

Northrop Grumman to Deliver US Navy's E-130J Nuclear Command, Control and Communications Aircraft



The Northrop Grumman-led industry team will deliver the E-130J for the U.S. Navy's TACAMO mission. (Credit: Northrop Grumman)

MELBOURNE, Fla. – Dec. 18, 2024 – Northrop Grumman Corporation (NYSE: NOC) has been selected as the prime contractor to deliver nuclear command, control and communications (NC3) aircraft for the U.S. Navy's Take Charge And Move Out (TACAMO) mission. The Northrop Grumman-led industry team will deliver the [E-130J](#) to relieve the U.S. Navy's current E-6B Mercury fleet of the TACAMO mission. □

- Northrop Grumman has invested more than \$1 billion in digital engineering and manufacturing capabilities that will assist in rapidly designing, building, testing and sustaining the E-130J.
- The company has been a key industry partner with the U.S. Navy as a prime aeronautics manufacturer for decades by serving as the prime contractor on the U.S. Navy's [E-2D Advanced Hawkeye](#) and the [MQ-4C Triton](#) as well as providing support for the [E-6B Mercury](#) TACAMO fleet.
- The effort will incorporate Northrop Grumman's technology leadership in advanced manufacturing, agile design, digital engineering and weapon system integration expertise to take advantage of Day One readiness across the Northrop Grumman-led industry team .

Expert:

Jane Bishop, vice president and general manager, global surveillance division, Northrop Grumman: "Our performance on Navy programs like the E-2D and E-6B prove we deliver on what we promise, and we will bring this expertise in helping the Navy deliver the E-130J on time and optimized for this strategically important mission."

Details:

The U.S. Navy's TACAMO mission provides connectivity between the National Command Authority and U.S. nuclear forces. The Navy currently operates a fleet of [E-6B Mercury](#) aircraft to provide survivable, reliable and endurable airborne command, control and communications between the National Command Authority and U.S. forces. The E-130J will modernize this

critical strategic deterrent mission.

Northrop Grumman's E-130J TACAMO industry team of Lockheed Martin Skunk Works ®; Raytheon; Crescent Systems, Inc; and Long Wave Inc. has vast knowledge and expertise in delivering critical command and control and nuclear enterprise capabilities to meet the U.S. Navy's E-130J TACAMO requirement.

U.S. Navy Completes Final Testing Milestone for Unmanned Surface Vessel Program



The unmanned surface vessel (USV) Ranger steams alongside the USV Mariner as both ships transit the Pacific Ocean during a photo exercise as part of Integrated Battle Problem (IBP) 23.2, Sep. 7, 2023. IBP 23.2 is a Pacific Fleet exercise to test, develop and evaluate the integration of unmanned platforms into fleet operations to create warfighting advantages. (U.S. Navy photo by MC2 Jesse Monford)
By Program Executive Office Unmanned and Small Combatants (PEO USC) Public Affairs, Dec. 18, 2024

WASHINGTON – The U.S. Navy recently achieved its final key milestone in the development of Unmanned Surface Vessel (USV) integrated capabilities by successfully completing a continuous 720-hour power demonstration on an engine system for use aboard future USVs. This demonstration is part of a larger USV testing effort to assess the capability and resilience of engine systems to operate autonomously for extended periods. The latest test marked the final system to be evaluated. Engine development and operation is critical for the expansion of unmanned naval operations and for realizing the future vision of a manned-unmanned Hybrid Fleet.

The 2021 National Defense Authorization Act directed the Navy to complete the 720-hour test milestone before initiating development on large USVs. In the final engine test, Precise Power Systems conducted testing on behalf of Austal USA. Testing took place at Daimler Trucks North America Aftermarket Solutions in Tooele, Utah, from June 19 to September 5. The Navy's Program Executive Office Unmanned and Small Combatants (PEO USC) and the Unmanned Maritime Systems program office (PMS 406) oversaw the demonstration.

"This milestone marks a pivotal advancement in our naval strategy, as it enhances our capabilities in unmanned operations," said Rear. Adm. Kevin Smith, head of PEO USC. "Successfully demonstrating a power system that can sustain autonomous operations for 30 days without maintenance not only bolsters our readiness but also sets the stage for a truly

integrated manned-unmanned Fleet, ensuring we remain at the forefront of maritime innovation.”

During the 720-hour test, no human intervention, corrective, or preventative maintenance was allowed on the equipment. Successfully completing this milestone means the tested model engine, MTU 8V4000M24S, is eligible for future use aboard USV platforms. It indicates that propulsion systems are mature enough to power an unmanned ship for 30 days without requiring maintenance. The team developing the engine will apply lessons learned during the test to enhance future models to increase reliability even more than demonstrated.

Prior to this test, five teams successfully completed their separate 720-hour testing milestones. The successful teams include:

- Bollinger and Carter Machinery on behalf of Caterpillar in Chesapeake, Virginia was the first team to achieve this milestone in December of 2023. They demonstrated sufficient mechanical reliability of the 1550 kw Caterpillar 3512C model engine.
- Fincantieri Marinette Marine (FMM) and Carter Machinery on behalf of Caterpillar in Chesapeake, VA demonstrated mechanical durability of the Caterpillar 2300 kW rated 3516 main propulsion diesel, lube oil and fuel system.
- Gibbs & Cox and Southwest Research Institute in San Antonio, Texas on behalf of Cummins also validated the reliability of the QSK95 diesel engine paired with an ABB AMG 0560M04 LAE generator.
- Huntington Ingalls Incorporated (HII), in partnership with the U.S. Coast Guard, conducted a successful 720-

hour demonstration on behalf of MTU of the MTU 20V 4000 M93L, a Main Propulsion Diesel Engine configuration.

- L3 Harris, on behalf of Cummins, validated the reliability of the QSK60 diesel engine, a Main Propulsion Diesel Engine configuration, and the QSM11, a Marine Diesel Generator Set in Camden, New Jersey.

“This milestone is a significant step forward in the continued development of integrated unmanned surface capabilities. The successful execution of these tests highlights our commitment to deliver cutting-edge solutions that can meet the evolving needs of our Fleet,” said Capt. Matthew Lewis, program manager of the Unmanned Maritime Systems program office.

