

SWIT Prevents Costly Mistakes Before Weapons Reach the Fleet



Rob Pavel, a Shipboard Weapons Integration Team logistician with Naval Air Warfare Center Weapons Division, conducts shipboard weapons integration work in support of the Low-cost Unmanned Combat Attack System aboard USS Santa Barbara (LCS 32). SWIT validates that weapons systems can be safely stored, moved, and handled at sea prior to operational use. LUCAS later successfully launched from the ship's flight deck Dec. 16, 2025, as part of Task Force Scorpion Strike operations while operating in the Arabian Gulf. (Courtesy photo)

From Naval Air Weapons Division, Point Mugu, Calif., Feb 6, 2026

The Shipboard Weapons Integration Team provides independent assessments that ensure Navy ships can safely store, move, and handle weapons at sea, turning new shipboard firepower into usable fleet capability.

That work happens far from the flight deck and long before a

system ever deploys. SWIT evaluates weapons facilities on new construction ships and ship modifications to confirm crews can safely handle ordnance under real operating conditions.

Inside the ship, new capability creates hard questions most people never think about: Where does a weapon go when the ship rolls? Can Sailors move it through narrow passageways without forcing unsafe workarounds? Can crews secure it safely alongside other ordnance?

SWIT answers those questions before a weapon is delivered.

New capability does not fit the ship by default

Barry Olson, head of the Sustainment Program Management and Analysis Department, described SWIT as a reality check for weapons integration.

“These guys work with the safety board and with the fleet on what is real, how we handle stuff, how we load stuff,” Olson said.

Even small ship modifications can create major problems once a ship is underway.

“Sometimes it’ll be a ship mod that messes things up,” Olson said. “They put a vending machine in the aisle and now you can’t get weapons to fit down the aisle anymore.”

By identifying those issues before a system reaches the fleet, SWIT prevents costly rework, deployment delays, and potentially dangerous workarounds. Finding a blocked weapons route in port can save months of delays and costly modifications at sea.

SWIT’s work spans more than unmanned systems.

The team may be asked to plan safe storage and movement for helicopter weapons such as rockets and Hellfire missiles, ship self-defense rounds like Rolling Airframe Missile, and even

Army rocket launchers temporarily embarked on cargo ships or tankers to meet urgent fleet needs.

Independent checks built on fleet reality

Bill Ayers, Shipboard Weapons Integration Team lead, said SWIT's value comes from its role as an independent assessor.

The Office of the Chief of Naval Operations designates SWIT as the Navy's independent assessor for shipboard weapons facilities, placing the team inside magazines, weapons handling spaces, and ordnance movement routes on new construction and modified ships. Naval Sea Systems Command tasks SWIT to certify that those spaces work as designed and that crews can safely move and secure weapons before a ship enters service.

Rather than relying on drawings alone, Ayers said the team tests ships the way Sailors will actually use them. SWIT brings inert weapons and representative equipment aboard and moves them through intended routes to confirm they can be handled safely.

Those demonstrations matter because ships rarely match the plans. A few inches lost in a passageway or a late modification can block a weapons route and force crews into unsafe solutions.

Rapid response for operational urgency

SWIT's rapid response capability proved critical when the team deployed on short notice to support Task Force Scorpion Strike aboard USS Santa Barbara (LCS 32) during Central Command operations.

For the Low-cost Unmanned Combat Attack System, SWIT verified shipboard routes, identified required modifications, and confirmed weapons support equipment fit the littoral combat ship's layout before the system reached the ship. The team's

validation helped ensure the system could be launched safely within a narrow operational window.

On Dec. 16, Santa Barbara launched LUCAS from its flight deck while transiting the Arabian Gulf. It was the first shipboard launch at sea for the drone operated by Naval Forces Central Command's Task Force 59.

Validation that keeps capability accountable

SWIT does not install weapons. The team validates them.

"We're the independent validation," Ayers said. "The program gets to say we're good to go. The installer gets to say we're good to go. Then we come in and ask what about this, this and this."

That role becomes more important as the Navy fields new capability on compressed timelines. By identifying fixes early and testing realistically, SWIT helps ensure speed does not outrun safety or mission readiness.

When a system launches at sea, it can look simple. What you don't see are the months of assessments that prevented delays, avoided dangerous workarounds, and ensured the ship and crew were ready when the window opened.

For Ayers, the entire process is designed for the warfighter.

"It's that 19-year-old Sailor on the deck." Ayers said. "Our job is to make sure that when they have to use this equipment, it works and it's safe. That's the only thing that matters."

