Navy Orders LRASM Integration into P-8 Aircraft

An LRASM being dropped from a B-1B Lancer bomber. *LOCKHEED MARTIN*

ARLINGGTON, Va. — The Navy has awarded a contract to Boeing to integrate the AGM-158C Long-Range Anti-Ship Missile (LRASM) into the P-8A Poseidon maritime patrol reconnaissance aircraft.

The Naval Air Systems Command awarded Boeing a $74 million cost-plus-fixed-fee order for "the design, development, and test of software and ancillary hardware necessary for the integration of the Long-Range Anti-Ship Missile onto the P-8A aircraft for the Navy," an April 21 Defense Department contract announcement said.

The LRASM, a derivative of the Air Force's AGM-158B Joint Air-to-Surface Strike Missile-Extended Range cruise missile, fills an air-launch capability gap and provides flexible, long-range, advanced anti-surface capability against high-threat

maritime targets. The weapon reduces dependency on intelligence, surveillance and reconnaissance platforms, network links and GPS navigation in electronic warfare environments. Semi-autonomous guidance algorithms will allow it to use less-precise target cueing data to pinpoint specific targets in the contested domain.

The P-8A currently can be armed with AGM-84 Harpoon cruise missiles and Mk54 antisubmarine torpedoes. The addition of the LRASM will expand its anti-surface capability in terms of range and ability to operate in a GPS-denied environment.

Work on the order is expected to be completed in October 2024.

Navy’s Unmanned Integrated Battle Problem 21 to Culminate in Missile Shoot

Chief of Naval Research, Rear Adm. Lorin Selby, observes a Vanilla Ultra Endurance unmanned aerial vehicle on Pier 12 during Integrated Battle Problem 21 (UxS IBP 21) Distinguished Visitors Day at Naval Base San Diego, April 16. U.S. Pacific Fleet's UxS IBP 21, April 19-26, integrates manned and unmanned capabilities into the most challenging operational scenarios to generate war fighting advantages. *U.S. NAVY / Mass Communication Specialist 2nd Class Natalie M. Byers*

ARLINGTON, VA. – The U.S. Navy's first large-scale unmanned systems (UxS) integrated battle problem (IBP) will involve manned/unmanned teaming and has a goal of developing a targeting solution for a planned missile shoot, the IBP executive agent said.

The battle problem, led by the U.S. Pacific Fleet and executed by U.S. 3rd Fleet, began April 19 and is being conducted under the command of Rear Adm. James Aiken, commander, Carrier Strike Group Three.

"This integrated battle problem provides an operational approach to integrating and adapting unmanned technology with our manned fleet," Aiken said, speaking April 20 in a

teleconference with reporters. “Various manned systems, including littoral combat ships, two classes of destroyers, an amphibious transport dock ship, and fixed and rotary-wing aircraft will test their enhanced capabilities alongside unmanned systems through operationally challenging scenarios and vignettes during this exercise.

“This exercise generates warfighting advantages for our fleet by providing the operational environment to work through tactics, techniques, procedures, command and control, to integrate the fleet and we are ready to execute,” he said. “Our operational integration of these unmanned systems is here in our fleet today above the sea, on the sea and below the sea.

“We want to move to a capability, to start applying operational concepts,” he said. “Foundationally, when actually planning this exercise, Sailors were part of the planning.

“Our goal for this exercise is to evaluate these unmanned systems and how they can actually team with manned systems,” he said. “As we team all those together, we will be able to evaluate what we can do and what we can’t do in trying to create a warfighting advantage … then we’re going to make sure we get it into the hands of the Sailors. We need to move things from the technical community to the tactical community.”

Aiken said one of the vignettes of most interest is the most challenging: using “a combination of manned and unmanned assets in order to get after a target and provide a targeting solution. At range we’re going to put a missile on the target.”

The admiral was not at liberty to name the type of missile to be used.

Unmanned systems participating in the IBP include two medium-

displacement unmanned surface vessels, Sea Hunter and its new sister ship, Seahawk; MQ-8B Fire Scout UAV; MQ-9 Sea Guardian UAV; Vanilla ultra-long-endurance UAV; Office of Naval Research's Super Swarm Project; and the Ocean Aero Triton-Class Dual-Modality Underwater and Surface Autonomous Vehicle.

