RTX’s Raytheon awarded Mentor Protégé agreements to develop operational AI

The collaboration will leverage commercial and defense technologies to enhance decision making

MCKINNEY, Texas (July 29, 2024) – Raytheon, an RTX (NYSE: RTX) business, was awarded two strategic Mentor-Protégé Agreement initiatives from the Department of the Navy Office of Small Business Programs to support the development of operational Artificial Intelligence for Department of Defense platforms and programs.

Through joint sponsorship from NAVAIR and the Office of Naval Research, Raytheon will mentor Anacapa Micro Products, Inc. and Nara Logics, Inc. Under two individual three-year contracts, Raytheon will provide mentorship for operational AI on system design, software architecture, systems integration, IT security constraints and authority-to-operate requirements in a collaborative environment.

“The Mentor Protégé Program is an essential element of our overall supplier diversity small business strategy,” said Colin Whelan, president of Advanced Technology at Raytheon. “Through this partnership, we’ll leverage commercial innovations that can make meaningful contributions to our defense capabilities and ultimately, the success of our servicemen and women.”

This collaboration is part of the DoD’s Mentor-Protégé Program, which was established in 1990 and is the oldest continuously operating federal mentor-protégé program in existence. Raytheon has been an active participant in the program since 1991.

Together, the team of Raytheon, Anacapa, and Nara Logics will work to accelerate the development of next-generation autonomous capabilities to enhance the decision-making effectiveness of our servicemen and women.

“We are privileged to participate in this Mentor Protégé relationship that will enhance our joint technical abilities to deliver critical mission support functionality on emerging defense and intelligence platforms,” said Jana Eggers, CEO of Nara Logics.

“Our organization is very proud to be a partner with Raytheon under this Mentor Protégé Agreement and we’re looking forward to supporting the development, production and testing of next-generation AI to better serve the warfighter,” said Ken Marks, CEO of Anacapa Micro Products.

Upon completion, Raytheon will possess an extremely robust technology roadmap aligned with emerging commercial technologies of industry leading small business capabilities.

July 26 U.S. Central Command Update

From U.S. Central Command, July 26, 2024

In the past 24 hours, U.S. Central Command (USCENTCOM) forces successfully destroyed six Iranian-backed Houthi uncrewed aerial vehicles (UAV) in a Houthi-controlled area of Yemen.

Separately, USCENTCOM forces engaged and destroyed three Houthi uncrewed surface vessels (USV) operating off the coast of Yemen.

It was determined these weapons presented an imminent threat to U.S., coalition forces, and merchant vessels in the region. These actions were taken to protect freedom of navigation and make international waters safer and more secure.

U.S. Intends to Reconstitute U.S. Forces Japan as Joint Forces Headquarters

Secretary of Defense Lloyd J. Austin III and Secretary of State Antony J. Blinken conduct a press briefing with Japanese Defense Minister Minoru Kihara and Foreign Minister Yoko Kamikawa after the U.S.-Japan Security Consultative Committee meeting in Tokyo, July 28, 2024. (Photo by: Navy Petty Officer 1st Class Alexander Kubitza)

From C. Todd Lopez, DOD News, 29 July 2024

Through a phased approach, the U.S. plans to convert U.S. Forces Japan into a joint force headquarters which will report to the commander of U.S. Indo-Pacific Command, the U.S. secretary of defense said today following the conclusion of a two-plus-two ministerial meeting in Tokyo.

Included in the meeting were Secretary of Defense Lloyd J. Austin III, Secretary of State Antony Blinken, Japan's Minister for Foreign Affairs Yoko Kamikawa and Japan's Minister of Defense Minoru Kihara.

"We welcome an historic decision to modernize our alliance command and control to better meet the challenges of today and tomorrow," said Austin during a press briefing today that followed the high-level meetings. "The United States will upgrade the U.S. Forces Japan to a joint force headquarters with expanded missions and operational responsibilities."

The new joint force headquarters will be commanded by a three-star officer and will serve as a counterpart to Japan's own Japan Self-Defense Forces Joint Operations Command, Austin said.

"This will be the most significant change to U.S. Forces Japan since its creation, and one of the strongest, improvements in our military ties with Japan in 70 years," he said. "Japan's new Joint Operations Command will further allow our forces to work together more closely than ever. And these new operational capabilities and responsibilities will advance our collective deterrence."

