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

The Silent Sentinel

April 2017

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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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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*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 2017 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 April 11th. 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

Frank Walker, Harry Humphreyville, Phil Richeson

Submarine Losses in April

Originally Compiled by C J Glassford

USS Pickerel (SS-177)
Lost on April 3,1943 with the loss of 74 officers and men, while on her 7th war patrol. She was lost off Honshu. The exact cause of her loss has never been determined, but her OP area contained numerous minefields.

USS Snook (SS-279)
Lost on April 8,1945 with the loss of 84 officers and men. Snook ranks 10th in total Japanese tonnage sunk and is tied for 9th in the number of ships sunk. She was lost near Hainan Island, possibly sunk by a Japanese submarine.

USS Thresher (SSN-593)
Lost on April 10, 1963 with the loss of 112 crew members and 17 civilian technicians during deep-diving exercises. 15 minutes after reaching test depth, she communicated with USS Skylark that she was having problems. Skylark heard noises "like air rushing into an air tank" - then, silence. Rescue ship Recovery (ASR-43) subsequently recovered bits of debris, including gloves and bits of internal insulation. Photographs taken by Trieste proved that the submarine had broken up, taking all hands on board to their deaths in 1,400 fathoms of water, some 220 miles east of Boston.

USS Gudgeon (SS-211)
Probably lost on April 18, 1944 with the loss of 79 men SE of Iwo Jima, but may have been sunk on May 12, 1944 in another attack on an unidentified submarine and heard by several other submarines in the area. Winner of 5 Presidential Unit Citations, Gudgeon was on her 12th war patrol and most likely due to a combined air and surface antisubmarine attack. Gudgeon was the first US submarine to go on patrol from Pearl Harbor after the Japanese attack. On her first patrol, she became the first US submarine to sink an enemy warship, picking off the submarine I-173.

USS Grenadier (SS-210)
Lost on April 22,1943 near Penang, with no immediate loss of life. She was on her 6th war patrol. While stalking a convoy, she was spotted by a plane and dove. While passing 130 feet, Grenadier was bombed, causing severe damage. She was lodged on the bottom 270 feet and the crew spent hours fighting fires and flooding. When she surfaced, she had no propulsion and was attacked by another plane. While she shot down the plane. When enemy ships arrived, the CO abandoned ship and scuttled the boat. Of the 76 crew members taken prisoner, 72 survived the war.

San Diego Base, United States Submarine Veterans Inc. Minutes of Meeting - 14 March 2017

1900 - Base Commander Bob Bissonnette called the meeting to order

Conducted Opening Exercises - Pledge of Allegiance lead by Shipmate Robert Golembieski

Base Treasurer David Ball lead the prayer

Base Treasurer David Ball conducted Tolling of the Boats for boats lost in the month of March. A moment of silence was observed for several shipmates who embarked on their Final Patrol.

Base Junior Vice Commander Manny Burciaga recognized Past Commanders, dignitaries and guests.

Base Secretary Jack Kane announced 26 members and 3 guests present.

Base Treasurer David Ball gave his report. A copy of the Treasurer's Report will be filed with these minutes.

The minutes of the 14 February 2017 meeting were approved as published in the Sentinel.

Base Commander Bob Bissonnette Called For Committee Reports

Acting Chaplain David Ball reported the following on the Binnacle List: Harry Humpreville, Frank Walker, James "Doc" Wade and Phill Richeson. Base Commander Bob Bissonnette asked for donations to assist our Shipmate Glen Gerbrand who has had major surgery and has been unable to work. The Base will petition the National Brotherhood Fund for matching funds up to $750.

Parade Chairman Joel Eikam noted that the next parade is 22 April at Linda Vista.

Membership Chairman Ray Febrache was absent. No report.

Base Commander Bob Bissonnette reported in absence of Scholarship Chairman Paul Hitchcock. Scholarship applications are due by 15 April 2017. The Scholarship will ask for volunteers to read and evaluate applications and award scholarships. At least one member noted that a family member will be sending in an application.

Storekeeper Phill Richeson is on Binnacle List. No Report.

Base Vice Commander Warren Branges reported the next Breakfast is 30 April 2017. Warren will circulate a signup sheet for wait staff for the event. Food Handling Training was held on Saturday, 11 March 2017. Warren will get a new list from the VFW Kitchen Coordinator.

Base Vice Commander Warren Branges reported the next ALL FLAGS day is 11 April 2017. Submarine Squadron Eleven will be represented. Please come down and help put up and take down flags. We need a good showing of SUBVETS. We will put the flags up at 0700 and take the down at 1700.

Float Committee Chair David Kauppinen noted that some maintenance and cleaning was done on the Float. The Float is ready for the next parade.