Manned ships participating in the IBP include the Zumwalt-class guided-missile destroyer (DDG) USS Michael Monsoor; the Arleigh Burke-class DDGs USS Spruance, USS John Finn, USS Stockdale and USS Fitzgerald; Ticonderoga-class guided-missile cruiser USS Princeton; Freedom-class littoral combat ship (LCS) USS Fort Worth; Independence-class LCS USS Coronado; San Antonio-class amphibious transport dock ship USS Anchorage; and Los Angeles-class attack submarine USS Hampton.

Manned aircraft participating include the P-8A Poseidon, E-2C Hawkeye, EA-18G Growler, MH-60R Seahawk and MH-60S Seahawk.

Aircraft Carrier Industrial Base Coalition Confident of Another Dual-CV Buy

The Nimitz-class aircraft carrier USS Harry S. Truman (CVN 75), due to be retired, a move opposed by the Aircraft Carrier Industrial Base Coalition. *U.S. NAVY*

ARLINGTON, Va. — The chairman of the industrial coalition of suppliers for the Navy's aircraft carriers said the coalition supports continuing to build large aircraft carriers instead of light ones and predicts there will be another dual-carrier procurement in the future.

"We're strong supporters of the large platform," said Rick Giannini, chairman of the Aircraft Carrier Industrial Base Coalition (ACIBC), who also is president and chief executive officer of Milwaukee Valve Co. in New Berlin, Wisconsin, in an interview with *Seapower*.

Giannini said the size of the Navy's carrier aircraft demand a large flight deck to sustain a high sortie rate and that a

large aircraft carrier is the most survivable airfield.

The Navy will be conducting an analysis of the concept of light aircraft carriers.

“I believe the L-class ships [amphibious assault ships] operating with the F-35B would fit that bill,” said Rear Adm. Gregory Harris, the Navy’s director for Air Warfare, speaking last month at a Navy League Special Topic Breakfast webinar, sponsored by General Dynamics. “Others would disagree.”

Harris said he is “confident that over the long run we’ll find that there’s not a compelling return on investment to make a smaller carrier just [because of] speed, station-keeping, the air wing that you would put on top of that carrier, and the ability to have the fuel for the air wing and for the carrier to have for the surface combatants.”

The ACIBC members meet on Capitol Hill every year to lobby Congress. This year’s virtual session included more than 260 companies holding more than 123 scheduled meetings with members of Congress to impress upon them the importance of aircraft carriers to the national defense.

“We’re doing everything we can to get that message out,” Gianni said.

The ACIBC represents the more than 2,000 supplier companies in 46 states, supporting 92,000-plus jobs. These companies inject over $8.8 billion into our nation’s economy.

He was critical of proposed initiatives to retire the USS Harry S. Truman instead of refueling it for another quarter century of service, noting the Navy risks falling below the legally mandated number of 11 aircraft carriers.

That leads right back to the industrial base, because for us it’s all about stability and predictability of where those funds ae coming from,” Giannini said, noting that the Navy’s

two-ship buy of CVN 80 and 81 brought a lot of stability to the suppliers.

“We’re always concerned when a new administration comes in every time these things are starting over for the next ship in the class,” he said. “We’re fortunate right now; we have two [CVNs] in the pipeline – orders in [fiscal 2019] for eight years of work. We’re still confident that the reasons carriers have been required for the last 50 years aren’t going to be any different than the requirements for the next 50 to 100 years.

“We remain confident there will be another block buy for [CVNs] 82 and 83, because it is the best way to spend the nation’s money, which is to ensure that the supply base has this steady and predictable stream of work, so we can lower the cost,” he said.

Giannini pointed to the example of a class of valves supplied by his company that, because of the last dual-carrier buy, were produced at 20-25% lower cost. Not only is the cost being reduced because the orders for both ships come at once, but additional cost savings come by being able to order materials at today’s prices rather than at future prices.

