The Bulletin if the Republican Party has "declared war on women," Johnson said "Yes."

Part of the reason for Johnson's trip to Connecticut is to narrow a fundraising gap. He said he needs to raise about $1,500 more in four more states, including Connecticut, to qualify for a federal election matching funds program. Philosophically, he said, he disagrees with the program and would work to eliminate it as president, but conceded "This is how the game is played for right now."

Qualifying for funds

Getting 5 percent of the vote nationally, something no Libertarian candidate has ever achieved, would qualify the party for $90 million in federal funds, Johnson said.

"Now that's a game-changer," he said.

Johnson said he will not step aside for U.S. Rep. Ron Paul, of Texas, who is currently running in the Republican primaries, but trails in the delegate count behind former Massachusetts Gov. Mitt Romney, Santorum, and former U.S. House Speaker Newt Gingrich, of Georgia. Paul was the Libertarian Party candidate for president in 1988.

Johnson spoke about "carrying on" Paul's message after the Republican primaries even though the two differ on some issues including "social conservatism."

"Logistically, it's not possible for him (Paul) to be the Libertarian nominee," Johnson said. "He would have to start campaigning for it today."

The former governor said he is considering participating in a debate at the Libertarian Party of Connecticut's annual convention next month but might have to skip it because Texas' state convention is the same day.

Johnson started one of New Mexico's largest construction companies. His father is a World War II veteran who was injured during the Battle of the Bulge.

Delaying Sub Could Be Costly, Experts Say

By Jennifer McDermott, The Day, Mar 25, 2012

Obama plan to hold off on one purchase raises some red flags.

The president's plan to delay the purchase of one Virginia-class submarine would add millions to the cost of the program and force layoffs across the country, according to those in the submarine building industry.

To save money now, the proposed budget calls for building one Virginia-class submarine in 2014 instead of two, and two submarines in 2018 instead of one.

But it will add an estimated $600 million to the cost later, according to the Navy's figures, said John Holmander, Electric Boat's vice president who manages the Virginia-class program.

The USS California, the eighth Virginia-class submarine, cost $2.38 billion.

Labor and parts will cost more four years later. Disrupting the schedule, and the learning curve, creates inefficiencies, which lead to higher costs, Holmander said.

The work on the second submarine in 2014 represents about 2 million man hours annually for five years at EB and Newport News Shipbuilding in Virginia - enough work to keep 800 to 1,000 people busy. Those employees would most likely be laid off starting in 2014 if Congress approves the proposed plan, Holmander said.

Dan DePompei, co-chairman of the Submarine Industrial Base Council, compared the delay's impact at EB and Newport News to an earthquake.

"But it's the tsunami that affects the rest of us," he said, referring to the more than 5,000 suppliers that provide parts and services for the Virginia-class program. "When you get down to the smaller businesses, some of which are really small businesses, it's very difficult to rebound."

For some, a large share of their profits depends on that work, he said. EB would have placed purchase orders worth at least $150 million next year for parts for the submarine with long lead times.

The Navy says it made hard decisions about its shipbuilding programs as a whole "to maintain a balanced portfolio of naval capabilities and meet the constraints imposed by today's austere fiscal environment," the Naval Sea Systems Command said in a statement.

"The Virginia class is one of many programs that has had to adjust to meet current fiscal realities," the statement said.

U.S. Rep. Joe Courtney, D-2nd District, said "there is no logic" for the delay since it will cost so much - monetarily and strategically - in the long run.

The number of attack submarines in the fleet will drop below 48, the stated number required for the missions, in the 2020s as the Cold War era attack submarines retire more quickly than they are replaced. It will hit a low of 39 in 2030. The submarines that are built today are slated to be in service for every year of the gap.

Changing the Virginia-class program is a "very short-sighted way to budget," said Courtney, who is working to restore the second submarine in the 2014 plans.

Courtney, along with U.S. Reps. J. Randy Forbes, James R. Langevin and Robert J. Wittman, wrote to the chairman and ranking member of the House Appropriations Committee Thursday to ask for their "continued support for the Virginia-class submarine program and the industrial base that supports it."

"Do you really want to upset your most efficient program?" asked Bob Ross, executive director of the state's Office of Military Affairs. "That's the question I think is being asked by a lot of people in Washington, and it's a good question."

DePompei said he understands that other defense manufacturers are facing the same hardships as submarine suppliers but the SIBC wants the Pentagon to make the "right cuts" to lower the budget. The council's goal is to educate policymakers and the public about the nation's ability to design, build and maintain submarines.

"The Virginia-class program is recognized and documented as the most successful government program in decades," he said, referring to the leaders in the Defense Department who have praised the program as a model for efficient acquisition.

As the submarine suppliers lose revenue they had projected on the basis of the Navy's original plan to buy two submarines in 2014, they may, in turn, raise the price of the submarine parts and services they are selling and reduce labor costs by laying off personnel, DePompei said.

"The significance of that is these cutbacks would be felt in all 50 states because the suppliers are in all 50 states," he added.

EB avoided laying off some employees during past dips in the workload by sending people to the public shipyards to work on projects there.

"We have to deal with realities," Holmander said. "We are going to try our best, but two million hours a year missing is a lot of work and a lot of jobs."

These employees could be rehired in 2018, Holmander said, but there is no guarantee they would be available to come back. It will take time to train new people and get former employees back up to speed, he said.

Holmander said he was also concerned about the interruption in the learning curve. The lessons that would have been learned on the second submarine in 2014 will now be learned on the first submarine in 2015.

"Every subsequent unit will be one ship off of the learning curve," he said.

The budget does propose spending millions to develop a module with missile tubes that could boost firepower on Virginia-class submarines. But that project would not be enough to offset the work lost on the second submarine in 2014, Holmander said, and it will require engineers and designers, not employees in the trades.

