

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



## *The Silent Sentinel October 2018*



### *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.



Peutz Valley September 15 Meeting

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Joel Eikam  
**Scholarship Chairman**  
Paul Hitchcock

### 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 \_\_\_\_\_

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

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

## *October 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 9th October 2018. 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](http://www.ussvisandiego.org)*

## **BINNACLE LIST**

*Frank Walker*

## *Submarine Losses in October*

Originally Compiled by C J Glassford



### USS Seawolf (SS-197)

Lost on Oct 3, 1944 with the loss of 83 officers and men and 17 US Army troops when she was sunk just north of Moritai by USS Rowell, a Destroyer Escort (DE). In this tragic error, Rowell mistook Seawolf for a Japanese submarine that had just sunk another Destroyer. Seawolf ranks 7th for enemy ships sunk.

### USS S-44 (SS-155)

Lost on Oct 7, 1943 with the loss of 56 men when it was sunk off Paramushiru, Kuriles. S-44 was on her 5th war patrol after attacking a target thought to be a merchant on the surface, S-44 found herself in a losing gun battle with a heavily armed Japanese destroyer. Two men were taken prisoner and survived the war.

### USS Wahoo (SS-238)

Lost on Oct 11, 1943 with the loss of 80 men near La Perouse Strait. Under command of one of the great sub skippers of World War II, LCDR "Mush" Morton, Wahoo was on her 7th war patrol. Wahoo had won a Presidential Unit Citation and ranks 5th in the number of enemy ships sunk. She was lost to depth charges dropped by a Japanese patrol aircraft.

### USS Dorado (SS-248)

Lost on Oct 12, 1943 with the loss of 77 men when she was sunk in the western Atlantic near Cuba. Newly commissioned, she had departed New London and was enroute to Panama. She may have been sunk by a U.S. patrol plane that received faulty instructions regarding bombing restriction areas or a German U-boat that was in the vicinity.

## **The Silent Sentinel, October 2018**

### USS Escolar (SS-294)

Lost on Oct 17, 1944 with the loss of 82 men. She was on her 1st war patrol and was most likely lost to a mine somewhere in the Yellow Sea.

### USS Shark II (SS-314)

Lost on Oct 24, 1944 with the loss of 87 men when she was sunk near Hainan. The second boat to carry this name during World War II, she was on her 3rd war patrol. Shark was sunk by escorts after attacking and sinking a lone freighter. Compounding the tragedy, it turned out that the freighter had 1,800 U.S. POW's on board.

### USS Darter (SS-227)

Lost on Oct 24, 1944 when she became grounded on Bombay Shoal off Palawan and was then destroyed to prevent her falling into enemy hands intact. The entire crew was rescued by USS Dace. Winner of one Navy Unit Commendation, Darter had sunk a heavy cruiser and damaged another and went aground while attempting an "end around" on an enemy formation in hopes of getting in an attack on a battleship.

### USS Tang (SS-306)

Lost on Oct 25, 1944 with the loss of 78 men in the Formosa Strait. Tang was on her 5th war patrol. Tang ranks 2nd in the number of ships sunk and 4th in tonnage, and had won two Presidential Unit Citations. During a daring night surface attack, Tang was lost to a circular run by one of her own torpedoes. Nine of the crew were taken prisoner, including CDR. O'Kane and five who had gained the surface from her final resting place 180 feet below. All survived the war, and CDR O'Kane was awarded the Congressional Medal of Honor.

### USS O-5 (SS-66)

Lost on October 29, 1923 with the loss of 3 men when rammed and sunk by SS Abangarez off the Panama Canal.



## ***San Diego Base, United States Submarine Veterans Inc.*** **San Diego Base, United States Submarine Veterans Inc.** **Minutes of Meeting - 15 September 2018**

At MoPac Park, 483 Peutz Valley Road, Alpine CA 90901

1010- Base Commander Warren Branges called the meeting to order.

Conducted Opening Exercises - Pledge of Allegiance lead by Chief of the Boat Bob Bissonnette

Chief of the Boat Bob Bissonnette lead the opening prayer.

Base Commander Warren Branges conducted Tolling of the Boats for boats lost in the month of September.

Base Commander Warren Branges recognized Past Commanders, dignitaries and guests.

Base Secretary Jack Kane announced 13 members and 5 Guests present. 4 Members and 2 Guests arrived after the meeting started.

Base Treasurer Joe Peluso presented the Treasurer's report. A copy of the Report will be filed with these minutes. Minutes of the August meeting were published in the Sentinel. Those minutes were accepted as published. These minutes will be published in the Sentinel.

Base Commander Warren Branges called for Committee Reports

Binnacle List - Base Commander Warren Branges reported Frank Walker and Tom Polan on Binnacle.

Parade Committee - Base Commander for Joel Eikam. Next Parade is Veterans Day - Saturday November 10th at 1100. We will not be attending the Borrego Springs Parade in October.

Membership Committee - Chairman Ray Febrache.

Scholarship Committee - Committee Chairman Paul Hitchcock. Next Scholarship Round in the spring.