Navy’s Triton UAV Performing Better than Expected, Admiral Says

An MQ-4C Triton taxis at Andersen Air Force Base. *U.S. AIR FORCE / Senior Airman Michael S. Murphy*

ARLINGTON, Va. – The admiral in charge of developing the Navy's unmanned aerial vehicles said the MQ-4C Triton UAV is doing well a more than a year into its first operational deployment to Guam, as the Navy looks to prove operations at other locations.

Unmanned Patrol Squadron 19, the Navy's first Triton squadron, deployed two MQ-4Cs to Guam in January 2020 to establish Early Operational Capability, providing surveillance for the U.S. 7th Fleet and also exercising the logistics train that will support future deployments.

"Triton is doing very, very well," said Rear Adm. Brian Corey, program executive officer for Unmanned and Strike Weapons, speaking April 14 at the Unmanned Systems-Defense webinar of the Association for Unmanned Vehicle Systems International. "In fact, it's doing better than we expected in Guam.

"We just finished a two-hour review with the Navy's Air Boss, Vice Adm. [Kenneth] Whitesell, on how Triton is doing," Corey said. "First off, anyone that has operated an air force knows that airplanes work and then they break. We have an air force of two [Tritons] and we put Triton out there [Guam] with Early Operational Capability, knowing that we didn't have a fully

fleshed-out set of depot-level maintenance and that sort of thing.

“So, we have had some amazing success here over these last several months,” he said. “We got over there, we were able to fly, we were able to interact in the airspace until we could fly in the entire Pacific region, until we got cooperation from our partners.

“We are delivering the products that Triton is intended to deliver to the 7th Fleet and to the [Pacific] Fleet commander, he said. “We’re able to do that in the number of missions a month that they are looking for.”

Corey said the next operational step for the Triton is “to prove that we can operate somewhere other than Guam and we’ll be working on that through the fall while we finish up IFC 4 [Integrated Functional Capability 4], the follow-on capability for Triton.”

Former SECNAV Braithwaite Continues to Advocate for U.S. 1st Fleet for Indo-Pac

Commander, Navy Regional Maintenance Center Rear Adm. Eric Ver Hage greets then-Secretary of the Navy Kenneth Braithwaite as he arrives to tour the Mid-Atlantic Regional Maintenance Center Production Facility in 2020. *U.S. NAVY / Hendrick L. Dickson*

ARLINGTON, Va. – Three months after leaving office, the former secretary of the Navy is continuing to advocate for the re-establishment of a U.S 1st Fleet in the Southwestern Pacific and Indian Ocean and recommends the new fleet be expeditionary and sea-based.

Kenneth J. Braithwaite, the 77th secretary of the Navy and a retired admiral in the Navy Reserve, discussed the concept with Brent Sadler of the Heritage Foundation in an April 14 webinar, hoping the idea "will continue to extraction."

While Navy Secretary, Braithwaite said he concluded that the expanse of the Western Pacific and Indian Oceans was too great for a single numbered fleet, the Japan-based U.S. 7th Fleet.

“One numbered fleet can’t double down on all of the emerging challenges in that part of the world,” he said, noting a “real void” in the South China Sea and the Indian Ocean.

He took note of the increased tensions with China in the South China Sea and the increased U.S. cooperation with India as demanding a more focused attention.

“We needed more emphasis in places where we are being challenged the most,” Braithwaite said. “I thought about the structure of the Navy and what had worked historically for the Navy may not work in the future.”

The actual intersections of the areas of responsibility (AORs) of the U.S. 3rd and 7th Fleets and the proposed U.S. 1st Fleet would be determined in the process, but Braithwaite said that “in the past most of our numbered fleets were at sea [and] operated aboard a flagship. I think that’s a concept we need to embrace again, especially as we enter this new period of great power competition. I think it need to be expeditionary and I think it needs to be sea-based.”

Braithwaite pointed out that his announcement of the concept of the 1st Fleet came on the eve of a trip to the Western Pacific.