The World's Biggest Nuclear Submarine Is Also One of the Sneakiest
By Andrew Tarantola, gizmodo.co.uk, Mar 22, 2012

While the Red October may not have been an actual submarine, the Russian Typhoon class that it's based on certainly is. Turns out, Hollywood didn't have to embellish many details for the film—Typhoons really can sneak up on you.

The Typhoon is a class of nuclear-powered ballistic missile submarines developed by the USSR and deployed throughout the 1980s. The fleet of six submarines were built at the Severodvinsk Shipyard on the White Sea.

The largest submarines ever constructed, they measure 175 meters long with a submerged displacement of 48,000 tonnes. The Typhoon class is capable of staying submerged for up to three months at a time.

These massive ships employ a five-layer, pressurised hull—the outermost of which is covered in sound-dampening plates—which allows the ship to dive to a maximum depth of 400 meters. The five-layer style also allows for an overall wider design than a conventional submarine. This helps create the necessary living space for the Typhoon's crew of 160 sailors, and it provides additional protection against hull breaches.

A Typhoon class sub is powered by two OK-650 pressurised-water nuclear reactors, each of which provides an excess of 250,000 HP. This allows the subs to reach a top speed of 22 knots on the surface and 27 knots when submerged.

The Typhoon was designed to compete with America's Ohio class subs, which were capable of carrying up to 192 100-kiloton nuclear warheads. Typhoons carried a primary cache of 20 RSM-52 SLBMs, each of which contained up to 10 MIRV warheads. These missiles were designed so that a Russian sub would be able to launch them safely and discreetly from beneath the ocean's surface. The missiles were also capable of breaking through Arctic ice floes during launch.

The missile systems that the Typhoon class use are reaching the end of their service lives. Three of the ships have been retired, two have been placed on reserve, and the flagship of the Typhoon fleet, the TK-208 Dmitry Donskoy, has been retrofitted and is in field testing with a new weapon system.

San Diego's Submarine Fleet Kept Busy In 2011
By Tierney Plumb, The Daily Transcript, Mar 21, 2012

The six U.S. Navy submarines that call San Diego home had a busy 2011: One helped fight the drug war while another traveled to Australia to test out a next-generation aerial system.

They also embarked on the kind of classified missions that underwater movies are made of and the public will never hear about.

Rear Adm. James Caldwell, commander of the U.S. Pacific fleet's submarine forces, spoke at the San Diego Military Advisory Council's monthly breakfast Wednesday about deep sea adventures over the past year.

He also addressed the looming defense budget — the elephant in the room at many military events these days — and assured the local community that its fleet is safe.

"In the near term, I know of no plans to change the submarine force here in San Diego," he told attendees, a smorgasbord of companies and individuals tied to the local defense industry.

Based in Hawaii, Caldwell is in charge of operating subs that go to sea from the West Coast to the International Date Line. From there, they go into the hands of the 7th Fleet.

"We have a small number of surface ships in Hawaii, but in San Diego we get to interact with 3rd Fleet folks and [Naval Base] at 32nd Street," he said. "It's important for us to be part of that strike group interface and training that goes on here."

Half of the U.S. Navy's fleet of 54 nuclear powered attack subs (SSNs) were deployed in 2011, and most (15) of those ships were in the Pacific.

Caldwell's job includes manning, training, equipping and certifying submarines that go to sea, as well as providing schedules.

Around 50 percent of Naval submarines are at sea on any given day, and 30 percent are deployed, with duties that range from collecting intelligence, surveillance, reconnaissance and working with allies.

Submarines participated in 27 international exercises last year with India, Australia, Korea and Japan, and visited 70 ports around the world.

Many of the six boats based at Squadron 11, or Point Loma Submarine Base, didn't spend much time at home last year and conducted 18 highly classified missions of "national importance," he said.

USS Asheville deployed to Southern Command, or the region that includes Central America, South America and the Caribbean, to work with counter drug forces. USS Topeka also deployed to the same area for lighter reasons: to celebrate 100 years of the Peruvian Navy's Submarine Force, leading a parade of ships during the centennial event.

USS Jefferson City just returned from a deployment to the Central Command, where it participated in some "very important missions of national importance," he said, with lots of port calls. USS Albuquerque completed a Western Pacific deployment and traveled down under to operate with Australian forces and test an unmanned aerial system.

"A little vehicle they can shoot out of the submarine that can fly around and provide an extended view of the horizon and tell us what was going on beyond the line of sight," he said.

Two other ships, USS Hampton and USS San Francisco, completed maintenance at their home port in San Diego.

"Hampton is undergoing one of our most demanding modernizations in the submarine force," he said.

Locally, Caldwell is responsible for manning, certifying and readying forces on North Island's Deep Submergence Unit, which have the capability to rescue a downed submarine anywhere in the world.

The Naval submarine fleet's core business is nuclear deterrence, which is the sole mission of the Ballistic Missile Submarine (SSBN) since its inception in 1960.

Those ships hang out in the Atlantic and Pacific, carrying long-range missiles capable of hitting targets thousands of miles away. The challenge these days, he said, is that the decades-old force is aging.

That means those Ohio-class SSBNs will start going away in about 2026.

"We are thinking ahead about how to recapitalize our force," he said.

The replacement ship is being designed now and construction will start in 2021, with a delivery slated for seven years later.

In addition, the popular Los Angeles-class of nuclear-powered fast attack submarines is also nearing the end of its lifespan.

"As we think about the force getting older, and some of our numbers will dip a little bit, we know that every submarine has to bring more to the fight and has to be more capable," he said.

That means looking to invest in unmanned vehicles, both underwater and on the surface; a diversity of weapons to deploy in both lethal and nonlethal realms; and diving into the cyber space to exploit the electromagnetic spectrum.

"We are looking to be more involved and integrated with folks who are experts in the cyber realm, to learn what we don't know," he said.

Navy Pursues a Better Attack Submarine Virtually

By Max Cacas, Signal Online, March 21, 2012

Technical advances in the field of virtual reality, also known as virtual worlds (VWs), are making it possible for the U.S Navy to tap into the collective expertise of its best submariners to design and build the next generation of attack submarines.

