

# HII Demonstrates Open Architecture Autonomy Integration Capability with Sea Machines' SM300



The Proteus unmanned surface vessel, outfitted with Sea Machines Robotics' SM300 autonomy system. *HUNTINGTON INGALLS INDUSTRIES*

NEWPORT NEWS, Va. – Huntington Ingalls Industries' Technical Solutions division announced on Jan. 5 the successful integration of its advanced autonomy solutions with Sea Machines Robotics' SM300 autonomy product.

The integration of these autonomous capabilities supports complex mission planning and collaboration between unmanned systems.

The demonstration, which took place late last year in the

Chesapeake Bay off the coast of Virginia Beach, involved overlaying HII's collaborative autonomy and mission planning behaviors with the Sea Machines SM300 system on an unmanned surface vessel.

"This represents an important milestone in our continued autonomy development," said Duane Fotheringham, president of Technical Solutions' Unmanned Systems business group. "The integration was seamless and illustrates the immense potential for our open architecture autonomy to work collaboratively with other autonomous systems."

Sea Machines' SM300 system can be outfitted to ocean-capable vessels to enable remotely commanded USV operations or can work alongside an onboard crew to elevate the capability, precision and endurance of a mission-driven vessel. During the demonstration, HII's autonomy managed mission delegation and enabled collaborative autonomy with other unmanned systems while providing the SM300 system information to manage the USV heading and speed.

"Sea Machines' products are developed to integrate readily with the wide range of vessel types. Our goal is to fit seamlessly into a vessel's command and control stack which in some cases will include information and control systems from other autonomy systems either above or below our technology," said Michael G. Johnson, CEO of Sea Machines. "We are encouraged by the rapid progress demonstrated by the HII team as they integrate their technology with our product to elevate the capability of their customers."

The open architecture and modularity of HII's autonomy make it a flexible, scalable option for customers seeking to enhance their current autonomy platform with additional advanced capabilities. HII's collaborative autonomy enables complex mission delegation to multiple unmanned assets that all share situational awareness. Together, HII and Sea Machines will offer varying levels of autonomy complexity for different

operations.

In July 2020, HII announced a minority share investment in Boston-based Sea Machines as part of its expansion into the unmanned systems. This investment complemented other company investments in autonomy, artificial intelligence and machine learning, cyber, C5ISR, and advanced modeling and simulation to support a more integrated, connected force. In May of 2021, the SM300 was integrated on an HII test platform. Since then, HII has further developed and refined its own autonomy solutions, including collaborative autonomy, advanced health monitoring, and sensor fusion and perception, which have been fielded on 23 vessel types for more than 6,000 hours.

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## **Navy's Newest Fire Scout UAV Version Prepares for Westpac Deployment**



Sailors attached to Helicopter Sea Combat Squadron (HSC) 23, assigned to the Independence-variant littoral combat ship USS Jackson (LCS 6) and Naval Engineering Technology (NET) technicians perform ground turns on an MQ-8C Fire Scout on the flight deck of Jackson. *U.S. NAVY / Mass Communication Specialist 3rd Class Andrew Langholf*

ARLINGTON, Va. – The newest version of the Navy's Fire Scout UAV is being prepared for deployment to the Western Pacific, according to an official photograph.

An MQ-8C Fire Scout was depicted in a Dec. 22 official Navy photograph taken on the deck of Independence-class littoral combat ship USS Jackson (LCS 6) while in port in Apra Harbor, Guam. The caption stated the Jackson was part of Destroyer Squadron Seven "on a rotational deployment in the U.S. 7th Fleet area of operation to enhance interoperability with partners and serve as a ready-response force in support of a free and open Indo-Pacific region."

The MQ-8C in the photograph was going through predeployment functional ground checks for a detachment of Helicopter Sea Combat Squadron 23 – based at Naval Air Station North Island, California – that will operate the MQ-8C from the USS Jackson.