Austin said the change is based on a desire to work more closely with Japan and enhance the effectiveness of the existing relationship.

Also part of the discussions, Austin said, were ways to increase bilateral presence in Japan's Southwest Islands; a

reaffirmation of the importance of cooperation on cybersecurity, intelligence, surveillance and reconnaissance, cross-domain operations and bilateral exercises and training; and ideas for new areas for defense industrial cooperation.

According to a joint statement by the Security Consultative Committee, meeting participants discussed co-production opportunities to expand production capacity of both Advanced Medium-Range Air-to-Air Missiles and Patriot Advanced Capability-3 Missile Segment Enhancement missiles.

“Finally, we held a separate two-plus-two ministerial level meeting on extended deterrence, and that has never been done before,” Austin said. “During that meeting, I reaffirmed our ironclad commitment to defend Japan with the full range of our capabilities, including our nuclear capabilities.”

As part of the extended deterrence meeting, participants discussed, among other things, North Korea’s destabilizing activities in the region, including its unlawful nuclear and ballistic missile programs; China’s expansion of its nuclear arsenal; and Russia’s unlawful arms transfers with North Korea.

Austin said he considered both meetings in Tokyo to be a success.

“We are reinforcing our combined ability to deter and respond to coercive behavior in the Indo-Pacific and beyond,” he said. “We’re reinforcing the rules-based international order that keeps us all safe. And the agreements that we’ve advanced today will ensure that the U.S.-Japan alliance remains a cornerstone of security and stability in the Indo-Pacific.”

Strategic Weapons Facility Pacific Celebrates 60 Years of Supporting the Nation's Nuclear Deterrence Mission

Vice Adm. Johnny Wolfe Jr., left, director of U.S. Navy Strategic Systems Programs, presents the fiscal year 2023 Chief of Naval Operations Shore Safety Award to Capt. Keith Fahlenkamp, Strategic Weapons Facility Pacific commanding officer, at a gala held at Naval Base Kitsap-Bangor Plaza in Silverdale, Washington July 20, 2024. (U.S. Navy photo by MC2 Victoria Galbraith)

25 July 2024

From Mass Communication Specialist 2nd Class Victoria Galbraith

SILVERDALE, Wash. – Strategic Weapons Facility Pacific

(SWFPAC) celebrated 60 years of service to its country and people by hosting a gala at Naval Base Kitsap-Bangor Plaza July 20, 2024.

Originally designated Polaris Missile Facility Pacific in 1964—and renamed SWFPAC in 1980—the field site was established to support the nation's sea-based nuclear deterrence program.

"It's the people that have really made SWFPAC a success throughout these years," said Vice Adm. Johnny Wolfe Jr., director of U.S. Navy Strategic Systems Programs (SSP).

"The foundation that they laid back in the 1960s to assemble the facility, this mission and the first generation of trained people who executed the development, oversight, and surety of the nation's inaugural sea-based strategic weapon system, cultivated a culture that has carried throughout the last 60 years and will stand strong for the next 60 years."

SWPAC—SSP's naval shore facility in the Pacific—assembles and deploys Trident II D5 missiles aboard Fleet Ballistic Missile submarines (SSBNs) while safeguarding the nation's strategic assets. SWFPAC's strategic deterrence mission has been a vital lynchpin to the nation's Warfighting Navy in the Pacific—a region where the Navy's maritime mission is critical to defending against near-peer competitors and adversaries, supporting U.S. strategy and acting as a guarantor for the security of its citizens.

During the gala, Vice Adm. Wolfe presented two awards to Capt. Keith Fahlenkamp, SWFPAC commanding officer, including the fiscal year 2023 Admiral Raborn Award and the fiscal year 2023 Chief of Naval Operations Shore Safety Award—an honor that has now been awarded three times to the command.

"I want to impart a heartfelt congratulations to the incredible team here at SWFPAC that has been directly

responsible for the continued security of the Nation for 60 years," said Capt. Fahlenkamp.

"These awards represent just a fraction of the dedication of this workforce to the mission, our organization and the Nation."

Against the backdrop of an extremely complex global environment, the Navy must be equipped to operate in challenging conditions, and SWFPAC is at the forefront of ensuring sailors have the right platforms, the right capabilities and weapons, and the right people for the job, today and in the future.