Boy Scout Committee Chair Nihil Smith reported that 2 Eagle Scout Presentations for Scouts from Troop 959 will be held in the upcoming months. Eagle Scouts are presented USSVI Certificates and a set of miniature dolphins. Nihil will provide date, place and time for the ceremonies.

1936 - Base Commander Bob Bissonnette called for a break.

1946 - Base Commander Bob Bissonnette called the meeting back to order. 50/50 drawing was held.

1950 - Unfinished Business

Base Commander Bob Bissonnette swore in new officers. New Officers will assume their duties at the close of this meeting. New Elected Officers are: Base Commander Warren Branges, Base Senior Vice Commander Robert Golembieski, Base Junior Vice Commander Manny Burciaga, Base Treasurer Joe Peluso, and Base Secretary Jack Kane. Outgoing Base Commander Bob Bissonnette will relieve Fred Fomby as Chief of the Boat.

Base Commander Bob Bissonnette announced that the last day to get discounted hotel rates for the Western Region Roundup is currently 23 March. They are trying to get an extension. If you call Sam's Town rather than making a reservation online they will give you a lower "resort fee". The Western Region Roundup will be held from 23-26 April 2017 at Sam's Town in Las Vegas. The KOA Campground at Sam's Town is available for RV parking.

Base Commander Bob Bissonnette announced that Hotel Rates for National Convention 1-6 September in Orlando are $105 + Tax per night. See the National website for a link to the Convention site.

Base Commander Bob Bissonnette and Base Vice Commander Warren Branges reported that we are still looking for two WWII Vets for the base to sponsor for the Submarine Birthday Ball on 6 May. Cost for the tickets will be $75.00 per person this year. The Submarine Birthday Ball is 6 May 2017.

Base Vice Commander Warren Branges announced that the Annual SUBVETS Picnic will be on 8 July 2017 on Naval Base Point Loma. More information to follow. Mark the date, bring your neighbors and friends. We will have Submarine Tours if a boat is in port. If not, we will look into touring a CG Cutter or the Submarine Training Facility.

2003 - New Business

None

2003 - Good of the Order

Base Vice Commander Warren Branges tallied the donations for Glen Gerbrand. Including a donation from Tennessee Volunteer Base ($300) we raised $1698. Warren will send a formal request to the Brotherhood Fund to match the first $750.

Shipmate David Kauppinen has memorabilia on the side table for sale. SUBVETS have first chance to purchase before it is put up on E-Bay.

Treasurer David Ball proposed a fund raiser/raffle with Ticket Books (10 tickets to a book @$30). He will work on details and make a formal proposal at the next meeting.

Shipmate Mike Hyman suggested that all SUBVETS should make a list of who to contact at USSVI and put it with their will/estate plan. Base Vice Commander Warren Branges expanded the concept saying the Base will pursue a more formal plan for funerals and

memorials. Some items to be discussed will be presentation items, honor guard, timely notifications, etc. Look for more on the subject at upcoming meetings.

There are items on the back table for the taking including Sub History, copies of NSL Review and Western Roundup Flyers.

The Meeting was adjourned at 2015..

/s/ Jack E. Kane
Jack Kane, Secretary
Sailing List for 14 March 2017

Jack Kane	Joe Peluso	David Ball
Bob Bissonnette	Robert Golembieski (Gobi)	Warren Branges
Matt Baumann	Mike Hyman	Bob Farrell
Bill Earl	David Kauppinen	Ed Farley
Jim Harer	Chris Stafford	David Martinez
Mert Weltzien	Joel Eikam	Ron Gorence
Bob Chapman	Peter Lary	Jim Potts
Manny Burciaga	Dennis Mortenson	Nihil Smith
Bob Welch	Edward Krahnef	Guests
Jim Davidson	Gary Beverage	Bob Jensen

Current News

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

Ceremony To Mark Anniversary Of Thresher Disaster
Alex LaCasse, Portsmouth Herald, April 6

KITTERY, Maine — Monday will mark the 54th anniversary of the loss of the USS Thresher nuclear submarine and the deaths of the 129 sailors and government contractors on board.

A memorial service will be held at Traip Academy on Saturday, April 8 at 1 p.m. to honor the men who died in the accident. The ceremony will include remarks from Portsmouth Naval Shipyard commander Capt. David Hunt and keynote speaker Rear Adm. James Pitts of the Undersea Warfighting Development Center.

"The 129 men – sailors and civilians from the shipyard, Sperry and Raytheon – are never far from our thoughts," Hunt said. "April 10, 1963, will always be remembered as both an enormous tragedy and the beginning of our Submarine Safety Program, which has served our submariners and Navy well. That we have never lost a SUBSAFE-certified submarine is the true legacy of Thresher and those we lost aboard her."