Storekeeper - Paul Hitchcock. Final SK Turnover and inventory will be done soon. We have a number of 90 North Patches in stock.

Breakfast Committee - Chair Base Commander Warren Branges. The next Breakfast will be 30 September and then again on 30 December. The VFW Kitchen renovation has been rescheduled for early in 2019.

52 Boat Memorial - Chair Base Commander Warren Branges- The next All Flags Day will be 21 September (POW/MIA Day). We will put up flags at 0700 and take them down at 1700. We are inviting the Point Loma Association to participate. We will be laying wreaths on 7 December along with Point Loma Association. Base Secretary Jack Kane will do individual boat flags on 24 October while Base Commander and COB are at the National Convention.

Float Committee - Chair David Kauppinen - The Committee will be looking at wheel bearing maintenance and the hull wrinkling over the winter.

Eagle Scout Program - No Report

1020 - No break

1021- Unfinished Business

NATIONAL ELECTIONS will be held from 16 August 2018 through 15 October 2018. You can vote on the National Website. Candidates are: National Commander, Wayne Standerfer. National Senior Vice Commander Jon Jaques. National Junior Vice Commander Steve Bell. National Treasurer Paul Hiser. National Secretary Ray Wewers. Western Region Director Jim Denizen. Several Constitution and ByLaw changes will be on the ballot. Please read up on them and make sure you vote.

## The Silent Sentinel, October 2018

1025 - New Business - Base Commander asked that any New Business be brought to the next meeting.

1026 - Good of the Order

2018 NATIONAL CONVENTION will be the Caribbean Cruise from Fort Lauderdale October 27 - November 3, 2018. Information and registration forms at the National Website (<http://ussvconvention.org/2018/>). 508 members are signed up. The following boats will hold reunions on the cruise: SS-241 Chivo, SS-484 Odax, SSN-585 Skipjack, and SSBN-619 Andrew Jackson. If you want to attend see the Base Commander. Some spots are still available. SAN DIEGO BASE CHRISTMAS PARTY - 8 December 2018 - We will have the same menu as last year. Cost is \$20.00 per person. A flyer will be forthcoming. Seating is limited to the first 100.

OUTYEAR CONVENTIONS are: 2019 Austin TX, 2020 in Tucson (needs final vote at next Convention), 2021 Orlando at the Rosen Shingle Creek. Many Base Members highly recommend seeing the Museum of the Pacific (Fredericksburg TX) as part of the festivities in Austin 2019.

THRESHER Presentation. CAPTAIN (ret) Jim Bryant gave a presentation at the San Diego Archaeological Center in Escondido on Saturday September 8th at 1100. Many members expressed opinions concerning loss of Thresher.

NEXT MEETING ON TUESDAY 9 October at VFW Hall, on Twain Avenue, San Diego

The Meeting was adjourned at 1040. Members and Guests then attended a Submarine Model Dedication with remarks by Duncan Hunter Sr., Terry Ulmer and Base Commander Warren Branges.

/s/ Jack E. Kane

Jack Kane, Secretary

Sailing List for 15 September 2018

### Members

Peter Lary  
Bob Bissonnette  
J.J. Lynch  
Warren Branges  
Dennis Mortensen  
Joel Eikam  
Jack Kane  
Ed Farley

### Bill Earl

Mert Weltzien  
Joe Peluso  
Paul Hitchcock  
Nicholas Dirkx  
Lawrence Glacy  
David Kauppinen  
Ray Febrache  
Scott Debenham

### Guests

Jessie Chang Farley  
Jan Gustavel  
Juanita Williams  
Andrew Clem  
Greg Eikam  
Sonja Lynch  
Dianne Branges

## ***Silent Sentinel EXCLUSIVE!***



***Judith and Gary Murphy have graciously consented to allow the Silent Sentinel to republish their collection of USS Whale, SS-239, ship's newspaper, "THE RAG," from the WW-II era! Gary's father, Rex Murphy, served as Whale's Engineering Officer. The Silent Sentinel will now include a copy of The Rag in each issue. The Murphy's and I hope that you will find it an interesting reading experience. The date is March 16, 1943. Whale is in the waters nears Saipan in the Marianas. "The Rag" No. 3***

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EIGHTH EDITION

MARCH 16, 1943

Woe unto them that call evil good, and good evil: that put darkness for light and light for darkness: that put bitter for sweet and sweet for bitter! Woe unto them that are wise in their own eyes, and prudent in their own eyes.

-----Isaiah 5:20, 21-----

---HEAR YE---HEAR YE---

If loud screams and nasty words are heard issuing forth from the maneuvering room on the eight to twelves, the originator is not to be held responsible. The cause of these outbursts can always be traced to a whispered about individual who, sits in the after torpedo room hatch with fingers or toes wedged tightly between his front teeth. This goes on for four solid hours, chewing and picking.

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 Once again the staff of the RAG, is called upon to print sordid tales.