At the Naval Undersea Warfare Center (NUWC) in Newport, Rhode Island, designers are able to create collaborative environments for submarine development using a fully immersive virtual reality application similar to the popular Second Life environment, which enables them to interact with one another both audibly and visually. Numerous participants at remote sites worldwide are linked to one another through the Defense Department's secure computer network.

Steven Aguiar is virtual worlds program manager at the NUWC Newport Division and oversees much of the current program work involving VWs and the design of command and control (C2) facilities on submarines.

"Since 2008," he explains, "my command has identified virtual world technologies as having the potential to radically change a number of aspects of many business areas" related to the missions of NUWC. One of those ways, he goes on, is in how experts in various areas of warship design collaborate when they are not working together in person.

Aguiar says the virtual worlds applications that support almost all of the NUWC's work are commercial off-the-shelf software. He says those applications range from training to acquisition support, modeling and simulation, and visualization.

For the submarine C2 design work, Aguiar says the NUWC uses an open-source application known as Open Simulator, which provides a virtual environment similar to that found in Second Life as a development platform.

"We've been applying it through a number of program sponsors to look at the next generation of submarine attack centers for multiple classes of ships," he explains.

As a result of these projects, Aguiar says his group has assembled what he calls a "collaborative group of engineering strings," which represent a variety of capabilities, including the appearance of the C2 centers, how they are manned and what kind of applications are used. He adds they can even test for the expected performance of any or all of those C2 centers elements using experienced submarine crewmembers who help test various C2 designs.

Aguiar says the use of virtual worlds technology for collaboration makes possible a rapid design and prototyping process in the development of attack submarine C2 centers. The process developed at the NUWC brings together fleet sailors, program officers, scientists and analysts—all the different communities involved in different ways in the design of attack submarines.

In one case, says Aguiar, a VW is used to analyze existing submarine C2 centers to better understand the relationship between crewmembers and the computer-based equipment with which they operate the sub and conduct military operations.

"Beyond looking at the models," he explains, "we have the ability to play prerecorded at-sea data recorded on board a live submarine or a high-fidelity trainer and play it back into the virtual space." The playback allows analysts and designers to "expose how information flows in a command and control space, both in the electronic and sensor realm, but more importantly into the human realm."

Aguiar says the most powerful application of virtual worlds in submarine development is the ability to do rapid prototyping of proposed designs for future submarine classes that emerge from the analysis process.

He explains that while traditional computer-aided design programs can create detailed, high-fidelity virtual models, the programs can usually only render so-called wireframe outline illustrations. They also can take hours to create models using even the most powerful supercomputers available. By comparison, Aguiar says that most virtual world applications are able to create models in real-time, "and what that means is that the virtual world itself provides a building palette that lets one or more designers walk into that space and build the world around them with as much or as little fidelity as they need.

"We've used that capability when we've brought in sailors from the fleet," he explains, "and subject-matter experts into a conference room setting provided them with an open sim developer, and in real-time they describe the future attack center they need to meet their future requirements. As they describe it, the renderer develops it."

As a result, Aguiar says, his team now has "about two dozen future attack centers that had been created in that way, and every single one of them was built in less than one hour."

"It very powerfully supports that rapid prototyping function, and really unleashes innovation," he adds.

Because the process is virtual and real-time, all participants get the, "instant gratification and instant feedback" that comes from immediately seeing the result of their idea. Additional changes can be made almost immediately.

"The models we create are persistent," he goes on to explain. "We bring them back into our laboratories, researchers can play back data into the models and we now have the power to understand those new spaces."

The next step, says Aguiar, is to improve upon the development capability of virtual world design.

"Ultimately, you want to get your warfighter into these future spaces, have them actually conduct missions and measure their performance." At present, he continues, that level of prototype testing takes place in a physical mock-up, known as a concept-of-operation exercise.

In the future, however, he suggests that once the virtual C2 center is created, it may be possible for the screens to be connected to a live tactical system, operating the same software applications running on today's submarines. Sailors would be able to test new configurations using the same mission applications they use daily and determine whether they improve a submarine's ability to complete its mission.

Aguiar is expected to present the latest developments in the use of virtual worlds technologies for submarine design at the NUWC during the 5th Annual Federal Consortium for Virtual Worlds Conference, scheduled to take place May 16th through the 18th on the campus of the National Defense University in Washington, D.C.

Israel Buys Sixth German Submarine
Dolphin submarine is armed with torpedo tubes, is reputed to be able to carry nuclear-tipped Popeye missiles.
By Gil Ronen, israelnationalnews.com, Mar 21, 2012

Israel and Germany signed a contract purchasing a submarine Wednesday. This will be the Israeli Navy's sixth submarine. Defense Minister Ehud Barak, Defense Ministry CEO, Maj. Gen. (res.) Udi Shani and Secretary of State of the German Federal Defense Ministry, Wolf Rudiger, attended the signing ceremony.

According to the IDF Website, Navy Commander, Maj. Gen. Ram Rothberg referred to the purchase of the new submarine while speaking at the naval officers' graduation ceremony. "Strategically, especially today, I am pleased with the approval and signing of a contract purchasing the Navy's sixth submarine, 54 years after submarines were first put into use in the Israeli Navy. The strength of the IDF and the State of Israel, and its operational flexibility, will grow tenfold," said Maj. Gen. Rothberg.

Defense Minister Ehud Barak said Wednesday that "the sixth submarine multiplies the force and capability of the IDF and the State of Israel in the face of the growing challenges. The agreement indicates our cooperation with Germany and the German government's obligation to the security of Israel."

Barak stressed that "the Israeli Navy has been undergoing strategic changes over the past few years, which place it at the helm of Israel's security and the extent of the IDF's capabilities."