The Navy’s Unmanned Maritime Systems program office is a part of the Program Executive Office Unmanned and Small Combatants portfolio, which designs, develops, builds, and delivers the Navy’s unmanned maritime systems; mine warfare systems; special warfare systems; expeditionary warfare systems; and small surface combatants.

USS Beloit (LCS 29) Makes It Home to Mayport

From U.S. 4th Fleet, Dec.10, 2024

NAVAL STATION MAYPORT (Dec. 19, 2024) – Freedom-variant littoral combat ship (LCS) USS Beloit (LCS 29) makes it to her homeport in Mayport, Fla., December 19.

After 15 locks, four Great Lakes, three port visits, and over

2,500 nautical miles traveled, USS Beloit (LCS 29) and her mighty crew at last arrived in the Atlantic Ocean, continuing her transit to its future homeport, Naval Station Mayport, Florida.

The road to make it to the Atlantic Ocean included months of preparation from the crew. In less than two months after moving onboard in August, the crew certified in several mission areas required to safely operate and get underway including: Search and Rescue, Navigation, Damage Control, Communications and Engineering.

“The Beloit Badger crew are some of the best Sailors I have served with. They are resilient, strong, flexible and dedicated, and I am blessed to be their Commanding Officer. Almost everything we have done in the past five months has been ‘high risk’ and ‘first time’, but that’s what makes us so unique,” said Cmdr. LeAndra Kissinger, Beloit’s commanding officer. We work hard, pray hard, and lean on each other as a team. We truly are a family, and when a family wants to accomplish a mission, it’s hard to stop them.”

Each evolution, although involving different departments on the ship, required careful coordination and support from each division and Sailor onboard and was necessary for the crew to be able to set sail from Marinette, Wisconsin, towards the site of its commissioning ceremony in Milwaukee, Wisconsin.

On November 23, the crew took the order to “man the ship and bring her to life.” Amongst thousands of onlookers, the ship made its much anticipated transition from pre-commissioned unit to United States Ship and began her sail around home.

Her commissioning festivities included a crew visit to their namesake town of Beloit, a Chairman’s dinner hosted by the Commandant, and a commissioning ceremony who’s audience was filled with veterans from many significant battles. Along the

way, she stopped in Cleveland, Ohio, Quebec City, Quebec and Halifax, Nova Scotia, and Norfolk for refueling, stores replenishment and liberty for the crew.

“This crew has shown tremendous resilience in overcoming the last 4 months. Completing difficult consecutive certifications while learning a new ship and being away from family. This team made it look easy and brought a whole new meaning to the term “Beloit Proud,” said Senior Chief David Chisholm, Beloit’s Senior Enlisted Leader. “Watching them perform under pressure and overcoming every obstacle with grace shows just how awesome our team is and their readiness to face the challenges ahead after some much needed and well-deserved family time. It is an honor to be sailing with them and representing the city of Beloit.”

Capt. James Lawrence said it best, “Don’t give up the ship.” And that’s exactly what this crew did to get us home on time!” said Operation Specialist first class petty officer Ernesto Sanchez, USS Beloit’s Sailor of the Year!

With the last port fading in the rear only a few hundred nautical miles remain before Jacksonville is within view, the crew is eagerly awaiting returning to their families and friends, and ready to take on the next mission that will come their way as the Navy’s newest warship join the fleet!

LCS is a fast, agile, mission-focused platform designed for operation in near-shore environments yet capable of open-ocean operation. It is designed to defeat asymmetric “anti-access” threats and is capable of supporting forward presence, maritime security, sea control, and deterrence.

Lawmakers Introduce SHIPS Act to Revitalize Shipbuilding, Commercial Maritime Industries



U.S. Merchant Marine Academy graduates throw their covers in celebration during the Merchant Marine Academy Commencement Ceremony in Kings Point, New York, June 22, 2024. *Credit: U.S. Marine Corps | Staff Sgt. Kelsey Dornfeld*

A bipartisan group of U.S. Senators and Representatives on Dec. 19 introduced introduced the Shipbuilding and Harbor Infrastructure for Prosperity and Security (SHIPS) for America Act, comprehensive legislation to revitalize the United States shipbuilding and commercial maritime industries.

The SHIPS for America Act was introduced by Sens. Mark Kelly (D-Arizona) and Todd Young (R-Indiana) and Reps. John

Garamendi (D-California) and Trent Kelly (R-Mississippi). After decades of neglect, the United States has a weakened shipbuilding capacity, a declining commercial shipping fleet dwarfed by China and a diminished ability to supply the U.S. military during wartime, the lawmakers said.

They said the bipartisan proposal would restore American leadership across the oceans by establishing national oversight and consistent funding for U.S. maritime policy, incentivizing domestic shipbuilding, enabling U.S.-flagged vessels to better compete in international commerce, rebuilding the U.S. shipyard industrial base and expanding the mariner and shipyard workforce.

“We’ve always been a maritime nation, but the truth is we’ve lost ground to China, who now dominates international shipping and can build merchant and military ships much more quickly than we can,” said Kelly, a U.S. Navy veteran and the first U.S. Merchant Marine Academy graduate to serve in Congress.

“The SHIPS for America Act is the answer to this challenge. By supporting shipbuilding, shipping, and workforce development, it will strengthen supply chains, reduce our reliance on foreign vessels, put Americans to work in good-paying jobs, and support the Navy and Coast Guard’s shipbuilding needs. I’m excited to introduce this comprehensive, fully paid for legislation today alongside my Republican and Democratic colleagues and our partners representing all parts of the industry, and together we’re going to work to get this effort across the finish line.”

“America has been a maritime nation since our founding, and seapower was a significant contributor to our rise to being the most powerful nation on earth. Unfortunately, the bottom line now is America needs more ships. Shipbuilding is a national security priority and a stopgap against foreign threats and coercion. Our bill will revitalize the U.S. maritime industry, grow our shipbuilding capacity, rebuild

America's shipyard industrial base, and support nationwide workforce development in this industry. This legislation is critical to our warfighting capabilities and keeping pace with China," Young said.

The move drew support from a wide variety of maritime-related groups and is backed by the Navy League of the United States.