Ship-mates, lend an ear, or something, the time has come when something must be did. A few days ago, one of our fellow men stirred up his brain locker and came forth with a new bit of scandal, or shall we say he collected all the scandal he could and grouped it all together and the "RAG" was born. We all seem to enjoy that crummy, insulting sheet. All obtained a few laughs and it is the topic of conversation in not a few of the smokes in the after engine house. But,---and there is always a but I heard with mine own ears, that if something isn't did, the RAG, is due for a short life. This is due to the fact that we are leaving all of the scandal getting, edeting and entire publishing to one man. He begs, he weeps, he curses for news to print in his crummy sheet.

Fellers---Man to man is that at all sportsman like? Can't we do better then we have been doing? Are we going to let the RAG die, because we are too damned tired or lazy to help the editor? Ain't we interested enough to keep a few laughs around

So, what say ship-mates that we stir ourselves, rack our brains, pull our hair(Thompson you scratch your head) and submit any and all material such as dreams, stories, gags, or any dope on your various ship-mates that is worth a laugh.

Stop your growling, some of the boys have given their lives, your only giving your time. With damn little effort to the cause.

-----Editor-----

The tense situation that has existed between the WHALE, Saipan authorities, is expected to terminate within the next three days.

-----Editor-----

While rummaging around in search of an obnoxious smell in the after battery yesterday, a loud knock--knock--knocking was heard issuing from one of the supposedly stores lockers. LO AND BEHOLD, upon opening said locker, a decomposed piece of cheese in the latest stage of decomposition was heard to say, "For Gods sakes, let me out of here. I can't stand my own smell any longer." This piece of cheese was escorted to the deck from whence it went under it's own power to the G.I. can. As this cheese was thrown over the side, no doubt, said cheese contributed a great deal for the presence of the two destroyers and various P.C. boats in our general vicinity.

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 What short, curly headed Torpedoman in the after room, dreams at night and was seen snuggling up to a long, cold torpedo. Big job ahead of you---Sweet Pea.

For the dreamers information, these torpedoes are a hot consignment for the Japanese, and are not to be scratched, dented or compromised in any way before delivery.

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 To Buckhism, that bone crushing, man about town: It is not considered cricket to snatch flash lights from others hands or give private demonstrations by sticking fingers in fans.

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 in-iq-ui-ty---Wickedness, injustice, a wicked act; a sin or a crime. Webster.

## Current News

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

From U.S. Undersea Warfare News:

Sailors and Civilians Race Calculator Robots With Baltimore NJROTC  
NPASE, DVIDS Hub, October 4

BALTIMORE -- Sailors from USS Maryland (SSBN 738) along with engineers from Naval Surface Warfare Center, Carderock Division demonstrated calculator-controlled robots to students in the Navy Junior Reserve Officers Training Corps at Mergenthaler Vocational-Technical High School on Oct. 4 as part of this year's Maryland Fleet Week.

The calculator-controlled robots, part of the science, technology, engineering and math outreach program at Carderock, allows students to program the robots to carry out a variety of tasks.

"School visits like this allow STEM professionals to meet and work with students on engaging, hands-on activities - to help develop their problem-solving skills, build their interest in STEM and give them a sense of what STEM careers are," said Charlotte George, Carderock's STEM and outreach director.

"It has been a wonderful opportunity to support this educational outreach event alongside the sailors of the USS Maryland," George said.

Sailors from USS Maryland also got a chance to talk to students and ask what life is like on a nuclear ballistic submarine.

USS Maryland Commanding Officer Cmdr. Jesse Pruett enjoyed the opportunity for his crew to be in the namesake's state talking to students about the ship and what they do.

"Community outreach is very valuable for not just the Navy but submarine forces as we are the height of technology," Pruett said. "It's really great to share mine and my crew's experiences using advanced technology on the ship to encourage students to be more involved in STEM."

Capt. Martin Allard, NJROTC instructor at the high school said having Sailors and Navy civilians come to talk to the students plays an important role in shaping students' futures.

"This is a wonderful opportunity for these students to see another way in the game of life," Allard said. "All of the sailors here are engaged, talking with the students and listening, which is great."

The NJROTC program teaches students citizenship and leadership development, as well as maritime heritage and the significance of sea power.

"One of these kids is going to end up doing great things because of a visit like this," Allard said.

Principal of Mergenthaler Vocational-Technical High School Jada Langston said that their NJROTC program develops strong leaders who step up to the plate.

"One of the things that the military provides is an opportunity to develop students' discipline, structure and gives them an opportunity to find inner confidence," Langston said.

Maryland Fleet Week is Baltimore's celebration of the sea services and provides an opportunity for the citizens of Maryland and the city of Baltimore to meet Sailors, Marines and Coast Guardsmen, as well as see firsthand the latest capabilities of today's maritime services.

Navy Spends Millions On Sub-Launched Hypersonics As USAF Touts New Hypersonic X-Plane

Joseph Trevithick, The Drive, October 4

<http://www.thedrive.com/the-war-zone/24046/navy-spends-millions-on-sub-launched-hypersonics-as-usaf-touts-hypersonic-x-plane>

The development of hypersonic weapons has become and continues to be one of the U.S. military's top priorities. A recent contract award shows that the U.S. Navy is spending millions to keep developing a submarine-launched type that might eventually arm its future Columbia-class ballistic missile submarines. Now, the U.S. Air Force has announced that an air-launched hypersonic test bed it is developing in cooperation with NASA to support various projects will become the latest of America's research and development "X-planes."

