

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



The Silent Sentinel May 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.



Winners of Beard Growing Contest: USS SCORPION SSN-589

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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: _____

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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

May 2018 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 *May 8th*. 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

Joel Eikam and Frank Workman

Submarine Losses in May

Originally Compiled by C J Glassford



USS Lagarto (SS-371)

Lost on May 3, 1945 with the loss of 86 men near the Gulf of Siam. On her 2nd war patrol, she is believed to have been lost to a radar equipped minelayer. This minelayer was sunk by the USS Hawkbill (SS-366) 2 weeks later.

USS Scorpion (SSN-589)

USS Scorpion (SSN-589) was returning to Norfolk, VA. from a Mediterranean deployment. On May 22, 1968 she reported her position to be about 50 miles south of the Azores. Scorpion was never heard from again. The exact cause of her loss has never been determined. 99 officers and men were lost.

USS Squalus (SS-192)

On May 23, 1939 USS Squalus suffered a catastrophic valve failure during a test dive off the Isle of Shoals. Partially flooded, the submarine sank to the bottom and came to rest keel down in 240 feet of water. Commander Charles Momsen and Navy divers on the USS Falcon (ASR-2) rescued 33 survivors using the diving bell he invented. 26 men drowned in the after compartments. Later Squalus was raised and recommissioned as the USS Sailfish. In an ironic turn of fate, Sailfish sank the Japanese aircraft carrier carrying surviving crew members from Sculpin, which had located Squalus in 1939. Only one of survived after spending the rest of the war as slave laborers in Japan.

USS Stickleback (SS-415)

Lost on May 28, 1958 when it sank off Hawaii while under tow after collision with USS Silverstein (DE-534). The entire crew was taken off prior to sinking.



Minutes of April Meeting: In Preparation

Minutes of March Meeting

San Diego Base, United States Submarine Veterans Inc.

Minutes of Meeting - 13 March 2018

At VFW Hall, 4370 Twain Avenue, San Diego CA 92120

1910 - Base Commander Warren Branges called the meeting to order.

Conducted Opening Exercises - Pledge of Allegiance lead by Former Base Commander Fred Fomby

Acting Chaplain David Ball lead the opening prayer.

Acting Chaplain David Ball conducted Tolling of the Boats for boats lost in the month of March and a moment of silence for our recently passed Shipmate Harry Humphreville, EMCM(SS), ret.

Junior Vice Commander Manny Burciaga recognized Past Commanders, dignitaries and guests. Guests this month are Chris Smith, Commander Maine Base, his wife and Julie Biewer.

Base Secretary Jack Kane announced 23 members and 3 Guests present.

Base Treasurer Joe Peluso gave his report. A copy of the Treasurers Report will be filed with these minutes.

Minutes of the February meeting were published in the Sentinel. One correction - The Point Loma Association was incorrectly identified at the Point Loma Optimists.

Base Commander Warren Branges called for Committee Reports

Binnacle List - Acting Chaplain David Ball reported and Frank Workman and Frank Walker are on Binnacle.

Parade Committee - Chairman Joel Eikam - Parade Schedule will be discussed during Unfinished Business.

Membership Committee - Chairman Ray Febrache. We have currently have 249 base members. An increase of 4 since last meeting.

Scholarship Committee - Committee Chairman Paul Hitchcock noted the Deadline for Scholarship Applications is 15 April. No applications have been received to date.

Storekeeper - Paul Hitchcock is now the Storekeeper. We have set up an "away-box" of things to be sold when we setup the float as a static display.

Breakfast Committee - Chair Base Commander Warren Branges. The next Breakfast will be 29 April 2018.

52 Boat Memorial - Chair Base Commander Warren Branges- The next "ALL FLAGS DAY" - will be 11 April 2018. We will put up flags at 0700. SUBRON Eleven has been asked to join us for putting up and taking down the flags. The Memorial Committee is looking into ways to involve the Point Loma Association in Memorial functions. The Committee is also researching how to include the Memorial in National Wreath Day. The Next National Wreath Day is 7 December 2018. Wreaths will cost \$15 to \$16 each. More information to follow as the program is filled out.

Float Committee - Chair David Kauppinen - No Report. The Float is currently being stored at Naval Base Point Loma RV Lot under tarps.

Eagle Scout Program - Co Chairs Nihil Smith and Glenn Gerbrand. No Report.

1928 - Base Commander called for a break. 50/50 Raffle held. \$70 was raised for the General Fund.

1943 - Unfinished Business

Parade/Static Display - 16 members turned in surveys at last meeting. The 4th of July Julian Parade and San Diego Veterans Day Parade topped the Parade List. Members may turn in surveys during this meeting. We will attend Parades for the first couple months if we have enough participants. Next Parade is Linda Vista. We are waiting for confirmation that Ramona Parade is a go for May.