"The Navy League applauds the introduction of the SHIPS for America Act, a landmark legislative achievement that will comprehensively meet the needs of the U.S. merchant marine and bolster our shipbuilding industrial base," said Mike Stevens, CEO of the Navy League.

"In today's global threat environment, arguably the most perilous since the end of the Cold War, the United States must not only maintain the finest Navy, Marine Corps, and Coast Guard on the seas, but also ensure a robust U.S.-flag merchant marine and a resilient shipbuilding industrial base. These elements are crucial for safeguarding our national and economic security in the event of large-scale military conflict. The SHIPS for America Act addresses these vital considerations and reaffirms that America is, and always will be, a maritime nation."

The SHIPS for America Act would:

Coordinate U.S. maritime policy by establishing the position of Maritime Security Advisor within the White House, who would lead an interagency Maritime Security Board tasked with making whole-of-government strategic decisions for how to implement a National Maritime Strategy. The bill also establishes a Maritime Security Trust Fund that would reinvest duties and fees paid by the maritime industry into maritime security programs and infrastructure supporting maritime commerce.

Establish a national goal of expanding the U.S.-flag international fleet by 250 ships in 10 years by creating the Strategic Commercial Fleet Program, which would facilitate the

development of a fleet of commercially operated, U.S.-flagged, American crewed, and domestically built merchant vessels that can operate competitively in international commerce.

Enhance the competitiveness of U.S.-flagged vessels in international commerce by establishing a Rulemaking Committee on Commercial Maritime Regulations and Standards to cut through the U.S. Coast Guard's bureaucracy and red tape that limits the international competitiveness of U.S.-flagged vessels, requiring that government-funded cargo move aboard U.S.-flag vessels, and requiring a portion of commercial goods imported from China to move aboard U.S.-flag vessels starting in 2029.

Expand the U.S. shipyard industrial base, for both military and commercial oceangoing vessels, by establishing a 25 percent investment tax credit for shipyard investments, transforming the Title XI Federal Ship Financing Program into a revolving fund, and establishing a Shipbuilding Financial Incentives program to support innovative approaches to domestic ship building and ship repair.

Accelerate U.S. leadership in next-generation ship design, manufacturing processes, and ship energy systems by establishing the U.S. Center for Maritime Innovation, which would create regional hubs across the country.

Make historic investments in maritime workforce by establishing a Maritime and Shipbuilding Recruiting Campaign, allowing mariners to retain their credentials through a newly established Merchant Marine Career Retention Program, investing in long-overdue infrastructure needs for the U.S. Merchant Marine Academy, and supporting State Maritime Academies and Centers for Excellence for Domestic Maritime Workforce Training and Education. The bill also would streamline and modernize the U.S. Coast Guard's Merchant Mariner Credentialing system.

U.S. Coast Guard Refits Commercial Icebreaker Aiviq for Service as USCG Storis



The tug Aiviq traveling with the mobile drilling unit Kulluk in tow 116 miles southwest of Kodiak City, Alaska, in 2012. *Credit: U.S. Coast Guard | Petty Officer 2nd Class Chris Usher*

The Coast Guard awarded a contract Nov. 20 to Offshore Service Vessels LLC, of Cut Off, Louisiana, to acquire the motor vessel (M/V) Aiviq, a 360-foot U.S.-built polar class 3-equivalent icebreaker, U.S. Coast Guard Media Relations said in an Dec. 16 email.

“The Coast Guard first presented its research and

recommendation to acquire a commercial icebreaker in a 2021 report. This approach was made possible through direction and statutory relief provided in the Don Young Coast Guard Authorization Act of 2022 and funding appropriated in fiscal year 2024," the email said.

The Coast Guard renamed the Aiviq into *Storis*, a Scandinavian term meaning "a floating mass of closely crowded icebergs and floes."

Much about the U.S. Coast Guard's modifications and conversion of the commercial icebreaker, Aiviq, remains unclear as Coast Guard media did not respond to specific questions from *Seapower* about its refit, including schedule, cost, armament, crew complement, and material and structural changes.

The Coast Guard did tell *Seapower* that, "with minimal modifications, this polar icebreaker will be capable of projecting U.S. sovereignty in the Arctic and conducting select Coast Guard missions. The service will evaluate the vessel's current condition and capability and identify requirements, and what modifications will be necessary, to attain full operational capability. The firm fixed-price contract, with a total value of \$125.0 million, also includes provisions for technical data, spares, necessary modifications, certifications, crew training, and operational readiness activities."

Built in 2012 by North American Shipbuilding Company of Larose, Louisiana, for \$200 million, Aiviq was designed for towing and laying anchors for drilling rigs and oil spill response in the Chukchi Sea of Alaska. That makes the *Storis* 12 years old as of 2024. In comparison, the only other Arctic medium icebreaker, USCGC *Healy*, was launched Nov. 15, 1997, and commissioned Aug. 21, 2000, and is 24 years old, and the only Antarctic heavy icebreaker, *Polar Star*, is 48 years old, having been commissioned in 1976. *Polar Sea*, *Polar Star*'s sister, is inactive due to an engine malfunction in 2010 and

has served as a parts donor to the Polar Star.

The 360-foot (110 meter) Storis has a crew of 28 and accommodations for 64 personnel. Its beam is 80 feet (24.4 meters), depth of 34 feet (10.4 meters) with a draft of 28 feet (8.6 meters). Powered by four Caterpillar C280-12 engines, each producing 4,060 kilowatts, driving two ducted controlled-pitch propellers, the Storis can sail at 15 knots (28 km/h; 17 mph) and five knots (9.3 km/h; 5.8 mph) in one meter (3.3 feet) of ice. Stability comes from three bow thrusters and two stern thrusters.

“The recently acquired polar icebreaker will bridge national presence in the Arctic while the service awaits delivery of the Polar Security Cutters,” said a Coast Guard Media Relations spokesperson. The Coast Guard said the Storis’s homeport is to be determined soon although maritime publications hint at Juneau, Alaska. Current estimate for delivery of the first PSC is 2030.