On Oct. 1, 2018, the Pentagon announced that the Navy had awarded the Charles Stark Draper Laboratory in Massachusetts a contract worth more than \$13 million for various services in support of actual hypersonic weapon flight tests. Then, on Oct. 4, 2018, the Air Force Research Laboratory (AFRL) revealed that space launch firm Generation Orbit's GOLAUNCHER 1 (GO-1) hypersonic vehicle would now be known as the X-60A.

The full contracting notice for the Navy's deal with Draper Labs is as follows:

"The Charles Stark Draper Laboratory, Cambridge, Massachusetts, is awarded a \$13,380,171 cost-plus-fixed-fee contract to provide research into the applications of technologies to meet guidance requirements for operations on the Common Missile Compartment for the U.S. Columbia-class program and the United Kingdom Dreadnought-class program; provide specialized technical knowledge and support for the hypersonic guidance, navigation and control application; provide technical and engineering services to support the Guidance, Navigation and Control system that will support the Navy's hypersonic flight experiments. Work will be performed in Cambridge, Massachusetts (81 percent); and El Segundo, California (19 percent), with an expected completion date of Sept. 30, 2019. Subject to the availability of funds, fiscal 2019 research, development, test, and evaluation funds in the amount of \$13,380,171 will be obligated. No funds will expire at the end of the current fiscal year. This contract was a sole source acquisition pursuant to 10 U.S. Code 2304(c)(1)&(4). Strategic Systems Programs, Washington, District of Columbia, is the contracting activity (N00030-19-C-0001)."

The announcement does not specify what system Draper Labs, a non-profit research and development organization, will be working on. The basic description, though, sounds very similar to a submarine-launched hypersonic boost-glide vehicle that the Navy said it tested for the first time in 2017. Boost-glide vehicles are unpowered and typically use a ballistic missile to get to the appropriate speed and altitude. Pictures and video recently appeared to show researchers in China using a test apparatus slung beneath a high-altitude balloon for this purpose. Air-breathing hypersonic vehicles also require some sort of booster initially to get going fast enough for a high-speed jet engine, such as a ramjet, to take over.

The Navy's test last year, officially known as the Intermediate-Range Conventional Prompt Strike Flight Experiment-1 (CPS FE-1), involved an Ohio-class ballistic missile submarine. The Navy's Strategic Systems Program (SSP) office also oversaw that event, which took place at the Pacific Missile Range Facility in Hawaii.

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The launch proved that "the first conventional prompt strike missile for the United States Navy in the form factor that would eventually, could eventually be utilized if leadership chooses to do so in an Ohio-class tube," U.S. Navy Vice Admiral Terry Benedict, director of SSP, said afterward. The contract with Draper Labs would seem to suggest that the Navy's main goal is eventually integrating this weapon with the Columbia-class. Since those submarines will have the same Common Missile Compartment missile launch tube architecture as the United Kingdom's future Dreadnought-class ballistic missile submarines, it is possible that the U.S. military could share the design with the British government, as well. Though not mentioned in the contracting notice, the individual tubes in the Common Missile Compartment are also the same basic size and shape as the ones in the Virginia Payload Module, which will go into the future Block V Virginia-class attack submarines, leaving open the possibility that they too may be able to use this weapon in the future.

Of course, the U.S. military acknowledges that there is still much work to be done to fully understand that hypersonic vehicles will and won't be able to do. Experiments continue simply to help identify materials that can withstand the heat and strain of sustained flight at five times the speed of sound or more, as well as advanced air-breathing jet engines that can handle that stress and keep the vehicle at a sustained speed. That's where experimental systems such as the X-60A come into play.

"The X-60A is like a flying wind tunnel to capture data that complements our current ground test capability," U.S. Air Force Colonel Colin Tucker, the military deputy in the office of the Deputy Assistant Secretary of the Air Force for Science, Technology, and Engineering, said in a press release on Oct. 4, 2018. "It enables faster development of both our current hypersonic weapon rapid prototypes and evolving future systems."

Generation Orbit has been working on this air-launched system, which uses a liquid-fueled rocket to boost payloads to hypersonic speeds, since the early 2010s. In 2013, the Atlanta, Georgia-headquartered company received more than \$2 million to support that development from NASA. The next year, the AFRL got involved in the project.

The Air Force sees the X-60A as a low-cost platform to test scramjet engines, high-temperature resistant materials, and autonomous guidance and control systems under actual flight conditions. The goal is to be able to use this surrogate system to help speed up development of other hypersonic vehicles and weapons, such as the air-breathing Air-launched Rapid Response Weapon (ARRW) that Lockheed Martin is presently developing for the service.

Generation Orbit completed a series of captive carry tests at NASA's Armstrong Flight Research Center, which is situated within Edwards Air Force Base, in January 2018. NASA's Learjet 35 carried the vehicle through a series of basic flight and simulated launch maneuvers. In June 2018, the company conducted the first ground test of the rocket motor. The first actual flight of the X-60A is set to come in late 2019.