Baja Fishing Trip Fund Raiser - We have sold 208 Tickets Drawing will be held at the end of this meeting.

Member donations to the Hurricane Harvey/Irma Relief Fund stands at \$600. The Base added \$100 and a check was sent to National.

NAVY MUSEUM in ALPINE. Base Secretary Jack Kane will contact Terry Ulmer again about touring his property in Puetz Valley. We will ask Terry if having a half-day outing/tour would be feasible on 19 May 2018. We will have a go/no go answer by 15 April.

Call for Scholarship Packages. Deadline for Packages is 15 April. No Packages received so far.

Obtaining Glassware with the Base Logo for the Base Store is proceeding. Base Commander is looking for a vendor. A motion was made and passed to order 144 Wine Glasses and 144 Pint Glasses. Base Commander is working on getting a logo file for etchings. Cost estimates are approx \$3.50 a glass for Pints and \$2.50 for Wine glasses.

National Website - The new National Website was rolled out. Serious problems were indentified and the Old site was put back in service until problems with the new site are worked out.

The Submarine Birthday Ball has been rescheduled for 12 May 2018 vice 21 April 2018. The Ball will be held at the Sheraton Hotel in San Diego. Estimated costs for sponsoring two WWII Vets (+1) will be - Tickets \$70 each - Hotel Room \$167 + tax. We are looking for candidates who will able to attend. More information at next meeting.

El Centro Air Show - Base Commander Warren Branges and Former Base Commander Fred Fomby attended the El Centro Air Show and manned the static display. Loud, but made a lot of contacts and sold some Base patches, hats, etc.

2005 - New Business

NEED A VOLUNTEER(s) to run Mid-Rats (Hot Dogs Cooker) at meetings for the next few months. Fred Fomby will be indisposed after anticipated surgery. See Fred to volunteer.

2007 - Good of the Order

Julie Biewer has photos to share at the front table after the meeting.

Check Out the many Submarine Veteran themed Facebook Pages. Flyers on back table

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/>). 273 members are signed up. The following boats will hold reunions on the cruise: SS-241 Chivo, SS-484 Odax, SSN-585 Skipjack, SSBN-619 Andrew Jackson and SSN-687 Richard B. Russell.

WESTERN REGION ROUNDUP will be held at SAM' TOWN Hotel and Casino in Las Vegas, April 23-27 2018.

OLD TIMERS LUNCHEON/TOLLING OF THE BOATS will be held at Roncador Memorial on Naval Base Point Loma - Friday 11 May at 1100.

THE SUBMARINE BIRTHDAY BALL is scheduled for Saturday, 12 May 2018.

MEMORIAL DAY/TOLLING OF THE BELLS Ceremony will be held at Roncador Memorial on Naval Base Point Loma - Monday, 28 May 2018 at 1000.

ANNUAL SUBMARINE VET PICNIC - Saturday 14 July 2018 - All Day. Submarine Tours as operational schedules allow. Volunteers see Base Commander to sign up.

SAN DIEGO BASE CHRISTMAS PARTY - 8 December 2018 - Saturday

OUT YEAR National Conventions - will be in Austin for 2019 - in the Western Region for 2020 and in Orlando for 2021

THE DRAWING WAS HELD FOR The Baja Fishing Trip - First Place to Mert Weltzein- 2nd Place to Paul Hitchcock.

The Meeting was adjourned at 2034.

/s/ Jack E. Kane

Jack Kane, Secretary

Sailing List for 13 March 2018

Members

Fred Fomby
David Ball
Joe Peluso
Jack Kane
Bob Farrell
Warren Branges
Phillip JL Richeson
Ray Febrache
Peter Lary

Mert Weltzein
Chris Stafford
Matt Baumann
David Martinez
Jim Harer
Ed Farley
Dennis Mortensen
Paul Hitchcock
Rus Stoddard
Don Mathiowetz

John Chapman
Chris Sultana
Ron Gorence
Manny Burciaga
Russ Fillbeck
Joel Eikam
Guests
Chris Smith and Wife
(CO, Maine Base)
Julie Biewers