Thresher was launched in 1960 after being built at Portsmouth Naval Shipyard. It was conducting deep diving tests off the coast of Massachusetts on April 10, 1963, when it is believed the seawater piping system ruptured at a point where pipes were razed instead of welded, according to the Submarine Force Museum in Groton, Connecticut. This leak could have caused the seawater to short out an electrical panel and caused the sub's nuclear reactor to shut down. With no power source the crew was unable to get the sub to rise again.

"The Thresher was designed and built at Portsmouth Naval Shipyard, so it's really considered a hometown submarine," said Kittery author D. Allan Kerr. His 2014 book "Silent Strength" details many of the lives of the men who were lost in the disaster.

"This came at a monumental point in history," Kerr added. "The Cuban missile crisis happened six months before and everyone was working on heightened tensions."

According to Kerr, a direct result of the Thresher disaster was the Navy creating the SUBSAFE program.

"Because of what those men went through on the Thresher, no other family has had to experience what the families of the Thresher victims have gone through," Kerr said.

Capt. Hunt said he attributes the high safety standard in submarines to the work the men and women of Portsmouth Naval Shipyard put in to keep the ships seaworthy.

"Portsmouth's tradition of handing down trade experience from one generation to the next helps ensure that the quality of our work today is the hallmark of excellence," Hunt said. "(This is) a testimony to those who paid the ultimate sacrifice in service to our country, and to those who have vowed – never again."

Kerr will lead a discussion about Thresher on Monday at 5:30 p.m. at the Kittery Historical and Naval Museum. Afterwards, he will take the group over to the memorial park.

Kerr said all sales of "Silent Strength," will go toward the Thresher memorial project to buy new flags and lights in the memorial park behind the Kittery Town Hall.

New Navy Class III Undersea Drone To Be In The Water By 2019
Katherine Owens, Defense Systems, April 6

The Navy has designated the Snakehead Large Displacement Unmanned Undersea Vehicle (LDUUV) for accelerated acquisition, NAVSEA announced at the Navy League's Sea Air & Space Exhibition on Monday.

"We are leveraging mature, proven technologies to…move quickly on the Snakehead LDUUV program and get it in the water as quickly as possible. Get it into the hands of our sailors, and get feedback that will feed our future LD UUV acquisition program," said Howard Berkof, Unmanned Maritime Ship Deputy Program Manager at PEO Littoral Combat Ship.

Once approved for accelerated acquisition, Snakehead LDUUV program approvals will be streamlined and program heads will have a direct line to top officials. Program of record requirements will still be followed, but progression will be faster, according to Berkof.

Unmanned maritime systems are part of the Littoral Combat ship portfolio, the first class of ship designed from initial construction for unmanned vehicle integration. LDUUVs in the Class III Large category, which the Snakehead is part of, are about 48 inches in diameter.

The Snakehead LDUUV is intended to have long-range and high endurance capacity and designed for surface or submarine launch. It is able to be recovered and stored on littoral combat ships, Virginia-class submarines, and Ohio-class submarines, according to an earlier NAVSEA release.

Overall, NAVSEA has three phases planned for the Snakehead LDUUV program. Phase One focuses on Concept of Operations (CONOPS) and Initial Preparation of Environment (IPOE) development, along with preliminary Intelligence, Surveillance, and Reconnaissance (ISR) capacity.

Phase Two of the Snakehead LDCUU program will expand the range of the Phase One IPOE and increase ISR capabilities. Finally, according to NAVEA's exhibit presentation, the Snakehead INC 1 phase will explore payload integration, electronic warfare, anti-submarine and anti-surface warfare, and Mine Integration Warfare (MIW).

The Snakehead LDUUV's MIW functionality is part of the larger littoral combat CONOPS that ensures that Navy amphibious operations can be conducted in littoral and beach zones. The U.S Naval Transformation Roadmap states that by deploying mine detection and countermeasure UUVs like the future Snakehead, the Navy can create a "protected passage" of mine-free routes in high-risk areas.

The incremental approach allows what Berkof calls fast arming for the Snakehead LDUUV. The sooner it is in developmental testing, the sooner NAVSEA and developers can "understand how this thing is going to operate, how it's going to be integrated with our undersea and our surface platforms, understand how sailors are going to operate it," he said.

One key area of focus for the LDUUV program is energy storage.

"We are using mature technology [and] energy, whether it is silver zinc or lithium ion, most likely silver zinc in the first phase… we still have a little way to go on lithium ion, but we are still exploring what is the most mature technology that we can integrate onto existing platforms," explained Berkof.

According to Berkof, the Navy is also exploring whether to focus development on purpose-built UUVs or on creating unmanned or "optionally manned" versions of existing manned vehicles. Another challenge for the future will be integrating Unmanned Surface Vehicles with UUVs and getting multiple unmanned systems to work together.

