

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



## *The Silent Sentinel*

### *November 2016*



#### *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.



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*Position is 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 \_\_\_\_\_

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USSVI Base Commander  
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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*

## ***November MEETING***

*This month only, our meeting will be on a Thursday at VFW Post 3787, 4370 Twain Ave., San Diego. Our next meeting will be on November 10. 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**

*Harry (Hump) Humphreyville*

## ***Submarine Losses in November***

Originally Compiled by C J Glassford



### **USS Albacore (SS-218)**

Lost on Nov 7, 1944 with the loss of 85 men when she was sunk off northern Hokkaido. Winner of two Presidential Unit Citations, Albacore was on her eleventh war patrol and struck a mine while running submerged near a Japanese patrol craft that had detected her.

### **USS Growler (SS-215)**

Lost on Nov 8, 1944 with the loss of 86 men when she was sunk in the South China Sea. Winner of two Navy Unit Commendations, Growler was on her 12th war patrol, and was lost while attacking a convoy, probably as a result of a depth charge attack or victim of a circular run by one of her own torpedoes.

### **USS Scamp (SS-277)**

Probably sunk on November 16, 1944 with the loss of 83 men near Tokyo Bay. On her 8th war patrol, she may have been damaged by a mine and was trailing oil, which helped Japanese coast defense vessels locate and destroy her with depth charges.

### **USS Corvina (SS-226)**

Lost on Nov 16, 1943 with the loss of 82 men when she was sunk just south of Truk. Corvina was on her 1st war patrol and appears she was lost to the torpedoes of a Japanese submarine.

### **USS Sculpin (SS-191)**

Lost on Nov 19, 1943 with the loss of 43 men near Truk. Severely damaged by depth charges after attacking an enemy convoy, Sculpin continued to fight on the surface. When the captain was killed, the crew abandoned ship and scuttled Sculpin. 41 men were taken prisoner but only 21 survived the war. Among those not abandoning ship was CAPT Cromwell, aboard as a potential wolfpack commander, he rode the Sculpin down, fearing that vital information in his possession might be compromised under torture. For this, CAPT Cromwell was posthumously awarded the Congressional Medal of Honor.



***San Diego Base, United States Submarine Veterans Inc.  
Minutes of Meeting - 11 October 2016***

1900 - Base Commander Bob Bissonnette called the meeting to order

Conducted Opening Exercises - Pledge of Allegiance lead by Chief of the Boat Fred Fomby

Treasurer David Ball led the prayer

Base Treasurer David Ball conducted Tolling of the Boats for boats lost in the month of October.

Base Commander Bob Bissonnette recognized Past Commanders, dignitaries and guests.

Secretary Jack Kane announced 21 members and 3 guests (Juanita Williams, LeRoy Schraeder, Ron Walker) present.

Treasurer David Ball gave his report. General Fund is \$2199.32, Savings Balance is \$17,244.92. Charlie Marin Scholarship Fund is \$955.00. A copy of the Treasurer's Report will be filed with these minutes.

The minutes of the 13 September 2016 meeting were approved as published in the Sentinel.

Base Commander Called For Committee Reports

Acting Chaplain David Ball reported the following on the Binnacle List: Jack Ferguson and Frank Walker. Benny Williams went on Eternal Patrol 18 September 2016.

Parade Chair Joel Eikam reported that the next parade is Borrego Springs on 22 October.

Chairman Ray Febrache reported 254 members in San Diego Base.

Scholarship Chairman Paul Hitchcock has no report this month.

Storekeeper Phil Richeson has San Diego Base Coins, Hats, 2017 Calendars and some shirts available.

Base Vice Commander Warren Branges reported the next Breakfast is 30 October. Some volunteers are needed.

Base Vice Commander Warren Branges reported that the 52 Boat Memorial has 3 damaged markers. It appears one or two were hit by a vehicle and one was vandalized. The S26 marker is fixed. Doug Smay and Warren Branges will meet with San Diego Park and Recreation about a Memorandum of Understanding.

Base Vice Commander Warren Branges announced the next All Flags day is 11 November 2016 and then 7 December 2016 - Pearl Harbor Day. This year is the 75th Anniversary of the attack on Pearl Harbor. We will try to set up a ceremony in conjunction with putting out flags that day.

No Reports from Float Committee or Eagle Scout Program Chairman.

1929- Base Commander called for a break.

1945 - Base Commander called the meeting back to order. 50/50 drawing was held. \$58 went the General Fund.