RTX's Raytheon Selected by DARPA to Develop Advanced Maritime Defense Technologies



[Release From RTX](#)

New capability will protect vulnerable vessels from threats at sea

PORTSMOUTH, R.I., (February 2, 2026) – Raytheon, an RTX (NYSE: RTX) business, has been selected by the Defense Advanced Research Projects Agency (DARPA) to develop an advanced sensing and targeting system that will help defend vulnerable commercial shipping and naval logistics vessels against emerging threats such as unmanned surface vehicles (USVs).

Under the contract, Raytheon's [Advanced Technology](#) team will design, build, and demonstrate a system that consists of Electro-Optical/Infrared (EO/IR) sensors, advanced detection software, and robust command and control capabilities to enhance situational awareness and threat response.

The system, which is being developed for DARPA's Pulling Guard program, will deploy the sensors via a tethered drone connected to a semi-autonomous unmanned platform that is towed by commercial and naval logistics vessels. The sensors will provide real-time target tracking data to remote operators, enabling them to make rapid, informed engagement decisions.

Phase one of the program will focus on simulated engagements to evaluate system performance and operator workflows. In phase two, the system will transition to integrating operational launchers and effectors for live operations.

"Through this development, we are advancing critical security technologies for commercial shipping in regions like the Red Sea," said Colin Whelan, president of Advanced Technology at Raytheon. "By integrating our proven expertise in command and control, high-performance sensing, and effectors, we will deliver a scalable, cost-effective solution that minimizes risks to both cargo and naval assets."

Beyond its primary focus of vulnerable ship protection, the technology Raytheon is developing has the potential to deliver broader capabilities across a wide range of naval and security operations, including automated overwatch for medium and large USVs and manned combatants operating in multiple theaters.

USS Greeneville Returns Home Following Deployment



NAVAL BASE POINT LOMA, Calif. (Jan. 30, 2026) – Los Angeles-class fast-attack submarine USS Greeneville (SSN 772) returns to Naval Base Point Loma following a deployment to the U.S. Indo-Pacific Command area of responsibility, Jan. 30, 2026. (U.S. Navy photo by MC2 Rashan Jefferson)

[From Commander, Submarine Squadron 11 Public Affairs](#)

NAVAL BASE POINT LOMA – Los Angeles-class fast-attack submarine USS Greeneville (SSN 772) returned to its homeport of Naval Base Point Loma, following a regularly scheduled deployment to the Indo-Pacific region in support of U.S. national security objectives, January 30, 2026.

During the deployment, Greeneville steamed over 49,000 nautical miles while conducting the full spectrum of SSN operations alongside U.S. and Allied forces.

“The return of USS Greeneville marks the successful completion of yet another vital mission for Submarine Squadron 11,” said Capt. Phillip Sylvia Jr., commodore, Submarine Squadron 11. “I am incredibly proud of the Greeneville crew. They operated professionally in challenging environments,

proving once again that our undersea forces are the apex predators of the maritime environment and their forward-deployed presence reinforced our commitment to peace through strength.”

The crew of Greeneville relentlessly pursued excellence and operated in a professional manner in support of maritime operations in the Indo-Pacific region, reaffirming the U.S.’ dedication to deterrence, stability, and prosperity.

“The American public and our Allies and partners should rest easy at night knowing that the Greeneville team, along with our brothers and sisters throughout the Submarine Force and the Navy have the watch,” said Capt. Chad Tella, commanding officer, USS Greeneville. “Time and time again, the Greeneville team fearlessly met all challenges head on, not only getting the job done, but exceeding all expectations. The team routinely united in the face of adversity to ensure mission accomplishment, no matter the situation.”

Additionally, while on deployment, Greeneville Sailors completed 695 overall qualifications, and nine officers and 38 enlisted Sailors earned their submarine warfare qualifications.

“Greeneville Sailors performed second to none,” said Senior Chief Logistics Specialist (Submarines) Daniel Dumitrache, chief of boat, USS Greeneville. “Before we deployed, less than 20 Sailors had deployed to the Western Pacific. Now, 165 Sailors know what it takes to deploy and operate at the tip of the spear.”

In between their high tempo undersea missions, Greeneville conducted a port visit to Busan, Republic of Korea, giving Sailors an opportunity to experience the local culture while building relationships and friendships.

“The port visit to Busan provided a great opportunity to relax following extended at sea operations,” said Dumitrache. “The

Republic of Korea (Navy) did an amazing job making us feel welcome. Watching our crew play a game of soccer against the crew of ROKS Jeong Ji (SS 073) was a memorable and impactful experience.”

Commissioned on February 16, 1996, Greeneville is the only vessel in United States naval history named after Greeneville, Tennessee.

Greeneville is one of four Los Angeles-class fast-attack submarines assigned to Commander, Submarine Squadron 11, capable of supporting various missions, including anti-submarine warfare, anti-ship warfare, strike warfare and intelligence, surveillance and reconnaissance.