The Submarine Lifeguard League - Perpetuating the Memory

by David Kauppinen

During WWII U.S. submarines rescued 504 airmen whose planes had been shot down in the Pacific theater. The submarine “Lifeguard League” began in December 1942 as preparations were made to bomb Wake Island with two dozen B-24 Liberators. The U.S. Army Air Force requested Navy support during this attack which is documented by the following excerpt from a secret memo dated December 10, 1942 from Captain H. M. Martin, Commandant, Naval Base, Midway to the Commander Hawaiian Sea Frontier: “It is strongly recommended that two submarines be stationed in the vicinity of Wake Island on approximately the Midway bearing and that the pilots of the flights be notified of the positions so that in the case of damage by anti-aircraft or enemy aircraft the damaged planes could land and the personnel will be picked up by these vessels.” To support this attack on December 22 and 23 three submarines, USS Pike (SS-173), USS Triton (SS-201) and USS Finback (SS-230) were stationed to the North, South, and East of Wake Island. In addition, three of the U.S. Army Air Force bombers were equipped with Navy radar receivers to pinpoint these submarines. Fortunately, all 24 bombers made it safely back to Midway so the Lifeguard Boats were not needed for the attack.

The first successful pilot rescues occurred during October 6-10, 1943 by the USS Skate (SS-305), under the command of Commander Eugene B. McKinney, as aircraft carriers were conducting strikes on Wake Island. At that time there was no operational guidance on how to perform an aviator rescue and simultaneously protect the submarine and her crew. Consequently, the sub remained on the surface with lookouts watching the skies. On the first day Skate was responding to a downed plane when she was strafed by a Japanese Zero. The sub immediately dove and three bombs were dropped as she passed 90 feet. Unfortunately, that surface attack had mortally wounded LTJG Willis Edward Maxson, III who was standing near the periscope shears. Over the next three days the Skate was forced down multiple times by dive bombers, and was targeted by shore batteries. However, she managed to rescue 6 airmen and safely returned them to Midway Island on October 28.



The USS Harder (SS-257) under the command of Commander Samuel D. Dealey was assigned lifeguard duty during air strikes against Japanese positions in the Caroline Islands chain. On April 1, 1944 she went to rescue an injured pilot who was on the beach at Woleai. Navy fighter planes provided cover as the Harder nosed in to the coral reef about 1200 yards from shore and constantly maneuvered with her screws to maintain position in the surf. At one point the forward torpedo room reported the bow scraping the bottom. A seaplane dropped a raft to the pilot and he left the beach towards the submarine. Since there were no raft paddles on the submarine, three crewmen with a raft and tow line swam towards the pilot. Two of the crewmen were badly cut by the coral reefs and both

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rafts were subjected to sniper fire. After reaching the pilot and starting back, the assisting seaplane inadvertently cut the tow line. One crew member swam back to the sub, retrieved another tow line, and the Harder dragged the rafts past the reef to complete the rescue.

The most aviator rescues in one patrol occurred when USS Tang (SS-306) was on lifeguard duty near Truk in April 1944. In that battle 35 Navy airmen were shot down. Since many of them were close to shore, Commander Richard O'Kane requested urgent assistance from Navy fighter planes to suppress enemy fire while taking the men on board. Subsequently, the Tang was able to rescue 22 airmen. The other 13 airmen were inaccessible, because they crashed over land or within the island lagoon of the atoll.

After seeing the success of USS Tang rescue mission, the Army Air Force requested lifeguard submarines for all their bombing missions. This is when the term "Lifeguard League" came into use. The first Army Air Force rescue occurred on December 19, 1944 during attacks in the Bonin Islands area when the USS Spearfish (SS-190) rescued seven airmen.



USS Tang (SS-306) CDR Richard O'Kane
with 22 rescued airmen April 1944

Submarines completed two 'scoping' rescues during WWII. Since a surfaced submarine makes a large target for shore batteries, the boat must keep a low profile when maneuvering within range, so it is done submerged. Notably, pilots and airmen were routinely briefed on the periscope method. The first scope rescue was accomplished by the USS Stingray (SS-186) under the command of Commander Thomas B. Klakring when she was on lifeguard duty during air strikes on Guam, June 12-16, 1944. Over that period she rescued five aviators. However, the fourth rescue was the most challenging, because the downed airman was only 500 yards offshore. As the man struggled in the surf a TBM Avenger dropped a raft to him. The Stingray submerged and approached for the rescue as shells constantly exploded in front of and on either side of the sub. In addition, anti-aircraft guns were shooting at the raft. With Periscope 1 ten feet out of the water and Periscope 2 three feet out of the water, the Stingray headed directly at the airman. For the first three passes the flier was reluctant to grab the periscope; he later said he was trying to grab it from behind. A frustrated Klakring wrote in his Eleventh Patrol Report "I am getting damned disgusted, plus a stiff neck and a blind eye." Finally, on the fourth attempt the airman held on to the periscope. The C.O. also stated in his report "Towed him for one hour during which time he frantically signaled us to let him up. His hand was cut badly and it must have been tough going hanging on the bitter end of the line with one hand while bumping along in the white caps making 2 knots. However, at this stage of the game, I wasn't feeling one bit sorry for him." After the flier had been on board for a while the C.O. wrote in his report "...We're on speaking terms now, but after the third approach on him, I was ready to make him captain of the head."