According to the deal struck between Israel and Germany, Germany will finance a third of the submarine's costs. Two of Israel's other Dolphins were paid for by Germany, while the third was half-funded by Israel. Two more are under construction.

Dolphin subs are the most expensive single vehicle in the Israel Defense Forces and are considered among the most sophisticated conventional submarines in the world. Each submarine is armed with torpedo tubes, which are also capable of firing Sub-Harpoon missiles. The submarines are also able to deploy mines, and are reputed to be able to carry nuclear-tipped Popeye missiles.

If Israel suspects that Iran is about to attack it, it could use the submarines to threaten Iran with a devastating counterstrike launched from the waters that surround it.

U.S. Expands Use Of Underwater Unmanned Vehicles
By Antoine Martin, National Defense Magazine, April 2012

There are today an estimated 450 underwater unmanned vehicles in the U.S. military inventory.

They range in size, although most are small UUVs that are aimed at gathering oceanographic data, such as glider or hand-launched drones used to survey the seafloor in search of mines.

One of the more significant recent procurements has been a contract award to Bluefin Robotics — as a subcontractor to General Dynamics — to provide countermeasure systems that can detect and identify undersea mines in cluttered environments for the Navy's Littoral Combat Ships.

The Office of Naval Research, meanwhile, has received proposals for a "large displacement UUV" to navigate the seas up to 60 days at a time. The craft would be launched and recovered by surface combatant ships and submarines.

And the Navy's Undersea Defensive Warfare Systems Program Office is procuring the SeaFox mine disposal systems from Atlas North America, the U.S. subsidiary of Germany's Atlas Elektronik Group, a supplier of maritime defense electronics.

The Navy released a UUV "master plan" in 2004, and it is still relevant. Nine missions are identified: Intelligence, surveillance and reconnaissance; mine countermeasures; anti-submarine warfare; inspection/identification; oceanography; communication/navigation network nodes; payload delivery; information operations; and time-critical strike.

Several recommendations from the master plan have been initiated. Among them is the development of four UUV classes including one that weighs less than 100 pounds, a lightweight vehicle at 500 pounds, a 3,000-pound heavy weight submersible and large submarine at around 20,000 pounds.

The plan also called for the development of standards and modularity, increased experimentation in the technology, coordination with other unmanned vehicle programs, and the fielding of systems in the fleet.

Those recommendations have not been executed yet, which might explain why an updated roadmap has not been made public.

One reason for the delays is there is no major threat at hand for which underwater drones are needed, such as roadside bombs that drove the rapid procurement of ground robots, or the demands for intelligence gathering that fueled purchases of aerial surveillance drones.

The Defense Department's "Unmanned Systems Integrated Roadmap Fiscal Years 2011-2036" said that all systems will continue to expand their roles and numbers across the U.S. military. Unmanned underwater vehicles are folded into the unmanned maritime section, which points to their role of working in tandem with unmanned surface vehicles.

Priority missions are mine detection and maritime security.

The Office of Naval Research's "Science & Strategy Plan 2011" projects continued development of unmanned systems. The priorities are increasing their endurance and power, and becoming more reliable in harsh maritime environments. These goals are particularly challenging as sensitive electronics must operate for days or weeks at sea. The robots are subjected to extreme pressure, corrosion, waves and currents. Poorly integrated technology does not survive long under these circumstances.

ONR will seek to develop underwater distributive networks, through the use of unmanned drones, which will in turn provide information on perception and environmental changes. Increasing the perception and intelligence of UUVs are recurring themes in Defense Department documents.

A major hurdle for the technology is the launch and recovery from other vehicles because of low speed, relatively low endurance and short-range communication. Underwater robots are covert by nature because of their small size and low sonar signature. If the host platform has to alter its operation to launch and recover one, it can be put at risk. This is especially sensitive when the launching and recovering is done from submarines. With limited launch tubes, trading torpedoes for UUVs is a tough choice.

The most immediate launch and recovery technological advances are found in unmanned surface vehicles. They complement and augment unmanned underwater vehicles and manned vessels, especially when it comes to clearing mine fields. Traditional mine hunting is time consuming, dangerous and costly, and UUVs are proven tools to survey mines. With mine-hunting vessels reaching the end of their lives, unmanned surface vehicles can do the job from non-dedicated mine hunter vessels. They will relay information by standing close to their underwater counterpart while keeping the manned platform away from the minefield. The surface vehicle could deploy one or more drones. Another option is to use robotic boats to magnetically trigger the mines, a method known as mine sweeping.

Traditional mid-size UUVs are stable and can endure more than a day underwater, but by design are prevented from moving in a cluttered environment, navigating against currents and operating in confined spaces. For that, new designs are needed.

A number of new designs of small underwater drones are expected in the coming years. The Office of Naval Research has been sponsoring new breeds of vehicles, such as the Ghost Swimmer from Boston Engineering, a scaled-down version based on the body of tuna, which is able to make sharp turns and thrusts against currents with its large tail. ONR has also sponsored iRobot Maritime for the concept of a sonobuoy UUV. It is dropped from the sonobuoy tubes of an aircraft, and navigates for a few hours instead of being dropped and left at the mercy of the currents. The ability of this self-propelled sonobuoy would enhance its role to detect submarines. Perhaps glider UUVs will end up becoming a new underwater robot class. "There will probably be some evolution of those platforms for greater payload or endurance capabilities and for the vehicle, itself," said David P. Kelly, president and CEO of Bluefin Robotics, based in Quincy, Mass.

Unmanned aircraft are being increasingly used to carry weapons, or employed as kamikaze weapons. This provides a glimpse as to what to expect on the underwater side.

When weaponized, underwater robots will be able to act offensively and use their covertness to intervene in operations. The large-displacement UUV program intends to use the platform as a launch for underwater weapons. If the vehicles that are used to disable mines carry an explosive charge, what prevents them from going to a specified point to act as a mine? As torpedoes become smarter, one can see those two technologies being combined. Unmanned vehicles will also be able to act as torpedo decoys.