"One example of SWFPAC's tremendous support to the fleet and the warfighter was the expedited load-out of USS Kentucky (SSBN 737)," Vice Adm. Wolfe recalled during his speech.

"The excellent foresight of the staff enabled Kentucky crucial flexibility to execute a port call in South Korea in July 2023—a reassurance to our Nation's allies that we are committed to strategic deterrence in the region and for the world."

The last six decades have paved the way for the next 60 years as SWFPAC focuses forward to supporting SSP's efforts to sustain and develop weapon systems in support of the Sea-Based Strategic Deterrence mission through the year 2084 (SBSD 2084). Providing the Navy's warfighters the ability to preserve the peace, respond in crisis, and win decisively in war will be at the forefront of SWFPAC's responsibilities in the coming years. As the Columbia-class SSBNs begin operational patrols in the next decade, SWFPAC will not only sustain the strategic weapons system (SWS) for the current Ohio-class SSBNs but provide our Navy advanced weapon capabilities with the Trident D5 Life Extension (D5LE) II SWS and the W93/Mk7 warhead and reentry body assembly.

“What you do has broad influence nationally and internationally,” said Vice Adm. Wolfe, who highlighted the critical nature of the Navy’s charge in the Pacific.

“As we move away from the last 60 years and into the next 60, we must think, act, and operate outside of the traditional sources of strength our military has relied on for the last six decades in order to be prepared for tomorrow’s complex battlefield, especially in here in the Pacific.”

SSP provides training, systems, equipment, facilities and personnel responsible for ensuring the safety, security, and effectiveness of the nation’s Submarine Launched Ballistic Missile (SLBM) Trident II (D5LE) Strategic Weapon System

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U.S. Navy to Christen Future DDG USS Patrick Gallagher

From the U.S. Navy Office of Informaiton, 26 July 2024

The Navy will christen the future USS Patrick Gallagher (DDG 127), during an 11:00 EST ceremony Saturday, July 27, in Bath, Maine.

The Honorable Sean Fleming, Ireland’s Minister of State for the Department of Foreign Affairs (International Development and Diaspora), will deliver the principal address. Remarks will also be provided by the Honorable Susan Collins, U.S. Senator, Maine; Gen. Christopher Mahoney, Assistant Commandant of the Marine Corps; the Honorable Sean Coffey, General Counsel of the Navy; Vice Adm. Darse E. “Del” Crandall, Jr.,

Judge Advocate General of the Navy; and Charles F. Krugh, President of General Dynamics Bath Iron Works. In a time-honored Navy tradition, the ship's sponsors and sisters of the ship's namesake, Teresa Gallagher Keegan, Rosemarie Gallagher, and Pauline Gallagher, will christen the ship by breaking a bottle of sparkling wine across the bow.

The ship's namesake, Marine Corps Cpl. Patrick Gallagher, immigrated to the United States from Ireland and joined the United States Marine Corps. He received the Navy Cross for heroism during the Vietnam War when he managed to jump on and throw an enemy grenade into a river to save his fellow Marines. He was killed in action just one year later.

"It is my deepest honor to announce that the Fleet's newest Arleigh Burke-class destroyer will be named after Cpl. Patrick Gallagher. His keen instinct, bravery, and selflessness in the face of danger are testaments to his character and the true character of so many who choose to serve our Nation," said Secretary of the Navy, Carlos Del Toro. "As part of the world's most versatile Navy, I'm certain the crew of USS Patrick Gallagher (DDG 127) will uphold their namesake's legacy as they defend America's national interests and promote peace around the world."

This is the first Navy ship to honor Cpl. Gallagher.

Arleigh Burke-class destroyers are the backbone of the U.S. Navy's surface fleet, providing protection to America around the globe. These highly capable, multi-mission ships conduct various operations, from peacetime presence to national security, providing a wide range of warfighting capabilities in multi-threat air, surface, and subsurface domains. These elements of seapower enable the Navy to defend American prosperity and prevent future conflict abroad.