1950 - Unfinished Business

Base Commander Bob Bissonnette briefed and/or reported on the following:

A Memorial Service was held for QMCM (SS) Benny O. Williams at the VFW Hall at 1000, 8 October 2016. Base Commander Bob Bissonnette will have a video of the event available soon. David Ball has still photos. Fifty to 100 people attended. Several members commented on the ceremonial songs done by Wind Walker. She did a rendition of the Song of the Eagle and then Amazing Grace in Cherokee.

The Joint SUBVET Christmas Party is scheduled for 3 December 2016. Social Hour will be 1300-1400. Dinner at 1400. Menu Choice will be Cornish Hen or Pork Chops. Cost will be \$20 per person. See Warren Branges for tickets.

The Chula Vista Veterans Home Fundraiser walk on 5 November 2016. Our team will be Mert Weltzien, Paul Hitchcock, Chris Stafford and Rocky Rockers.

#### 2001 - New Business

Base Commander Bob Bissonnette reminded everyone that yearly dues are payable before 31 December 2016.

Base Secretary Jack Kane was contacted by Terry Ulmer about our group touring his Naval Museum in Alpine. Jack will call Terry and find out when those tours are available.

#### 2009– Good of the Order

Several members spoke on several subjects including:

The Submarine League's Presentation of The 4th Battle of the Atlantic

Doug Smay Base is shutting down in December

An article about a unsuccessful Japanese attack bombing of Oregon during the WWII

The USS James K. Polk Sail Dedication at the National Museum of Nuclear Science in Albuquerque NM

The recent 60 Minutes piece on ICE CAMP 2016.

The Meeting was adjourned at 2021.

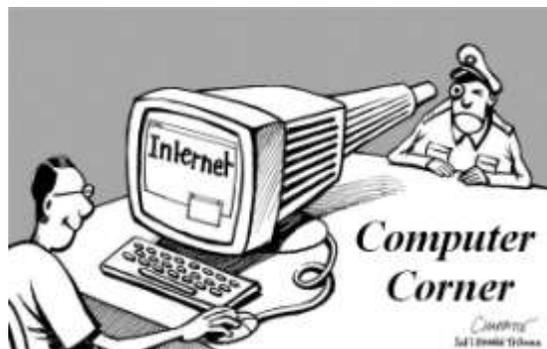
Jack Kane, Secretary

/s/ Jack E. Kane

### *Sailing List for 12 October 2016*

Fred Fomby	Jack Kane	Bob Bissonnette	Phill Richeson
Bob Farrell	Bill Earl	David Ball	Ed Farley
Dennis Mortensen	Dennis McCreight	Paul Hitchcock	Ron Gorence
Peter Lary	Robert Golembieski	Mert Weltzien	Ray Febrache
David Martinez	Jim Pope	Warren Branges	Joel Eikam
Chris Stafford			

Guests: Ron Walker, Juanita Williams, & LeRoy Schraeder



By definition, “phishing” is the activity of defrauding an online account holder of financial information by posing as a legitimate company. The goal is to get the recipient to click on an enclosed link. Many times this is obvious by looking at wording in the Subject line and/or the sender email address. For example, today I received a phishing email from USAA with the Subject line “Funds was transferred to your account” (bad grammar) and the sender address was USAA< codewizard@aproject.com> (not related to USAA). However, some senders are more sophisticated and can actually hide the sender email address from view to make it look like it is from actual USAA sender. If in doubt, one can use the email program “view header” option to see the actual sender. The phishing activity also applies to Text messages, and they actually look like valid account notifications. My American Express account is set up to send a phone text message and email every time the card is used to spend more than \$10, and this occurs within 1 minute of using my charge card. If I get a notification at any other time, or a suspicious email related to my account (with words like profile or logon), then I will log into the account

using my normal method; not the email or text message link. Maintaining a questioning attitude will help keep your financial accounts safe. *David*

## Current News

“Plataginet, I will; and like thee, Nero,  
Play on the lute, beholding the towns burn” (*Henry VI*, Shakespeare)

### **Military Veterans Command Respect in Restaurants** Staff, [fsrmagazine.com](http://fsrmagazine.com), November 8

This Veterans Day, military professionals around the country will find a welcoming audience in restaurants. Countless operators, from the most recognized chains to the smallest independents, will offer food and drink specials to show their appreciation for the men and women who have served our country.

This might seem standard and even commonplace these days, but it wasn't always the case. When my father returned from Vietnam, he hurried to the nearest store and purchased whatever clothing he could find, fashionable or not. He was greeted with jeers and hostility, and had to rid himself of all military garb just to make it quietly through the airport. This changed as people became educated on POWs, MIAs, and, surely, after the tragic events of 9/11. In time, the restaurant workforce and veterans have developed a very gratifying relationship. According to the National Restaurant Association, there are more than 250,000 military veterans holding jobs throughout the industry. At The Culinary Institute of America, we average around 150 veterans on campus year-round. During our welcoming ceremony, we hand out a special pin to incoming veterans to honor their service.

