BAE Systems to Sustain U.S. Navy Critical Carrier Landing Systems

An F-35C Lightning II, assigned to the "Raiders" of Strike Fighter Squadron (VFA) 125, performs an arrested landing on the flight deck of the aircraft carrier USS Abraham Lincoln (CVN 72). *U.S. NAVY / Mass Communication Specialist 3rd Class Javier Reyes*

MCLEAN, Va. – BAE Systems Inc. will continue providing lifecycle sustainment, integration, and engineering services to support U.S. aircraft carriers after being selected for a five-year, $68.5 million indefinite delivery, indefinite quantity contract, the company said Oct. 4.

Under the Air Traffic Control and Landing Systems Engineering Products & Technical Services contract awarded earlier this year, BAE Systems will leverage decades of program history to develop, produce, equip, test, evaluate, sustain, and update the AN/SPN-46(V) Automatic Carrier Landing System.

"With this win, BAE Systems retains a key air traffic control contract that we have held since 1973 to provide industry-leading systems integration capabilities and solutions that ensure the safety of critical carrier-based landing systems," said Lisa Hand, vice president and general manager of BAE Systems' Integrated Defense Solutions business.

BAE Systems' technicians deploy around the world to support the warfighter. The company's employees utilize established and proven methods as well as their systems engineering and software development expertise to sustain these critical landing systems. The company's work results in improved hardware reliability, system precision, minimal downtime through onsite and remote technical assistance, and a

certified landing system.

USCGC Reliance Returns from 63-Day Patrol

The crew of USCGC Reliance (WMEC 615) conducts a port assessment off the coast of Haiti following a major earthquake to allow vessels to enter the port safely and deliver aid on Aug. 19, 2021. *U.S. COAST GUARD / Petty Officer 2nd Class Zachary Pumphrey*

PENSACOLA, Fla. – The crew of USCGC Reliance (WMEC 615) returned to homeport in Pensacola Sept. 29 after a 63-day Caribbean Sea patrol, the Coast Guard Atlantic Area said in an Oct. 1 release.

The Reliance crew supported the U.S. Coast Guard 7th District throughout their patrol, aiding in missions to interdict and disrupt the flow of illegal drugs and migrant trafficking while supporting national security and strengthening relationships with regional partners throughout the Caribbean.

“I am extremely proud of our crew for their adaptability and professionalism throughout the patrol. Regardless of the mission set, whether that was responding immediately to the aftermath of the devastating earthquake in Haiti by conducting critical port assessments or stopping the flow of illegal narcotics, Reliance was always ready to respond to the needs of our service and our nation,” said Cmdr. Robert Hill, commanding officer.

Significantly, the crew supported the relief efforts in

response to the earthquake in Haiti in August, conducting two separate port assessments on Haitian ports to ensure the harbors were safe for vessels to deliver vital aid and assistance to the region following the disaster.

During the patrol, Reliance's crew intercepted one vessel attempting to smuggle approximately 1,132 pounds of cocaine and detained a total of four suspected smugglers. Additionally, Reliance received more than 4,291 pounds of cocaine, 10 suspected smugglers and 96 migrants from other U.S. Coast Guard cutters operating in the region.

The crew also rescued 50 Dominican nationals from an unseaworthy vessel off the coast of Puerto Rico and repatriated 158 migrants to the Dominican Republic's navy.

The 63-day patrol was critical in allowing the cutter crew to work on shipboard training, qualifications, and proficiency to maintain operational readiness. This training enabled Reliance's team to complete a five-day major shipboard training exercise in Mayport, which tested their readiness in all aspects of damage control, seamanship, and navigational procedures.

Reliance is a 210-foot medium-endurance cutter homeported in Pensacola with a crew of 71. The cutter's primary missions are counter-drug operations, migrant interdiction, enforcing federal fishery laws, and search and rescue in support of U.S. Coast Guard operations throughout the Western Hemisphere.

Navy Realigns Submarine

Acquisition Workforce

NAVSEA Commander, Vice Adm. Bill Galinis, speaks at Norfolk Naval Shipyard (NNSY) May 19. *NORFOLK NAVAL SHIPYARD / Gregory Boyd*

WASHINGTON – The U.S. Navy's submarine acquisition community moved from a competency- to a platform-centric organization during an Oct. 1 change-of-office ceremony at the Washington Navy Yard, the Naval Sea Systems Command said in a release.