The MQ-8C, which achieved initial operational capability in June 2019, is an upgrade to the Fire Scout System mainly in that it uses a Bell 407 airframe, which is larger than the earlier-design MQ-8B's airframe and equipped with more powerful engines, thus having a greater payload and endurance, up to 12 hours on station.

The MQ-8C can carry the ZPY-8 search radar or an electro-optical/infrared sensor and uses the same ground control station and the MQ-8B. The Navy plans to add more capability in the form of Link 16 data link, passive targeting, and a mine-countermeasures payload.

Northrop Grumman was under contract to deliver 38 MQ-8Cs, all of which have been delivered. The company has delivered 30 of the earlier MQ-8B version.

*Editor's note: This article has been updated and corrected from a previous version.*

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## **USS Milwaukee Returns to Sea After COVID Confinement**



The Freedom-variant littoral combat ship USS Milwaukee (LCS 5) steams through the ocean, Dec 16, 2021. *U.S. NAVY / Mass Communication Specialist 3rd Class Aaron Lau*

NAVAL STATION GUANTANAMO BAY – USS Milwaukee (LCS 5) a Freedom variant littoral combat ship, returned to sea Jan. 3 after being in port as a result of a portion of the crew testing positive for COVID-19, Cmdr. Katherine L Meadows, U.S. Naval Forces Southern Command and U.S. 4th Fleet Public Affairs, said in a statement.

The ship departed with all crew members, which includes the “Sea Knights” of Helicopter Sea Combat Squadron (HSC) 22 Detachment 5 and embarked U.S. Coast Guard Law Enforcement Detachment.

“It is great to be heading back out to sea.” said Cmdr. Brian Forster, USS Milwaukee commanding officer. “The crew worked together as a team to ensure we are ready to conduct the mission. My entire crew is feeling great, healthy and excited for the next portion of our deployment.”

Milwaukee has been in port since Dec. 20, when it arrived for a regularly scheduled port visit.

While all Sailors onboard were 100% immunized, a portion of the crew tested positive for COVID-19. All affected Sailors exhibited mild or no symptoms.

Since being in port, Sailors were also afforded the opportunity to receive the COVID-19 booster shot. While not mandatory, the booster is recommended for Sailors.

The ship's crew will continue to follow aggressive cleaning protocols, wear masks and social distance while at sea to ensure they remain mission ready.

Milwaukee departed its homeport of Naval Station Mayport, Florida, Dec. 14 for its regularly scheduled deployment to the U.S. 4th Fleet area of operations. Milwaukee will support the Joint Interagency Task Force South's mission, which includes counter-illicit drug trafficking missions in the Caribbean and Eastern Pacific.

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## **UISS Conducts Successful Underwater Explosion Shock Test**



The Unmanned Influence Sweep System heads out for an operational assessment in this November 2019 photo. *U.S. NAVY* ABERDEEN, Md. – The Program Executive Office for Unmanned and Small Combatants announced on Jan. 4 the successful completion of underwater explosion shock testing on the Unmanned Influence Sweep System, a component of the Navy's suite of mine countermeasure technologies.

The test was conducted by the Aberdeen Test Center and Naval Surface Warfare Center Carderock with assistance from Textron and NSWC Panama City.

The series of shock trials is key for testing the survivability of UISS and its ability to execute its mission in hazardous environments.

Capable of being hosted from littoral combat ships, operated from shore, or vessels of opportunity, Unmanned Influence Sweep System provides acoustic and magnetic minesweeping coupled with the unmanned, semi-autonomous, diesel-powered, aluminum-hulled mine countermeasures unmanned surface vehicle, or MCM USV.

“The UISS UNDEX test demonstrates the survivability of the MCM USV,” said LCS Mission Modules Program Manager Capt. Godfrey “Gus” Weekes. “This brings us one step closer to delivering the MCM mission package to the fleet.”

The series of successful tests demonstrate the growing maturity of the UISS program. The program completed shipboard initial operational test and evaluation onboard USS Cincinnati (LCS 20) in June 2021 and Cyber initial operational test and evaluation in September 2021, ensuring the program is on schedule to achieve initial operating capability in 2022.