One note you hear often from operators is that employees with military backgrounds stand out. There's no denying the sentiment. Statistics from the NRA show that 19 percent of veterans in the industry have management positions, compared with just 10 percent of nonveterans. Also, 14 percent of veterans are in supervisor positions, compared with 8 percent of nonveterans.

I was a petty officer third class in the U.S. Navy Submarine Service and served onboard a fast-attack submarine before the fall of the Berlin Wall. I can attest to the fact that the pressure and expectations of service translate very well to the kitchen. There's a sense of urgency and a need to stress every detail that meshes perfectly. *Mise en place*, or making sure everything is in order, is a way of life in the military. It's easy to teach somebody how to flip an egg, but it's a lot harder to get them to flip 50 eggs—the exact same way—in 30 minutes.

As for military professionals themselves, the restaurant environment presents a similar environment to being in the service. Think of it like this: If someone cooks a dish for a customer, there's a very short window before the performance review arrives. Quick satisfaction is a staple of the military. In regard to job performance, soldiers are told whether they did a good job or not, and if not, they're guided to do better. That's something even the best chef can relate to.

One challenge is finding a way to connect the two parties. There are numerous initiatives around hiring veterans, but it's a conversation that needs to keep advancing. Around 12 percent of veterans employed in restaurants have military disabilities, according to the NRA. Yet there remains a stigma, especially when it comes to veterans with post-traumatic stress disorder. I'm hopeful that, especially as veterans continue to prove themselves in the food world, this barrier gets broken through.

Students with military backgrounds are model citizens at the CIA. They come in, sometimes as 22- or 23-year-olds, with a strong foundation. This is definitely true of the career types, whom I often need to counsel to slow down and adjust to the pace of their younger peers. With the proper training, veterans can develop into great professionals and true leaders in our industry. Veterans know how to take charge of a situation, and, when it comes to a restaurant, that's a skill you simply can't teach.

### **IDF getting new German subs, despite Ya'alon's best efforts** Judah Ari Gross, [timesofisrael.com](http://timesofisrael.com), November 7

An Israeli decision to purchase three new submarines from Germany, officially announced late last month, was previously derailed by then-defense minister Moshe Ya'alon, according to a Channel 10 news report.

Prime Minister Benjamin Netanyahu announced in an October 31 cabinet meeting that Israel was in the process of negotiating the purchase of three new submarines for the Israeli Navy, which currently maintains a fleet of five underwater vessels.

At this stage, the new submarines are not meant to expand the navy's fleet and would not actually reach Israel for at least another decade. Rather, they would replace the military's older submarines, which would be approaching obsolescence around the same time.

But the deal almost didn't happen, and were it not for Ya'alon's eventual ouster in May to make way for Avigdor Liberman, it might not have at all.

Neither Ya'alon nor the IDF were in favor of purchasing the new submarines — a somewhat change of pace in the normal narrative of the defense establishment fighting to get new “toys” — as the decision did not fit with multi-year plan for the army and Defense Ministry, Channel 10 said Monday.

According to Channel 10, Netanyahu started dealings with the German government without informing Ya'alon, who only learned of the plan after news of it leaked out.

Apparently furious, the then-defense minister verbally sparred with Netanyahu in the prime minister's office, with the two reportedly shouting at one another over the issue.

Following additional arguments over the subs, Ya'alon indeed succeeded in torpedoing the plan, the news outlet said.

While the IDF reportedly continued to oppose the decision, once Ya'alon stepped down as defense minister, Netanyahu renewed the negotiations with the Germans for the new submarines.

When asked for comment, Ya'alon said he would not discuss the reports.

Submarines, unmatched in their ability to hide from enemy navies, have long been a major facet of Israel's defense policy.

Israeli subs are reportedly armed with cruise missiles topped with nuclear warheads, affording the tiny Jewish state "second strike" capabilities — although the government will not acknowledge the existence of these nuclear weapons, as part of its long-standing policy of "nuclear ambiguity."

Israel's fifth submarine, the INS Rahav, arrived in Israel in January, approximately a decade after it had been purchased from Germany, coming just a few years after the acquisition of the INS Tanin, which joined the fleet in 2013.

Israel purchased a sixth submarine from Germany in 2013, which is expected to be completed in a few years.

"Submarines are a strategic tool in the IDF's defense arsenal. Israel is prepared to act at any time in any place to ensure the safety of Israel's citizens," Netanyahu said in 2013, when the Rahav was first unveiled in Germany.