“The idea seems to be one that many others, if they hadn’t been thinking specifically about the structure and the resurrection of the 1st Fleet, it was one that did meet with positive perspective once I had the opportunity to have those conversations with the [defense ministers] of those nations that would be impacted by it. That would include India, Singapore and Japan. All embraced the idea.”

Braithwaite said the 1st Fleet could be equipped with guided-missile destroyers, guided-missile frigates, littoral combat ships and expeditionary fast transports, operating as a squadron based in Singapore. He also said Coast Guard cutters

could add capability to the proposed fleet.

“We do need a bigger Navy,” he said. “Ninety percent of trade moves across the sea lanes of the world, and as such, we need to make sure, as the predominant naval force, that they remain free.”

The status of the 1st Fleet concept within the new presidential is not yet known. President Joseph Biden has yet to nominate a new secretary of the Navy.

“One thing the Navy doesn’t do well is embrace change,” he said. I had to build up support from within, get people to think again about what might be possible. … It is a concept that has found some support.”

“I hope that my successor embraces [the 1st Fleet concept] as well once he is announced and confirmed,” he said.

Rigorous Systems Engineering Vital for Ensuring USV Reliability, Admiral Says

Sea Hunter, an entirely new class of unmanned sea surface vehicle developed in partnership between the Office of Naval Research (ONR) and the Defense Advanced Research Projects Agency (DARPA), recently completed an autonomous sail from San Diego to Hawaii and back – the first ship ever to do so autonomously. Sea Hunter is part of ONR's Medium Displacement Unmanned Surface Vehicle (MDUSV) project, a forerunner of the Medium Unmanned Surface Vessel program. *U.S. NAVY*

ARLINGTON, VA. – The Navy plans to use extensive land-site testing for components and systems of the Medium Unmanned Surface Vessel (MUSV) in order to wring out risk in developing and integrating systems, the admiral in charge of developing unmanned vessels said.

The Navy is committed to addressing the congressional concerns about, for example, the reliability of machinery of USVs, "to make sure that we go in this measured way of rigorous systems engineering approach," said Rear Adm. Casey Moton, program executive officer, Unmanned and Small Combatants, speaking

April 13 in an Unmanned Systems Defense webinar of the Association of Unmanned Vehicle Systems International.

“Along with our prototypes that are out testing now, we’ve been maturing our execution plans,” Moton said, noting that the program engineers are “working on hybrid reliability and hull, mechanical and electrical [HM&E] equipment.

“We are now going to do our testing at sea, but we are going to do land-based testing of our HM&E equipment for a Medium USV and we’re getting plans ready for Large USV and all of those aspects,” he said.

Moton said a second pillar of the programs is for C4I [command, control, communications, computers and intelligence], “making sure that we carefully test the C4I system that is going to allow our unmanned vessels to be a part of this hybrid fleet. A lot of that is about [Project] Overmatch, but also be a principal component of Overmatch.”

A third pillar of the unmanned systems focus is combat systems, adapting them for use on autonomous vessels. Weapons firing will always be performed by a human in the loop, he said.

A fourth pillar, a common control system, is maturing and is to be something that can be designed once and then scaled up for fleet use.

“Our initial prototypes were systems that we bought from industry,” Moton said. “We are all the time maturing that into a common system that is going to go in our program of record.”

The fifth pillar is perception. “We have a very rigorous plan we’re already executing with our prototypes, testing out the perception systems … and the autonomy we need to do.” he said.

The sixth pillar is prototyping.

“We’re getting after the sea-based testing and land-based testing, that particularly has been a concern of Congress, and as we go forward, we’re going to articulate that more clearly, but, in each one of these, we’re going very carefully, doing the building blocks, in a good systems engineering manner,” he said.

“We’re solving it [any given technological challenge] once. We’re going to scale it up like the framework [Unmanned Campaign Plan] talks about, [so that] we’re not having to learn the same lessons over and over again. Even though we have a set number of prototypes, we are developing systems that are going to apply across the fleet.”