3D Printer Solves Engineering Challenges Onboard USS Somerset

Hull Technician 3rd Class Mario EnriquezSanchez, a Denver native, cuts the baseplate of a 3D printed component aboard the San Antonio-class amphibious transport dock ship USS Somerset (LPD 25) during Exercise Rim of the Pacific (RIMPAC) 2024 while underway in the Pacific Ocean, July 15. (U.S. Navy photo by MC2 Evan Diaz)

By Lt. Zachary Anderson

19 July 2024

Hull Technician 3rd Class Mario EnriquezSanchez, a Denver native, cuts the baseplate of a 3D printed component aboard

the San Antonio-class amphibious transport dock ship USS Somerset (LPD 25) during Exercise Rim of the Pacific (RIMPAC) 2024 while underway in the Pacific Ocean, July 15. (U.S. Navy photo by MC2 Evan Diaz)

When the team of engineers from the Consortium for Advanced Manufacturing Research and Education (CAMRE) loaded their 3D hybrid-metal printer onboard Somerset as part of the experimentation sector of Exercise Rim of the Pacific 2024, they had no idea that they would soon be asked to solve a real-world engineering casualty.

Hours after being loaded on board, a critical component of the reverse osmosis pump, which generates clean water for the crew – an absolute necessity for ships spending long periods at sea – shattered.

“What we didn’t expect was that we would have the opportunity to directly help ship readiness so soon,” said Lt. Charles Wallace, a mechanical engineer from the Naval Postgraduate School, and one of the team members onboard. “Especially for something as mission-essential as a reverse osmosis pump, where if you run out of water you’re going to be coming home pretty quick.”

3D printing, or additive manufacturing (AM), has been a major area of interest for Department of Defense in recent years. In January 2021, the DoD published its first-ever Additive Manufacturing Strategy to “provide a shared set of guiding principles and a framework for AM technology development and transition to support modernization and warfighter readiness,” across the military.

“For Trident Warrior, CAMRE organized the largest distributed advanced manufacturing demonstration the Department of Defense has ever conducted to date,” explains Lt. Col. Michael Radigan with the Marine Innovation Unit, and government lead on the

CAMRE team. “This was accomplished by linking advanced manufacturing equipment, joint subject matter experts, and commercial partners to tackle real-life readiness solutions.”

The benefits of successfully implementing additive manufacturing on ships include saving time, money, space, and increasing overall warfighting readiness by allowing for repair and replacement of equipment in a contested environment. In the case of Somerset, had the reverse osmosis pump failed during their 6-month deployment, it would have reduced their ability to produce drinking water for the Sailors and Marines.

“If the crew had to rely on a replacement part without using additive manufacturing, it would have taken weeks or months,” said Staff Sgt. Jordan Blake, a member of the Marine Innovation Unit, and tasked with technical oversight of the project aboard ship. “With this technology, we’ll have the new component printed and ready for installation before the order for a replacement would be completed.”

While 3D printing on Navy ships is still in its infancy, Somerset is not the first ship to utilize AM. In April, 2024, the amphibious transport dock USS San Diego (LPD 22) piloted a liquid metal jetting additive manufacturing process fielded by the CAMRE team, operationally showcasing this novel technology’s capabilities at sea.

What makes the Somerset demonstration unique, is that the machine is a metal hybrid design, combining subtractive and additive manufacturing in one machine. Subtractive manufacturing is an umbrella term for the process by which solid blocks of material are shaped into the desired object via cutting, boring, drilling, and grinding. This is in contrast to additive manufacturing, which builds something by adding material one layer at a time – hence additive.
Oftentimes, constructing a replacement part involves both

additive and subtractive manufacturing. Before they tested the model on Somerset, this meant alternating between different machines, however by combining the two processes it effectively streamlines the overall workflow.

“The benefit of a system like this is that you’re able to computerize , send the code, then once you’ve printed something, it becomes replicable,” said Wallace when asked how the hybrid machine represents a step forward for the military.

Not only is 3D printing faster and safer than traditional machinery repair, but the replacement parts are often stronger as well. The weld is nearly as strong, or stronger, than the parent metal. AM is essentially building through welding, which means the replacement pump will potentially surpass the strength of the previous version.

The project builds upon a unique cross-sectional effort from the DoD and industry partners to provide hands-on experience for military students. The printer test itself falls under the umbrella of CAMRE, which funded the project and sent four NPS students to study advanced manufacturing capabilities in an operational scenario. Two soldiers on the team operate the printer and three Marines operate the polymer printers which help augment the capabilities of the metal printer.