The cost of Israel's "strategic tools" is reportedly NIS 1.65 billion (\$433 million) per submarine, making the total price of three approximately NIS 5 billion (\$1.3 billion), according to Hebrew media reports, though that is offset by a considerable discount from Germany that is rooted in a contentious 1953 reparations agreement between Germany and Israel for the Holocaust.

The agreement, which significantly boosted Israel's economy during the early days of its independence, has brought billions of dollars of military and economic aid to Israel throughout its history and was further invoked to purchase the new line of naval vessels.

### **More submarine sightings reported**

**Nina Berglund, NewsinEnglish.no, November 6**

Norway's civilian coastal population has been busy in recent weeks, reporting a series of new sightings of what may be foreign submarines in Norwegian waters. Defense officials confirmed they've been alerted to several sightings during the past month, and called the public's reports "highly reliable" yet non-alarmist.

Major Elisabeth Eikeland of the defense department's operative headquarters in Bodø told state broadcaster NRK that the military is glad the public reports suspicious activity. She asked for the public's understanding that the sightings don't always result in any concrete response. "We build our evaluations on a wide spectrum of classified and unclassified information that we can't go into detail about," Eikeland told NRK.

Reports from a ferry and other vessels

Among the recent sightings was one made from the ferry MF Hasvik late last week, when its radar readings showed that it was very close to an unidentified vessel off the coast of Nordland that its crew is certain was a submarine. It was the fourth observation of such an unknown vessel in the past month.

Two weeks ago, the fishing boat Lillebror sent in a u-boat report at Givær, just west of Bodø. On Thursday of that week, the website Aldrimer.no reported two sightings in which seafarers off Nordland reported "unusual incidents." While on their way towards Brønnøysund on October 22, for example, men on board a boat reported seeing an "unidentified vessel" between Hamnøya and Hornslandet.

"I have been at sea since I was 15 years old, and I believe without any doubt that what we saw was a submarine," Odin René Engan, who was among those on board the boat, told NRK. "We are also quite sure it was not Norwegian."

Eikeland said that most of the sightings are investigated. She claimed that the crew on the ferry MF Hasvik did not detect a submarine on their radar, according to their official evaluation.

Big increase in Russian activity

At the same time, researcher Ståle Ulriksen at the Norwegian foreign policy institute NUPI told NRK that there has been a major increase in activity by the Russian fleet off Norway during the past month. "Especially the last week," Ulriksen told NRK. "It's not known whether this included Russian submarines, but we can't rule that out. In general, Russian u-boat activity has doubled many times over during the past three to four years."

He noted that Russian Navy has both upgraded old submarines and built new ones. They're often moved from the Baltic, where they're built, up to the Arctic areas for training exercises before being dispatched to the Mediterranean and Black Sea, for example. He said there's no doubt that there's extensive traffic past Norway, both coming and going from the Arctic.

"There's also in general an advantage to get to know the (Norwegian) coastal area, in the event of war," Ulriksen said. "This isn't play-acting. The situation in the world is dramatic right now. We are both a neighbour and a member of NATO. We can't rule out conflicts between the major powers in the future."

### **US Navy to fund replacement pier at Subase New London Staff, Sand and Gravel, November 4**

Congressman Joe Courtney (CT-02) has announced that the US Navy has committed US\$5.4 million for design and replacement of Pier 32 at Naval Submarine Base New London to better serve operational needs.

“The news that the Navy has committed US\$5.4 million dollars to design a replacement for Pier 32 at SUBASE is just the latest positive news for the base,” said Courtney.

“SUBASE New London is a critical asset for the US Navy’s undersea fleet, and this commitment to upgrading the base’s infrastructure is a further demonstration of its value. I am going to work with the Navy and leadership at the SUBASE to ensure that these upgrades are carried out in the most efficient way possible to ensure that they address the changing needs of the submarine force.”

The funding supports planning and design work for a replacement of Pier 32, one of eleven currently operational piers at the installation used to homeport fifteen nuclear submarines. Additional funding is expected in future fiscal years to construct the replacement.

Additional upgrades to other piers may be needed to accommodate the new generation of Virginia-class submarines. Including the announcement, more than US\$155 million in both federal and state funds has been invested in SUBASE since spring of 2014.

Courtney added: “This project also emphasizes the continued need for the designation of an eastern Long Island Sound placement site for dredged materials. According to the US Navy, the replacement of Pier 32 is one of several future projects that incorporate dredging at the base –which could face significant additional costs if the EPA’s proposed site off New London is not approved or blocked. I will continue to do all I can to ensure that this site is approved without delay for our region’s military and maritime needs.”

Last week, Courtney led a letter to the EPA, signed by the Connecticut and Rhode Island Congressional Delegations, urging approval of the proposed rule to designate a new Eastern Long Island Sound Dredged Material Disposal Site (ELDS).