U.S. Navy Orders 12 MH-60R Helicopters for South Korean Navy

An MH-60R Seahawk helicopter assigned to Helicopter Maritime Strike (HSM) 74, on the flight deck of the guided missile cruiser USS Gettysburg (CG 64) Nov. 24, 2013, in the Gulf of Oman. *U.S. NAVY / Mass Communication Specialist 3rd Class Lorenzo J. Burleson*

ARLINGTON, Va. — The U.S. Navy has ordered 12 MH-60R Seahawk helicopters from Lockheed Martin for the South Korean navy through Foreign Military Sales program.

The Naval Air Systems Command awarded Lockheed Martin a $447.2 million firm fixed-price order for the production and delivery of 12 MH-60R aircraft for the government of the Republic of Korea, an April 12 Defense Department announcement said.

The sale of MH-60Rs to South Korea was approved by the U.S. State Department in August 2020. The sale "will improve the Republic of Korea Navy's capability to perform anti-surface and antisubmarine warfare missions, along with the ability to perform secondary missions including vertical replenishment, search and rescue, and communications relay," the release said. "The Republic of Korea will use the enhanced capability

as a deterrent to regional threats and to strengthen its homeland defense. The Republic of Korea will have no difficulty absorbing these helicopters and support into its armed forces.”

In addition to the U.S. Navy, the MH-60R has been operated or ordered by six other nations: Australia (24), Denmark (9), Saudi Arabia (10), India (24), Greece (4) and South Korea (12).

Saildrone USVs to Collect Data on Gulf Stream

A Saildrone craft near Miramare Castle in Trieste, Italy, following a 2010-2020 Atlantic-to-Mediterranean mission. *NATIONAL INSTITUTE OF OCEANOGRAPHY AND APPLIED GEOPHYSICS*

ARLINGTON, Va. — Saildrone Inc., an operator of ocean-going unmanned surface vessels (USVs), has been selected by Google to collect oceanographic data on the Gulf Stream.

“Saildrone has been selected to receive a grant of over €$1 million ($1.2 million USD) from the Google.org Impact Challenge on Climate to collect data in the Gulf Stream that has the potential to transform weather forecasting and our ability to create more accurate global carbon budgets,” Saildrone spokeswoman Susan Ryan said in a statement to *Seapower*.

“The Gulf Stream region has a significant impact on weather and climate in Europe and around the globe but is undersampled due to the violent seas and harsh weather in the region,” Ryan said. “These treacherous conditions make it too dangerous to send research ships and crew into the area for extended periods, especially in winter. It is shocking that 70% of the world is covered by oceans, yet only 2% of the ocean has been sampled for critical ocean data.”

“Saildrone is a company building and operating unmanned surface vehicles that are powered primarily by solar energy, with wind being the primary propellent for the craft,” said Ron Tremain, Saildrone’s vice president for Maritime Domain Awareness during an earlier interview with *Seapower*.

The Gulf Stream expedition will be conducted by several of Saildrone Explorers, which are 23 feet long and typically proceed at four knots by sail.

The carbon-fiber sail on each is more like a wing than a sail, but it is a sail that can be controlled mechanically and with the wind. Depending on which direction we want it to sail, the operator can make adjustments to increase the speed, decrease the speed, change course direction as needed, Tremain said.

The Explorer, the smallest of Saildrone’s USVs, are fitted with an advanced sensor suite of atmospheric and oceanographic

sensors, combined with radar, the Automatic Information System, and a set of electro-optical cameras.

Saildrone will launch six Explorer USVs to spend up to a year continuously collecting critical data in the Gulf Stream while creating no environmental footprint, Ryan said. This mission will collect critical data at a resolution that has not been possible previously, yielding new insights into the transport of heat and carbon around our oceans.

Admiral: Artificial Intelligence Will Be A Wingman, Not a Lead

Sailors assigned to the “Wildcards” of Helicopter Sea Combat

Squadron (HSC) 23 prepare an MQ-8B unmanned helicopter for routine flight operations on the flight deck of the Independence-variant littoral combat ship USS Gabrielle Giffords (LCS 10), July 7, 2020. *U.S. NAVY / Mass Communication Specialist 2nd Class Brenton Poyser*

ARLINGTON, Va. – The Navy is very much on board for integrating artificial intelligence (AI) and machine learning into its networks, but human decision makers must always be part of the decision process in warfighting, an admiral said.