Synthetic aperture sonar and other sensors that give greater resolution will be a sought-after technology. The Defense Department also will seek advances in propulsion, energy for both storage and usage, as well as advanced autonomy. New deployable payloads such as distributed network sensors will first be developed as stand-alone projects, which will then be incorporated in UUV programs — such as the "persistent maritime surveillance demonstration" project to be integrated in the large-displacement program.

Increasing the endurance of the technology has become a pressing priority in the U.S. Navy. Former Chief of Naval Operations Adm. Gary Roughead said he wanted to dedicate half of UUV research-and-development money to find solutions that improve their endurance. This is a prerequisite to augmenting their functions for intelligence gathering and offensive roles. If the launch and recovery platforms need to stay within their current endurance range — 20 hours is typical for today's submersible robots — it puts the manned platforms fairly close to the operating zone.

Power is also needed to navigate in shallow waters, where currents are strong. The large displacement UUV is an ambitious program that will take significant resources to make it a reality. The goal is to deliver the first test vehicles in 2016, and to deploy a squadron of large vehicles by 2020.

Other opportunities are in inertial navigation systems, which are currently too expensive for small UUVs. Underwater endurance for large vehicles will require submarine-like navigational accuracy. Sensor advances such as sonar are as important as electro-optical sensors are to remotely piloted aircraft. There will always be a need for better resolution, smaller form factor, and lesser power consumption in the processing of sonar data.

Companies that are seeking to enter the market should find opportunities in port security missions. There will also be more teaming among established companies. Battelle Memorial Institute, The Columbia Group, and Bluefin Robotics are developing a large diameter UUV test bed that is called Proteus. As budgets become tighter, few firms will invest their own capital to only serve the Navy, since they cannot assess the risks of whether their products will sell.

There is a large commercial market for the technology in the offshore oil and gas industries. Defense firms such as The Boeing Co. and Lockheed Martin Corp. have attempted to get return on corporate research and development investments by selling to both defense and commercial markets. This "market cross" of UUVs seems to be especially visible now that the defense budget is on the decline, and that natural resources need to be extracted in more remote areas such as the poles or in deep water.

A similar pattern is observed with fuel cell companies that are targeting the transportation and underwater-vehicle industries. In addition, there will be more mature products from foreign companies being marketed in the United States, more often through a joint venture, subsidiary, and almost always by working with a prime contractor. Conversely, U.S. firms are eager to sell overseas, but the navigation systems and autonomy of the technology presents export hurdles when it comes to foreign-sales regulations.

The Navy's Space and Naval Warfare Systems Command Systems Center Pacific, based in San Diego, is the funding and executing office of two expected programs. The center is seeking improved automation technologies, which is a way to gradually remove humans from the operation of unmanned systems. This satisfies two goals: to develop technology that will cut costs by removing expensive trained persons; and to take a measured and cautious approach to autonomy. Bluefin Robotics, for instance, acquired the intellectual property and expertise of Hawkes Remotes remotely operated vehicles as a way to address this problem.

The most immediate need is for unmanned underwater vehicles to reduce human and material risks. In that vein, most of the procurement funding is likely to be allocated to mine countermeasures. In the mid and long term, "UUVs will be increasingly used as a force multiplier or to extend the reach in range and capabilities of manned assets," said David Olszewski of Atlas North America.

"Shallow water infrastructure and ports and harbors facilities are subject to asymmetric threats," said Kelly, of Bluefin. The company is offering the Bluefin-9 UUV to survey ship lanes and map the underwater environment, and a hovering submersible to inspect ship hulls in ports.

The Pentagon's budget request for unmanned maritime systems (including unmanned surface) research, development, testing, procurement, operations and maintenance is approximately $641 million for the 2011 to 2015 period.

First Digital Message Sent Using Neutrinos

Physicists commandeer a beam of neutrinos to send a message through solid rock but at a painfully slow data rate

Technologyreview.com, Mar 14, 2012

A couple of years ago, we looked at the possibility of using neutrinos to communicate with submarines.

The problem with underwater comms is that only the lowest frequency electromagnetic waves penetrate water to any depth and these are only capable of data rates of around 50 bits per second.

Neutrinos on the other hand pass more or less unhindered through anything. That makes them ideal for submarine communication, except for one thing. Neutrinos are somewhat reluctant to interact with matter and this makes them hard to measure. So any neutrino communications beam would have to be hugely powerful and any neutrino detector extremely big.

Nevertheless, neutrinos raise the possibility of communication at data rates some three orders of magnitude higher than is currently possible with submarines.

Today, a team at FermiLab in Batavia, Illinois, reveal that they have sent a digital message using a neutrino beam for the first time.

These guys used an experiment called NuMI (NeUtrino beam at the Main Injector) to generate an intense beam of neutrinos. The beam consisted of about 25 pulses each separated by 2 seconds or so, with each pulse containing some 10^13 neutrinos.

The beam is pointed at a detector called MINERvA weighing about 170 tonnes and sitting in an underground cavern about a kilometre away. To reach MINERvA, the beam has to travel through 240 metres of solid rock.

MINERvA is one of world's most sensitive neutrino detectors and yet, out of 10^13 neutrinos in each pulse, it detects only about 0.8 of them on average.

Nevertheless, that's enough to send a message. The FermiLab team used a simple on-off protocol to represent the 0s and 1s of digital code and transmitted the word "neutrino".

The entire message took about 140 minutes to send at a data rate that these guys later worked out to be about 0.1 bits per second with an error rate of less than 1 per cent.

That's not quite the three order of magnitude improvement submariners have been hoping for but at least it's a proof-of-principle. "This result illustrates the feasibility, but also shows the signiûcant improvements in neutrino beams and detectors required for practical applications," say the team.

Better results ought to be possible with more intense beams and larger detectors, such as the IceCube detector at the South Pole which uses the Antarctic icepack as a detector.