Among the issues raised in the letter was the need to support military facilities like Submarine Base New London.

### **Navy Taking On Anti-Torpedo Submarine Defense John Keller, Military and Aerospace, November 2**

U.S. Navy undersea warfare experts are renewing their efforts to develop an advanced active countermeasure for defense of U.S. and allied submarine forces against acoustic-homing torpedo attack.

Officials of the Naval Sea Systems Command in Washington announced plans Tuesday to issue an industry solicitation next month to design, build, and test an acoustic device countermeasure (ADC) called the ADC MK 5. The formal solicitation should be released about 16 Dec. 2016.

This torpedo-defense countermeasure will generate noise to deceive the sonar guidance systems of incoming torpedoes that are homing-in on the sounds the target submarines are making, as well as the acoustic returns of active sonar pings.

The ADC MK 5 project is part of the Navy's Next-Generation Countermeasure (NGCM) program to replace existing ADC MK 3 submarine acoustic countermeasures systems.

The ADC MK 5 is to be a 3-inch-diameter expendable device that submarines launch from external launchers have advanced features that submarines can employ as static or mobile devices with adaptive countermeasure (ACM) technology.

The upcoming ADC MK 5 full and open competitive solicitation is a follow-on to research contracts awarded in late 2010 to Ultra Electronics Ocean Systems in Braintree, Mass., and to the Argon ST subsidiary of the Boeing Co. in Fairfax, Va., to develop the Navy's NGCM anti-torpedo defense system.

Although funding constraints have held up NGCM development, Navy officials appear to be on track to select one company to develop the NGCM ADC MK 5 submarine torpedo countermeasure.

The NGCM ADC MK 5 will have acoustic communication links to connect separate countermeasures devices to enable group behavior to defeat incoming torpedoes. It will be launched in-groups of as many six units -- some of which will act as stationary broadcast jammers, while others will be mobile and function as sophisticated decoys.

The ADC MK 5 countermeasures will have receivers that can operate in full duplex mode, and an acoustic communication link will pass tactical information and updates among the deployed countermeasures, submarines, and surface ships.

The ADC MK 5 will be re-programmable to operate together with U.S. and allied torpedoes or anti-torpedo systems, and will be able to change tactics in response to changing tactical or environmental conditions via the acoustic communication link.

The countermeasures will have advanced tactical embedded processors and a built-in threat torpedo classifier. The system's new technologies will include mobile countermeasure operations and tactics; acoustic communications; group behavior and the ability to work against incoming torpedoes cooperatively; the ability to classify incoming torpedoes; full-duplex receive and transmit sensor capability; and single-crystal transducers.

The solicitation expected next month will be for ADC MK 5 special test units, engineering development models (EDMs), and engineering services. The EDM portion of the contract will include low rate initial production (LRIP) of the advanced torpedo countermeasures.

The NGCM program seeks to insert new countermeasure technologies into the submarine's defense against threat acoustic-homing torpedoes. Companies interested in bidding may email requests for classified ADC MK 5 performance specifications to the Navy's Karen Giunta at Karen.Giunta@navy.mil.

### **Russia Will Start Constructing New Ballistic Missile Submarine in December** **Franz-Stefan Gady, The Diplomat, November 3**

Russia will begin construction of an improved variant of the Project 955 Borei-class ("North Wind") aka Dolgorukiy-class nuclear-powered ballistic missile submarine (SSBN), designated Project 955A Borei II, in late December, according to a Russian defense industry source.

Construction of the Borei II-class Knyaz Pozharsky will reportedly begin on December 23 at the Sevmash shipyard, located in the town of Severodvinsk, a port city on Russia's White Sea in Arkhangelsk Oblast. The ship will purportedly be the last Borei-class sub to be laid down under Russia's ambitious shipbuilding plan. (Plans to build two additional improved Borei II-class submarines have apparently been put on hold.)

The Knyaz Pozharsky will be the fifth vessel in the Borei II-class. The first improved Borei-class sub, the Knyaz Vladimir, was laid down on July 30, 2012 at the Sevmash shipyards and is expected to be commissioned in late 2017 or early 2018. Two other Borei II-class allegedly were laid down in December 2014 and 2015 respectively. The two subs are scheduled to join Russia's Northern and Pacific Fleets by 2020, although delays may occur. The Borei II-class submarine Knyaz Oleg, slated to join Russia's Pacific Fleet in 2019, was laid down in the summer of 2016. (Earlier reports appear to have mistakenly indicated that construction of the sub began in July 2014.)

The Borei-class was specifically designed to replace Soviet-era Project 941 Typhoon-class and Project 667 BDRM Delta IV-class subs.