As for the Snakehead LDUUV program, Berkof said, "we are focusing on IPOE in Phase 1 and it will add additional missions and payloads as we progress into the future." The feedback from Snakehead testing will inform and strengthen Navy UUV development as a whole.

The Navy expects to award the contract for Snakehead LDUUV development by the end of this year, with the goal of having a prototype by 2019.

China Advances a Sea-Based Nuclear Deterrent
Renny Babiarz, The News Lens, April 6

According to recent media reports, China may have initiated its first sea-based nuclear deterrence patrols with Jin-Class ballistic missile nuclear submarines (SSBNs). If true, this operational deployment demonstrably improves the credibility of China's strategic nuclear deterrent. While some may characterize China's sea-based nuclear deterrence patrols as a new security threat, China's emergent submarine-launched ballistic missile (SLBM) capability has long been expected. It represents a significant technical advance, but not an alarming one. Facing geographic and technical constraints, the submarines' activities in the Pacific Ocean will remain limited in the near term.

The historical trajectory of China's nuclear weapons program, including the development of an SLBM capability, reflects an incremental approach to strategic nuclear weapons development and modernization. China initiated its SLBM research during 1958 with

the code name "1060" (later renamed Julong Yihao, or JL-1, in 1964), and received technical assistance and equipment from the Soviet Union. Budgetary constraints, historical events (such as the Great Leap Forward, the Sino-Soviet split, and the Cultural Revolution), restricted access to oceans, and periodic strategic reassessments limited the development of this system throughout the Mao era. It was not until 1982 that China successfully test-launched a JL-1 missile from a submerged SSBN. China's first generation of operational SSBNs, the Xia-Class (or Type 092), began development in the mid-1960s and entered into service in the 1980s; yet the Type 092 reportedly never conducted a nuclear deterrence patrol on account of the high level of noise the submarine generated while sailing.

China's current generation of SSBN, the Jin-Class (or Type 094), began development in the mid-1980s and was designed to carry the longer-ranged JL-2 missile. After extensive missile ejection system testing, Type 094 entered into service around 2014. If true that Type 094 SSBNs have conducted their first nuclear deterrence patrol, this has come approximately 60 years after the initiation of China's SLBM program, 35 years after China's first successful test launch of a ballistic missile from a submerged submarine, and about 30 years after the initiation of the Type 094 SSBN program. This time scale underscores the incremental pace of development for China's SLBM capability. In contrast, the United States initiated its own SLBM program (Polaris) in the mid-1950s and first deployed the Polaris system about five years later in 1960. Further, China's research and development of SLBM capability have been well documented since at least the mid-1990s, and China's recent possible SSBN nuclear deterrence patrol has been long anticipated by Western defense communities. While China's sea-based nuclear deterrent may have achieved a new operational status, this development does not by itself constitute a 'new' security threat.

According to multiple sources of information, China's Type 094 SSBN is probably a "plug" design fitting a Type 093 nuclear attack submarine with 12 ballistic missile tubes towards the stern of the main sail. This gives the Type 094 a visible topside 'hump' shape and may increase the vessel's noise while sailing. Recent reports suggest the development of new variants of Type 094, with changes in the sail and front top of the vessel that may be intended to reduce the noise of the vessel while sailing. Type 094 is designed to vertically carry 12 JL-2 missiles, each with a range of approximately 7,200 kilometers, according to conservative estimates. There are probably about four Type 094s currently in service, and the U.S. Department of Defense estimates there could be a total of eight in service by 2020. A number of Type 094 SSBNs are most likely stationed nearby the Yulin Naval Support Base on Hainan Island as part of China's South Sea Fleet.

Submarine Program On 'Knife-Edge Timeline,' Needs Stable Funding, Officials Say

Julia Bergman, The Day, April 5

The head of U.S. Strategic Command warned early this week of the "precipitous risk" in the next decade as the Ohio-class ballistic missile submarines reach retirement and are no longer able to go underwater.

"Each submarine is built to go down, under pressure, a certain number of times. Once you reach the end of life, it can't go down anymore," Gen. John Hyten said Tuesday before the Senate Armed Services Committee. "A submarine at the top of the water is not an effective deterrent."

Hyten said he could not publicly specify when the Ohio-class boats would reach that point but said it will start toward the end of the next decade. Starting in 2027, the Ohio-class boats will be retired at a rate of one per year. It's not possible to further extend their lifespan, according to Hyten.

The remarks were part of a larger argument he made about the need to modernize the U.S.'s nuclear arsenal and to keep the $100 billion program to replace the Ohio-class boats on schedule.