The change realigns two Program Executive Offices (PEOs) and initiates a third to better support submarine acquisition, operational capability and availability.

The Navy is committed to ensuring all decisions are aligned with and do not impact ongoing Columbia submarine construction.

"Aligning submarine acquisition and sustainment along platform lines, with cradle-to-grave ownership and accountability, is the most effective way to tackle the challenges we face and provide the nation with the most lethal undersea force possible," said Rear Adm. Scott Pappano, PEO Strategic Submarines (formerly PEO Columbia). "I look forward to the opportunity to proactively manage the Ohio-to-Columbia transition, including strategic shore infrastructure and industrial base capacity, to ensure uninterrupted sea-based strategic deterrent coverage into the 2080s."

Program Executive Office Attack Submarines (formerly PEO Submarines) aligns Virginia-class efforts under one flag officer.

"Consolidating attack submarine platform acquisition, development, and sustainment under a single PEO will ensure our Navy maintains America's and our allies' competitive edge over our rivals," said Rear Adm. David Goggins, PEO

SSN. “Specifically, aligning Virginia-class efforts under PEO SSN enables more effective planning for the lifetime of the boat and will ensure support smoother transitions from new construction to in-service for the Virginia-class.”

Program Executive Office, Undersea Warfare Systems (PEO UWS) will enable the delivery of enhanced combat capability, with improved cybersecurity and resiliency, to all submarine platforms, the Navy said. Furthermore, the creation of PEO UWS best positions Team Submarines to ensure undersea sensors and warfare systems are integrated into the Navy Operational Architecture in support of distributed maritime operations.

“The realignment of Team Submarines provides a tighter focus on our three main platforms: strategic, attack, and warfare systems,” said Rear Adm. Edward Anderson, PEO USW. “Standing up PEO UWS is a tremendous honor and will facilitate a greater focus on modernizing our sensors, combat systems and weapons, while improving our cybersecurity and platform resiliency.”

“This realignment is about ensuring we’re delivering combat power to the fleet,” said Vice Adm. Bill Galinis, commander, Naval Sea Systems Command and ceremony host. “Our submarines, first and foremost, are what help ensure the freedom of the seas that is critical to long-term military and economic stability in this era of strategic competition.”

The realignment does not require any new flag officer billets.

World First: Ocean Drone Captures Video from Inside a Category 4 Hurricane

A screen shot from video footage shot by a saildrone inside Hurricane Sam. *SAILDRONE*

ATLANTIC OCEAN – Saildrone Inc. and the National Oceanic and Atmospheric Administration (NOAA) have released the first video footage gathered by an unmanned surface vehicle (USV) from inside a major hurricane barreling across the Atlantic Ocean, the company said Sept. 30.

The Saildrone Explorer SD 1045 was directed into the midst of Hurricane Sam, currently on a path that fortunately will miss the U.S. East Coast. SD 1045 is battling 50-foot waves and winds of over 120 mph to collect critical scientific data and, in the process, is giving us a completely new view of one of Earth's most destructive forces.

Equipped with a specially designed "hurricane wing" enabling it to operate in extreme wind conditions, SD 1045 is braving Hurricane Sam in the open ocean, collecting real-time observations for numerical hurricane prediction models, which are expected to yield new insights into how large and destructive tropical cyclones grow and intensify.

SD 1045 is one of a fleet of five "hurricane" saildrones that have been operating in the Atlantic Ocean during this hurricane season, gathering data around the clock to help understand the physical processes of hurricanes. This knowledge is critical to improving storm forecasting and is expected to reduce loss of human life through allowing better preparedness in coastal communities.

"Saildrone is going where no research vessel has ever

ventured, sailing right into the eye of the hurricane, gathering data that will transform our understanding of these powerful storms," said Richard Jenkins, Saildrone founder and CEO. "After conquering the Arctic and the Southern Ocean, hurricanes were the last frontier for Saildrone survivability. We are proud to have engineered a vehicle capable of operating in the most extreme weather conditions on earth."

The saildrones provide data directly to NOAA's Pacific Marine Environmental Laboratory and Atlantic Oceanographic and Meteorological Laboratory, Saildrone's partners in this mission.