U.S. Navy Completes Final Flight Test Harpoon Block II Obsolescence Update



An F-15 launches a Harpoon Block II off the coast of California in January 2026. This was final flight test of the Harpoon Block II Update (HIIU) Obsolescence Update program. (U.S. Navy photo)

[From Naval Air Systems Command, Patuxent River, Md](#)

NAS Patuxent River, Md.—The U.S. Navy successfully completed the third and final planned flight test of the Harpoon Block II Update (HIIU) Obsolescence Update program Jan. 16, marking a key milestone in modernizing and sustaining the weapon system.

The Precision Strike Weapons (PMA-201) program office, in partnership with Boeing, conducted the test at Naval Air Weapons Station China Lake and the Point Mugu Sea Range in California. The event demonstrated a successful Coastal Target Suppression mission against a representative land target, with all test objectives met based on preliminary assessments.

“This milestone reflects the strength of the integrated government and industry team and their commitment to delivering reliable, relevant capability to the fleet,” said Capt. Sarah Abbott, PMA-201 program manager.

During the mission, the missile executed multiple altitude changes to simulate a coastal engagement. After launch from an F-15 at approximately 12,000 feet above ground level, the missile descended to an initial waypoint altitude of 5,000 feet, then proceeded to the target area and performed a steep terminal dive prior to impact.

The HIIU flight test series consisted of three events designed to progressively validate system performance across mission sets. The first test verified guidance and aerodynamic performance, the second demonstrated engagement of a moving maritime surface target, and the final event confirmed effectiveness against a land-based target—highlighting the weapon’s operational versatility.

“This achievement reflects the coordinated efforts of professionals across program management, engineering, logistics, test and evaluation, aircrew, ground support, and range teams, alongside our industry partners,” said Bob Cress, SLAM ER/HIIU development team lead.

Following this event, system-level flight testing for the HIIU Obsolescence Update is nearly complete, with initial deliveries planned for later this year.

HIIU builds on the Harpoon’s 50+ year legacy by addressing obsolescence items and preparing the weapon to extend production around the world. The U.S. Navy and more than 30 foreign partners use the Harpoon in support of anti-ship and land-strike missions.

USS Truxtun Departs Naval Station Norfolk for Deployment



NAVAL STATION NORFOLK, Va. (Feb. 3, 2026) – The Arleigh Burke-class guided missile destroyer USS Truxtun (DDG 103) departed Naval Station Norfolk for a scheduled deployment on Feb. 3, 2026. (U.S. Navy photo by MC2 Derek Cole)

[From Commander, U.S. 2nd Fleet](#)

NORFOLK, Va. – Arleigh Burke-class guided missile destroyer USS Truxtun (DDG 103) departed Naval Station Norfolk for a scheduled deployment on Feb. 3, 2026.

The ship's company includes approximately 300 Sailors, with an additional 26 embarked air wing personnel assigned to the "Valkyries" of Helicopter Maritime Strike Squadron 50.

The ship's independent deployment departure comes after several months of training and maintenance, preparing the ship for a multitude of operations. Truxtun is a multi-mission guided-missile destroyer with air warfare, anti-submarine

warfare, naval surface fire support, and surface warfare capability.

“Truxtun’s recent experiences in the 5th and 6th Fleet areas of operations have sharpened our technical and tactical mastery, translating proven operational readiness into immediate effects,” said Cmdr. James Koffi, commanding officer of Truxtun. “Our presence at sea will not merely be a ‘deployment,’ but a decisive application of *Peace Through Strength*.”

Truxtun’s last deployment concluded in October 2025, where they conducted operations in U.S. 5th and 6th Fleet areas of operations. During this time, the ship successfully worked alongside the Harry S. Truman Carrier Strike Group, the Carl Vinson Carrier Strike Group, the Nimitz Carrier Strike Group, and the HMS Prince of Wales Strike Group in various capacities. Truxtun also represented the U.S. Navy in the multi-national operations Mediterranean Strike and Bright Star, which fostered relationships between various allies and partners.

“The Sailors of USS Truxtun are ready to deploy and accomplish our nation’s work at sea,” said Capt. Bryan Carmichael, commodore, Commander Naval Surface Group Mid-Atlantic. “The combat capabilities that this ship brings to a fight will be ready whenever tasked to deter, and, if necessary, defeat, aggression in defense of America’s interests around the world.”

Truxtun was commissioned on April 25, 2009. The ship is named for Commodore Thomas Truxtun, who was selected as one of the Navy’s initial six captains on June 4, 1798.

“We proudly carry the namesake of Commodore Thomas Truxtun,” said Koffi. “Commodore Truxtun’s primary aim as the commanding officer of USS Constellation, one of the U.S. Navy’s original six frigates, was protecting American commerce in the

Caribbean during a period of deep regional uncertainty in the fledging years of our new nation.”