The U.S. will need to spend 6 percent of its defense budget to modernize its nuclear weapons, as opposed to the 2.5 percent it spends now, according to Hyten. The defense budget, as a whole, makes up more than 50 percent of U.S. discretionary spending.

At an annual meeting of the Military Reporters and Editors Association in Arlington, Va., last week, Hyten indicated that he'd like to see more discussion in the news media about the role of nuclear weapons.

When the United Nations proposes banning nuclear weapons or someone makes an argument that the world should get to zero nuclear weapons, Hyten said "that's the only time you see it show up."

"And it's a blip on the screen for a few days and then it disappears again," he added.

The U.S. and Russia together possess more than 90 percent of the nuclear weapons in the world. Hyten said he supports the limits on strategic arms under the the New START treaty, the nuclear arms agreement between the two countries.

Hyten said he's frequently asked about whether he can imagine a world without nuclear weapons. He pointed to the six years before 1945, when between 60 million and 80 million people were killed during World War II.

"As horrible as the world is today, and it is nasty, it is not anywhere near like that," Hyten said.

The Ohio-class submarines will have the longest lifespan of any U.S. submarine, after the Navy decided in the late '90s to extend the boats' service life from 30 to 42 years for budgeting and scheduling reasons. To date, the longest-serving U.S. submarine is the USS Kamehameha, a ballistic-missile submarine, which was retired in 2002 after 36½ years in service.

Electric Boat is in the midst of detailed design work on the Columbia-class program, the development of 12 new ballistic-missile submarines to replace the current fleet of 14 Ohio-class boats. The first Columbia-class submarine isn't expected to go on patrol until 2030.

Under current plans, there are expected to be five Columbia boats and five Ohio boats in 2035. All 14 Ohio boats are expected to be retired by 2039, and all 12 Columbia boats are expected be in service by 2042, according to those plans. The Columbia-class boats will have 42-year nuclear reactors that won't require refueling.

U.S. Rep. Joe Courtney, D-2nd District, whose district includes EB, pointed to the $773.1 million that federal lawmakers secured this fiscal year for the Columbia-class program for design work and to purchase parts that take the longest to design and fabricate. The funding was included as an exception under the continuing resolution currently funding the government until April 28.

Normally, under continuing resolutions, programs are funded at previous fiscal year levels, and no money is available for new programs.

Still, the Columbia program is on a "knife-edge timeline," Courtney said.

The head of the Navy, Adm. John Richardson, confirmed that Wednesday, saying, in response to a question from Courtney, that the $773.1 million is adequate for this year, but "stable, continuous funding" is needed to keep the program on track.

Richardson and the Army, Air Force and Marine Corps chiefs of staffs testified before the House Armed Services Committee about the negative impacts, such as curtailing combat operations and training, that continuing resolutions have on the Pentagon.

There's been talk of another continuing resolution to fund the government for the remainder of the 2017 fiscal year, which ends Oct. 1, 2017. If lawmakers don't find a way to fund the government, there will be another partial government shutdown.

Dreadnought: What We Know About Britain's Next Nuclear Submarine
Chris Smith, BT News, April 6

The secretive HMS Dreadnought will replace the Vanguard as Britain's subsurface nuclear deterrent.

Around 15 years from now, the Royal Navy's newest submarine will come into service.

The first Dreadnought, one of four new ships currently under construction at an estimated cost of £31 billion, will replace the existing Vanguard class that has defended the UK since 1994. Details are in short supply, but here's what we know so far.

Previously known as the Successor program, Dreadnought will consist of four submarines. The first of the Dreadnought class will come into Royal Navy service in the early 2030s.

The Dreadnought class will carry the Trident nuclear missiles, Britain's nuclear deterrent. The measure to renew Trident passed in the House of Commons in July 2016 by a majority of 355 votes.

The Dreadnought name has plenty of history. Nine Royal Navy vessels have already carried the moniker. The HMS Dreadnought of 1906 (below) brought in a huge shift in naval warfare as, amongst other features, it was the first battleship to have a main gun battery. Ships named Dreadnought also sailed during the Spanish Armada in 1588 and the Battle of Trafalgar in 1805.

Britain's first nuclear submarine was also called Dreadnought and was launched by the Queen in 1956 (bottom picture) from the same yard in which the current class is being constructed.

Work on the concept design has been underway since 2007, according to BAE, while the Government approved the business case in 2011.

The Dreadnought class submarines will be built at BAE System's site in Barrow-in-Furnace, Cumbria.

In October 2016, the Ministry of Defense committed £1.3 billion to the project to get building work underway. The total cost is estimated at £31 billion.

It'll be the first Royal Navy British submarine with lighting capable of simulating night and day.

The Dreadnought will be 152.9 feet long, which is around the size of 3 Olympic swimming pools, almost ten feet longer than the V-boat.