A project engineer and representative for the industrial printer’s parent company, is also on hand to teach the Somerset crew to operate the printer independe

July 25 U.S. Central Command Update

From U.S. Central Command, July 25, 2024

TAMPA, Fla. – In the past 24 hours, U.S. Central Command (USCENTCOM) forces successfully destroyed one Iranian-backed Houthi uncrewed aerial vehicle (UAV) launcher in a Houthi-controlled area of Yemen.

It was determined this launcher presented an imminent threat to U.S., coalition forces, and merchant vessels in the region. These actions were taken to protect freedom of navigation and make international waters safer and more secure.

NOAA, Defense POW/MIA Accounting Agency Agree to Share Ocean Exploration Data

In 2018, a multidisciplinary team traveled to Kiska, Alaska, to survey historic battlefields from World War II and document and honor the final resting place of U.S. and Japanese service members who lost their lives in the waters surrounding Kiska Island. The expedition, which was funded by NOAA and coordinated with the Defense POW/MIA Accounting Agency, resulted in the discovery of the missing section of the USS Abner Read, a 376-foot Fletcher-class U.S. Navy destroyer that struck a Japanese mine on August 18, 1943, resulting in the loss of 71 U.S. Navy sailors. In this image, the expedition team deploys one of the autonomous underwater vehicles used to survey Kiska Harbor off the side of Research Vessel Norseman II. (Kiska: Alaska's Underwater Battlefield expedition)

Two-pronged partnership will honor U.S. military lost at sea and advance scientific ocean discovery

July 25, 2024

NOAA and the Defense POW/MIA Accounting Agency (DPAA) have signed a formal memorandum of understanding (MOU) to share data and scientific information and collaborate on ocean exploration work that contributes to the missions of both

federal agencies.

“NOAA is excited to strengthen our collaboration with the agency responsible for locating, recovering and identifying the remains of unaccounted-for U.S. soldiers, sailors and other personnel from past maritime conflicts,” said Steven Thur, Ph.D., NOAA assistant administrator for Oceanic and Atmospheric Research. “Sharing ocean data and collaborating on projects will help our agencies honor courageous military personnel lost at sea defending our nation and at the same time, enable scientists to better understand our ocean.”

The five-year MOU outlines areas of collaboration between NOAA and DPAA, to:

- Undertake joint expeditions, personnel exchanges and engagements between personnel to share methods of operation related to missions.

- Share data and scientific information resulting from research cruises, expeditions and campaigns.

- Share relevant updates and meet at least annually to share objectives, plans and needs for both the current year and the following five-year period.

- Provide DPAA with access to subject matter experts, vessels and other equipment, mission results and technology expeditions, as well as shoreside facilities and programs throughout NOAA’s ocean, weather, climate and coastal science mission.

- Provide NOAA and its sponsored scientists with access to vessels, technology and other equipment for

participation in expeditions.

- Advance the public understanding of both agency's missions as well as the new partnership when undertaking joint projects and other opportunities as practicable. Engage in cross promotion of activities where practicable and across various media platforms.

"NOAA's expertise is world renowned, and we are excited about this partnership and our collective commitment to keep our nation's promise to provide the fullest possible accounting for those still missing from past conflicts," said Fern Sumpter Winbush, DPAA's Principal Deputy Director. "Our agencies will learn from one another as we stretch the limits of technology to search for those still missing since World War II, and as we provide answers to their families."

This MOU builds on an existing partnership between NOAA and DPAA. The two federal agencies have collaborated on past expeditions, including the recent 2023 search for a B-25 bomber during the Seascape Alaska expedition.

Please go online to read the MOU.

The Defense POW/MIA Accounting Agency is the U.S. government agency responsible for locating, recovering and identifying the remains of the more than 81,000 unaccounted-for U.S. Department of Defense personnel from designated past conflicts. DPAA's mission involves historical research, archeology, forensic anthropology, laboratory analyses and other related activities.

George Washington, Ronald Reagan Conduct Hull Swap

From U.S. Navy Office of Information, 25 July 2024

SAN DIEGO – Nimitz-class aircraft carriers USS George Washington (CVN 73) and USS Ronald Reagan (CVN 76) conduct a hull swap on Naval Air Station North Island that sends Ronald Reagan to Bremerton, Washington, and returns George Washington to Yokosuka, Japan, as the Navy's only Forward-Deployed Naval Forces-Japan (FDNF-J) aircraft carrier effective Aug. 1.