The second scope rescue was accomplished by the USS Finback (SS-230) under the command of Lieutenant Commander Robert Russell Williams, Jr. The sub was on lifeguard duty during air strikes on the Bonin Islands in early September 1944. While on station the Finback rescued 5 pilots, however, two of them were notable. An Avenger Torpedo Bomber piloted by future President LTJG George H.W. Bush of Torpedo Squadron 51 from the USS San Jacinto (CVL-30) was hit by anti-aircraft fire while bombing a radio station. After completing the bombing run, Bush managed to fly the plane 7 miles out to sea before bailing out with one of the crewmen whose parachute did not deploy. The third crewman went down with the plane. A Japanese boat was sent to capture Bush, but it was driven off by other pilots involved in the same bombing. His position was reported to the Finback and four hours later she surfaced near him for the rescue. Later he recollected, "I saw this thing coming out of the water and I said to myself, 'Jeez, I hope it's one of ours. I thought being rescued by the submarine was the end of my problem. I didn't realize that I would have to spend the last 30 days of the patrol on board. When we were getting depth charged, the submariners did not seem overly concerned, but the other pilots and I

didn't like it a bit. There was a certain helpless feeling when the depth charges went off that I didn't experience when flying my plane against AA."

Shortly after rescuing LTJG Bush the Finback received word of a downed Hellcat pilot 9 miles away in a raft 1.5 miles off Haha Jima, and he was being fired at from shore. Three hours later the pilot was found, however the location was well within range of Japanese shore batteries. The C.O decided to make the approach submerged at 55 feet. The Finback 'roared' passed the pilot to alert him, then went in reverse in hoping he would grab the periscope. After several attempts and 30 minutes later the pilot finally hooked his arms around the periscope and the boat headed to sea at 2/3 speed. This caused the pilot to be pulled out of the raft, and he was being dragged with one arm around the periscope and the other pulling the raft. Williams stopped the boat, the pilot got back into the raft, and they tried again with the same result. Consequently, the Finback came up to 38 feet to not overly expose the sub to Japanese artillery, and the pilot held on to the periscope shears. When they were 5 miles from shore, the Finback planed up to the surface, opened a hatch, and took the pilot on board. The patrol ended 29 days later at Midway Island, and the five aviators left to reunite with their units.

For the most part, submarine crews would rather have been hunting enemy ships than rescuing aviators. However, for the short time a patrol was assigned to lifeguard duty, it was well spent and greatly appreciated by the 504 pilots rescued by those submarines.

References

- 1) Mission: Lifeguard, American Submarines in the Pacific Recover Downed Pilots, by Nathaniel S. Patch, <https://www.archives.gov/files/publications/prologue/2014/fall/lifeguard.pdf>
- 2) U.S. WWII Submarine War Patrol Reports, <https://maritime.org/doc/subreports.htm>

Current News

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

The US Military Wants Giant Transformer Robot Subs *Patrick Tucker, Defense One, May 1*

DENVER, Colorado — Want to de-mine a patch of ocean floor in hostile waters, deposit classified payloads off an enemy coast, shut off a broken oil valve, or just fight krakens? Texas-based startup Houston Mechatronics on Tuesday unveiled a giant, transforming robotic submarine, partially backed by the Defense Department, for deep-sea precision missions.

The Aquanaut unmanned underwater vehicle, or UUV, can chug beneath the ocean's surface for hundreds of kilometers and then transform into a vaguely insect-like robot to perform delicate operations in the watery depths. Its biggest backers are players in the oil and gas exploration like Transocean, which are looking to better maintain oil rigs, offshore equipment, and help with operations. Houston Mechatronics co-founder and chief technical officer Nicholas Radford said the robots might would travel from site to site, like a frog swimming from one lily pad to another without ever having to be pulled out of the water. "We intend to blanket the Gulf of Mexico," he said.

While big oil is the primary investor, the Defense Department — through a cooperative research and development agreement with the Navy — is also supporting the project. Radford expects additional financial funding from other sources within the military soon. The near-term objective is counter-mine missions "in area-denied water, or where you don't want the presence of a top-side vessel," he said.

The robot, which can extend from 2.87 meters to 3.5 meters with its arms out, can travel hundreds of kilometers between sites. Once the arms come out, the operator directs the puppet show over an acoustic modem with a range of tens of kilometers.

"Autonomy is a big deal," especially for military customers, said Radford, but added that for the difficult arm manipulation operations, "We think you can get higher realizations of value in theatre with a human still in the loop [operating the robot] at a low data rate."