"Using data collected by saildrones, we expect to improve forecast models that predict rapid intensification of hurricanes," said Greg Foltz, a NOAA scientist. "Rapid intensification, when hurricane winds strengthen in a matter of hours, is a serious threat to coastal communities. New data from saildrones and other uncrewed systems that NOAA is using will help us better predict the forces that drive hurricanes and be able to warn communities earlier."

Austal USA Establishes Austal West Ship Repair in Alabama

A commercial ship exiting the Austal West Campus repair facility. *AUSTAL USA*

MOBILE, Ala. – Following the acquisition of additional waterfront along the Mobile River in September 2020, Austal USA quickly established a ship repair facility that has had a booming response, the company said in a Sept. 29 release.

“Almost immediately after word got out Austal USA had purchased the additional waterfront property, we were inundated with calls from commercial captains looking to return to Mobile to have their ships serviced,” said Mike Bell, Austal USA’s senior vice president of operations. “We are pleased with all of the positive feedback we have received from our ship repair customers thus far.”

Austal’s acquisition included 15 acres of waterfront property spanning almost 3,000 linear feet of waterfront pier space, a 20,000-ton certified Panamax-class floating dry dock, a 300,000-square-foot outside fabrication area, and 100,000 square feet of covered fabrication facilities all just 30 miles from the Gulf of Mexico.

While most of the shipbuilding industry associates Austal USA with advanced manufacturing of high-tech Navy ships, many more are now realizing the company has a highly-capable ship repair operation.

The Austal West Campus repair facility is conveniently located across the river from Austal USA’s 165-acre corporate headquarters providing access to deep water berthing for vessels up to 1,000 feet, advanced manufacturing capabilities including a friction stir welder, CNC machines, CNC cutting tables, and a carpenter shop, machine shop and electrical and pipe shops. The repair facility also boasts heavy-lifting capability with mobile cranes, overhead cranes and wing wall cranes that travel the length of the 668-foot dry dock.

The services provided by Austal’s Mobile ship repair operation range from conversions and upgrades to advanced ship repair. The machine shop and fabrication areas are fully equipped with overhead cranes, lathes, and CNC plasma cutters. Other technical services offered to the company’s service clients include full-service detail design capability, 3-D modeling, field engineering support and dimensional accuracy control.

“At Austal USA we have always taken great pride in the quality and value of the new ships we build,” Bell said. “We are now applying that same pride in the quality and value we provide our ship repair clients at our dry dock and repair yard.”

Austal USA has earned a proven reputation as one of the safest shipyards in the industry, a characteristic that is proudly shared with the new service operation. The ISO 9001:2015-certified Austal West Campus is operated by a highly qualified, experienced ship repair and construction management team, focused on safety and customer satisfaction, maintaining a strong professional relationship with all applicable regulatory agencies.

Canadian Technology Companies Create Holographic Sonar Display for Hunting Submarines

Kongsberg Geospatial and Avalon Holographics have partnered to develop a new holographic sonar display for submarines. *AVALON HOLOGRAPHICS*

OTTAWA, Ontario — Kongsberg Geospatial has partnered with Avalon Holographics to develop a revolutionary holographic sonar display for submarine warfare, in a project funded by the Canadian Department of National Defense IDEaS (Innovation for Defence Excellence and Security) program, Kongsberg said Sept. 29.

The system has been developed to reduce the cognitive load on

passive sonar analysts by visualizing complex undersea environments on a revolutionary new holographic display.

What are sometimes thought of as 3-D displays are actually two-dimensional projections of three-dimensional scenes on a flat monitor. The geometry in the scene is necessarily distorted to create the illusion of looking at a three-dimensional object. To understand what they are looking at, an operator has to manipulate the view to look around the environment.

This is also limiting for situations in which multiple people are looking at the same display. A holographic display would provide a better solution for sharing 3-D information because the view on the data can be individualized, while the image itself remains static.

Avalon Holographics has created just that: a display that uses a complex array of millions of holographic elements or "hogels," to create a true, three-dimensional image that can be clearly seen from different angles without requiring the use of headsets or goggles. This new display will combine passive sonar data with three-dimensional bathymetric data to create an accurate sensor picture that can be used to locate and identify possible undersea threats.