The hull swap between Ronald Reagan and George Washington was planned in coordination with the government of Japan, and as a part of the 50-year lifespan of the U.S. Navy's Nimitz-class aircraft carriers.

"USS Ronald Reagan has served exceptionally as America's

forward deployed aircraft carrier for nearly a decade, projecting credible combat power while sailing and flying where international law allows and doing so with allies and partners throughout the Indo-Pacific," said Rear Adm. Greg Newkirk, commander of Task Force 70 and Carrier Strike Group 5. "Reagan's crew and those who have served aboard over the past several years should be tremendously proud of what they accomplished."

George Washington relieving Ronald Reagan marks the second time the ship will serve as the FDNF-J aircraft carrier. In 2008, George Washington became the first nuclear powered aircraft carrier to serve as FDNF-J and was relieved by Ronald Reagan seven years later after a historic tri-carrier hull swap.

"For the last nine years, Ronald Reagan Sailors upheld the international rule of law and maintained a free and open Indo-Pacific alongside our allies and partners through their diligence and dedication towards our common goals," said Capt. Daryle Cardone, Ronald Reagan's commanding officer. "Their commitment has left a mark on the 7th Fleet area of responsibility and the impact we made will be continued as George Washington makes their way to Yokosuka, Japan. I know 7th Fleet is in good hands and as Ronald Reagan left behind a legacy of 'peace through strength,' George Washington will embody the 'spirit of freedom' in the Indo-Pacific once again."

George Washington's return to Japan continues the long-standing alliances and partnerships, and consistent U.S. presence in the Indo-Pacific region.

"Now is also an exciting time for the men and women of the USS George Washington, who are building on that ship's history as Reagan's predecessor in Yokosuka and re-establishing 'GW' as America's forward-deployed aircraft carrier – a tangible and

enduring sign of our nation’s commitment to peace, stability and freedom in the region,” said Newkirk. “Over its previous years as our forward-deployed carrier, George Washington built a reputation for professionalism, confidence and true excellence in Japan across the Indo-Pacific. I know today’s GW Sailors are trained and ready to retake the mantle, make their own mark in this consequential theater.”

Prior to arriving in San Diego, the George Washington Carrier Task Group completed Southern Seas 2024, circumnavigating South America, and the Ronald Reagan Carrier Strike Group completed its final patrol as the FDNF-J aircraft carrier in the U.S. 7th Fleet area of responsibility.

“Having the George Washington back in Yokosuka is a new and exciting adventure for the crew, but it more importantly ensures the United States remains best positioned to meet common goals in the region,” said Capt. Tim Waits, George Washington’s commanding officer. “This nuclear aircraft carrier was a huge part of the foundation of trust between the U.S. and Japan, and that trust is the cornerstone of peace and stability in the Indo-Pacific.”

George Washington and crew are in the process of completing the hull swap, replacing USS Ronald Reagan (CVN 76) as the forward-deployed U.S. Naval Forces Japan aircraft carrier at Fleet Activities Yokosuka, Japan. As part of the transition, the embarked Air Wing and Staffs, which include Carrier Air Wing 5 (CVW 5) and Destroyer Squadron 15 (DESRON 15) will all cross deck to USS George Washington (CVN 73) bringing with them their vast operations experience operation on one of the most advanced and capable warships in the world. About 350 Sailors, 13 percent of the USS Ronald Reagan (CVN 76) crew, will swap with USS George Washington (CVN 73) Sailors. With them, these Sailors will bring their Indo-Pacific and forward deployed experience to George Washington.

Navy Demonstrates ‘Game-Changing’ System to Rearm Warships at Sea

Sailors from the Navy Expeditionary Logistics Support Group and USS Chosin (CG 65) carefully guide a missile canister using the U.S. Navy’s Transferrable Rearming Mechanism as they demonstrate the ability to reload a Vertical Launching System cell on July 10 at Naval Surface Warfare Center, Port Hueneme Division’s Underway Replenishment Test Facility. (U.S. Navy photo by Dana Rene White)

From Naval Surface Warfare Center, Port Hueneme Division (NSWC PHD)

Naval Surface Warfare Center, Port Hueneme Division (NSWC PHD) successfully conducted the first land-based demonstration of

the Transferrable Rearming Mechanism (TRAM), which will enable U.S. Navy surface combatants to reload missile canisters into their MK 41 Vertical Launching Systems (VLS) at sea.