It's also the largest ever built for the navy, displacing 17,200 tons, that's 1,300 more tons than Vanguard

While details are still vague on the specifics, the Dreadnought will manufacture its own fresh oxygen and water.

There's 42.5km of piping and 20,000 cables (347km). There'll also be 13,000 electrical items on board the ship.

The UK Defense Journal offers insight into Dreadnought's Common Missile Compartment. It writes: "While details remain sketchy at best regarding the Dreadnought class, one of the key features the new boats will have is a Common Missile Compartment (CMC). CMC aims to define the missile tubes and accompanying systems that would be used to launch new ballistic missiles, successors to the current Trident II/ D5 missile fleet used by the USA and Britain."

There's room on board for 130 crew members; three of whom are chefs.

It's also the first Royal Navy submarine that will offer separate quarters, washing facilities and toilets for male and female crew members.

According to the 2010 Strategic Defense and Security Review, each of the Dreadnoughts will carry eight operational missiles and no more than 40 warheads.

Whether you're a bookworm or a gym-rat (or both), the Dreadnought has you covered. There'll be a classroom and study area, and also modern gym facilities. A treadmill is useful as crewmembers can't exactly go for a long run on a submarine.

More than 2,600 people are currently working on Dreadnought, with BAE predicting up to 7,800 employed each year, throughout the 2020s

'Delivery Phase 1' commenced in October 2016 with the cutting of the first steel. However, although there was union dismay over reports that French, not British, steel would be used in the construction, the MoD responded by confirming British steel would be used 'in the process'.

Several hundred suppliers will be involved, 95% of whom will be from the UK.

Dreadnought submarines are being designed to meet and deter security threats well into the 2050s.

A China-US Dilemma: THAAD and China's Nuclear Capability
Edward White, The News Lens, April 5

The U.S. pursuit of a credible defense against ballistic missile attack has been a salient feature of its strategic policy for much of the past two and a half decades. While this quest has aroused the suspicion of Russia, its effects have also been keenly felt in Beijing. In recent weeks, Chinese opposition to U.S. missile defenses has intensified, given the deployment of missile defense assets in South Korea, a U.S. stalwart in the region. The placement of THAAD (Terminal High Altitude Area Defense), a truck-mounted missile

defense system designed to provide limited defense against an incoming missile in its terminal phase, has elicited warnings from Chinese officials about the prospect of an offense-defense arms race.

Deployed in response to a recent incidence of North Korean nuclear sabre rattling, the placement of the THAAD missile defense system is seen as too close for comfort for Beijing. The regime in Pyongyang has continually sought to develop a missile capable of reaching the United States. With a weapon of this caliber, not just the U.S., but other states in the East Asia region may also be vulnerable. While the primary rationale for the deployment of THAAD is to defend against an unpredictable North Korea and its development of an offensive missile capability, Beijing has long been wary (whether justified or not) that these defenses might potentially be directed at them. Considerable ire has also been expressed at the attendant U.S. military presence these defenses bring to the region. This recent deployment in South Korea, however, points to America's desire to cement regional ties and fulfil its alliance commitments in the region.

Beijing has long been critical of U.S. missile defenses. Their fear is that a fully operational missile defense system (along with U.S. nuclear, conventional and, in the future, perhaps Prompt Global Strike capabilities) could, effectively, negate China's modest nuclear deterrent, leaving the United States free to launch a strike with near-impunity. In response, at least partially, Beijing has continued to develop and enhance its strategic forces. Taking place alongside the continued so-called 'Rise of China' as a strategic, military, as well as economic challenger to U.S. hegemony in the Pacific region, Beijing is developing its strategic capabilities in step with its growing status. As the second largest economy in the world, China's growing economic power is sure to drive (and has already driven) a spurt of growth in its military capability.

But despite being frequently lambasted by U.S. officials for what they perceive as a lack of transparency in relation to nuclear matters, China has been relatively satisfied with its small nuclear arsenal, underpinned by a strategy of 'minimum deterrence' and no first use. It has made a few changes in recent years as it slowly modernizes and expands its arsenal. It began its first nuclear submarine deterrence patrols in late 2015, as well as testing its DF-41 road-mobile ICBM, capable of carrying multiple warheads, each of which can be ranged at a separate target. This weapon poses enormous problems for strategic stability as it creates incentives for both sides to strike first. Launching first would allow China to knock out several targets in one fell swoop. Conversely, the U.S. may feel an increased pressure to strike first to neutralize this much greater threat.