Passive sonars are used by naval ships to locate targets around the platform on which the primary sensor is located, when active sonar is not viable or tactically desirable.

The new holographic sonar display created by Kongsberg Geospatial and Avalon Holographics is designed to increase underwater situational awareness with respect to target detection, supporting faster and more confident decision making when using passive sonar systems. The system will consist of three components: a sonar sensor system, a sonar map rendering system and the holographic display.

The sonar sensor system is located on board a surface vessel which could include a towed array, hull mounted sona, or sonobuoy receiver. Data from the system is fed to the sonar map rendering system containing the information required to create the operational images to populate the 3-D holographic display.

Kongsberg Geospatial is contributing the sonar map rendering system, a software system that leverages the company's ISR applications, real-time situational awareness capabilities and real-time sensor integration technology. Avalon Holographics will be contributing the holographic display used to visualize the processed data.

"We're excited to be delivering a new and unique user experience on a ground-breaking new display technology for situational awareness," said Ranald McGillis, president, Kongsberg Geospatial. "Our battlespace visualization systems draw on our technical legacy with defense system display projects to create a world leading capability to exploit sonar data and will help users to more effectively exploit complex sensor data."

"Our ground-breaking holographic display technology applies to a wide range of applications, but the battlespace has always been a primary user focus," said Russ Baker, cofounder, Avalon Holographics. "Together, Kongsberg's TerraLens and Avalon's Raydiance Engine are pioneering a new class of holographic situational awareness applications to transform 3-D battlespace visualization, GIS and underwater warfare. These bold steps are just one way we're transforming the science-fiction of holographic visual experiences into science fact."

The initial phase of the IDEaS project will run until November, during which time Avalon Holographics will be

refining the performance of the display device, improving the software tools, and working with Kongsberg on software integration. Kongsberg Geospatial will be developing trials of different use cases for the systems including multi-sensor operations and target motion analysis. The goal is to proceed to the next phase of the project, which would involve enhancement of Kongsberg's software, a more comprehensive integration with the display and porting to Avalon's next-generation display technology.

Navy Inaugurates New Next-Gen Air Combat Training System

The Tactical Combat Training System Increment II (TCTS Inc. II) pod on its first flight on a test F/A-18 aircraft over Patuxent River, Maryland, in February. *U.S. NAVY*

PATUXENT RIVER, Md. – The Navy's Naval Aviation Training Systems and Ranges program office's (PMA-205) Tactical Combat Training System Increment II (TCTS Inc. II) and Advanced Naval Technology Exercise (ANTX)-21 teams conducted their first live-virtual-constructive (LVC) demonstration in an operational environment last month, the Naval Air Systems Command said Sept. 27.

As part of the Navy's broader initiative to enhance capability, the event displayed early LVC capability for the TCTS Inc. II system and included many "firsts" in naval aviation training.

The ANTX-21 fleet demonstration simultaneously connected both fleet and test F/A-18 and EA-18G aircraft, an F/A-18

simulator, an operational destroyer, a guided missile from the ship pier side, the Joint Semi-Automated Forces system, and the Next Generation Threat System all via the Navy Continuous Training Environment (NCTE). This exercise was naval aviation's first demonstration of TCTS II in an operational environment, proving to be a simultaneous, multi-system, and multi-domain integrated warfighting training capability. The demonstration results will be used to further determine how TCTS Inc. II and LVC will be implemented effectively and efficiently in naval aviation training.

"While watching ANTX-21 unfold across the globe from Navy Warfare Development Command in Norfolk, Va., I had an opportunity to see and hear the Navy's excited reaction to TCTS Inc. II at the operation's center," said PMA-205 program manager, Capt. Lisa Sullivan. "On the surface side, ships have been using a training LVC mode for a while, networking back and forth to exercise coordinators running complex scenarios. Now aviation is part of the mix through validation of TCTS Inc. II as the host system connecting live aircraft into a LVC environment."

The early LVC capability on the TCTS Inc. II system displayed during the event demonstrated successful integration of the system with the training environment, including simulated threats controlled by JSAF over NCTE, live aircraft air-to-air engagements, and integration with an F/A-18 simulator at the manned flight simulator facility.