All in all, it continues to be an exciting time in the fast-moving world of hypersonics. The U.S. military as a whole has clearly developed a voracious appetite for the technology and it will be very interesting to see what comes from the Navy's submarine-launched developments and what the Air Force decides to test onboard its new X-60As.

### Declining Commercial Nuclear Industry Creates Risk for Navy Carriers, Subs

Ben Werner, USNI News, October 2

<https://news.usni.org/2018/10/02/37045>

The Navy's ability to maintain and manufacture aircraft carrier and submarine propulsion systems is at risk, a panel of experts say, because the commercial nuclear industry has been in failing health for two decades.

Today, the Navy operates more nuclear reactors than the entire U.S. commercial reactor industry. The Navy's 101 reactor-powered carriers and submarines provide an unmatched advantage to operate around the world continuously. Building these reactors, though, relies on a shrinking pool of vendors, Adm. James Caldwell, the director of Naval Nuclear Propulsion Program, said at the Nuclear Energy, Naval Propulsion, and National Security Symposium at the Center for Strategic and International Studies.

"The base is small. The base is healthy and capable of supporting our Navy propulsion needs. It's sustainable through the program of record, but it takes a lot of energy to sustain that," Caldwell said.

For example, the Navy only has one contractor making reactor plant heavy-components and only a handful of companies make the flow control, valves, pumps and other parts, Caldwell said. Several companies make reactor instrument controls.

The vendors the nuclear Navy relies on are being hurt by a retracting commercial nuclear power plant industry. Cheaper fuel alternatives, such as natural gas, are making it too expensive for power companies to run their nuclear plants, said Mike Wallace, a senior advisor at CSIS and former Chairman of the Constellation Energy Nuclear Group. Wallace also is a former Navy nuclear submarine officer.

As a result, today the U.S. has 98 commercial reactors, and Wallace expects this number will continue decreasing. With fewer commercial reactors operating, there is not enough business for the nuclear industry's vendors.

"We are continuing if not accelerating in a decline, impacting not only domestic nuclear energy but also the infrastructure to support naval propulsion and the infrastructure supporting our weapons complex," Wallace said.

A solid 30-year shipbuilding plan and stable budget environment would signal to the nuclear industry they could earn a return on investing in new equipment or expanding their business operations, Caldwell said.

"What helps the commercial industry helps the Navy nuclear propulsion industry," Caldwell said. "More vendors mean more affordability; also means the ability to have some innovation that might help us out."

In 16 years - between 1946, when then Capt. Hyman Rickover was in charge of developing nuclear propulsion for the Navy, and 1962, when USS Enterprise (CVN-65) began its maiden deployment - the Navy went from considering a theoretical propulsion unit to operating the an eight-reactor ship larger than anything the world had ever seen, Chief of Naval Operations Adm. John Richardson said during a keynote speech at the event.

"The speed this nation can achieve if we put our minds to it is just stunning," Richardson said.

Wallace was not so sure the commercial nuclear industry would survive. He doesn't see the federal government doing enough to ensure the health of these companies, which are vital to maintaining a nuclear Navy.

"Under current conditions, in the next 15 to 20 years we could see all commercial plants shut down in the U.S.," Wallace said. "It's a trend line down that, at some point, hits a click because you don't want to be the last one holding a commercial plant."

Meanwhile, Russia and China are rapidly expanding their state-sponsored nuclear energy industries, which include a robust export market, said William Ostendorff, a retired Navy captain and a visiting professor at the U.S. Naval Academy. Ostendorff is also a former commissioner of the U.S. Nuclear Regulatory Commission.

Russia and China are building dozens of nuclear power plants around the world, in countries such as Turkey and Pakistan, Ostendorff said. The U.S. nuclear power industry is building two plants domestically and zero overseas.

"U.S. companies lack the capital and structure to emulate the Russia and Chinese models," Ostendorff said.



Japan's silent submarines extend range with new batteries (Japan)

Kenji Asada, Nikkei Asian Review, October 5

<https://asia.nikkei.com/Economy/Trade-War/Japan-s-silent-submarines-extend-range-with-new-batteries>

Japan's first submarine powered by lithium-ion batteries was launched on Thursday, symbolizing domestic defense contractors' hopes that innovations can allow the industry to survive amid renewed pressure from Washington to procure more American military gear.

The 84-meter Oryu was lowered into the water at the Kobe shipyard of Mitsubishi Heavy Industries, the vessel's developer, after being christened with a bottle of sake. The submarine can reach speeds of roughly 20 knots and displaces 2,950 tons. It will be delivered to the Japan Maritime Self-Defense Force in March 2020.

The Oryu is the eleventh submarine based on the Soryu's design. Soryu-class vessels, which started being built in 2005, are among the largest diesel-electric submarines in the world.

But the Oryu is a vastly updated version of the Soryu, the biggest change being the replacement of lead-acid batteries with lithium-ion ones. Mitsubishi Heavy tapped GS Yuasa to supply the high-performance batteries, which store about double the power.

Submarine batteries are recharged by the energy generated by Oryu's diesel engines. The vessel switches to batteries during operations and actual combat in order to silence the engines and become harder to detect. The lithium-ion batteries radically extend the sub's range and time it can spend underwater.