In comparison to the Borei-class, Borei II-class submarines are fitted with four additional missile tubes, boast smaller hulls and cons, and feature improved acoustics and lower sound levels, next to a number of other technical improvements. Both variants of Borei-class subs will be armed with Bulava (RSM-56) intercontinental ballistic missiles (ICBMs). The Borei-class will be capable of carrying up to 16 Bulava ICBMs, whereas the improved Borei II-class can carry up to 20 ballistic missiles.

The Bulava is a sea-based variant of the Topol-M SS-27 ICBM, armed with six to 10 warheads per missile. That means one Borei-class submarine can carry between 72 and 160 hypersonic, independently maneuverable warheads, yielding 100-150 kilotons apiece. The Borei II-class boomer, given its four extra missile tubes, will be able to launch somewhere between 96-200 warheads. "The Bulava missile purportedly has range of over 8,300 kilometers (5,157 miles) and is specifically designed to evade Western ballistic missile defense shields," I noted elsewhere.

The Russian Pacific Fleet currently operates two Borei-class SSBNs, the Alexander Nevsky and Vladimir Monomakh. The latter successfully test fired two Bulava ballistic missiles from a submerged position in the White Sea off the northwest coast of Russia in November 2015. The third active Borei-class sub, the Yuri Dolgoruky, serving in Russia's Northern Fleet, test-launched two Bulava ICBMs from a submerged position in the White Sea in September (See: "Russia's Deadliest Sub Test Fires 2 Nuclear-Capable Ballistic Missiles").

### **US Sends Message To Adversaries With Nuclear Sub Visit, Drills** **Barbara Starr and Brad Lendon, CNN, November 1**

The US military is sending a double-barreled message this week to potential adversaries in the Pacific.

A US Navy submarine carrying nuclear-tipped ballistic missiles is visiting Guam for the first time since the late 1980s and US and Japanese troops will practice amphibious landings on Pacific islands.

The submarine USS Pennsylvania (SSBN 735) is making what the Navy formally calls a "scheduled port visit" to the US territory in the Pacific, according to a Navy press statement.

But a US defense official says that both Japanese and South Korean delegations are in Guam at this time and will be offered rare tours of the submarine.

The visit comes as military tensions are high both with North Korea over its nuclear program, and China, over its moves in the South China Sea.

The Navy is making the public statement about the Pennsylvania in part to show its presence to allies and adversaries in the region.

"This specific visit to Guam reflects the United States' commitment to its allies in the Indo-Asia-Pacific, and complements the many exercises, training, operations, and other military cooperation activities conducted between the US and its partner nations," the Navy said in its statement.

"Ballistic missile submarines such as USS Pennsylvania are on patrol continuously, providing a critical, stabilizing and highly effective element of the US nuclear deterrence force."

The Pennsylvania, one of 14 Ohio-class ballistic missile submarines in the US fleet, carries 24 Trident II D-5 ballistic missiles, according to the US Navy. Each missile carries multiple warheads which can be programmed to hit different targets. 37,000 Japanese and US troops in drills

The amphibious landings, meanwhile, are part of Exercise Keen Sword 17, involving 11,000 US and 26,000 Japanese troops. They will take place around Japan, Okinawa, Guam and the island of Tinian in the Northern Marianas.

"Significant training activities during KS17 will include air and sea operations, integrated air and missile defense and ballistic missile defense in order to keep pace with the growing ballistic missile threat in the Indo-Asia-Pacific region," said a statement from US Forces Japan.

Keen Sword has been held yearly since 1986 but this is the first year that it will include amphibious landings.

"Amphibious operation training offers an opportunity to build bilateral interoperability in this area, and it supports Japan's developing amphibious capabilities," the US military statement said.

The amphibious exercise comes amid tensions between Japan and China over the disputed island chain off China's east coast that Japan refers to as the Senkakus and China as the Diaoyus.

Both countries have put the islands in their Air Defense Identification Zones and flights over and ship transits around the islands by both countries have been contentious.

Keen Sword has already drawn reaction from Beijing, with a report posted on the website of state broadcaster China Central Television (CCTV.)

"Okinawa will stage a scenario in which the US is at war with a third party and Japan offers its assistance," the CCTV report said.

"Analysts say this is to prepare Japan's Self-Defence Forces for involvement in similar situations," it added.

The Japanese Self Defense Force said along with their 26,000 troops, 260 aircraft and 20 warships will be involved in the exercises.

US Marines have deployed on Japan's 13,950-ton helicopter destroyer JS Hyuga, the flagship of the four-ship Japanese task force involved in the exercise, a US Navy statement said.