And submarine communication is not the only potential use. The FermiLab team mention various other alternatives such as interstellar communication and communication with spacecraft hidden on the far side of distant planets.

If that ever comes to pass, this experiment will be the equivalent of Alexander Graham Bell's famous first telephone call in 1876, which consisted of the message: "Watson, come here. i want you". By 1880, just four years later, there were some 60,000 telephone sets in the US. Neutrino communication may take a little longer to catch on. On the other hand, if there's anything in the faster-than-the-speed-of-light result from the OPERA neutrino experiment at last year, who knows what could happen.

Lockheed Martin-Built Trident II D5 Missile Achieves 137th Successful Test Flight
LockheadMartin.com, March 14

SUNNYVALE, Calif., March 14, 2012 – The U.S. Navy conducted a successful test flight Feb. 22 of a Trident II D5 Fleet Ballistic Missile (FBM) built by Lockheed Martin (NYSE: LMT). The Navy launched the unarmed missile from the submerged submarine USS Tennessee (SSBN 734) in the Atlantic Ocean.

This test marked the 137th successful test flight of the D5 missile since 1989 – a reliability record unmatched by any other large ballistic missile or space launch vehicle.

"We are proud of our partnership with Navy Strategic Systems Programs in this most recent successful demonstration of the readiness and reliability of the Trident II D5 missile," said Melanie A. Sloane, vice president of Fleet Ballistic Missile programs, Lockheed Martin Space Systems Company, the Navy's Trident missile prime contractor. "The performance of this critical strategic weapon system is a testament to the dedication of the entire government and industry team."

The Navy launched the missile as part of demonstration and shakedown operation 23 (DASO-23) to certify USS Tennessee for deployment, following a shipyard overhaul period. The missile was converted into a test configuration using a test missile kit produced by Lockheed Martin that contains range safety devices and flight telemetry instrumentation.

First deployed in 1990, the D5 missile currently is aboard OHIO-class and British VANGUARD-class submarines. The three-stage, solid-propellant, inertial-guided ballistic missile can travel a nominal range of 4,000 nautical miles and carries multiple independently targeted reentry vehicles.

Lockheed Martin Space Systems Company, Sunnyvale, Calif., has been the strategic missile prime contractor for the U.S. Navy Strategic Systems Programs since the inception of the Fleet Ballistic Missile program more than 50 years ago. Lockheed Martin employees, principally in California, Georgia, Florida, Washington, Utah, Virginia and Scotland, support the design, development, production, test, and operation and sustainment of the Trident Strategic Weapon System.

Lockheed Martin leads the industry in performance and domain expertise in strategic missile and missile defense systems. Lockheed Martin designs and produces ballistic missiles, interceptors, target missiles and reentry systems with unmatched reliability. Lockheed Martin's focus on operational excellence yields affordable high-quality systems and services.
Headquartered in Bethesda, Md., Lockheed Martin is a global security and aerospace company that employs about 123,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The Corporation's net sales for 2011 were $46.5 billion.

Digitizing Our U.S. Submarine WWII War Patrol Reports

Forward:

"This effort by EMC (SS) John Clear USN (Ret) is truly remarkable. For over 40 years, although declassified, the remarkable exploits of the U. S. Submarine Force during WWII sat on microfilm in a few museums and files, essentially untouched. His initiative revealed factual accounts of each U. S. submarine war patrol during WWII. In my view, that delay in publication was a travesty which should not have occurred for our WWII submarine veterans.

The Cold War is over. It should not take four decades before the importance of U. S. Submarine efforts during that period are made public."

Very Respectfully, VADM Roger F. Bacon, USN (Ret)

Digitizing Our U.S. Submarine WWII War Patrol Reports

I first became acquainted with the WWII U.S. Submarine War Patrol Reports microfilm collection at the Naval Undersea Museum, Keyport, WA in the summer of 2006, while volunteering as a docent at the museum. This little known and very infrequently used collection is housed within the 3rd floor, non-lending library of this outstanding facility which is one of only a small hand full in our nation where these reports can be viewed.

Being a retired SubLant and SubPac Chief, whose naval career had included tours of duty on three of these WWII veteran submarines, I was interested in their war time history and achievements. With help from the museum's staff (in particular Jennifer Heinzelman, Collections Manager), I soon became well versed with the library's microfilm reader as to how to set-up and peruse the film rolls of the 255 U.S. submarine's war patrol records. These numerous microfilm rolls are housed in large collection drawers there within the library.

What immediately struck me in reading these histories from the microfilm copies of the original paper reports was the succinct manner in which these histories had been recorded at the time of and where these events occurred. Some of these reports were almost "casual" in their presentation of these awesome events. As an example: one of my previous tours of duty was on the USS Sealion SS-315 which just happened to be the only submarine in history to sink an enemy battleship in wartime. To read the pertinent pages from within this particular report of this patrol one would think that this type of occurrence was rather commonplace and not of such monumental importance as it had been. Well known submarines and individual heroes of these times seem to be "alive" in their patrol report depictions. The officers making the input and the yeomen that typed up these multi-copy reports on their old Underwood typewriters did so with an almost clinical detachment, ultimately providing an insight as no other form of written historical log or book has given us.

Again with the aid of the staff I was able to print out some of these pages but it was a very slow and cumbersome chore. It wasn't until I was able to reconnect the microfilm reader's output directly to a computer and hence save pages in a digital format that this effort began to come together and make sense. From my research I had found that nearly half of these microfilmed reports were photographed in l6mm and the rest in 35mm, in that, again, I found another problem. The 16 mm pages were an easy and direct "save to" on the p.c., but the 35mm had to be worked on with an average of three shots and then laboriously "stitched" together with the computers software. To say that this slowed down the procedure is an understatement. Fast calculations showed that I had about 5 years of 8 hour days ahead of me at the rate that I was preceding.