“The Coast Guard’s initial activities will be focused on readying the vessel for deployment to the Arctic in the summer of 2026,” Coast Guard Media Relations Office said. “A series of phased modifications will then occur between annual Arctic operations to achieve full operational capability.”

**VAQ-133 “Wizards” complete
historic first Next
Generation Jammer**

Deployment



An EA-18G Growler from VAQ-133 launches from USS Abraham Lincoln (CVN 72). (U.S. Navy photo)

From VAQ-133, Dec. 16, 2024

VAQ-133 returns from a five-month deployment as the first Navy squadron to tactically employ the ALQ-249 Next Generation Jammer.

WHIDBEY ISLAND, Wash.- Electronic Attack Squadron 133 (VAQ-133), assigned to Carrier Air Wing Nine (CVW) 9, returned from the Abraham Lincoln Carrier Strike Group's (ABECSG) five-month deployment to the Middle East and Eastern Pacific to Naval Air Station Whidbey Island in time for the holidays, Dec. 14, 2024.

The 153 Sailors, 18 aircrew, and seven EA-18G Growlers of the "Wizards" of VAQ 133 departed Naval Air Station North Island, San Diego, July 13, 2024.

The Wizard's deployment marked a historic milestone, as the squadron became the first in the Navy to deploy with the ALQ-249 Next Generation Jammer (NGJ). Throughout their rigorous training and deployment, the Wizards demonstrated the future of Airborne Electronic Attack (AEA) by developing new tactics, achieving the first NGJ arrested landing, and tactically employing the system.

"This deployment showcased the cutting-edge capabilities of the NGJ and reinforced the critical role of the Growler community in modern warfare," said Cmdr. Erik Dente, commanding officer, VAQ-133. "More importantly, it demonstrated the skill, dedication, and perseverance of every VAQ-133 Sailor and the families, friends, and loved ones who supported them at home. I could not be more proud of the Sailors, aircrew, and support teams who made this deployment an overwhelming success."

The Wizards began and concluded their deployment in U.S. 7th Fleet, executing key training missions in support of U.S. Indo-Pacific Command and participating in a Multi-Large Deck Exercise (MLDE) with the Italian Navy's ITS Cavour Carrier Strike Group and conducting operations in the South China Sea to promote a free and open Indo-Pacific.

The strike group was ordered to the U.S. Central Command (CENTCOM) area of responsibility to bolster U.S. military force posture in the Middle East, deter regional escalation, degrade Iranian-backed Houthi capabilities, defend U.S. forces to promote security, stability and prosperity.

While operating in the Middle East, the Wizards played a key role in supporting CENTCOM objectives, participating in dual-carrier operations with the USS Theodore Roosevelt (CVN 71), flying critical combat missions to ensure the safety of deployed U.S. Forces, and aiding in strikes to degrade Iranian-backed Houthi weapons storage capabilities.

“This deployment will go down in history,” said Command Master Chief Frederick Tuiel command master chief, VAQ-133, summing up the deployment. “While it wasn’t filled with port visits, it was defined by impactful combat operations—experiences our Sailors will share for years to come. Bringing everyone home safely makes the accomplishment even sweeter.”

The squadron earned the Commander Electronic Attack Wing Pacific (CVWP) Golden Wrench Award for maintenance excellence demonstrating the Wizard’s dedication to excellence. Wizard maintainers sustained 100% Growler mission-readiness throughout the deployment enabling the successful completion of all assigned missions.

“The dedication of the sailors of VAQ-133 was second to none,” said Dente. “Their hard work kept our Growlers fully mission capable and ensured every mission was a success. Whether from administration, operations, safety, maintenance, intelligence, or food service and support divisions – it took every sailor to build and maintain the combat power required during our operations.”

In addition to operational accomplishments, the deployment included port calls to Guam in August and Kuala Lumpur in November, offering Sailors a chance to recharge and experience diverse cultures while supporting U.S. partner nations.

Returning home before the holidays, VAQ-133 is looking forward to reuniting with their families and friends, reflecting on their achievements and continuing to embody the squadron catch phrase to “Push it up!”

ABECSG completed more than 11,600 flight hours comprised of 5,500 sorties and over 4,400 fixed-wing aircraft launches and arrestments throughout its five-month deployment. The embarked CVW-9 is next-generation, multiplatform capable that enables advance mobile projection of naval air power and forward

operational presence.

CVW 9 consists of nine squadrons flying the F-35C Lightning II, F/A-18E/F Super Hornet, EA-18G Growler, E-2D Hawkeye, C-2A Greyhound, and MH-60R/S Sea Hawk. The squadrons are the “Tophatters” of Strike Fighter Squadron (VFA) 14, the “Black Aces” of VFA 41, the “Vigilantes” of VFA 151, the “Black Knights” of VMFA 314, the “Wallbangers” of Airborne Command and Control Squadron (VAW) 117, the “Wizards” of Electronic Attack Squadron (VAQ) 133, the “Raptors” of Helicopter Maritime Strike Squadron (HSM) 71, the “Chargers” of Helicopter Sea Combat Squadron (HSC) 14, and the “Rawhides” of Fleet Logistics Support Squadron (VRC) 40.

ABECSG consists of the flagship USS Abraham Lincoln (CVN 72), embarked staffs of Carrier Strike Group (CSG) Three and Destroyer Squadron (DESRON) 21, Carrier Air Wing (CVW) Nine, integrated air and missile defense Arleigh Burke-class guided missile destroyer USS Frank E. Petersen Jr. (DDG 121), and DESRON 21’s USS Spruance (DDG 111) and USS Michael Murphy (DDG 112).

Arleigh Burke-class guided-missile destroyers USS O’Kane (DDG 77) and USS Stockdale (DDG 106) remain deployed in the 5th Fleet area of operations supporting global maritime security operations.