U.S. 2nd Fleet, reestablished in 2018 in response to the changing global security environment, develops and employs maritime ready forces to fight across multiple domains in the Atlantic and Arctic in order to ensure access, deter aggression and defend U.S., allied, and partner interests.

U.S. Demonstrates Advanced Submarine Combat Control System Technology for UK Counterparts



By AUKUS Integration & Acquisition, Feb. 4, 2026

GROTON, Connecticut – As part of the AUKUS trilateral security partnership, the U.S. Navy recently demonstrated its advanced AN/BYG-1 submarine combat control system to sailors and industry members from the United Kingdom (UK). The AN/BYG-1 developed under a joint U.S. / Australian program office and is used aboard both nations' submarines.

Representatives from the UK, including the Royal Navy, government, and industry, visited Naval Submarine Base New London in Groton, Conn., in November 2025 to observe U.S. Navy

Sailors from Los Angeles-class nuclear-powered fast-attack submarine USS Hartford (SSN 768) operating the AN/BYG-1 combat control system at the shore-based virtual Submarine Multi-Mission Team Trainer (SMMTT).

This capability demonstration supports the integration of the AN/BYG-1 into the future SSN-AUKUS which is being designed by the UK and will be built and operated by both the Royal Navy and the Royal Australian Navy under the AUKUS program, the trilateral security agreement between Australia, the UK and U.S. to deliver a nuclear-powered, conventionally armed submarine capability to Australia.

Currently, the U.S. Navy and Royal Australian Navy operate the AN/BYG-1 aboard their submarines. Including the system in the baseline SSN-AUKUS design highlights the interconnectivity and interoperability of the three nations' attack submarine fleets.

The AN/BYG-1 links sensor inputs and controls submarine combat operations, including targeting and firing torpedoes and missiles. The system integrates tracking of other submarines and surface ships, improving situational awareness for the submarine's crew. Unlike combat control systems of the past, the AN/BYG-1 utilizes commercial off-the-shelf technology and software updates to enable easier upgrades over the life of the submarine.

During the first days of the demonstration, U.S. Navy Sailors and instructors briefed the UK contingent on the AN/BYG-1 system. Following the briefs, the group observed crew from Hartford operating the version of AN/BYG-1 recently installed on their submarine. After observing Hartford's crew, UK personnel took the controls in the SMMTT and spent six days operating the system.

"We are extremely grateful to the crew of USS Hartford and the

U.S. Naval Submarine School, who provided us with a fantastic demonstration of submarine warfighting that gives the UK a greater understanding of the AN/BYG-1 system. This is an important milestone for the Royal Navy and demonstrates the significant progress made in submarine combat system capability collaboration across all of the AUKUS partner nations,” said Cmdr. Rob Richards, RN, AUKUS Combat System Technology Insertion. “The UK is committed to integrating this combined U.S./Australian system in SSN-AUKUS and driving forward our true AUKUS ambitions of future interoperable, collaborative submarine forces.”