“Completion of these tests showcased the capability and resiliency of the MCM USV, and is a critical milestone for the program,” Weekes said. “The MCM USV is the centerpiece of the MCM mission package, and this test demonstrates the final steps we’re taking for MCM mission package IOT and E and fielding.”

In addition to minesweeping capability, the MCM USV will employ modular payloads to bring additional MCM capabilities to the fleet. The MCM USV is currently undergoing integration testing of the AQS-20C towed mine hunting sonar, which provides detection, identification, classification and localization of volume and bottom mine-like objects. The MCM USV is an integral part of the MCM mission package, which will replace the Navy’s aging Avenger-class minesweeping ships and MH-53Es Sea Dragon helicopters.

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## **Navy Awards BAE Systems \$154**

# **M for Engineering and Technical Integration Services**

MCLEAN, Va. – BAE Systems has been awarded a five-year indefinite delivery, indefinite quantity contract worth up to \$154 million to continue supporting the U.S. Navy's Naval Air Warfare Center Webster Outlying Field, the company said Jan 4.

Under the contract awarded in November, BAE Systems will support the rapid integration and sustainment of command, control, communications, computers, combat systems, intelligence, surveillance, and reconnaissance systems for the Special Communications Mission Systems Division.

"Those on the front lines need rapid integration of the latest technologies to ensure open, clear, secure, and reliable communications," said Lisa Hand, vice president and general manager of BAE Systems Integrated Defense Solutions. "Our C5ISR experts will provide custom solutions for military and commercial based communications platforms that will enable enhanced capabilities within the U.S. and abroad."

BAE Systems' production and technical leads provide lifecycle sustainment, front-end production and systems engineering, and installation services at the customer's Special Communication Rapid Integration Facility. They deliver high-quality, integrated components and systems for small and large craft, commercial and militarized vehicles, transit cases, radio and mobile communications, fixed base stations, command centers, and intelligence systems. The completed systems are supplied to the Navy, Special Operations Forces, the Department of Homeland Security, and other Department of Defense and non-defense agencies.

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# USS Abraham Lincoln Deploys with First Marine Corps F-35C Squadron



An F-35C Lightning II, assigned to the “Black Knights” of Marine Fighter Attack Squadron (VMFA) 314, prepares to land on the flight deck of the aircraft carrier USS Abraham Lincoln (CVN 72). Abraham Lincoln is underway conducting routine operations in the U.S. 3rd Fleet. *U.S. NAVY / Mass Communication Specialist 3rd Class Michael Singley*  
SAN DIEGO – The USS Abraham Lincoln (CVN 72) departed on a regularly scheduled deployment Jan. 3 as the centerpiece of a carrier strike group that included the Marine Corps’ first F-35C Lightning II squadron.

The Abraham Lincoln Carrier Strike Group (CSG) is led by the

command staff of CSG 3 and consists of Nimitz-class aircraft carrier USS Abraham Lincoln (CVN 72), Carrier Air Wing Nine (CVW-9), the Ticonderoga-class guided-missile cruiser USS Mobile Bay (CG 53), and the Arleigh Burke-class guided-missile destroyers of Destroyer Squadron 21 (DESRON 21) – USS Fitzgerald (DDG 62), USS Gridley (DDG 101), USS Sampson (DDG 102) and USS Spruance (DDG 111).

CVW-9 includes Marine Fighter Attack Squadron 314 (VMFA-314), the Corps' first F-35C squadron. The deployment marks the second carrier deployment of the F-35C.

The Marine Corps plans to field a total of four F-35C squadrons and have committed two of them to the Tactical Air Integration program of deploying with CVWs.

The USS Carl Vinson (CVN 70) currently is deployed to the Indo-Pacific region with the Navy's first fleet F-35C squadron, Strike Fighter Squadron 147 (VFA-147), on board.