"From a warfighting perspective, artificial intelligence subsets would be enablers or augments to the human in the loop," said Rear Adm. Paul Spedero Jr., director, Fleet Integrated Readiness and Analysis, U.S. Fleet Forces Command, speaking April 8 during a Navy League webinar sponsored by Deloitte. "That has always been our approach. I don't see that changing. There are some things that can't be replaced; the experience of a seasoned warfighter in the field being able to assess things that a machine – no matter how much we teach it – may never be able to pick up on. There's always going to be a necessity for [experience-based decision making]. That necessity for war fighting will never go away – to have a human in the loop.

"AI will be our wingmen," he said. "It will not be the lead in a fight."

Spedero said in the world of data analysis, his current focus, there "certainly is a place for AI, particularly machine learning, as we try to get to that predictive and prescriptive level of data analytics. We're entering into mathematical equations and regressions that just can't be done manually and algorithms you want [machines] to learn with demonstrated performance and adjust the coefficients within that [so] you can tighten your tolerance and lower your upper and lower limits of variance get closer to each other."

The admiral, who is on the staff of Adm. Chris Grady, said his office is using data analytics "to identify barriers to force

readiness," to make sure the Optimized Fleet Readiness Plan is working correctly, continually assessing it "to get it right." He is working to determine the metrics down to the unit level that will define what the readiness of the force is.

Also speaking in the webinar was Dr. Patrick O'Connell, chief digital transformation officer for the Navy, who said as the Navy confronts the challenge of processing massive amounts of data to make decisions, transformation works best when it it is both pushed down from the top of the organization and pushed up from the bottom. Institutional culture is one of the hardest things to change when trying to implement a revolutionary transformation, he said.

VTG Awarded Navy Contract to Modernize Combat Systems Across the Fleet

VTG has been awarded a $188 million Navy contract to help modernize combat systems across the fleet, including the Aegis Combat System, shown here in 2017 undergoing a test on the guided-missile cruiser USS Mobile Bay (CG 53). *U.S NAVY Mass Communication Specialist 1st Class Chad M. Butler*

CHANTILLY, Va. – VTG has been awarded the Technical Insertion 16 Sustainment, Installation, Procurement and Engineering Services contract by the Naval Surface Warfare Center Port Hueneme Division, a field activity of the Naval Sea Systems Command (NAVSEA), the company said in an April 7 release. The indefinite delivery, indefinite quantity contract has a potential value of $188 million and a five-year period of performance.

"VTG has a proud legacy of closely collaborating with the Navy to engineer the next generation of sea power," said John Hassoun, VTG president and chief executive officer. "The TI16 program enables VTG to build upon that legacy, expanding our technical expertise, strengthening our partnership with NSWC Port Hueneme and NAVSEA, and – most importantly – modernizing the fleet."

The TI16 program is the U.S. Navy’s enterprise approach to modernizing combat systems across the surface fleet, most notably the Aegis Combat System, and includes all cruisers and destroyers, aircraft carriers, and amphibious ships. TI16 also enables the Navy to introduce the latest commercial off-the-shelf technologies and open architecture designs into its combat systems.

VTG will leverage its robust, full-lifecycle combat-systems engineering capabilities to fulfill TI16 program requirements. The company currently provides prime contract warfare, control, and C5I engineering services to the NAVSEA Naval Sea Systems Engineering Directorate and has over 50 years of experience installing and integrating advanced C5ISR systems aboard every existing U.S. Navy surface ship and submarine class.

Most recently, VTG completed the successful installation and integration of the ODIN directed-energy laser weapon system aboard two Arleigh Burke-class destroyers. The company will also leverage its growing digital and software engineering capabilities. Earlier this month, VTG announced that it had begun work on a prime contract to develop the future state of the Navy Operational Architecture and to optimize fleet interoperability. The company also introduced the VTG Battle Lab, an industry-integrated model-based systems engineering environment for next-generation warfare systems.