### **Navy Weighs New Build Plan for Nuclear-Armed Subs** **Kris Osborn, Scout Warrior, November 1**

The Navy will need an additional \$60 billion to complete its plan build of Columbia-class nuclear-armed ballistic missiles submarines.

The Navy's new deal to produce the first 22 missile tubes for its new Columbia-class nuclear-armed ballistic missile submarines comes at time when the service is considering new build strategies for the submarines to address a massive funding shortfall for the top-priority program, Congressional and Navy officials explained.

General Dynamics Electric Boat recently received a new \$101.3 million contract to build the new U.S.-U.K. Common Missile Compartment for the new submarines, slated to ultimately replace the existing Ohio-class fleet.

However, a newly released Congressional Research Service Report, called "Navy Columbia Class (Ohio Replacement) Ballistic Missile Submarine (SSBN[X]) Program: Background and issues for Congress," addresses substantial funding concerns expressed by senior Navy leaders. The primary concern, among other things, is that the Navy will need a substantial top-line budget increase in order to fund the new Columbia-class without massively depleting resources needed for other service platforms.

"Navy officials testified that the service is seeking about \$4 billion per year over 15 years in supplemental funding—a total of about \$60 billion—for the Columbia class program," the report states.

The report suggests a number of strategic avenues through which the Navy might seek to ameliorate this funding shortfall; the suggestions include an increased use of "block" buys and "multi-year" contracts which can both increase volume and lower costs due to longer-range planning. Varying the schedule of production to allow for incremental funding over the years was also proposed by the report. Another recommendation was to reduce the amount of Columbia-class submarines built, an option not likely to be favored given the priority placed on undersea deterrence.

Congressional researchers credit Navy planners for investigating the possibility of using a single, joint-class block buy contract that would cover both Columbia-class boats and Virginia-class attack submarines.

"Such a contract, which could be viewed as precedent-setting in its scope, could offer savings beyond what would be possible using separate block buy or MYP contracts for the two submarine programs," the report says.

The Congressional report also says the Navy could work on leveraging results from a specially-created National Sea-Based Deterrence Fund established in 2015. The fund was created by members of Congress as a way to allocate specific acquisition dollars to pay for the new submarines.

Production for the lead ship in a planned fleet of 12 Ohio Replacement submarines is expected to cost \$12.4 billion — \$4.8 billion in non-recurring engineering or development costs and \$7.6 billion in ship construction, Navy officials have said.

The Navy hopes to build Ohio Replacement submarine numbers two through 12 for \$4.9 billion each in 2010 dollars.

#### **Early Submarine Construction Underway**

The Navy has begun early construction and prototyping on a new class of nuclear-armed ballistic missile submarines designed to help ensure global peace by deploying massive destructive power under the sea.

The Columbia-class program, previously called the Ohio Replacement Program, is scheduled to begin construction by 2021. Requirements work, technical specifications and early prototyping have already been underway at General Dynamics Electric Boat.

Designed to be 560-feet-long and house 16 Trident II D5 missiles fired from 44-foot-long missile tubes, ORP will be engineered as a stealthy, high-tech nuclear deterrent able to quietly patrol the global undersea domain.

"This platform is being designed for 42 years of service life. It has to survive into the 2080s and it has to provide a survivable, credible deterrent threat," Capt. David Goggins, Ohio Replacement Program Manager, told Scout Warrior in an interview earlier this year.

Construction on the first submarine in this new class is slated to be finished up by 2028, with initial combat patrols beginning in 2031, he added.

Ultimately, the Navy hopes to build and operate as many as 12 new nuclear-armed submarines, to be in service by the early 2040s and serve well into the 2080s. The ship specifications have been completed and the program is preparing for a detailed design phase and initial production contract, Goggins explained.

"I have to make sure I have a detailed manufacturing plan that is executable. Now I'm working on the detailed construction plan," Goggins said.

#### Strategic Nuclear Deterrence

Navy officials explain that the Ohio Replacement submarines' mission is one of nuclear deterrence.

Detailed design for the first Ohio Replacement Program is slated for 2017. The new submarines are being engineered to quietly patrol the undersea domain and function as a crucial strategic deterrent, assuring a second strike or retaliatory nuclear capability in the event of nuclear attack.

The Navy is only building 12 Ohio Replacement submarines to replace 14 existing Ohio-class nuclear-armed boats because the new submarines are being built with an improved nuclear core reactor that will better sustain the submarines, Navy officials have said.

As a result, the Ohio Replacement submarines will be able to serve a greater number of deployments than the ships they are replacing and not need a mid-life refueling in order to complete 42 years of service.