By the fall of the year I had been hooked on this project. One day while talking with an active duty LCDR and Jennifer, I decided that this project had to be taken on in earnest in order to more easily share these historic times with the many rather than just the few that had access to these microfilm libraries. I wanted to get these stories out while we still had some of our WWII submarine veterans with us, whose stories were told within these pages.

Further research found that recent technology had been developed that could now take on this conversion in a manner that would not require the manual, laborious efforts thus far expended. This newer technology was basically a huge machine that could read and convert these microfilm rolls faster than I ever could hope to accomplish. Two major companies were queried as to cost. The pricing, while fair (quoted at over six thousand dollars), was not something that the museum, nor its supporting foundation, would be able to fund. With the help of a long time friend, Dan Martini EMCM (SS), USN Ret., a partnership was formed and registered in Jefferson County of Washington State

with the express purpose of handling this project. The museum agreed to lend out the microfilm rolls (some 255) to the company that we had agreed upon and the partnership would pay the cost of the conversion process.

It was at about this time that Vice Admiral Roger Bacon, of the museums foundation, had heard of our project and wanted to help make the project move into reality. Admiral Bacon's father had been a highly respected WWII submarine Commanding Officer and thus Admiral Bacon's interest in these reports had been in mind for many years.

The initial run received from the conversion company came down to 28 full DVDs containing all of the 1,600+ war patrol reports of the 255 submarines involved. We were provided with two master copies, one in .jpg (picture) format and the other in .pdf (Adobe Reader) format. These reports were assembled in hull number sequence, oldest to the newest of the participating WWII subs. As per SubPacs instructions, the vast majority of the war patrol reports were written within the require guidelines as follows;

(A) Prologue
(B) Narrative (date & time)
(C) Weather
(D) Tidal information
(E) Navigational aids
(F) Ship Contacts
(G) Aircraft
(H) Attacks
(I) Mines
(J) Anti-submarine measures and evasive tactics
(K) Major defects
(L) Radio
(M) Radar
(N) Sound gear & conditions
(O) Density Layers
(P) Health, food & habitability
(Q) Personnel
(R) Miles steamed, fuel used
(S) Duration
(T) Factors of endurance remaining
(U) Communication, radar and sonar countermeasures
(V) Remarks

It was also at this point that we registered our newly converted war patrol reports and were issued an ISBN number of 13: 978-0-615-17769-4. together with an intellectual copyright being filed (to protect the digital conversion).

By early 2007 we had the final masters on hand and began further production from these sets. Admiral Bacon (as our mentor) financed the first (costly) five sets and donated these to the Newport, RI and Monterey, CA Naval War College libraries, the St. Mary's, Georgia Museum, USS Nautilus Museum, Groton, CN and the USS Bowfin Museum, Honolulu, HI. The partnership in turn provided a master set to the Naval Undersea Museum and to some eight submarines stationed at Bangor Submarine Base, WA during our quarterly NSL NW meetings.

Later that year, during the 2007 USSVI Alaskan Cruise Convention, these patrol reports were first introduced, in their new user friendly digital format to the submarine community at large. We also posted this information on the internet at the same time. It was the partnership's agreement, to provide at no cost, any copy of any submarine reports to any WWII sub vet or his immediate family, several hundred individual boat's patrol reports were thus sent out. Many submarine authors, (Tom Clancy, et al), researchers, and historians were among the initial purchasers.

By 2009 it was decided to make these reports available for free viewing to the general public directly on the internet. Rich Pekelney of the Historic Naval Ships Association, (HNSA), was contacted and uploaded all of the reports onto their website with a bravo zulu sent back to the partnership and our mentor Admiral Bacon. While able to view the reports for free via the internet, these pages are not easily copied or printed out.

In quick order further improvements in computer software allowed the reports to be further converted to a "compressed pdf'" format greatly reducing the production time and lowering the overall cost to less then 1/10 of the initial offering. The total of the reports including all of the appendices (which include some fifteen cross references, by boat, C.O. etc.) are now on just 4 DVD's in this compressed .pdf format.

We have archived the initial run in the .jpeg format to allow for further "cleaning up" (in time) of some of the reports that were either too light, dark, smudged or had any other problems in their reading quality.

The outcome of this effort has provided an easy to use reference of the thousands of pages that if printed out on single sided paper, would be a book at over 22 feet across, a massive work!

The company, (now a corporation), has continued to provide these reports at an extremely low cost to a world wide audience. Our initial desire to acknowledge our WWII Submarine Veterans still alive has been well met and we will continue in our stated efforts through Submarine Memorabilia, Inc...

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Submarine Memorabilia, Inc.
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Port Ludlow, WA 98365-9522
webmaster@usssealion.com

Listing of all U.S. Submarines in WWII (Pacific) by Name (alpha), Hull Number (i.e. SS-218), Number of Patrols Made & Total Pages Within War Patrol Reports.