**Navy’s NEPTUNE Program
Accelerates Maritime**

Innovation Through University Partnerships

Stanford's Hacking for Defense Program Helps Drive Rapid Technology Transition from Lab to Fleet

From the Office of Naval Research

STANFORD, Calif., December 18, 2024 – The U.S. Navy's Office of Naval Research (ONR) is revolutionizing maritime technology development through its NEPTUNE program (Naval Enterprise Partnership Teaming with Universities for National Excellence), by demonstrating the vital role of academic-military collaboration in advancing national defense capabilities. Led by Dr. Corey Love, NEPTUNE has established strategic partnerships with leading institutions including Stanford University, MIT, Purdue University, UC Davis, Arizona State University, Old Dominion University, and the Naval Postgraduate School. These partnerships are proving instrumental in rapidly transitioning innovative technologies from laboratory concepts to operational naval assets. This initiative is not just about developing new technologies; it's about shaping the future of naval warfighting capabilities and ensuring the resilience of our forces in the face of evolving threats. This is particularly important given hostilities in Ukraine and the Middle East, as well as rising tensions with China, Iran, Russia and North Korea.

"The NEPTUNE program exemplifies the kind of innovative partnerships we need to accelerate defense technology development," says Dr. Jeff Decker, managing director of the Tech Transfer for Defense program at Stanford University's Doerr School of Sustainability, and program director and co-instructor of Stanford University's Hacking for Defense® program, as well as author of "The Hacking for Defense Manual." "By connecting academic researchers directly with

military end-users, we're seeing remarkable acceleration in the development and deployment of critical technologies."

A standout example of NEPTUNE's success comes from MIT, where Professor Steven Leeb's team has developed a groundbreaking Combat Power Monitor (CPM) system, using their research in energy management and monitoring to demonstrate progress in technology readiness in an area that is critical to the operational readiness, effectiveness and efficiency of naval vessels and U.S. Coast Guard (USCG) warships. The team's contributions, particularly in the development of technologies for supporting condition-based maintenance and energy economization, are proving to be invaluable assets to the U.S. Navy and U.S. Coast Guard. Active demonstrations have been conducted and are continuing on serving USN warships and U.S. Coast Guard cutters.

"We are now seeing game-changers flow through the innovation pipeline in less time," says Justin Fanelli, acting chief technology officer for the U.S. Department of Navy. "We have implemented and are looking for more ways to improve the time from concepts to outcomes; one thing is certain – great ideas and hustlers are essential for us to move at the speed of relevance. With Professor Leeb's work, the ability to monitor and manage energy usage on ships ensures that our vessels can operate longer, with greater endurance, and with reduced logistical footprints. This is particularly crucial in scenarios where resupply may be challenging or in stealth operations where minimizing energy signatures is vital."

The NEPTUNE program plays a pivotal role in advancing research from early-stage concepts to more mature, deployable technologies. By propelling basic scientific research (Technology Readiness Level, or TRL 2) towards prototype demonstration in an operational environment (TRL 7), NEPTUNE ensures that innovative ideas are not left in the laboratory but are instead developed into practical solutions to naval challenges. This progression involves a systematic approach to

technology development, where initial theoretical studies and proof-of-concept (TRLs 2-4) are followed by increasing levels of integration and testing in relevant environments (TRLs 5-6), culminating in prototype demonstrations that prove the technology's effectiveness in real-world naval settings (TRL 7). Through this structured pathway, NEPTUNE accelerates the transition of cutting-edge research into tangible assets that enhance the Navy's warfighting capabilities and operational resilience.

This initiative demonstrates how academic-military partnerships can yield transformative results, particularly vital given current global challenges including situations in Ukraine and the Middle East, as well as evolving maritime security needs.

NEPTUNE support made it possible for the MIT team to move from an advanced concept to a deployed prototype in 24 months. The NEPTUNE partnership between the Navy and academia is a powerful formula for innovation. By leveraging the expertise and creativity of university researchers, the Navy is able to accelerate the development of technologies that are essential for maintaining its edge in an increasingly competitive and complex global security environment.

"As we look to the future, the importance of programs like NEPTUNE cannot be overstated," noted Fanelli. "The challenges facing the Navy and the broader national security landscape are becoming more diverse and sophisticated. Adversaries are rapidly advancing their capabilities, and the technological gap is narrowing. In this context, the Navy's ability to innovate and adapt is not just a matter of maintaining superiority; it's a matter of national security."

The NEPTUNE program represents a strategic investment in the future of naval warfare. It is a model of how collaboration between the military and academia can yield transformative results. As we continue to navigate the uncertain waters of

the 21st century, initiatives like NEPTUNE will be the beacon that guides the Navy toward a future where it remains the preeminent maritime force, capable of ensuring peace and security in an ever-changing world.

To learn more about the ONR Investment Horizons framework, visit onr.navy.mil; for more information on the Technology Transfer for Defense program at Stanford University, visit techtransferfordefense.stanford.edu.

Kaine Applauds Senate Passage Of Fiscal Year 2025 National Defense Bill

Kaine successfully secured key provisions to support servicemembers and Virginia's defense community

WASHINGTON, D.C. – Today, U.S. Senator Tim Kaine (D-VA), a member of the Senate Armed Services Committee (SASC) and Chair of the SASC Subcommittee on Seapower, applauded the Senate's passage of the Fiscal Year 2025 *National Defense Authorization Act* (NDAA). As a member of SASC, Kaine worked to secure key provisions in the legislation to advance U.S. national security, support servicemembers and their families, benefit Virginia's defense community, and boost efforts to work collaboratively with allies and partners. The bill now heads to the President's desk to be signed into law.

"As a senator from Virginia and member of the Senate Armed Services Committee, I'm proud to go to bat every year to

advocate on behalf of Virginia's servicemembers and defense community. We are facing a number of global challenges, and this legislation is critical to ensuring our military remains the strongest in the world. It includes key provisions I secured to improve quality of life for servicemembers and their families, support improvements at military installations across Virginia, and advance our national security interests. It also makes important shipbuilding investments, including by authorizing funding for Virginia-class submarine construction, a substantial portion of which happens in Hampton Roads. I will keep working with my colleagues to pass full-year government funding legislation for Fiscal Year 2025 as soon as possible," **said Kaine.**

Kaine successfully secured the following provisions:

Pay Raises: Authorizes a 4.5% pay raise for military personnel and an additional 10% pay raise for junior enlisted servicemembers with paygrades E-1 through E-4, resulting in a 14.5% total pay raise. Authorizes a 2% pay raise for Department of Defense (DOD) personnel.