"With the life of ship reactor core, you don't have a mid-life refueling. This allows our 12 SSBNs to have the same at sea presence as our current 14. That alone is a 40 billion savings in acquisition and life-cycle cost because you don't have those two additional platforms," Goggins said.

Electric Boat and the Navy are already progressing on early prototype work connecting missile tubes to portions of the hull, officials said. Called integrated tube and hull forging, the effort is designed to weld parts of the boat together and assess the ability to manufacture key parts of the submarine before final integration.

In 2012, General Dynamics Electric Boat was awarded a five-year research and development deal for the Ohio Replacement submarines with a value up to \$1.85 billion. The contract contains specific incentives for lowering cost and increasing manufacturing efficiency, Navy and Electric Boat officials said.

The U.S. and U.K. are together immersed in a common missile compartment effort for ORP. In fact, the U.S. and U.K. are buying parts together for the common missile compartment and working on a \$770 million contract with General Dynamics' Electric Boat. The U.S. plans to build 12 ORPs, each with 16 missile tubes, and the U.K. plans to build four nuclear-armed ballistic submarines, each with 12 missile tubes.

#### Next-Generation Technology

The ORP is being designed with a series of next-generation technologies, many of them from the Virginia-Class attack submarine. Leveraging existing systems from current attack submarines allows the ORP program to integrate the most current technologies and systems while, at the same time, saving the developmental costs of beginning a new effort, Goggins explained.

In particular, the ORP will utilize Virginia-class's fly-by-wire joystick control system and large-aperture bow array sonar.

Sonar technology work by sending out an acoustic ping and then analyzing the return signal in order to discern shape, location or dimensions of an undersea threat.

"The large aperture bow array is water backed. There is no dome and it has very small hydrophones. It is a better performing array, but more importantly it is not air backed. When you have an air-backed array, you have transducers that need to be replaced every 10 years," Goggins explained.

Previous sonar technologies present higher maintenance costs, whereas large aperture bow arrays can bring both higher performance as well as lower life-cycle costs, he added.

"This enables lower operations and sustainment costs because these transducers and hydrophones last for the life of the ship," Goggins explained.

The submarines combat systems from Virginia-class attack submarines are also being integrated into the new Ohio Replacement Program submarines. The subs combat systems consist of "electronic surveillance measures," the periscope, radios and computer systems, Goggins explained.

The new ORP subs will also utilize an automated control fly-by-wire navigation system, a technology that is also on the Virginia-Class attack submarines.

"The ship's control system allows the operator to put information into a computer about the course and depth for the submarine. A computer algorithm maintains that course and depth by sending a signal to the rudder and the stern," Goggins said.

Goggins also explained that the shafts of the new submarines are being built to last up to 10 or 12 years in order to synchronize with the ships maintenance schedule. Existing shafts only last six to eight years, he explained.

The ORP will also use Virginia-class's next-generation communications system, antennas and mast. For instance, what used to be a periscope is now a camera mast connected to fiber-optic cable, enabling crew members in the submarine to see images without needing to stand beneath the periscope. This allows designers to move command and control areas to larger parts of the ship and still have access to images from the camera mast, Electric Boat and Navy officials said.

The Ohio Replacement Program is also engineering a new electric motor for the submarine which will turn the shaft and the rotor for the propulsion system. The new motor will make propulsion more efficient and potentially bring tactical advantages as well such as quieting technologies, Goggins explained.

**Russia To Construct Six Diesel-electric Submarines By Nov-end Staff, Defense World, October 31**

Russia will be building a set of six Varshavyanka diesel-electric submarines by end of November.

"In late November, the construction of the series of six new Project 636.3 diesel-electric submarines for the Black Sea Fleet will be marked with raising of the Navy flag on submarine 'Kolpino'." Commander-in-Chief of the Russian Navy Adm. Vladimir Korolev said.

Project 1135.6 frigate Admiral Makarov, which is the third in a series of six Admiral Grigorovich-class vessels being built for the Black Sea Fleet, will join the Russian Navy in December, Sputnik International reported today.

In September, the Russian Defense Ministry and the Admiralty Shipyards signed a contract on the construction of six additional Varshavyanka-class submarines by 2021.

The Varshavyanka-class (Project 636.3) is an improved version of Kilo-class submarines that features advanced stealth technology, extended combat range and the ability to strike land, surface and underwater targets.

The submarines are mainly intended for anti-ship and anti-submarine missions in relatively shallow waters.

The vessels, carrying crews of 52, have a top underwater speed of 20 knots and a cruising range of 400 miles (electric propulsion), with the ability to patrol for 45 days. The submarines are armed with 18 torpedoes and eight surface-to-air missiles. The submarines are mainly intended for anti-ship and anti-submarine missions in relatively shallow waters.



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