Albacore	218	10	551
Amberjack	219	3	82
Angler	240	7	338
Apogon	308	8	253
Archerfish	311	7	223
Argonaut	166	2	82
Argonaut	475	1	78
Aspro	309	7	286
Atule	403	4	190
Balao	285	10	410
Bang	385	6	235
Barb	220	12	503
Barbel	316	4	139
Barbero	317	2	100
Barracuda	163	6	36
Bashaw	241	6	312
Bass	164	4	47
Batfish	310	6	331
Baya	318	5	229
Becuna	319	5	200
Bergall	320	5	175
Besugo	321	5	268
Billfish	286	8	285
Blackfin	322	5	60
Blackfish	221	12	432
Blenny	324	4	495
Blower	325	3	123
Blueback	326	3	267
Bluefish	222	9	402
Bluegill	242	6	389
Boarfish	327	4	154
Bonefish	223	8	508
Bonita	165	7	43
Bowfin	287	9	524
Bream	243	6	365
Brill	330	3	89
Bugara	331	3	62
Bullhead	332	3	75
Bumper	333	2	82
Burrfish	312	6	297
Cabezon	334	1	36
Cabrilla	288	8	368
Cachalot	170	3	52
Caiman	323	4	117
Capelin	289	1	64
Capitaine	336	1	61
Carbonero	337	2	50
Carp	338	1	56
Catfish	339	1	38
Cavalla	244	6	323
Cero	225	8	485
Charr	328	3	114
Chub	329	3	138
Cobia	245	6	269
Cod	224	7	466
Crevalle	291	7	506
Croaker	246	6	266
Cutlass	478	1	21
Cuttlefish	171	3	92
Dace	247	7	691
Darter	227	4	290
Dentuda	335	1	47
Devilfish	292	4	97
Diablo	479	2	17
Dolphin	169	3	61
Dragonet	293	3	117
Drum	228	13	350
Entemedor	340	1	26
Finback	230	12	417
Flasher	249	6	265
Flier	250	2	130
Flounder	251	6	278
Flyingfish	229	12	555
Gabilan	252	6	225
Gar	206	15	347
Gato	212	13	552
Golet	361	2	27
Grampus	207	6	243
Grayback	208	10	477
Grayling	209	8	143
Greenling	213	12	427
Grenadier	210	6	199
Grouper	214	12	311
Growler	215	11	404
Grunion	216	1	30
Guardfish	217	12	590
Guavina	362	6	242
Gudgeon	211	12	566
Guitarro	363	5	300
Gunnel	253	8	352
Gurnard	254	9	489
Hackleback	295	2	95
Haddo	255	10	384
Haddock	231	13	334
Hake	256	9	320
Halibut	232	10	357
Hammerhead	364	7	283
Harder	257	6	325
Hardhead	365	6	314
Hawkbill	366	5	250
Herring	233	7	156
Hoe	258	8	320
Icefish	367	5	177
Jack	259	9	304
Jallao	368	4	127
Kete	369	2	36
Kingfish	234	12	522
Kraken	370	4	144
Lagarto	371	2	43
Lamprey	372	3	85
Lapon	260	8	325
Lionfish	298	2	74
Lizardfish	373	2	101
Loggerhead	374	2	59
Macabi	375	1	32
Manta	299	1	37
Mingo	261	7	257
Moray	300	1	29
Muskellunge	262	7	250
Narwhal	167	16	357
Nautilus	168	15	452
Paddle	263	8	381
Pampanito	383	6	240
Parche	384	6	274
Pargo	264	8	482
Perch	176	2	349
Permit	178	14	598
Peto	265	10	380
Pickerel	177	7	254
Picuda	382	6	291
Pike	173	8	219
Pilotfish	386	6	203
Pintado	387	6	236
Pipefish	388	6	248
Piper	409	3	111
Piranha	389	5	227
Plaice	390	6	354
Plunger	179	12	357
Pogy	266	10	334
Pollack	180	11	372
Pomfret	391	6	359
Pompano	181	7	182
Pompon	267	9	227
Porpoise	172	6	213
Puffer	268	9	483
Queenfish	393	5	248
Quillback	424	1	63
Rasher	269	8	543
Raton	270	8	317
Ray	271	8	399
Razorback	394	5	275
Redfin	272	7	290
Redfish	395	2	201
Robalo	273	3	143
Rock	274	6	67
Ronquil	396	5	251
Runner	275	3	94
Runner	476	1	??
S-11	116	6	40
S-13	118	4	36
S-15	120	3	25
S-17	122	6	63
S-18	123	7	72
S-23	128	7	61
S-26	131	2	120
S-27	132	1	107
S-28	133	7	451
S-30	135	9	152
S-31	136	8	152
S-32	137	8	120
S-33	138	8	128
S-34	139	7	92
S-35	140	8	143
S-36	141	2	87
S-37	142	7	173
S-38	143	9	40
S-39	144	5	117
S-40	145	9	146
S-41	146	8	160
S-43	154	3	107
S-44	155	4	99
S-45	156	4	95
S-46	157	5	133
S-47	158	7	186
Sailfish	192	12	366
Salmon	182	11	431
Sand Lance	381	5	168
Sargo	188	12	447
Saury	189	11	431
Sawfish	276	10	364
Scabbardfish	397	5	223
Scamp	277	8	229
Scorpion	278	4	102
Sculpin	191	9	285
Sea Cat	399	4	155
Sea Devil	400	4	228
Sea Dog	401	4	199
Sea Fox	402	4	148
Sea Owl	405	3	184
Sea Poacher	406	4	193
Sea Robin	407	3	177
Sea Wolf	197	15	590
Seadragon	194	12	468
Seahorse	304	8	439
Seal	183	12	557
Sealion	315	6	330
Searaven	196	13	594
Segundo	398	5	236
Sennet	408	4	146
Shad	235	11	362
Shark	174	3	201
Shark	314	?	???
Silversides	236	14	467
Skate	305	7	108
Skipjack	184	10	391
Snapper	185	11	371
Snook	279	9	334
Spadefish	411	5	308
Spearfish	190	12	495
Spikefish	404	4	113
Spot	413	3	189
Springer	414	3	86
Steelhead	280	7	308
Sterlet	392	5	237
Stickleback	415	1	33
Stingray	186	16	470
Sturgeon	187	11	315
Sunfish	281	11	459
Swordfish	193	13	422
Tambor	198	12	461
Tang	306	5	206
Tarpon	175	12	393
Tautog	199	13	653
Tench	417	3	125
Thornback	418	1	76
Threadfin	410	3	146
Thresher	200	15	120
Tigrone	419	3	200
Tilefish	307	6	257
Tinosa	283	11	521
Tirante	420	2	131
Toro	422	2	51
Torsk	423	2	70
Trepang	412	5	326
Trigger	237	12	381
Triton	201	6	205
Trout	202	11	289
Trutta	421	2	154
Tullibee	284	4	125
Tuna	203	13	497
Tunny	282	9	472
Wahoo	238	7	165
Whale	239	8	427