Chuck Kaylor, the PMA-205 TCTS Inc. II team lead, said the event included several firsts for naval aviation training. It was the first flight of TCTS Inc. II pod on an operational fleet aircraft, the first time TCTS Inc. II was used to create a LVC surface-to-air engagement, the first virtual F/A-18 engaged with a simulated/constructive aircraft, and the first pier side operational ship receiving and engaging with TCTS Inc. II information.

“TCTS Inc. II is a critical enabler of Navy LVC, helping to close competition gaps in both operational security and training capabilities for the high-end fight, and this event comes with TCTS II already in production and approximately one year prior to initial operational capability” said Kaylor.

The program office in coordination with U.S. Fleet Forces Command, U.S. Pacific Fleet, and U.S. Naval Forces Europe conducted this exercise, which was designed to refine how the U.S. Navy synchronizes maritime operations across multiple fleets, in support of the joint force. The training is based on a progression of scenarios that will assess and refine modern warfare concepts, including distributed maritime operations, expeditionary advanced base operations, and littoral operations in a contested environment. This is the first iteration of what will become a triennial exercise with plans for future iterations to include partners and allies from around the world.

SURFLANT Stands Up Task Group Greyhound

Task Group Greyhound was formally introduced by Rear Adm. Brendan McLane, commander, Naval Surface Force Atlantic, and Rear Adm. Brian Davies, commander, Submarine Group Two and deputy commander, 2nd Fleet, at an event held at Naval Station Mayport aboard the guided-missile destroyer USS Thomas Hudner (DDG 116), Sept. 27. *U.S. NAVY*

MAYPORT, Fla. – Task Group Greyhound was formally introduced by Rear Adm. Brendan McLane, commander, Naval Surface Force Atlantic, Rear Adm. Brian Davies, commander, Submarine Group Two and deputy commander, 2nd Fleet, at an event held at Naval

Station Mayport aboard the guided-missile destroyer USS Thomas Hudner (DDG 116), Sept. 27, said Lt. j.g. Caroline Leya, SURFLANT public affairs.

Task Group Greyhound (TGG) is a force generation initiative within the Optimized Fleet Response Plan, the standard ship cycle construct that guides a roughly 36-month readiness roadmap. It is designed to provide the fleet with continuously ready, fully certified warships ready to accomplish a full range of on-demand missions at all times. TGG will assign and task Arleigh Burke-class guided-missile destroyers to be at-the-ready to support sustainment operations and to counter Russian undersea threats to the homeland.

The day's event comprised of a cake-cutting, a virtual media availability and an anti-submarine warfare scenario conducted for the official party in the combat information center aboard Thomas Hudner.

McLane gave a Bravo Zulu to the first two TGG ships, Thomas Hudner and the guided-missile destroyer USS Donald Cook (DDG 75), and emphasized that maintaining an undersea warfare edge over Russian submarines off the East Coast is a growing priority.

"Task Group Greyhound provides us a way to increase continuity between training and operating against high-end competitors in a dynamic environment," McLane said. "These destroyers are now designated under Task Group Greyhound in the western Atlantic on watch 24/7 ready to practice, integrate, and operate at a moment's notice."

Facing the considerable threat from Russia requires focus, continuous monitoring and a team approach to undersea warfare. The TGG initiative will ensure that designated post-deployment East Coast destroyers remain in an extended sustainment phase on a rotating basis with other destroyers. This will be

supported by incremental maintenance availabilities and sustained readiness certifications.

The TGG model is a reference to the World War II destroyers, or “Greyhounds of the Fleet,” that patrolled the seas in the “Battle of the Atlantic.” The modern version is similar to how readiness is maintained aboard forward deployed naval forces in Spain.

Cmdr. Bo Mancuso, Thomas Hudner commanding officer, acknowledged the importance of the initiative and of his command being selected to take the first watch.

“Being chosen as one of the initial ships to serve in this capacity is humbling, and a big responsibility that we are more than ready to honor,” Mancuso said. “It was our pleasure to host Rear Adm. McLane today and show him what we’re capable of and that our crew is up to the task.”