These new capabilities offer China greater flexibility and appear to signal a small, but noticeable break from the more passive strategy it had pursued in the past. But while these new developments are certainly something U.S. policymakers will be keeping a close eye on, it seems unlikely that they indicate a radical departure from existing Chinese nuclear strategy per se. China's relatively small nuclear arsenal is designed to provide an assured second-strike retaliation capability against cities, as opposed to a more strident nuclear war-fighting ability against an adversary's military targets. Barring a significant expansion of its nuclear arsenal (which, currently, appears unlikely), its nuclear strategy will remain much the same.

As power dynamics shift, however, it seems likely that China will take steps to ensure that its strategic capabilities match its ambitions and its reach. As Austin Long and Brendan Rittenhouse Green argue, if China's trajectory mirrors that of other rising powers, 'it will not accept decisive nuclear inferiority in perpetuity.' Increasing missile defense capabilities is one way the U.S. will seek to address this. But historical precedent has been for the adversary to simply increase their number of offensive weapons as a means of overwhelming each upgrade to the defense system – a strategy China appears to be pursuing. This spiral of action and reaction, deployment and counter-deployment, brings significant risks. Yet this has been how events have largely played out.

It's unclear at this point in which direction Sino-U.S. strategic relations will go, but all indications point to a deterioration. The election of Donald Trump as U.S. president does not bode well for bilateral relations in the short- to medium-term. But beyond an inflammatory tweet, Trump has yet to articulate the shape of the nuclear strategy he wants to adopt. Rhetoric notwithstanding, both sides have a mutual interest in maintaining stability. How this situation will play out remains to be seen, but it's certain that nuclear defense capability will continue to be a factor in geopolitical and strategic calculations for both sides for the foreseeable future. This incident highlights the fact that American objectives, whether intended or not, may continue to run counter to those of China in the coming years. Far from abating, these disagreements only look set to deepen.

Columbia-Class On Track, But Navy Keeps Wary Eye On Budget Maneuvers

Aaron Mehta, Defense News, April 4

NATIONAL HARBOR, Md. – The Columbia-class nuclear submarine program is on track to meet its expected deadline, but the Navy is keeping a nervous eye on budget negotiations on the Hill.

The program, which will replace the Ohio-class nuclear submarine fleet, is progressing towards the start of construction in 2021 – and patrols by 2031 – Vice Adm. David Johnson, principal military deputy assistant secretary of the Navy for research, development and acquisition, said at the annual Navy League Sea-Air-Space conference Tuesday.

But, he acknowledged, the current budget uncertainty could throw a wrench into that situation, particularly with the possibility that the government could spend the rest of fiscal year 2017 operating under a continuing resolution, or CR.

Under a CR, budget levels are frozen at the previous year's figures, unless a program is given a special anomaly exception from Congress. In a past CR, the Columbia-class was given that pass by Congress, but even so, Johnson is taking nothing for granted this year – or next year.

"The issue for Columbia is, let's say we got all the [funding] for the year," Johnson told reporters after his speech. "Then we have the same thing in 1 October, 2017. … It's not a sustainable, long-term strategy. That's the issue.

"We can execute, but we need a budget," he added.

During the panel, Johnson reiterated concerns put forth by the department that without a major increase in funding, the Columbia program will eat into the current shipbuilding plan for the Navy – let alone plans to get to 355 ships, something more in line with what President Donald Trump has indicated he supports.

However, Johnson said the budget questions are not having an impact on how the Navy is negotiating contracts with General Dynamics Electric Boat, the primary contractor for Columbia, nor with Huntington Ingalls Industries Newport News Shipbuilding, which will build roughly a third of each Columbia.

"That work is progressing on plan. The contract negotiations are very close to being done, and they are not at all impacted by a CR or any of that," Johnson told reporters. "It's just straight work in the business of designing and building submarines."

The U.S. plans to design and build 12 Columbia-class submarines for a total acquisition cost of $100 billion in 2017 dollars – or $128 billion, as measured in total year dollars through the program, which stretches into the mid-2030s.

Russia Launches Most Powerful Nuclear Attack Submarine Yet
Loulla-Mae Eleftheriou-Smith, Independent, April 5

Russia has unveiled its army's most powerful submarine to date, capable of carrying hundreds of torpedoes and reaching speeds of up to 31 knots.

The new Yasen-class nuclear powered attack submarine, called the Kazan, is armed with torpedoes and long-range Kalibr cruise missiles. The ship was launched at the Sevmash shipyard in Severodvinsk, northern Russia.

According to Russia's state news agency TASS, the new submarine has been designed to destroy an enemy's submarines, surface ships, naval bases and ports, among other targets.

The ship reportedly carries a crew of up to 90 men and can be at sea for 100 days. It measures at around 139 metres long and can reach depths of around 600 metres underwater.

The vessel has space for eight Oniks and Kalibr cruise missiles and 300 torpedoes, and can reach speeds of up to 31 knots.