But amid the joyous occasion of the Oryu's launch, Mitsubishi Heavy executives maintained grim expressions. Washington has been pressuring Tokyo to expand procurement of American military gear as a means of cutting the countries' trade imbalance. Such a development would leave Japanese defense contractors with fewer orders.

U.S. President Donald Trump urged Japanese Prime Minister Shinzo Abe to buy more American weapons during a bilateral summit last week. "It is important for us to continue to introduce sophisticated equipment, including American equipment, so that Japan's defense capability can be strengthened," Abe reportedly told Trump.

In recent years, Japan has been ramping up procurement of U.S. equipment, such as the Aegis Ashore missile shield. Up through fiscal 2011, Tokyo's purchases through Washington's Foreign Military Sales program had been less than 100 billion yen (\$879 million) a year. That surpassed 400 billion yen this fiscal year.

While these purchases allow Japan to get its hands on high-performance American military hardware, the benefits to the domestic defense industry have been few and far between. Meanwhile, exports of Japanese military equipment have stalled. The Abe government had sought to have Australia order Soryu-class submarines, built by Mitsubishi Heavy and Kawasaki Heavy Industries, but Canberra opted in 2016 to purchase French-made vessels instead. Kawasaki Heavy has yet to export any of its P-1 military patrol aircraft. Plans to domestically develop a successor to the aging fleet of F-2 fighter jets are under a cloud.

But when it comes to military vessels, Japan possesses specialized technology supported by a robust shipbuilding infrastructure. Japan's commercial shipbuilding industry is being squeezed by Chinese and South Korean rivals, and Japan's defense industry is under attack by U.S. military imports. The only domain left for Japan's heavy industry is submarines. The Oryu will be the last of the Soryu class. For the next generation, the Oryu's advanced technology is expected to be repurposed into a 3,000-ton submarine.

Thales reveals SONOFLASH dual-mode sonobuoy (France)

Richard Scott, Jane's International Defence Review, October 3

<https://www.janes.com/article/83542/thales-reveals-sonoflash-dual-mode-sonobuoy>

Thales' Underwater Systems business has disclosed the development of a new combined active/passive sonobuoy intended to meet the French Navy's anti-submarine warfare (ASW) needs.

Known as SONOFLASH, the development and follow-on production of the new A-size buoy is intended to re-establish a sovereign capability in France for sonobuoy supply. Thales also claims that the introduction of the dual-mode SONOFLASH will afford greater flexibility for future multistatic operations, while at the same time allowing the French Navy to standardise on a single buoy type and reduce its overall inventory requirement.

Taiwan appoints defence consultancy to oversee submarine design (Taiwan)

Lawrence Chung, South China Morning Post, October 2

<https://www.scmp.com/news/china/military/article/2166708/taiwan-appoints-defence-consultancy-oversee-submarine-design>

Taiwan has taken another step towards building its own submarines, appointing a Gibraltar-based defence consultancy to oversee the preliminary design of the NT\$49.4 billion (US\$1.6 billion) project by March.

Gavron Limited was awarded the contract to supervise the design work, which will be carried out by Taiwanese shipbuilder CSBC Corporation, the island's navy confirmed on Tuesday.

"Seven foreign companies submitted bids [for the contract] and after comparing and checking their capital, technicians, export permits and other qualifications, only GL had the [required] export permit," the navy said in a statement.

It said the NT\$600 million contract was awarded by CSBC in line with government procurement and bidding process rules.

Taiwan's indigenous defence submarine (IDS) programme is a key part of President Tsai Ing-wen's defence policy in the face of mounting tensions across the Taiwan Strait. It aims to build a fleet of eight diesel-electric submarines to replace the navy's four ageing vessels to boost Taiwan's defences as Beijing ramps up pressure on the island.

Beijing sees Taiwan as a renegade province to be reunited with the mainland, by force if necessary. Ties have deteriorated since Tsai took office in 2016 and refused to accept the "one China" principle, with Beijing suspending communications with the self-ruled island and trying to isolate Taipei, poaching five of its diplomatic allies. Mainland China has also increased military patrols and drills around the island.

Under the submarine plan, design of the prototype is to be completed by March, with construction to begin before 2020 and the first vessel to be built by 2025, the navy said.

It also attempted to distance itself from the submarine deal after Taiwanese lawmakers raised concerns about possible irregularities in the bidding process.

Taiwan's dream of having its own submarine fleet must yield to a more realistic China defence plan

"The navy has had nothing to do with the deal as it was done by CSBC and all interested bidders directly," the statement said, referring to the contract to supervise the design work.

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It added that the navy had not been directly involved in the process after the shipbuilder was awarded the NT\$2.5 billion design contract earlier this year.

In July, local media reported that Taiwan had received bids for the contract to oversee the design from six foreign companies - two European firms, two from the United States, one from India and one from Japan.

Taiwan is trying to boost its defences as Beijing ramps up pressure on the island. Photo: Kyodo

Local media are now questioning why such an important contract - whose key task is to advise whether the design is good enough to build the submarine - went to a small consultancy like Gavron and not a big company like US-based Lockheed Martin.