Shipbuilding Investments:

- Authorizes funding for one Virginia-class submarine, incremental funding authority for a second Virginia-class submarine, and funding for additional material and support for the submarine industrial base.

- Authorizes funding for the Columbia-class submarine program.

- Authorizes funding for carriers, surface vessels, undersea vessels, aircraft, and munitions.

- Directs the Secretary of Defense to develop and implement a strategy to promote the development of a skilled manufacturing and high-vocational trade workforce to support the expansion of the defense industrial base.
- Authorizes funding for a recruiting, marketing, and public messaging campaign to expand the maritime workforce.
- Requires the Secretary of Defense to consider novel methods for recruiting and developing the defense industrial base workforce, including replicating established training programs and educating service-oriented populations about the variety of opportunities for national service.
- Supports investments in shipyard infrastructure and the defense industrial base.
- Directs the Secretary of Defense to assess U.S. sealift capability to include an evaluation of the maritime infrastructure.

Military Construction: Authorizes **\$540,481,000** for military construction (MILCON) projects in Virginia.

- **\$180,000,000** for barracks at **Joint Base Myer-Henderson Hall**
- **\$81,000,000** for a dormitory at **Joint Base Langley-Eustis**

- **\$52,610,000** for long weapons storage at **Naval Weapons Station Yorktown**
- **\$52,110,000** for the Conventional Prompt Strike Weapons Maintenance, Ops & Storage Facility at **Naval Weapons Station Yorktown**
- **\$47,130,000** for the Conventional Prompt Strike Test Facility at **Naval Weapons Station Yorktown**
- **\$36,800,000** for the Metro Entrance Pedestrian Access Control Point at the **Pentagon**
- **\$35,000,000** for Special Operations Forces Human Performance Training Center at **Joint Expeditionary Base Little Creek-Fort Story**
- **\$23,000,000** for Area Maintenance Support Activity/a Vehicle Maintenance Shop in **Richmond**
- **\$16,000,000** for unaccompanied housing at **Naval Air Station Oceana**
- **\$10,000,000** for Dry Dock 3 Modernization at **Norfolk Naval Shipyard**
- **\$4,080,000** for a Child Development Center at **Naval Air Station Oceana**
- **\$2,751,000** for a Child Development Center at **Joint**

Expeditionary Base Little Creek-Fort Story

Health Care:

- Directs the Secretary of Defense to provide data on servicemember suicides by military occupational skill (MOS). This will allow DOD to identify which military career fields have higher per capita suicide rates.
- Authorizes TRICARE health providers to provide tele-mental health care services to military personnel and their dependents regardless of the location of the provider or patient.
- Establishes the Defense Intrepid Network for Traumatic Brain Injury and Brain Health to provide clinical care to prevent, diagnose, treat, and rehabilitate servicemembers with post-traumatic stress disorder (PTSD), symptoms from blast overpressure or blast exposure, and other mental health conditions.
- Directs the Secretary of Defense to provide a report on the Department's efforts to diagnose, treat, and measure traumatic brain injuries throughout a member's service from the time of entry until transition to veteran status.
- Directs the Comptroller General to conduct a review and research on DOD efforts to address traumatic brain injuries related to blast overpressure and exposure. Kaine has [introduced](#) legislation and [urged](#) the Biden Administration to mitigate and protect servicemembers from these injuries.

- Increases the maximum accession bonus for the Health Professions Scholarship Program from \$20,000 to \$100,000 to recruit more medical and dental providers.

Military Housing:

- Authorizes increased funding to repair and improve enlisted barracks across the services.
- Requires the Secretary of Defense to develop a policy for the services to provide free internet to servicemembers living in barracks.
- Authorizes servicemembers who are below the grade of E-6, do not have dependents, and are assigned to sea duty to be paid a Basic Allowance for Housing.

Child Care and Education for Military Families:

- Provides for competitive rates of pay for child development programs' employees to improve recruitment and retention.
- Includes a provision based off of Kaine's [bipartisan bill](#) to extend the maximum student to teacher ratio directive for Department of Defense Education Activity (DODEA) schools around the world. Sets the maximum teacher to student ratio at 1:18 for grades K-3 and maintain an average of 1:24 for grades 4-12 across all DODEA schools.
- Authorizes funding for Impact Aid, including funding to support military children with severe disabilities.

Impact Aid reimburses school districts for the cost of educating children who reside on military installations or have a parent that works on a military installation or federal property. Because military families may not pay certain state or local taxes where they are stationed, Impact Aid helps offset these costs and is critical to supporting schools.

Military Spouses:

- Permanently grants authority to DOD to make transferring professional licenses between states easier for military spouses.
- Extends the Military Spouse Career Accelerator Pilot, which provides employment support to military spouses through a paid fellowship program.
- Extends the authority to hire military spouses in noncompetitive appointments in the civil service.

Countering Fentanyl: Includes the [Strengthening Tracking Of Poisonous Tranq Requiring Analyzed National Quantification Act \(STOP TRANQ\)](#), bipartisan legislation Kaine led alongside U.S. Senator Ted Cruz (R-TX) to add a statutory requirement for the State Department to include reporting on xylazine, or “tranq,” in its annual International Narcotics Control Strategy Report (INCSR), a country-by-country report that tracks efforts to counter all aspects of the international drug trade. Tranq is a powerful sedative that is increasingly used as an additive to fentanyl.

Resilience of Military Installations: Authorizes funding for the Readiness and Environmental Protection Integration (REPI) Program to support base resiliency. Kaine called for robust

funding for REPI.

Support for Veterans: Extends and authorizes funding for the Troops to Teachers (TTT) program to help transitioning servicemembers and veterans become K-12 teachers.

U.S. Posture in Indo-Pacific:

- Authorizes funding for the Pacific Deterrence Initiative (PDI), which enhances U.S. force posture, infrastructure, readiness, capacity, and capabilities in the Indo-Pacific.
- Requires a plan for the establishment of joint force headquarters subordinate to U.S. Indo-Pacific Command (INDOPACOM) in Japan.
- Authorizes the Indo-Pacific Security Assistance Initiative and authorizes DOD to provide defense articles and services to allies and partners in the Indo-Pacific.