A single-shaft steam turbine nuclear power unit is understood to be part of the ship's design, giving it a capacity of 43,000 horse power, and its arsenal is thought to be capable of hitting targets up to 1,500 miles away, The Mirror reported.

The Russian military had fallen on hard times after the 1991 Soviet collapse when it was forced to scrap many relatively new ships and keep most others at harbor for lack of funds. The military has revived its strength thanks to a sweeping arms modernization program amid tensions with the West over Ukraine.

At the launch of the new submarine, Admiral Vladimir Korolyov claimed the new ship is the most modern in the world, emphasising how hard it is to track due to its low-level noise.

"It represents the cutting edge of nuclear submarine design," he said.

The launch comes at a time when Russian submarines combat patrols have reached levels not seen since the Cold War. Crews spent more than 3,000 days on patrol last year, which Admiral Korolyov called "an excellent level".

The submarine is expected to be placed in service by next year and Russia's navy intends to commission a total of seven of the submarines to be put into service by 2023.

N. Korea Still Years Away From Developing Submarine Missiles: U.S. Pacific Fleet Chief
Lee Chi-dong, Yonhap News Agency, April 4

SEOUL – A top U.S. naval commander said Tuesday that North Korea appears to still be years away from fully developing the technology needed for submarine-launched ballistic missiles (SLBMs).

"To launch those missiles from under the water is very, very complicated," Adm. Scott Swift, who commands the U.S. Pacific Fleet, said in an interview. "I think it's still years away before that technology is developed."

He cited what the U.S. military has "seen and knows" but would not specify the grounds of his assessment.

The admiral stressed the seriousness of the North's general ballistic missile capability coupled with its nuclear program. It has carried out five known underground nuclear tests and stated the goal of miniaturizing nuclear bombs to fit on to various types of missiles in stock.

"That's what main concern is," he said, speaking at a meeting with a small group of reporters at the U.S. military base in the Yongsan district of Seoul on his third trip here as the leader of America's naval forces in the Pacific.

His remarks indicated the Pentagon's move to focus, for now, on countering growing threats from nuclear and ground-based ballistic missiles, rather than being distracted by the Kim Jong-un regime's possible bluff.

Last year, the North's media announced the success of a ballistic missile launched from a submarine, releasing some photos of the experiment.

Swift reassured South Korea and other allies about the U.S. security commitment to Asia under the Donald Trump administration.

Aides to Trump have distanced themselves from the Barack Obama administration's policies to "pivot" or "rebalance" to Asia.

It does not mean an end to the U.S. focus on the defense of Asia itself, and the Pentagon maintains a plan to deploy 60 percent of U.S. naval assets to the Asia-Pacific area by 2020, the admiral said.

There has been no change to any guidance from Washington for him and Adm. Harry Harris, the commander of the U.S. Pacific Command, he added.

"We are still being robustly resourced and we will remain committed to the whole Indo-Asia-Pacific region," he pointed out.

He added that probably 57 or 58 percent of U.S. naval firepower was already positioned in the theater.

Swift said his fleet plans to introduce more strategic and most modern weapons, including the USS Zumwalt (DDG-1000), a guided missile destroyer designed as a multi-mission stealth ship with a focus on land attacks.

Among others are the EA-18G Growler, a carrier-based electronic warfare aircraft, E-2D Advanced Hawkeye airborne early warning and control aircraft, and new littoral combat ships.

He was cautious about South Korean media reports that a Zumwalt-class destroyer may be ported in the country's naval base in the southern island of Jeju.

In a meeting with Adm. Harris, who heads the Pacific Command, in Hawaii earlier this year, some South Korean lawmakers proposed the deployment of the American Navy's newest destroyer there. They later told media that Harris showed a positive response, if not a clear yes.

"As a naval officer, I think it is little premature to discuss what the future plans are" for Zumwalt, said Swift.

He said it would take several years to complete the weapon systems of the "very unique" ship and decide on the details of its tactical use after testing. The U.S. Navy plans to have only three Zumwalt destroyers deployed.

Asked about the likelihood of the state-of-the-art warship being deployed in or near South Korea in the future, he said, "Anything is possible."

He also did not rule out the possibility of sending more high-profile warships to East Asia in addition to the two nuclear-powered super carriers, USS Carl Vinson and the USS Ronald Reagan, in Japan.

"There might be three sometimes, there might be four," he said. "One of the great advantages of naval power is its flexibility to deploy."

The challenge, though, is the capacity of the facilities that the Pacific Fleet has for maintaining and sustaining warships, he said.

The admiral has commanded the Hawaii-based Pacific Fleet for nearly two years. He describes his troops as the "most capable, ready and significant naval force in the world."

He met with South Korean Defense Minister Han Min-koo on Monday and attended the annual Pacific Amphibious Leaders Symposium (PALS).