Can the U.S. Navy Brave the Waves of Autonomous Warfare? *Olivia Miltner, Ozy, May 1*

It was January 1945, and the Nazis knew the end was near. The German ocean liner Wilhelm Gustloff, designed to accommodate 1,900, was packed with more than 10,000 soldiers and refugees when it ventured into the freezing Baltic Sea, part of efforts to evacuate two

million Germans out of eastern Prussia and away from an advancing Soviet army. But a Soviet submarine spotted the ship and fired three torpedoes into it, killing more than 9,000, including 5,000 children.

More than seven decades later, the United States Navy is trying to reduce some of the risks of maritime warfare highlighted by the *Gustloff's* end, which remains the deadliest maritime disaster in history — at a time when Secretary of Defense James Mattis has signaled a return of America's security focus on "great power competition." Traditional ships are expensive to build and carry enough personnel to turn any midsea mishap into a potential financial and human disaster. So the U.S. Navy, which has sought automated solutions to technical and operational challenges for decades, is increasingly turning to autonomous vehicles with the hope they can improve the efficiency and range of naval capabilities while decreasing their cost.

The Navy's plans span surface, air and undersea platforms. In early February, the Office of Naval Research took over a prototype of the *Sea Hunter*, a surface-level submarine-hunting drone ship, from the Defense Advanced Research Projects Agency. In December 2017, the ONR successfully demonstrated an autonomous helicopter flight that is part of an autonomous aerial cargo/utility system (AACUS) program in collaboration with American technology firm Aurora Flight Sciences. Apart from dozens of disclosed autonomous underwater vehicles already in operation, the Navy established its first underwater drone squadron in September 2017. In December, President Trump signed a bill authorizing almost \$8 billion to submarine programs. And defense contractors such as Lockheed Martin and Boeing are developing fully automated submarines called extra-large unmanned underwater vehicles (XLUUVs).

The shift toward autonomous vehicles is sparking ethical questions for the Navy. How much can you trust a machine loaded with other machines to always function properly, and how much power should they have? But autonomous vehicles could prove cheaper to run, and because the lives of sailors wouldn't be at stake, they could assume a greater level of risk than a manned ship at a time when the U.S. is particularly vulnerable at sea. AUVs will help "improve and expand undersea superiority," the Navy said in 2016 testimony to Congress. The Navy's new focus on these technologically advanced weapons systems comes at a time the Department of Defense has unveiled the Trump administration's first National Defense Strategy, summarized by Mattis in a January speech, where he said that "great power competition, not terrorism, is now the primary focus of U.S. national security."

"We're in a period now where war at sea is dangerous," says Steven Wills, strategy and policy analyst at CNA, a nonprofit research and analysis organization located in Arlington, Virginia. "Potential adversaries have better weapons than they've had in the past, and these weapons have proliferated to more places."

Countries such as China, Russia, North Korea and Iran have large arsenals of cruise missiles, which are relatively cheap but can cause a significant amount of damage. Other groups, like Yemen's Houthi rebels, have also been able to acquire them — and tend to use them indiscriminately. Autonomous vehicles, in response to these threats, are more expendable. They can augment a fleet and do search and reconnaissance, says Dan McLeod, Lockheed Martin's program manager for the *Orca*, an XLUUV the company is designing for the Navy.

In the air, an unmanned helicopter armed with AACUS sensors and software can take supplies from a base, select the optimal route and best landing site closest to fighters on the front lines, land, resupply and return to base — all with a finger tap on a hand-held tablet. The *Sea Hunter* drones are designed to autonomously carry out 70 daylong sea surface patrols at a time, as far out from base as 10,000 nautical miles. And the XLUUVs that Boeing and Lockheed Martin are building for the Navy would have an extended range, the ability to deliver a variety of payload and the capability of operating independently of manned ships. In July, the DARPA also contracted BAE Systems to build a small unmanned underwater vehicle that would help detect enemy submarines.

This concerted rush marks a departure from the isolated use of underwater unmanned vehicles in the past. The Navy sent UUVs to search for an Argentine submarine that disappeared in South Atlantic waters in November, and had used them as far back as 2003 to clear an Iraqi port of mines. But many of its AUVs are working on sea-sensing and mine-countermeasure tasks "with human-in-the-loop supervision," the Navy said in the 2016 report to Congress. By 2025, it expects AUVs to support undersea warfare by going into denied waters that are too deep or too shallow for manned platforms — and the military, some experts anticipate, will lead the development of these technologies rather than the commercial sector. AUVs that can comprehend "purpose," are able to execute missions and can make decisions are already on the way; they will present their own ethical dilemmas, apart from questions of trust and responsibility.