CVW-9 also includes VFA-14, equipped with F/A-18F Super Hornet Strike Fighters; VFAs 14 and 151, equipped with F/A-18Es; Electronic Attack Squadron 133 (VAQ-133), with EA-18G Growler electronic attack aircraft; Airborne Command and Control Squadron 117 (VAW-117) with E-2D Advanced Hawkeye aircraft; Helicopter Sea Combat Squadron 14 (HSC-14) with MH-60S Seahawk helicopters; Helicopter Maritime Strike Squadron 71 (HSM-71) with MH-60R Seahawk helicopters; and a detachment of Fleet Logistics Multi-Mission Squadron 30 (VRM-30), equipped with the CMV-22B Osprey carrier-onboard delivery aircraft.

"The entire CSG 3 team is trained and ready to deter and, if necessary, win conflicts as called upon by our nation's leaders," said Rear Adm. J.T. Anderson, commander, Carrier Strike Group 3, in a release from U.S. 3rd Fleet. "As we leave today on this routine, scheduled deployment, I know the Sailors and Marines of this team will continue to serve this great nation and its people. It is our honor to do so."

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# NAVSEA Orders Two More Mark VI Patrol Boats for Ukraine



A Mark VI is launched from the amphibious dock landing ship USS Ashland (LSD 48) in the Philippine Sea in February 2021. *U.S. NAVY / Mass Communication Specialist 3rd Class Madysson Anne Ritter*

ARLINGTON, Va. – The U.S. Navy has ordered two more Mark VI patrol boats for the government of Ukraine, the Defense Department said.

The Naval Sea Systems Command awarded SAFE Boats International of Bremerton, Washington, a \$25.6 million firm-fixed-price modification “for the exercise of options for construction,

outfitting, reactivation, and training of two Mark VI patrol boats,” the Dec. 30 announcement said.

The order is funded with some of the \$125 million Ukraine Security Assistance Initiative funds through the fiscal year 2021 Building Partner Capacity initiative.

In June 2020, the U.S. State Department has approved the possible foreign military sale of up to 16 Mark VI patrol boats and related equipment to Ukraine for an estimated cost of \$600 million, the Defense Security Cooperation Agency said. The December order brings the total ordered to date to 12 boats.

“This action reaffirms the U.S. commitment to providing defensive lethal weapons to enable Ukraine to more effectively defend itself against Russian aggression,” the Defense Department said of an earlier sale of Mark VI boats to Ukraine.

The patrol boats will be operated by the Ukrainian navy to defend territorial waters and other maritime interests. They each will be armed with two MSI Seahawk A2 gun systems and two Mk44 cannons and equipped with electro-optical/infrared sensors and loud-speaker systems.

Mark VI patrol boats are used by the Navy Expeditionary Combat Command for escort of high-value ships, coastal patrol, and other maritime security missions.

The boats will be built in Tacoma, Washington, and deliveries are expected to be completed by March 2026.

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# 750 F-35s in Service as 2022 Begins, Lockheed Martin Says



U.S. Marines with Marine Fighter Attack Squadron 314 and Marine Aerial Refueler Transport Squadron 352, Marine Aircraft Group 11, 3rd Marine Aircraft Wing, conduct a new expeditionary landing demonstration with M-31 arresting gear Interim Flight Clearance (IFC), on Marine Corps Air Ground Combat Center Twentynine Palms, Calif., Dec. 3rd, 2020. This new capability allows the F-35C Lightning II to land on smaller runways anywhere in the world and ensures extended flexibility in combat operations. *U.S. MARINE CORPS / Cpl. Cervantes, Leilani*

FORT WORTH, Texas – Lockheed Martin completed another successful year as the F-35 program continued to expand its global footprint and enhance operational capabilities, the company said Jan. 3.