Australia-U.K.-U.S. (AUKUS) Partnership: Includes Kaine's bipartisan [Coordinating AUKUS Engagement with Japan Act](#) to require AUKUS coordinators at the State Department and DOD to engage with the Japanese government, as well as consult with counterparts in Australia and the U.K. to assess Japan's potential for inclusion in key advanced technology cooperation activities under the AUKUS framework. Kaine has been a [strong champion](#) of AUKUS in Congress.

Taiwan: Authorizes the Taiwan Security Cooperation Initiative

to enable Taiwan to maintain sufficient self-defense capabilities.

Israel: Authorizes funding for the Israeli Cooperative Missile Defense Program, including the Iron Dome, David's Sling, and Arrow.

Ukraine: Requires a report on DOD efforts to identify, disseminate, and implement lessons learned from the war in Ukraine.

Iran: Requires congressional notification for any weapons or related materials transferred by Iran to an Iranian-linked group or second country. Requires an annual report on actions the U.S. is taking to counter and deter weapons transfers.

Uncrewed Aircraft Systems:

- Authorizes DOD to support civil authorities to detect, identify, and monitor uncrewed aircraft systems (UAS) that cross international land borders of the United States.
- Requires the establishment of a counter-uncrewed aircraft system (c-UAS) task force to review guidance relating to c-UAS activities.
- Requires a strategy for countering drone technologies, referring drone offenses for investigation and prosecution, and assessing resources or authorities necessary for drone incursion response.

- Directs the Army, Navy, and Air Force to provide briefings on respective service plans for counter-UAS capabilities.

Counternarcotics: Requires DOD to report on improvements to combatant command coordination to its counternarcotic and counter-transnational organized crime activities.

Illegal, Unreported, and Unregulated (IUU) Fishing:

- Authorizes the Secretary of Defense to support the U.S. Coast Guard in executing existing maritime laws to combat transnational crimes, including IUU fishing.
- Includes a key provision from [bipartisan legislation](#) Kaine introduced to expand existing authorities to allow the U.S. government to work with partners and allies around the world to support the enforcement of maritime law enforcement agreements that combat IUU fishing.

Countering Human Trafficking: Includes a provision from Kaine's [bipartisan bill](#) authorizing the State Department to investigate human trafficking.

Support for Historically Black Colleges and Universities (HBCUs): Includes several provisions from Kaine's [bipartisan legislation](#) to encourage growth of research partnerships between HBCUs and federal agencies to advance development in sub-Saharan Africa.

Response to Conflict in Sudan Act: Includes Kaine's [legislation](#) to bolster and coordinate the U.S. response to the worsening conflict in Sudan by creating and codifying the Office of the Special Envoy for Sudan at the U.S. Department

of State. The Envoy would be confirmed by the Senate.

COMMAND Act: Includes Kaine's bipartisan bill to require commissioned officers to receive training on the U.S. Constitution, including instruction on civilian control of the military.

A Week in the Life of Protecting American Fish and Seafood



U.S. Coast Guard Petty Officer 1st Class Christopher Banka, a boarding officer aboard U.S. Coast Guard Cutter ANGELA McSHAN,

completes a living marine resources fisheries inspection, Atlantic Ocean, Dec. 10, 2024. The crew of 25 completed a five-day living marine resource law enforcement patrol 100 miles off the coast of New Jersey. (U.S. Coast Guard photo by Petty Officer 3rd Class Christopher Bokum)

From U.S. Coast Guard 5th District, Dec. 18, 2024

PHILADELPHIA – One hundred miles off the New Jersey coastline, the waters were vast and seemingly endless.

To the untrained eye, it was a serene stretch of blue, a world away from the bustling Jersey Shore. But amongst waves was a high-stakes arena where living marine resources (LMR) law enforcement took place.

The Coast Guard's LMR mission affects seafood enthusiasts and fishermen alike. A succulent seafood dinner cannot make it to a plate until the fishermen catch it, and it's the Coast Guard's mission to ensure those fish are caught legally.

From Dec. 9 to Dec. 13, U.S. Coast Guard Cutter Angela McShan and its 25 crewmembers took to the Atlantic to carry out an LMR law enforcement patrol, ensuring the sustainability of the ocean's resources and enforcing federal regulations designed to protect marine ecosystems and commercial fishing livelihoods.

"Our mission is critical to protecting the natural resources within the mid-Atlantic fisheries," said the cutter's commanding officer, Lt. Gregory Schmidt, "especially ensuring the natural resources are sustained and also that there's a balance of the economic profit and the balance of the commercial fisheries within the area."

The Coast Guard is the lead federal maritime law enforcement agency and the only agency with both the authority and capability to enforce national and international law on the high seas, outer continental shelf, and inward from the U.S. Exclusive Economic Zone (EEZ) to inland waters.

During this deployment, the crew conducted five boardings for fisheries and served as a stronghold of maritime law enforcement.

Armed Coast Guardsmen boarded the fishing vessels using the cutter's over the horizon (OTH V) small boat, the only fast response cutter (FRC) in the fleet currently using this updated prototype OTH.

"Out here we're conducting inspections on commercial fishing vessels," said Petty Officer First Class Christopher Banka, a boarding officer. "As far as the fish, we're looking at sizes, quantity, and ensuring that the vessels have their proper certifications and documentation."

The goal for the week was clear: to ensure fishing operators complied with federal regulations while fostering mutual respect and cooperation.

"The biggest thing we're looking for are the targeted species," said the cutter's executive officer, LTJG Joseph Roth. "District Five provides us with a lookout list with known high-risk targets and repeat offenders. We're also looking for those targeted species and the area of the ocean where typical good fishing grounds are."

While some vessels were found to be fully compliant, other were not.

"A lot of times we've run into people just fishing with the wrong type of gear," said Roth. "This trip, we had someone fishing with a net that was too small. We caught it and we're protecting our fisheries by doing that. With a smaller net, they're catching a lot more things that they're not supposed to be catching."

As the crew's deployment showed, it's not just the fish themselves that are of interest, but also the equipment on the vessels.

“We’ve also run into some safety equipment violations,” said Roth. “There’s been expired flares, personal flotation devices that are unserviceable. So, we’re indirectly saving a life by ensuring these vessels have the correct equipment on board.”