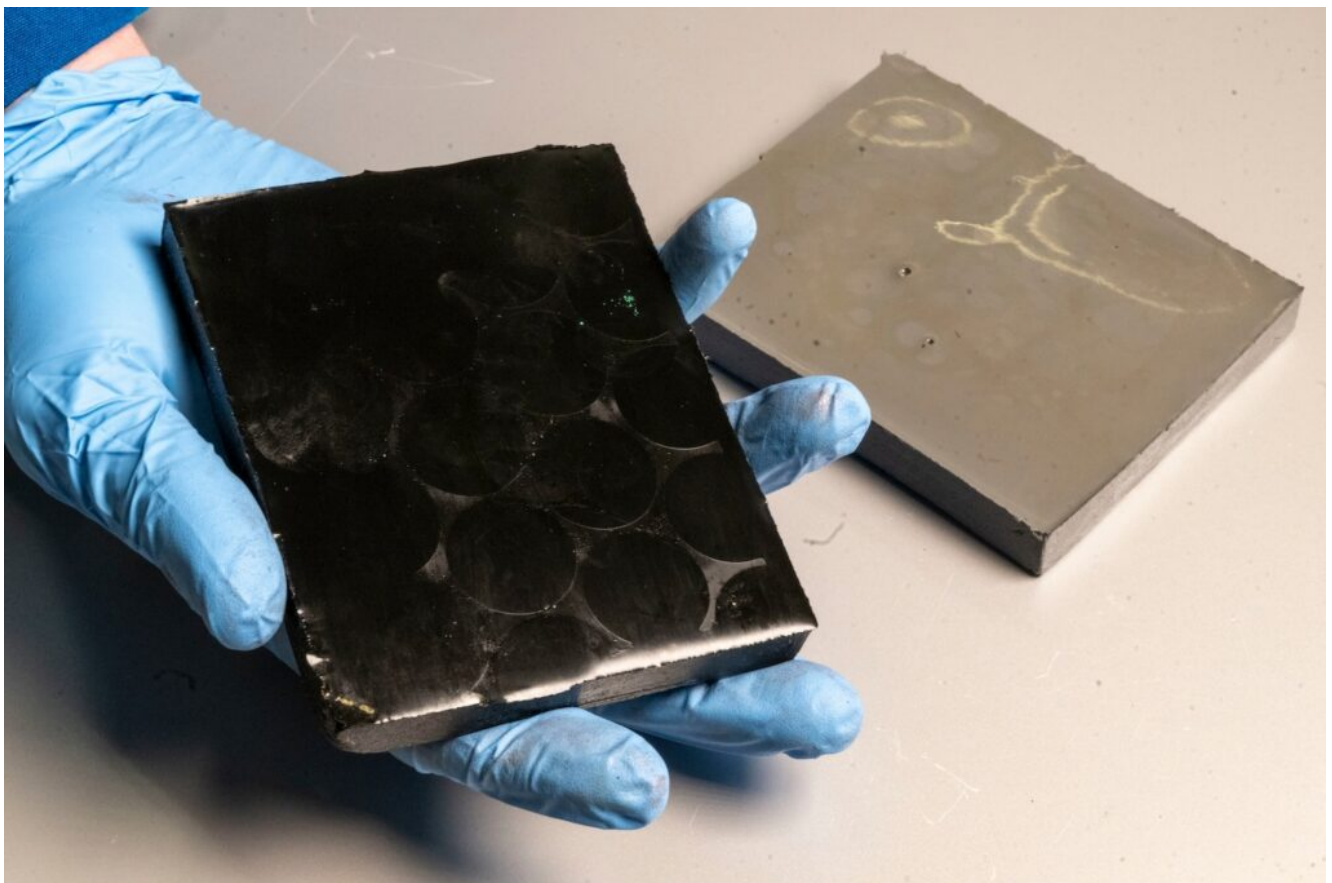
“The great thing about systems like BYG-1 is that once you’re trained and proficient, you can go to any submarine in the Navy and be familiar with your station and the system you are operating,” said Lt. Scott Buckman from the Modernization Training Team. “Ultimately, with three nations operating variations of the system, we could see personnel from the three nations serving on each other’s boats, greatly enhancing interoperability, training, and ultimately improving our collective warfighting capabilities.”

Australia’s acquisition and employment of nuclear-powered attack submarines under AUKUS Pillar I directly supports U.S. and allied efforts to ensure a favorable balance of power in the Western Pacific through deterrence. Increasing the number of partner submarines in the region expands combined undersea capabilities and builds peace through strength while enhancing the U.S. force posture in the Indo-Pacific. The trilateral program bolsters readiness and undersea warfighting capability by growing submarine interoperability, expanding access and sustainment infrastructure and ensuring seamless operations during crises.

The AUKUS Integration and Acquisition program office, within the Department of the Navy, is responsible for executing the trilateral partnership to help

Australia acquire conventionally armed, nuclear-powered attack submarines while setting the highest nuclear stewardship standards and continuing to maintain the highest nonproliferation standard.

NRL: Breakthroughs in Testing Solid-Fuel Ramjets Advance Research



Featured are composite fuel slabs at the U.S. Naval Research Laboratory's (NRL) Combustion Lab in Chesapeake Beach, Maryland, Jan. 15, 2026. The fuel slabs contain a polymer binder, featuring carbon black (left) to increase its absorption of radiant energy and aluminum (right) to increase its energy density. Researchers and engineers at NRL use these

fuel slabs with an optically-accessible solid-fuel slab burner to perform combustion experiments at conditions relevant to solid-fuel ramjet flight. (U.S. Navy photo by Jonathan Sunderman)

Jan. 29, 2026 | By Jameson Crabtree, U.S. Naval Research Laboratory

Scientists at the U.S. Naval Research Laboratory are developing the next generation of solid-fuel ramjet propulsion, addressing one of the field's most persistent challenges: understanding and predicting what happens inside an operating combustor.

NRL scientists have figured out how to "see inside" one of the most extreme engines ever built, turning guesswork into knowledge and making future long-range, high-speed flight more achievable than ever before.

A solid-fuel ramjet is an air-breathing engine that uses solid fuel rather than liquid, offering high energy density and mechanically simple propulsion by burning the fuel with oxygen from the air to produce thrust. By drawing oxygen from the atmosphere rather than carrying an oxidizer on board, solid-fuel ramjets can carry more fuel in the same volume and fly farther than traditional rocket systems.

"If you replace all the oxidizer and instead use oxygen from the air to burn your fuel, you can increase range by up to 200 to 300% in the same form factor," said Brian Bojko, a combustion scientist at NRL.