Secretary of the Navy Carlos Del Toro has made TRAM one of his top priorities. In a speech at Columbia University in New York City in December 2022, the secretary set out the goal that, "during my tenure, we will set the Navy on track to deliver the game-changing capability to rearm our warships at sea. Being able to quickly rearm our warships' vertical launch tubes at sea will significantly increase forward, persistent combat power with the current force. No longer will our combatants need to withdraw from combat for extended periods to return for vulnerable in-port reloading of weapon systems…. My intention is to perfect this capability and field it for sustained, persistent forward-strike capacity during wartime."

The Naval Sea Systems Command (NAVSEA) and NSWC PHD team delivered on the secretary's call for speed at the Sea-Air-Space Exposition in National Harbor, Maryland, in April, where Del Toro said, "The at-sea demonstration will take place later this year – an unheard-of pace for a capability with such revolutionary strategic potential. If we had waited to Program Objective Memorandum, or POM, for it, we wouldn't see it demonstrated for at least another two or three years. Instead, we're on track to begin fielding it in two or three years."

The test's execution underscored the versatility and rapid adaptability of the Navy's sailors and engineers. Tim Barnard, director of the NAVSEA Technology Office (05T), praised the speed at which the sailors of the Navy Expeditionary Logistics Support Group and USS Chosin (CG 65) became acquainted with TRAM in order to execute the demonstration.

"This team has been remarkable," Barnard said. "Without previous familiarity with TRAM, the sailors got spun up for this week's shore demonstration with just a week of training.

They understand TRAM is a game-changer that will allow our ships to reload missiles just like they refuel – using connected underway replenishment, steaming at speed and in open ocean."

This week's land-based test incorporated, for the first time, real-time analytics and direct monitoring through instrumentation, which facilitated real-time assessment and modifications that would otherwise take weeks or months. This unique approach will inform the upcoming at-sea demonstration and follow-on engineering updates.

Ryan Hayleck, technical director for NAVSEA 05T and technical lead for the demonstration, emphasized during the test that "as we introduce new improvements based on the sailors' inputs this week and in the upcoming at-sea test, TRAM will only get better and faster from here. I am very excited to take TRAM to sea."

NSWC PHD Commanding Officer Capt. Tony Holmes stressed the importance of the Navy's support behind the test.

"NSWC PHD appreciates this opportunity to further such a critical and essential capability for the warfighter and the U.S. Navy, thanks to the efforts and focused interest of the secretary of the Navy," Holmes said. "We look forward to continuing to work on the next steps."

Technical Director Jeff Koe added that the resourceful spirit of NSWC PHD's Underway Replenishment Team has demonstrated that innovation is alive and well in the Navy.

"Our enterprising teammates years ago saw the need to rearm surface ships at sea and took the initiative to design a way to materialize that vision," Koe said. "Now, our Navy will benefit from that ingenuity as NSWC PHD and its partners bring TRAM to fruition."

Rich Hadley, director of NSWC PHD's underway replenishment

division which designed TRAM, explained that “by solving key relative motion challenges, TRAM is a capability enabling reloading operations while underway in significant sea states. TRAM will greatly expand the fleet’s logistical flexibility, resilience, as well as volume and tempo of long-range fires.”

Thanking the NAVSEA-NSWC PHD leadership team and the sailors from the Navy Expeditionary Logistics Support Group and USS Chosin who carried out the demonstration, Steven Brock, senior adviser to the secretary of the Navy, noted the historic import of the occasion.

“This demonstration that you superbly delivered on the secretary’s aggressive timeline sends a powerful message,” Brock said. “This revolution in surface warfare will make our existing fleet even more formidable, both in sustained forward presence and lethality – and will create a powerful new near-term deterrent that will disrupt the strategic calculus of our adversaries.”

Hunter Stires, maritime strategist with the Office of the Secretary of the Navy, added, “TRAM will enable us to do the modern-day equivalent of firing two broadsides to the enemy’s one. The U.S. Navy’s very best are making this capability real.”