As Schmidt explained, the Coast Guard is not only searching for illegal fishing during these boardings but also inspecting the vessels to prevent casualties.

“This fisheries mission is important because we get to see immediate impact on the federal fisheries and safety aspect,” said Schmidt. “When we get on these boats, we not only check their fish but also check they are in compliance with their safety equipment. Ultimately, we’re protecting their lives to make sure they’re not a search and rescue case.”

According to Roth, every single crew member contributes to the fisheries mission while underway.

“We have our cooks out there helping to launch the small boat,” said Roth. “We’ve got our engineers on the small boat and out doing boardings. Our boatswain’s mates are doing the same thing. Every single person is involved in the law enforcement effort as well as the effort to keep the ship running and conducting maintenance.”

Amid the patrol, swells reached upwards of 10 feet with subfreezing temperatures.

For the crew, the Atlantic conditions are simply part of the job.

“It can get pretty rough out there,” said Roth. “Especially getting on and off the small boat and onto the vessels. You’ve really got to take precautions, and you don’t know what kind of deck you’re climbing on to.”

Despite the challenges, the crew successfully conducted the

five boardings over the five-day deployment.

“One of the biggest challenges we face is the weather windows when these fisheries are open,” said Schmidt. “Often, we have to strategically plan to get offshore amidst the weather. Our main goal is to be able to target these guys when it’s safe to go out there and the maximum available targets out there with the weather and fisheries being open.”

LMR law enforcement is a duty under the Magnuson-Stevens Fishery Conservation and Management Act, the Endangered Species Act and several other federal laws focused on the protection of marine resources.

The core objective of these efforts is to provide enforcement to advance national goals for the conservation, management, and recovery of living marine resources, marine protected species, and national marine sanctuaries and monuments. This includes the enforcement of LMR regulations in addition to numerous other activities that strengthen both domestic and international fisheries management regimes.

The Maritime Law Enforcement program protects America’s maritime borders from encroachment, defends the country’s maritime sovereignty from illicit activity, facilitates legitimate use of the waterways, and suppresses violations of federal law on, under and over the high seas and waters subject to the jurisdiction of the United States.

The Angela McShan, a Sentinel-class FRC homeported in Cape May, New Jersey, is named after the first African American female master chief in Coast Guard history. True to its namesake’s legacy, the vessel exemplifies service, vigilance, and dedication.

The FRC’s have recently been tasked and given the tools to find the top producers of the commercial fisheries, which allows them to target the vessels that are seeking the most fish.

“The crew are skilled operators fully aware of the challenges, risk, and importance of the enforcement efforts,” said Schmidt. “It’s something that we take pride in and something that we know has an immediate impact economically—not only among the Coast Guard’s statutory missions but also in terms of protecting the natural resources.”

For First Time, Australian Submariner Earns US Dolphins



YOKOSUKA, Japan (Dec. 12, 2024) – Rear Adm. Chris Cavanaugh, commander, Submarine Group 7, and Royal Australian Navy Lt. Cmdr. James pose for a photo during pier-side quarters for the Virginia-class fast-attack submarine USS Vermont (SSN 792) at Commander, Fleet Activities Yokosuka, Dec. 12. (U.S. Navy photo by Mass Communication Specialist 2nd Class Daniel G.

Providakes) (This photo has been altered and last name withheld per Royal Australian Navy protocols)
From Lt. Cmdr. Samuel Boyle, Submarine Group 7 Public Affairs,
Dec. 17, 2024

YOKOSUKA, Japan— The U.S. Navy qualified the first Royal Australian Navy officer on a nuclear-powered Virginia-class submarine at Commander, Fleet Activities Yokosuka, Dec. 12. In a pier-side ceremony, Rear Adm. Chris Cavanaugh, commander, Submarine Group 7 awarded Royal Australian Navy Lt. Cmdr. James* the first U.S. Navy Submarine Warfare Device earned by a Royal Australian Navy submariner.

James earned the warfare device, or “dolphins”, while embarked aboard the Virginia-class fast-attack submarine USS Vermont (SSN 792) during a deployment to the U.S. 7th Fleet area of operations, demonstrating another significant milestone for the Australia, United Kingdom, United States (AUKUS) trilateral security partnership.

“It is always an honor to pin dolphins on a Sailor’s uniform and welcome them into an elite community of undersea warfighters,” said Cavanaugh. “Today’s pinning represents the strength of the alliance and our continued progress under the AUKUS agreement. This was an historic pinning, but it is only the first of many to come.”

In order to qualify, a Sailor must exhibit a strong understanding of all submarines systems, compartments, and equipment. James had already qualified on a diesel electric Collins-class submarine but was the first Royal Australian Navy submariner to qualify on a nuclear-powered Virginia-class submarine.

“All of the extra sensors that the boat has, and the fact that we can remain deployed for so long at such high speeds will be game changing for Australia,” said James. “[Qualifying] is a culmination of a lot of hard work and a lot of support from

the crew. I'm incredibly thankful to everybody that has supported me through this adventure. And it makes me incredibly proud to serve both my navy and your navy."

There are currently more than 100 Royal Australian Navy officers in the U.S. Navy submarine training pipeline or assigned to U.S. Virginia-class SSNs. Military training efforts under the AUKUS Pillar 1 effort are designed to enable Australia to operate, maintain, and support a sovereign fleet of conventionally armed, nuclear-powered submarines to deter aggression and enhance stability in the Indo-Pacific region.

Vermont, part of Submarine Squadron 1, has been on deployment since it departed its homeport of Joint Base Pearl Harbor-Hickam, Hawaii, Aug. 8, and arrived in Yokosuka, Japan, Dec. 9, for a port visit.

Submarine Group 7 directs forward-deployed, combat capable forces across the full spectrum of undersea warfare throughout the Western Pacific, Indian Ocean, and Arabian Sea.

U.S. 7th Fleet is the U.S. Navy's largest forward-deployed numbered fleet, and routinely interacts and operates with allies and partners in preserving a free and open Indo-Pacific region.

*Per Royal Australian Navy protocols, submariners' last names are not publicly released.