The extent to which warfare functions will become automated is a moral issue for much of the military, says naval historian and strategist Norman Friedman. "If you actually kill somebody, in theory, anyway, you'd prefer to have someone responsible for doing it," Friedman says, adding that increasingly, that's already becoming difficult to do. Putting human lives at the mercy of a machine also relies on trust that the system is going to do what it's supposed to do while simultaneously balancing that with the level of risk one is willing to accept. To McLeod, the question is, "Trust under what risk profile?"

Still, the debate over the specifics of what autonomy will — and should — look like isn't challenging the fundamental argument for such technology: that it could help the U.S. maintain its dominance at sea. The conundrum? The technology could simultaneously end up posing as many questions as the answers it provides.

[Russian 'Doomsday Machine' Nuke Could Wipe Out Coastal Infrastructure With 300ft Tsunamis](#)
[Sara Malm, The Daily Mail, April 24](#)

Russia's new nuclear drone submarine could be capable of causing 300ft-high tsunamis, able to wipe out coastal cities, experts say.

The existence of the drone, believed to be the *Status-6* system - also known as 'Putin's doomsday machine' - was confirmed by the Russian President himself in his annual state-of-the-nation speech in Moscow last month.

Experts say a 50 megaton underwater nuclear bomb would be able to create tsunami waves reaching more than 320ft - the 'Status-6' is allegedly able to carry a 100 megaton warhead.

The *Status-6* is reported to have a range of up to 6,200 miles with top speeds of 56 knots, and an ability to carry nuclear warheads within range of the US.

In his speech on March 1, Putin said the high-speed underwater drone also has an 'intercontinental' range and is capable of carrying a nuclear warhead that could target both aircraft carriers and coastal facilities.

He said its operational depth and high speed would make it immune to enemy intercept, adding: 'It's just fantastic!'

Physicist and nuclear-weapons researcher Rex Richardson told Business Insider that an underwater warhead dropped by the drone could destroy coastal cities.

'A well-placed nuclear weapon of yield in the range 20 megatons to 50 megatons near a seacoast could certainly couple enough energy to equal the 2011 tsunami [In Japan which killed nearly 16,000 people], and perhaps much more.

'Taking advantage of the rising-sea-floor amplification effect, tsunami waves reaching 100 meters [328 feet] in height are possible.'

Mr Richardson added that such an underwater nuclear bomb dropped off the coast of the United States would be able to cause catastrophic damage to cities such as Los Angeles or San Diego through radioactive fallout rains.

The 'Status-6' was one of several new nuclear weapons which President Putin announced as having undergone tests in recent months.

In the state-of-the-nation speech, Putin said the arsenal include a nuclear-powered cruise missile, a new hypersonic missile and showed video footage the launch of a new heavy intercontinental ballistic missile on big screens.

During his speech, Putin said the creation of the new weapons has made NATO's U.S.-led missile defense 'useless,' and means an effective end to what he described as Western efforts to stymie Russia's development.

Speaking of the new arsenal, Putin said that the nuclear-powered cruise missile tested last fall has an unlimited range and high speed and maneuverability allowing it to pierce any missile defense.

UConn Professor Finds New Way To Test Submarine Parts For Vibration

Julia Bergman, The Day, April 23

It goes without saying that being able to move around quietly is key to a submarine's stealth.

The Navy has continued to develop ways to make submarines more stealthy such as quieter machinery and a new hull coating to better absorb sound. And now, a University of Connecticut professor and his graduate students have found a way to do vibration testing on submarine parts sooner in the design process.

Rich Christenson, a professor in the University of Connecticut's Civil and Environmental Engineering Department, and his graduate students have adapted a method used by earthquake engineers to use shake tables to simulate how parts like a submarine motor, for example, will vibrate on a ship at sea. The shake tables are connected to computers, which tell the tables to move as the part would if it were sitting in water. The computers also run a mathematical model to see how the parts will respond when they are part of a larger system.

"What it allows us to do is to test in a lab a component on a ship for vibrations and to simulate the behavior of the rest of the structure and the system," said Christenson, who is also co-director of the National Institute for Undersea Vehicle Technology headquartered at the college's Avery Point campus in Groton.

Currently, system-level testing is done after a submarine is designed and built. At that point, it's usually too late to figure out if an expensive piece of equipment meant to make a ship quieter isn't necessary or whether a less expensive alternative might work, according to Christenson.

"It provides more certainty in the design and in the components you're using earlier in the design process," he said of the technology he developed. "If something isn't going to work, you can identify that earlier and fix it through the initial design, or change and use a different component if need be."

It could allow for more testing of off the shelf components to see how they might perform in the system, he added.