In 2021, two new countries, Switzerland and Finland, selected the F-35 for their new fighter programs. Additionally, Denmark

received its first F-35 and the Royal Netherlands Air Force became the eighth nation to declare their F-35 fleet ready for initial operational capability. The F-35's operational capabilities continued to advance and further demonstrated its value as the most advanced node in the 21st century battlespace. Last year alone, the F-35 successfully participated in a series of flight tests and exercises, including Project Hydra, Northern Edge, Orange Flag, Talisman Sabre and Flight Test-6.

"The F-35 joint enterprise team continues to provide unmatched combat capability to the 21st century battlespace through the F-35," said Bridget Lauderdale, vice president and general manager of the F-35 program. "Providing unparalleled support to the growing fleet, participating in numerous joint, all-domain exercises and meeting our delivery target during a global pandemic is no small feat while the F-35 was also chosen by Switzerland and Finland as their next fighter."

The F-35's operational performance remains strong. Some of the F-35A deployments and exercises demonstrated over 80% mission capable rates. As one of the most reliable aircraft in the U.S. fighter fleet, 93% of F-35 parts are performing better than predicted.

In the last year, F-35s were part of four base and ship activations and participated in more than 60 deployments and detachments, including the first U.S. Navy F-35C deployment aboard the USS Carl Vinson. During the first deployment of the Royal Navy's flagship HMS Queen Elizabeth as part of the UK's Carrier Strike Group 2021, F-35Bs from the U.S. Marine Corps and Royal Air Force flew nearly 1,300 sorties, more than 2,200 hours and conducted 44 combat missions.

These program achievements are enabled by employing digital technologies, which were vital to achieving 142 deliveries in 2021. Smart tools, connected machines and augmented realities all contribute to the delivery and sustainment of aircraft.

“Lockheed Martin is investing in digital technology that advances the F-35’s 5th Gen capabilities long after delivery,” Lauderdale added. “We’re embracing digital transformation to enable faster development and continuous deployment of software, using digital models and supercomputers to augment physical test data with simulation-based verification, and automating data processes to save time and glean insights that improve sustainment.”

With more than 750 aircraft operating from 30 bases and ships around the globe, the F-35 plays a critical role in the integrated deterrence of the U.S. and its allies. More than 1,585 pilots and 11,545 maintainers are trained and the F-35 fleet has flown nearly 470,000 cumulative flight hours. Nine nations have F-35s operating from a base on their home soil, 12 services have declared initial operational capability and six services have employed F-35s in combat.

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## **Navy Orders Additional TH-73A Helicopters to Train Naval Aviators**



A Leonardo TH-73A helicopter. *LEONARDO*

PHILADELPHIA – The newly established partnership between Leonardo and the U.S. Navy on the advanced training of next-generation helicopter pilots grew in December with the U.S. Department of Defense buying an additional 36 TH-73A rotorcraft, with initial spares, for \$159.4 million, the company announced Dec. 22.

This third lot brings the total number of aircraft on order to 104 of the total requirement for 130, with delivery continuing into 2024. The fleet will be used to collectively train student pilots from the U.S. Navy, Marine Corps and Coast Guard, along several NATO allies.

In January 2020, Leonardo, through AgustaWestland Philadelphia Corp., was awarded a firm-fixed-price contract valued at \$176 million for the production and delivery of an initial 32 TH-73A helicopters. The agreement – which included an initial package of spares, support, dedicated equipment, and specific pilot and maintenance training services – was confirmed that following November through the order of a second lot of aircraft through a \$171 million contract modification for an additional 36 helicopters.

All TH-73As will be fully produced at the Leonardo's plant in Philadelphia where the AW119 is exclusively built on an FAA Certified Part 21 production line. The site operates today as a supplier and partner to the U.S. DoD through the TH-73A program for the U.S. Navy, of which Leonardo is prime contractor, in addition to the Boeing MH-139A program for the U.S. Air Force.