Lawmakers Johnny Chiang Chi-chen and Ma Wen-chun also raised the issue in a legislative session on Monday.

Military expert Mei Fu-hsing said Gavron's export permit was the key to its success. He added that the company's task was to ensure the design work met the required standard, and there was no reason the tender process should be viewed with suspicion.

We need more subs, says Taiwan, as it aims to bolster its naval defences in face of Beijing's increasing belligerence

Meanwhile, CSBC chairman Cheng Wen-lung said there would be no problem for his company to design and build the main submarine structure.

"CSBC has more than 370 designers - about 70 per cent of the talent in this field from all over Taiwan," he said, adding that while the hull and platform of the vessel could be built by Taiwanese experts, foreign suppliers would be needed to take care of other equipment and facilities.

China announces new sub detection system so advanced experts aren't sure it's even possible (China)

Alex Hollings, NewsRep, October 2

<https://thenewsrep.com/108831/china-announces-a-new-sub-detection-system-so-advanced-experts-arent-sure-its-even-possible/>

In an effort reminiscent of the massive Apollo program that landed American astronauts on the moon, the Chinese government recently announced that they've brought together the combined resources and brainpower of 20 different research institutes and universities around their nation to do something many believe could be impossible. Like Apollo, this endeavor will require launching new technologies into space, inventing solutions to problems mankind has never faced before, and generally pushing the limits of what even experts in the field believe to be possible. Unlike Apollo, however, China won't be using their amassed brain trust and budget to look outward toward the vast expanse of space. In fact, instead of looking up at all, China's new space technology will be tasked with looking down; deeper into the ocean than any current defense technology is capable of doing. As China, the United States and Russia continue to invest in anti-ship technologies intended to keep one another's surface fleets at bay in the event a conflict should ever break out, there has been a resurgence of interest in how submarines can be used to offset the area denial bubble advanced long-range anti-ship missiles create. America's carriers, for instance, could not close to within much more than a thousand miles of Chinese shores without becoming the target of hypersonic weapons no nation currently has the means to intercept or defend against. but theoretically, a submarine could. America's Ohio class submarines could (in theory) encroach on Chinese shores and release a barrage of Trident missiles at anti-ship platforms, clearing the path for a massive Ford Class carrier to sail close enough to begin launching air strikes of its own.

In the United States, a number of efforts are already underway to shore up submarine defenses, including drone vessels tasked with policing the depths and sensor arrays that track the movement of marine wildlife to know when large numbers of animals are displaced by the movement of an enemy submarine. Among these submarine detection initiatives, DARPA (the Defense Advanced Research Projects Agency) has what many believe to be the most capable large-scale submarine detection apparatus: a powerful LIDAR system that when mounted on the nose of a spy plane can detect the presence of a submarine at depths reaching 200 meters (around 656 feet).

The LIDAR system works by projecting a powerful laser into the water, which displaces light at a rate in the neighborhood of a 1,000 times more quickly than the air we breathe. Existing satellites are said to be able to produce lasers so powerful, in fact, that they can penetrate up to 100 meters of water, spotting submarines lurking at depths of around 300 feet. As far as most experts contend, that 100 meter from space and 200 meters from DARPA's best spy planes flying closer to the surface of the water is about the best the technology is capable of. but China isn't listening to those experts. They've recruited an army of their own, and they've set a far loftier goal than 200 meters.

According to China, their new constellation of submarine detecting satellites (called Project Guanlan) will be able to spot encroaching vessels traveling at depths greater than 1,600 feet below the surface (500 meters), which for those keeping track, is some 300 meters deeper than light can penetrate. That's so deep that submarines traveling at that depth aren't accompanied by the type of sea life you've grown accustomed to seeing in underwater footage of subs. they're traveling around with wildlife that look like this:

But according to China's claims, their new satellites will be able to penetrate this shroud of aquatic darkness using a combination of technologies, making most submarines in the world visible to their prying eyes. How serious is a 500-meter detection depth (if their claims prove true)? Well, test depth for American nuclear submarines is 240 meters, and that figure serves as their maximum operational depth in peacetime operations. That means China's eyes in the sky would be able to pick up any Ohio, Virginia, or even forthcoming Columbia class submarine operating at normal operational depths. As a general rule of thumb, the U.S. Navy treats that 240-meter mark as about two thirds the maximum depth the submarines are designed to be able to withstand, meaning that most of America's nuclear submarines are rated for crush depths of around 720 meters, or a bit better than 2,300 feet. Now, that's no guarantee that these submarines can reliably operate long-term at such incredible depths, but it does mean American submarines could feasibly avoid detection while operating near China. However, launch depth for submarine-launched ballistic missiles is traditionally considered to be at around 50 meters, making identification a certainty while posturing for an attack.