This work has been going on for about seven years now. The research and specialized equipment used for testing is funded by several Navy grants totaling \$1.6 million. Electric Boat engineers were involved in the development of the technology, and the submarine builder is interested in implementing the technology, Christenson said.

"Everybody has, I think, reached consensus that this part of the fleet is more and more prized by combatant commanders, and now that the dip in fleet size is getting imminent, time and delivery is even more of a priority," said U.S. Rep. Joe Courtney, D-2nd District.

The Navy is negotiating the contract for the next group of attack submarines it wants to build from 2019 to 2023. Congress authorized the production of up to 13 Virginia submarines during that period, but the Navy has indicated it wants to build 12. That would mean building three submarines in 2022 and 2023, respectively. Costs still are being figured out, and Congress would have to approve any funding.

"I'm still committed to having options in that contract for additional submarines in '22 and '23, should that be something we jointly decide to do and can afford," Assistant Secretary of the Navy James Geurts said at a recent congressional hearing.

The Navy also is proposing to extend for up to 10 years the service life of five Los Angeles-class attack submarines, which the Virginia submarines are replacing. At this point, no Groton-based submarines are being considered for service life extension.

The Virginia program has been hailed for boats being delivered on time and within budget, but there have been setbacks. Some boats were affected by welding issues, causing delays in their getting out into the fleet, and in some cases there's been delays in getting parts, which has slowed down construction.

The 15 Virginia submarines currently in the fleet were delivered within 5 percent of the contracted deadline, according to Capt. Chris Hanson, the Navy's new Virginia program manager.

"To do this work, we have to ensure the vendor base, our 5,000 vendors, is feeding the system with quality parts on time," Hanson said.

Keith Macdowall, vice president of Prime Technology LLC in North Branford, which makes display systems for submarines similar to those seen on car dashboards, said EB has been proactive about alerting its suppliers what to expect with the ramp-up in submarine production.

“The nuclear shipbuilding supply base is poised to ramp up production capacity to support the increased demand associated with the Navy’s Shipbuilding Plan,” Liz Power, spokeswoman for EB, said in an emailed statement. “We have developed strategic plans to ensure we have the workforce, facilities and supply chain in place to respond to current and potential needs, and have shared these plans with the Navy.”

The biggest concern for suppliers is getting materials on time and ensuring they have the equipment and employees in place to do the work, according to Macdowall. Federal lawmakers have appropriated tens of millions of dollars to help suppliers prepare for the ramp-up, such as buying parts in advance.

Macdowall, who is co-chairman of the Submarine Industrial Base Council, said the organization had a record turnout for its annual summit in Washington in March. He estimated 400 people attended, which shows the level of interest in this work, he said.

What Is ‘Acoustic Cloaking’ And How Does It Work?

Todd Bates, *Futurity*, April 23

A model for directing sound waves to go around, instead of colliding with, an object—effectively cloaking it from detection—could have a wide range of applications from military to medical.

Andrew Norris, a professor in the department of mechanical and aerospace engineering at Rutgers University-New Brunswick and pioneer in the field of cloaking, which can help make underwater objects appear invisible, created the model.

Here, Norris discusses his research, which could lead to improved acoustic technology, including better imaging underwater, and biomedical applications, such as enhanced imaging of tissue.

What is cloaking?

Cloaking is sort of synonymous with invisibility, like when Harry Potter wears an invisibility cloak. He puts it on and disappears. There are lots of sci-fi references to invisibility—the (comic book characters) Invisible Woman and the Invisible Man. They have cloaking devices in Star Trek. So, it’s always been of interest in literature, in society, and in science.

During the last 20 years or so, people have realized it’s possible to achieve one kind of cloaking—the basic idea is to control sound waves in ways you couldn’t before.

What do you study?

We study acoustics—sound that can be in the air, fluids, and solids. Generally, we use mathematical models to explore possibilities for different kinds of devices and see how we might control sound. We often find things that we didn’t expect. We can make effects that might appear impossible, but everything is based on the laws of physics. Much of our work involves designing and testing innovative materials and structures to control how sound waves move.

What have been your major findings?

Our findings are in the field of cloaking. A cloak bends the light around an object so it is invisible. The same concepts apply to other kinds of waves, including sound. To make a cloak for sound or light, you must be able to make new forms of material that can bend the waves around the object inside the cloak.

We are focusing on developing a new material design using metallic lattices. Our lattice consists of relatively thin metal pieces arranged in a honeycomb pattern if the structure is two-dimensional, and like a diamond structure in 3D.