Located in Philadelphia since the early 1980s, the plant today employs 700 of Leonardo's 7,000 employees active in the U.S. and has become a Divisional Center of Excellence for production, support, engineering and training activities. The Philadelphia site includes production of the AW119, AW139 and the AW609 tilt-rotor, as well as support, maintenance and repair services. Pilot and maintenance technician training is performed at the training academy, co-located at the same campus as all other U.S. functions, which was inaugurated earlier this year as part of an \$80 million dollar expansion.

A delivery ceremony for the first TH-73A to the U.S. Navy took place in June 2021 in Philadelphia. Based on the IFR instrument flight rules variant of the commercial model AW119Kx, the TH-73A, which will replace the TH-57B/C Sea Ranger first introduced in 1968, is perfectly suited for both initial and advanced training.

Equipped with a powerful and reliable Pratt & Whitney PT-6 engine and characterized by dual safety and hydraulic systems and advanced digital avionics by Genesys Aerosystems, the TH-73 can perform every phase of the U.S. Navy's training program without compromise. The new system will allow the U.S. Navy to upgrade its technologies from analogue to digital and is expected to be in service until after 2050.

The fleet will be based at Naval Air Station Whiting Field in Milton, Florida. After being awarded the initial contract and in order to support the fleet once operational, Leonardo announced plans to build a 100,000 square foot support center

immediately adjacent to NAS Whiting Field in partnership with the City of Milton, Santa Rosa County and Space Florida. Site work has already begun and the facility's completion is expected by the end of 2023.

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## U.S. Navy Ships Interdict Heroin Worth \$4 Million in Arabian Sea



Two U.S. Navy ships seized 385 kilograms of heroin worth approximately \$4 million from a stateless fishing vessel transiting the Arabian Sea, Dec. 27. *U.S. NAVY*

MANAMA, Bahrain – Two U.S. Navy ships seized 385 kilograms of heroin worth approximately \$4 million from a stateless fishing vessel transiting the Arabian Sea, Dec. 27, Naval Forces

Central Command said Dec. 30.

U.S. Coast Guard personnel embarked aboard USS Tempest (PC 2) and USS Typhoon (PC 5) discovered the illegal shipment while conducting a flag verification boarding in accordance with customary international law. The confiscated drugs were destroyed at sea by U.S. forces.

The coastal patrol ships were operating as part of an international task force called Combined Task Force 150, which has increased regional patrols to locate and disrupt unlawful maritime activity. CTF 150 is one of three task forces under Combined Maritime Forces.

"This latest seizure is a demonstration that CTF 150 and assigned surface and air assets are ready to conduct interdiction operations 365 days a year," said Royal New Zealand Navy Capt. Brendon Clark, commander of CTF 150.

In 2021, CTF 150 has seized illegal drugs worth more than \$193 million (at regional wholesale prices) during counter-narcotics operations at sea. This is a higher total value than the amount of drugs the task force interdicted in the previous four years combined.

"This interdiction highlights the incredible work of our ships and Sailors and serves as a reminder of the value in having forward-deployed naval forces on scene and ready," said Lt. Cmdr. Jordan Bradford, Typhoon's commanding officer, who is from Ocean Springs, Mississippi.

International naval forces operating in support CTF 150 regularly conduct maritime security and counter-terrorism operations at sea outside the Arabian Gulf to disrupt criminal and terrorist organizations and their related illicit activities, including the movement of personnel, weapons, narcotics and charcoal. These efforts help ensure legitimate commercial shipping transits the region free from non-state threats.

“We were able to execute this interdiction safely and with precision due to the tireless efforts of all involved,” said Lt. Cmdr. Matt Intoccia, a native of Collegeville, Pennsylvania, and the commanding officer of Tempest. “I am proud of our collective contribution to regional stability and look forward to more opportunities for operational success.”

The U.S. Navy released the stateless fishing vessel and its nine crew members, who identified themselves as Iranian nationals, after seizing the drugs.

Combined Maritime Forces is the largest multinational naval partnership in the world. The organization includes 34 nations and is headquartered in Bahrain with U.S. Naval Forces Central Command and U.S. 5th Fleet.