Despite that promise, widespread adoption has been slowed by the extreme internal environment of solid-fuel ramjets, where high temperatures, soot and rapidly evolving flow structures prevent traditional probes from accessing critical data. Unlike liquid or gaseous fuels, solid fuels release energy through surface regression and often produce a complex mixture of combustion products, making it far more difficult to control burning rates and predict performance. This is why

understanding and predicting what happens inside an operating combustor is so important.

“In solid-fuel ramjets, you don’t have direct control over the mass flow rate like you do with liquid systems,” Bojko explained. “The heat from combustion actually drives the gasification of the solid fuel, so pressure, temperature and airflow all feed back into how the engine behaves.”

Without detailed measurements of flame temperature, fuel regression and fuel-vapor transport, designers have historically relied on trial-and-error approaches.

“A lot of the design has been kind of Edisonian,” Bojko said. “You take a guess, test it and iterate. But without seeing the physics inside the combustor, it’s hard to know if you’re getting the right answer for the right reason.”

At the same time, computational approaches such as Reynolds-Averaged Navier–Stokes and Detached Eddy Simulation have been limited by a lack of high-quality experimental data for validation.

RANS, DES and Large Eddy Simulation represent increasing levels of physical realism in turbulence simulation, where more turbulent structures are directly resolved rather than modeled. Moving from RANS to DES to LES brings simulations closer to the true flow physics, especially for unsteady flows, but at a significantly higher computational cost. Reynolds-Averaged Navier–Stokes models capture most of the turbulence and are computationally efficient but less accurate for unsteady flows. Detached Eddy Simulation resolves large turbulent structures while modeling smaller ones, balancing accuracy and cost. LES resolves most turbulent motion directly, offering the highest accuracy at the highest computational expense.

“With only a few pressure or temperature points, you can match a simulation to an experiment and still be wrong,” Bojko said.

“Optical access lets us validate the flame structure, recirculation zones and combustion species directly.”

Seeing Flame Temperature in Real Time

To address these gaps, researchers employed optical diagnostics capable of operating in the harsh, particle-laden environment of a solid-fuel ramjet combustor. Measuring flame temperature is especially important, Bojko said, because models often assume combustion efficiency rather than measure it.

“These diagnostics give us new data we simply didn’t have before,” said David Kessler, a senior computational scientist at NRL. “They allow us to measure gas-phase species and temperatures in an environment where traditional probes just don’t work.”

The chemistry behind how solid fuels decompose and feed the flame is just as important as measuring the flame itself, according to researchers. As heat from the flame feeds back into the fuel surface, the solid polymer undergoes phase change and chemical breakdown, releasing a complex mixture of gaseous hydrocarbons that sustain combustion.

“You have this continuous feedback loop,” said Brian Fisher, a combustion research engineer at NRL. “The flame heats the fuel, the fuel decomposes into gas-phase species, and those species then mix with the air and keep the flame going. It’s a coupled thermal, chemical and fluid-dynamic process, and that’s what makes solid-fuel ramjets both powerful and challenging to predict.”

Mapping Fuel Regression and Validating Models

Understanding how quickly the solid fuel surface recedes, known as fuel regression, is critical because it directly governs thrust and performance. The team combined experimental diagnostics with high-fidelity simulations to resolve heat

feedback to the fuel surface, a key driver of regression.

“One of the biggest things you need to capture is the heat transfer back to the solid fuel,” Bojko said. “RANS can give you an OK answer, but it doesn’t resolve the fundamental processes as well as DES or Large Eddy Simulation. Those higher-fidelity approaches cost more computationally, but they give you a much better picture of what’s happening.”

Visualizing Fuel Vapor Before It Burns

For the first time, the researchers also visualized fuel vapor released from the solid surface before ignition, revealing how complex hydrocarbon species mix and evolve prior to combustion. Solid-fuel ramjets commonly use hydroxyl-terminated polybutadiene, a long-chain polymer that breaks down into many different gaseous species.

“When HTPB decomposes, you don’t know what species are coming off the surface, and those species dictate the combustion mechanism,” Bojko said. “They change with temperature, pressure and heat flux, so being able to characterize them is critical to understanding the underlying mechanisms across different flight conditions.”

In parallel, NRL researchers are investigating advanced composite fuels designed to increase the energy density of solid fuel in the same volume.

“We’re interested in adding energetic additives, like metal particles, into polymer fuels to increase their energy density,” said Clayton Geipel, a combustion research engineer at NRL. “As the fuel burns, those particles are released into the flame and ignite, giving you more energy from the same volume of fuel. That directly translates into greater potential range for future systems.”

“You want to jam as much energy content into that block of fuel as you can while still having a reasonable rate of

combustion; that's the challenge," said Albert Epshteyn, materials scientist at NRL.