Metal on semiconductors may lead to invisibility cloaks

While these structures cannot yet make cloaking devices, we found they can be used in other unexpected applications, such as making underwater acoustic lenses. We designed a lens that focuses and amplifies sound. The lens is novel because no power is necessary and it can focus acoustic energy in a small region, magnifying the signal from a distant sound source.

We also designed an underwater device that can redirect acoustic energy from a hydrophone. A hydrophone produces sound underwater, but the sound energy is directed almost equally in all directions.

Why are your findings important and what are the practical implications?

Acoustics is central in communications, whether the sound provides useful information or annoying noise. Our research has developed theoretical and practical methods to better understand how to control sound.

Our focus is on applications for underwater sound, such as sonar sound waves used in communicating and locating things. The Navy has expressed interest. Everyone asks whether a cloak could make a submarine invisible, but that is quite unrealistic. The size of any effective cloak would dwarf the sub.

We also could see applications in commercial devices. Examples would be improved acoustic imaging underwater for finding fish or imaging the ocean bottom. Biomedical applications could include better imaging of tissue, which is very much like water when it comes to acoustics.



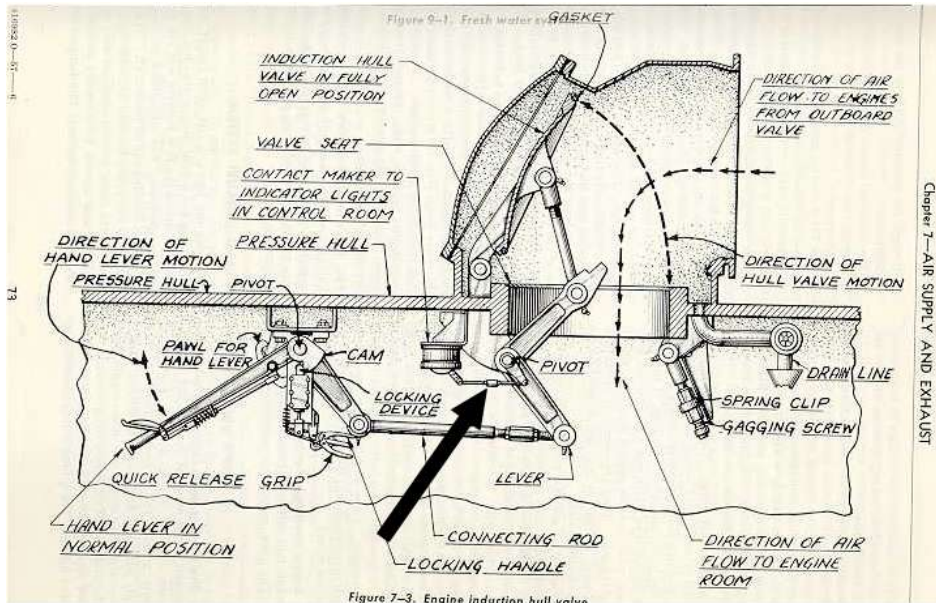
Thoughts on Squalus: Or Why Must Shipyard Personnel Go Along for the Ride?

OPINION by Michael Hyman, Editor

On May 23, 1939, the USS Squalus suffered a flooding disaster. Every account of the tragedy—including that of the U.S. Navy—attributes it to human error, suggesting that 26 men of the Squalus crew contributed to their own demise. To such a suggestion, I say “BULL!” Rather, I believe that the blame should be assigned to Portsmouth Naval Shipyard.

For many years I have known that the contact maker linkage (which shows the Open/Shut status of the Main Induction Valve on the Control Room Christmas Tree) was not connected (see the diagram below); rather it merely was hanging loose.

Squalus and Sculpin were built side by side—and civilian workers shared construction and assembly tasks creating both boats. The Squalus was completed first and would make the dive before Sculpin. Consequently, as soon as he heard of the Squalus sinking, the CO of Sculpin immediately commanded his crew to go over every inch of the boat. And guess what the Sculpin crew found? The contact maker linkage was “hanging loose.” How do I know this? Because I knew the guy who discovered it—a Sculpin TM who asked me not to divulge his name. So this I will not do. Nonetheless, there is something that I can say on another matter concerning Squalus. Thirty-three survivors were saved on account of Lcdr Charles “Sweede” Momsen and the Momsen-McCann Rescue Chamber. Twenty-Six men were not as fortunate; they drowned in the after compartments. Consequently, there was the unpleasant task which no one ever talked about—specifically, removing the dead bodies from Squalus after she was raised. Well I knew someone who talked about it—and so did most of you. Who? Joe McGrievy. Joe at the time of the Squalus tragedy was only a Seaman Apprentice. When the boat was raised, Joe and a few others were assigned the task of removing the Squalus dead from the boat. He never could erase the experience from his mind!



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