China's program aims to use different frequencies of light to penetrate deeper into the water than any system has before, then coupling that technology with existing satellite-based radar arrays and a forthcoming supercomputer that will combine data sets from the various sensor systems and produce a single feed that can either identify submarines deep below the water or produce a figure representing the likelihood that one is lurking. China claims the system will be able to sweep an area 100 kilometers wide (about 62 miles) or concentrate its focus on just one square kilometer for a thorough hunt. Of course, despite China's large scale effort and far reaching claims, there's still no guarantee that they'd get such a system to work - even some experts inside China question how realistic their goal truly is.

"Five hundred metres is 'mission impossible'," a LIDAR specialist in China that requested anonymity told Business Insider. "They [project researchers] won't be able to break through the darkness guarded by Mother Nature - unless of course they are Tom Cruise, armed with some secret weapons."

Indian Navy orders diving support vessels (India)

Staff, Shephard Media, October 2

<https://www.shephardmedia.com/news/imps-news/indian-navy-awards-dsv-contract/>

The Indian Navy has awarded a contract to Hindustan Shipyard, Vishakhapatnam, for the construction of two diving support vessels (DSV) to support the navy's submarine operations, the Indian Ministry of Defence announced on 26 September.

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The two vessels will be of 118m in length and approximately 7,650t displacement, and will be based at Vishakhapatnam and Mumbai. Each DSV is equipped with a deep submergence rescue vessel (DSRV), one of which has already been delivered by James Fisher Defence, with the second expected by the end of 2018. The non-tethered DSRVs are capable of effecting submarine rescue up to depths of 650 meters. The DSVs will support Indian Navy divers during missions when they must remain underwater for prolonged periods, such as submarine rescue, under water inspection, testing or salvage, and recovery of objects/ship aircraft lost at sea. The DSVs launch and recover the divers and carry related tools and equipment.

### Russia's Most Advanced (And Stealthly) Nuclear Submarine Ever Just Went to Sea (Russia)

Dave Majumdar, The National Interest, September 29

<https://nationalinterest.org/blog/buzz/russias-most-advanced-and-stealthly-nuclear-submarine-ever-just-went-sea-32217>

Russia's second Severodvinsk-class submarine K-561 Kazan, which is a modified Project 08851 Yasen-M design, went to sea for the first time for builder's trials on September 24.

The massive nuclear-powered guided missile submarine (SSGN) was designed by the Malachite design bureau in St. Petersburg and was built in the northern Russian city of Severodvinsk. Kazan was launched on April 8, 2017, and was originally expected to be delivered to the Russian Navy this December, but construction work on the vessel was delayed. At present, Kazan is not expected to be delivered to the Russian Northern Fleet until at least 2019. Nonetheless, the Russian vessel is expected to be the most formidable enemy submarine the United States Navy has ever faced.

The United States Navy was already impressed with the original Severodvinsk, which is an older design that had been under construction since 1993 before eventually being commissioned into service in December 2013. Shortly thereafter in 2014, Rear Adm. Dave Johnson, who was then Naval Sea Systems Command's (NAVSEA) program executive officer (PEO), told me he was so impressed with the Russian submarine that he had a model of Severodvinsk built for display outside of his office.

"We'll be facing tough potential opponents. One only has to look at the Severodvinsk, Russia's version of a [nuclear guided missile submarine] (SSGN). I am so impressed with this ship that I had Carderock build a model from unclassified data." Johnson said during the Naval Submarine League's 2014 symposium in Falls Church, Va. "The rest of the world's undersea capability never stands still."

Later in 2016, Rear Adm. Michael Jabaley, who was then the Navy's program executive officer for submarines-speaking at the Center for Strategic and International Studies- said on July 8, 2016, that the Navy launched its Acoustic Superiority Program to improve the performance of Virginia-class attack submarine as a response to the advent of the Severodvinsk-class.

"This is our response to the continued improvement in our peer competitors' submarine quality," Jabaley said. "The Russians with the production of the Severodvinsk SSGN took a significant step forward in their acoustic ability. We want to maintain pace ahead of that. We never want to reach acoustic parity, we always want to be better than anything any other country is putting out there in the submarine domain."

Adm. James Foggo-now the commander of U.S. Naval Forces Europe-had also expressed how impressed he was with the Severodvinsk design. "It's a very impressive submarine," Foggo had told The National Interest in 2016. "If you look across the design of the Russian Federation Navy, where they have put their resources and their research and development efforts has primarily been in the undersea domain and in the submarine force."

Though Severodvinsk-and her more modern sister ships like Kazan-are very capable submarines, Foggo had said, the U.S. Navy still retains an edge. But Russia will continue to invest in submarine research and development and it will continue to build an evermore-capable undersea fleet. "I believe that we-the West-still have an asymmetric advantage," Foggo said. "I believe they will continue to refine their submarine capabilities with the intent of achieving parity with the West-ourselves included."

Kazan is an example of Russia's efforts to refine their submarine technology. Kazan is believed to be roughly 10 meters shorter than her predecessor, but appears to pack a larger punch. According to some reports, the refined Yasen-M design is thought to have eight torpedo tubes, which is two less than the original Severodvinsk. However, the new vessel is thought to incorporate two additional missile tubes for a total of ten silos. Each of those silos is thought to be able to carry four missiles-thus Kazan and the subsequent Yasen-Ms will pack an enormous offensive punch.

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