Although metals can have slightly lower energy per unit mass than hydrocarbons, their much higher density allows more total energy to be packed into the same volume, a critical advantage for compact, long-range systems.

Reducing Risk and Accelerating

Together, these diagnostics and simulations transform solid-fuel ramjet combustion from a largely inferred process into a measurable, predictable system. The validated models allow researchers to conduct design iterations computationally before moving to costly experiments.

"Our main objective is to reduce risk," Bojko said. "If we have validated computational models, we can do design iterations much more efficiently in terms of cost and time and narrow down the physics before we ever go to full-scale testing."

Kessler emphasized the broader impact.

"NRL is developing technologies that help accelerate the transition of solid-fuel ramjets, technology that can significantly increase the range of next-generation high-speed systems," he said.

Building on that foundation, the team is now focused on bridging the gap between small-scale laboratory experiments and real-world propulsion systems.

"All of our work right now happens at small-scale facilities in idealized, optically accessible geometries," Geipel said. "That's what allows us to make detailed measurements, but there are still important questions about how those results apply to a full-scale, enclosed ramjet."

While small-scale experiments reveal detailed physics, scaling

those results to full-size engines remains a central uncertainty in the field. The next phase of the research will focus on extending these validated tools and models to larger, more representative test configurations. This intermediate step preserves diagnostic access while introducing greater geometric and physical realism. That progression is designed to ensure the physics and chemistry observed in the lab translate reliably to operational propulsion systems.

By integrating optical diagnostics, detailed chemistry and validated simulations across multiple scales, the research provides the propulsion community with tools to reduce uncertainty, shorten development timelines and enable future high-speed air-breathing propulsion technologies.

Navy Divers Reinforce Maritime Force Protection at Naval Support Activity Souda Bay, Greece



From U.S. 6th Fleet, Jan. 28, 2026

SOUDA BAY, Greece – U.S. Navy Seabee Divers, assigned to Underwater Construction Team (UCT) 1, Construction Dive Detachment Bravo (CDD/B), completed inspections and maintenance on the port security barrier system and tested new methods for underwater concrete repairs on the Marathi NATO Pier Complex from Dec. 2025 to Jan. 2026.

The inspection revealed underwater damage that, if left unaddressed, could reduce the effectiveness of a critical floating security barrier used to protect ships during maintenance and resupply, underscoring the need for regular inspections by specialized Navy divers to keep the system fully operational.

“For the pier repair project, we are basically adding reinforcement to holes and damage in the existing structural concrete,” said Construction Mechanic 2nd Class Zack Risinger,

UCT 1, CDD/B project supervisor. "Working with the Hellenic Navy, we identified the priority repair site, and now, we're going down and installing composite formwork with anchor bolts so that we can backfill the void with high-strength concrete."

Naval Support Activity (NSA) Souda Bay's port facility, also known as the NATO Marathi Pier Complex, is an active host nation military base under the operation of the Hellenic Navy. The NATO Marathi Pier Complex is one of the largest natural ports in the Mediterranean and provides berthing, refueling, ammunition handling, general supply handling, and minor maintenance and ship repair to NATO and U.S. 6th Fleet ships during normal and contingency operations. The NATO Marathi Pier Complex is the deepest port in the Mediterranean used by the U.S. Navy and can handle everything from aircraft carriers to submarines.

"The Seabee Divers come to Souda Bay every few years to provide a specialized service that we could not otherwise obtain" said Port Operations Regional Program Director Jim Walker, Commander, Navy Region Europe, Africa, Central. "The divers always get the job done on time; despite the very challenging weather conditions Souda Bay is known for in the winter."

Seabee divers conducted the inspections using specialized tools, including chain gauges and a remotely operated vehicle to assess deeper anchor points, and completed underwater concrete repairs using a high-strength fiber-reinforced polymer panel designed for rapid structural repairs. The repair system is currently being evaluated for future expeditionary port damage repair missions in remote and extreme environments.

"Completing these projects in Greece was not only a great opportunity to do challenging work that directly supports U.S. 6th Fleet, but also to work directly with the Hellenic Navy,"

said Lt. Juliana Pereira, UTC 1, CDD/B officer-in-charge. “The opportunity to build stronger relationships with important Allies like Greece is the highlight of this deployment and something our entire team enjoyed.”

The Seabee Divers are deployed to U.S. 6th Fleet under Commander Task Force (CTF) 68 for a six-month deployment executing maritime infrastructure projects and security cooperation engagements with priority partners across the U.S. European Command region. As part of the U.S. 6th Fleet Maritime Infrastructure Assessment Program, UCT 1 completed an in-depth maritime infrastructure assessment of the NATO Marathi Pier Complex at Souda Bay in 2022.