DARPA’S Hypersonic Air-Breathing Weapon Concept Achieves Successful Flight

An artist’s conception of the Hypersonic Air-breathing Weapons Concept (HAWC) missile. RAYTHEON MISSILES & DEFENSE

ARLINGTON, Va. – DARPA, in partnership with the U.S. Air Force, completed a free flight test of its Hypersonic Air-breathing Weapon Concept (HAWC) last week, the agency said in a Sept. 27 release.

The missile, built by Raytheon Technologies, was released from an aircraft seconds before its Northrop Grumman scramjet (supersonic combustion ramjet) engine kicked on. The engine compressed incoming air mixed with its hydrocarbon fuel and began igniting that fast-moving airflow mixture, propelling the cruiser at a speed greater than Mach 5, or five times the speed of sound.

The HAWC vehicle operates best in oxygen-rich atmosphere, where speed and maneuverability make it difficult to detect in a timely way. It could strike targets much more quickly than subsonic missiles and has significant kinetic energy even without high explosives.

“The HAWC free flight test was a successful demonstration of the capabilities that will make hypersonic cruise missiles a highly effective tool for our warfighters,” said Andrew “Tippy” Knoedler, HAWC program manager in DARPA’s Tactical Technology Office. “This brings us one step closer to transitioning HAWC to a program of record that offers next generation capability to the U.S military.”

Goals of the mission were vehicle integration and release sequence, safe separation from the launch aircraft, booster ignition and boost, booster separation and engine ignition and cruise. All primary test objectives were met.

The achievement builds on pioneering scramjet projects, including work on the X-30 National Aero-Space Plane as well as unmanned flights of NASA’s X-43 vehicles and the U.S. Air Force’s X-51 Waverider.

“HAWC’s successful free flight test is the culmination of years of successful government and industry partnership, where a single, purpose-driven team accomplished an extremely challenging goal through intense collaboration,” Knoedler added. “This historic flight would not have been possible without the dedication of industry, U.S. Air Force, and Navy

flight test personnel who persevered through the pandemic to make the magic happen.”

The HAWC flight test data will help validate affordable system designs and manufacturing approaches that will field air-breathing hypersonic missiles to our warfighters in the near future.

Boeing Awarded Contract for Five P-8A Aircraft for Germany

Boeing has been awarded a production contract for five P-8A Poseidon aircraft for Germany. *BOEING*

ARLINGTON, Va. –The U.S. Navy awarded Boeing a production contract for five P-8A Poseidon aircraft for Germany, the company said Sept. 28. First deliveries are slated to begin in 2024 when the P-8A Poseidon will eventually replace Germany’s fleet of P-3C Orion aircraft.

“We’re pleased to have finalized this sale to Germany and to expand our footprint in-country by bringing the P-8A and its unique multi-mission capabilities to the German Navy,” said Michael Hostetter, vice president, Boeing Defense, Space & Security, Germany. “The P-8 will ensure the German Navy’s ability to perform long-range maritime surveillance missions and will play a pivotal role in the region by leveraging existing infrastructure in Europe and full interoperability with NATO’s most advanced assets.”

German industry is a critical partner with the P-8A Poseidon

program. By working with local partners, Boeing will provide support, training and maintenance solutions that will bring the highest operational availability to fulfill the German Navy's missions. On June 17, Boeing signed agreements with ESG Elektroniksystem-und Logistik-GmbH and Lufthansa Technik AG to collaborate in systems integration, training, and sustainment work. German companies that currently supply parts for the P-8A include Aircraft Philipp Group GmbH, Aljo Aluminium-Bau Jonuscheit GmbH and Nord-Micro GmbH.

"With strategic agreements and industry partnerships already in place, we stand ready to deliver a robust sustainment package for the German Navy's P-8A fleet," said Dr. Michael Haidinger, president, Boeing Germany, Central & Eastern Europe, Benelux and Nordics. "Together with the German Navy, the Federal Ministry of Defense and local industry, we will ensure maximum operational availability that will allow the German Navy to meet the full range of its maritime challenges."

Deployed around the world with more than 135 aircraft in service, and over 350,000 collective mishap free flight hours, the P-8A will significantly advance Germany's antisubmarine warfare, antisurface warfare, intelligence, surveillance and reconnaissance and search and rescue mission capabilities.

Germany is the eighth nation to have acquired the P-8A, joining the United States, Australia, India, the United Kingdom, Norway, Korea and New Zealand.