UCT 1, CDD/B, currently deployed as Commander Task Unit 68.2.2 is a specially trained and equipped unit within Navy Expeditionary Combat Command that specializes in diving, light salvage, underwater construction, and military engineering operations in austere environments.

22nd Naval Construction Regiment, headquartered in Rota, Spain as Commander task Group 68.2 commands naval construction forces for Navy Expeditionary Combat Forces Europe-Africa/Task Force 68, supporting U.S., allied, and partner interests across the U.S. 6th Fleet area of operations.

Commander Task Force 68 (CTF 68) is a component of the U.S. 6th Fleet and commands all Naval Expeditionary Combat Forces in the U.S. European Command and U.S. Africa Command areas of responsibility. These expeditionary forces provide maritime engineering and combat support capabilities in remote, austere, and complex environments.

HII's Newport News Shipbuilding Marks 140 Years of Service to the Nation



From HII

NEWPORT NEWS, Va., Jan. 28, 2026 (GLOBE NEWSWIRE) – HII's (NYSE: HII) Newport News Shipbuilding division is marking 140 years of service to the nation today.

On Jan. 28, 1886, Collis P. Huntington, a businessman whose investments enabled completion of the U.S. transcontinental railroad, turned his focus to shipbuilding, establishing what was first chartered as Chesapeake Dry Dock and Construction Co. and was then renamed Newport News Shipbuilding and Drydock Company.

Several years later, the shipyard delivered its first vessel, the tugboat *Dorothy*, named for the daughter of William C. Whitney, the 31st Secretary of the Navy. Today, *Dorothy* sits outside the gates of NNS as a reminder of the shipyard's

humble beginnings.

“For 140 years NNS shipbuilders have answered the call to serve our nation,” NNS President Kari Wilkinson said. “Generations of families have carried forward the noble profession of shipbuilding, proudly maintaining the Newport News Shipbuilding legacy. To this day, we are grateful for all of the shipbuilders who served before us and built what we work so hard today to sustain.”

Since its founding, NNS has delivered more than 800 ships to commercial and military customers. Today, the shipyard designs, builds, maintains, refuels and inactivates nuclear-powered aircraft carriers and submarines for the U.S. Navy.

Spanning 550 acres along two miles of the James River, NNS employs 26,000 shipbuilders and is the largest industrial employer in the commonwealth of Virginia. The shipyard also operates additional locations in Norfolk, Virginia, and Goose Creek, South Carolina, to support production.

**Data Link Solutions Awarded
\$248M Navy Contract to
Deliver Tactical Radio
System**



From BAE Systems, Jan. 28, 2026

Software-defined radio designed to run complex Link 16 waveform delivers enhanced command and control (C2) capabilities

WAYNE, N.J. – January 28, 2026 – The U.S. Navy has awarded Data Link Solutions, a joint venture between BAE Systems and Collins Aerospace, an RTX business, a \$248 million production contract to deliver hundreds of Multifunctional Information Distribution System Joint Tactical Radio System (MIDS JTRS) terminals for U.S. forces and allies.

The system provides situational awareness and enables jam-resistant Link 16 connectivity with line-of-sight voice, video, and data communications for sea, ground, and air assets in dynamic operational environments. Finding the quickest and most secure path, MIDS JTRS enables the sharing of relative position and targeting data among joint forces and allows warfighters to make well-informed decisions swiftly in contested scenarios.

“This contract demonstrates the ongoing need to equip our warfighters with a high-performing, secure command and control

solution and our commitment to deliver at the speed of need,” said Brian Shadiack, director of Data Link Solutions. “With increased production capacity, we will provide hundreds of MIDS JTRS radio terminals for more than 45 U.S. and international platform types, including unmanned aerial vehicles and armored C2 ground vehicles.”

[MIDS JTRS](#) is a four-channel, software-defined radio designed to run the complex Link 16 waveform and up to three additional communication protocols. Link 16 is a standardized communications system used by NATO, the U.S., and its allies and partner nations to share real-time tactical data. It is a scalable and flexible solution to tailor networks to mission needs. In addition to Link 16 compatibility, MIDS JTRS’ advanced Tactical Targeting Networking Technology offers a low latency, high communications waveform capability that provides critical platform connectivity and throughput within contested environments. The Department of War is fielding MIDS JTRS on the F-15, F-16, F/A-18, and F-22 aircraft, as well as maritime vessels and ground command and control assets.

[Data Link Solutions](#) is a leading supplier of Link 16 terminals and software, as well as logistics and support services for air-, land-, and sea-based platforms. With more than 25 years of experience providing affordable, high-performance, and high-reliability data link terminals for forces, the organization has delivered over 9,000 Link 16 systems worldwide to more than 50 nations.

Work on the MIDS JTRS program takes place in Wayne, New Jersey, and Cedar Rapids, Iowa.