

Canadian Coast Guard Conducts Sea Trials of V-BAT UAS



A V-BAT vertical takeoff and landing unmanned vehicle. *MARTIN UAV*

OTTAWA, Ontario – Kongsberg Geospatial has successfully conducted sea trials of the Shield AI V-BAT unmanned aerial system on behalf of the Canadian Coast Guard, operating from a small cargo vessel far offshore in international waters, Kongsberg announced Jan. 25.

The Canadian Coast Guard is conducting trials of the long-endurance, vertical takeoff and landing UAS surveillance system for possible deployment on Canadian Coast Guard Vessels under a project funded by Defence Research and Development Canada. The Shield AI V-BAT aircraft was selected due to its unique ability to combine VTOL from the small confines aboard ship with the long endurance of a fixed-wing aircraft while carrying multiple sensors.

Kongsberg Geospatial teamed with Shield AI to deploy the V-BAT VTOL UAS for a three-day sea trial in international waters in the Gulf of Mexico. The trials tested the capability of the aircraft to provide rapid launch and recovery, long endurance, and confined space takeoff and landing from a moving vessel in a variety of weather conditions, during the day and night. In addition to tracking and identifying other ships at long ranges, the flights conducted a variety of simulated missions designed to emulate real-world situations where the Canadian Coast Guard would use the drones. These included locating and tracking dye patches that simulated wreckage or oil spills and locating life preservers in choppy seas and in a variety of weather conditions.

The V-BAT operators used Kongsberg Geospatial's IRIS UxS software to safely pilot the aircraft at long ranges from the launch vessel. The IRIS software provides a comprehensive situational awareness picture of the operational airspace, data from a variety of sensors and data feeds and shows the location of other aircraft and surface ships, as well as the launch vessel and the "ownship," or drone being operated.

Sensor data feeds from the cameras and sensors carried by the UAS were ingested, at real-time, into the Kongsberg Geospatial Modular ISR Data Analysis and Storage system. The MIDAS system records video and other data from the UAS, and serves as a "mission intelligence coordinator" to view current and historical sensor feeds of the UAS within a temporal and geospatial context to increase sensor utilization effectiveness.

"While the sea conditions were perhaps a little rougher than expected, they were ideal for testing the launch and recovery capabilities of the V-BAT from a small ship under the kind of conditions you might expect during real operations," said Rex Hayes, a retired U.S. Navy and Coast Guard officer and the

director of Unmanned Systems at Kongsberg Geospatial. “We were also very pleased with the performance of IRIS and the MIDAS system when handling integrated sensor data feeds from extended missions.”

Trials like these are important to the continued health of the industry, according to Brandon Tseng, Shield AI’s cofounder and former U.S. Navy SEAL. “We love supporting our allies. It will take strong partnerships – technological, military, and economic – to maintain stability during challenging times. Sharing tech like the V-BAT strengthens strategic relationships and contributes to global stability. Our recent engagement with the Canadian Coast Guard and Kongsberg exemplifies our commitment to ensuring our allies have the cutting-edge technology and products they need.”

This series of endurance trials is the second set of flight trials of the Shield AI V-BAT conducted by the Canadian Coast Guard. The first series of flight trials were conducted at a UAS test range in Oklahoma last year to establish flight characteristics of the aircraft. The V-BAT was developed by Martin UAV, which was acquired by Shield AI last year. Kongsberg Geospatial is a subsidiary of Kongsberg Defence & Aerospace.

Navy Ship Construction, Repair Hampered by Lack of Suppliers, Skilled Workers



Mass Communication Specialist 3rd Class David Glotzbach grinds deck braces aboard the amphibious assault ship USS Wasp (LHD 1), July 22, 2021. Wasp was in a dry-dock selected restricted availability at BAE Shipyards as part of a planned maintenance period. *U.S. NAVY / Mass Communication Specialist 2nd Class Benjamin F. Davella III*

ARLINGTON, Va. – A senior Navy shipbuilding executive said some weaknesses in the ship construction and repair enterprise is hampered nationally by a shrinking supplier base and a lack of skilled workers.

“Material availability is a challenge,” said Matt Sermon, executive director of the Program Executive Office – Strategic Submarines, speaking Jan. 13 at the Surface Navy Association’s annual symposium in Arlington.

A former nuclear-trained surface warfare officer, Sermon said for new construction of ships, schedule and quality of material is an issue, calling material among the top issues driving schedules affecting ship repair availabilities and new construction progress.

Sermon said the end of the Cold War and the resulting so-called "peace dividend" in the early 1990s through the current era meant the number of suppliers for the submarine industrial base declined from 17,000 to 5,000, with submarine construction at a rate of less than one per year. He noted an analogous decline for surface ship construction, with the slow rate of destroyer construction and the completion of cruiser and frigate construction programs.

Globalization of industrial production also reduced the capacity of the U.S. industrial base, he said. Unlike two build-ups in response to large demand in the past, the current great power competition with the rise of China and Russia is trying to respond in the face of significant loss of commercial industrial base available to turn to defense production.

Regarding the strategic competition, Sermon said, "we weren't on the front end of it and we're dealing with that now."

His list of fragile market sectors includes castings, forgings, fittings, valves, mechanical and electrical equipment.

Sermon also said, "we're a little slow to adapt on technology when it comes to manufacturing," including additive manufacturing, robotics and automation and non-destructive testing technology.

He also said some requirements need "some updating and some rethinking, and some innovation," but the use of data analytics and artificial intelligence is helping address delays and shortages

Sermon stressed the United States no longer has the "high-skilled technical-trade workforce underlying foundation," a condition he attributed to the service economy and the emphasis on a college education for young people.

Throughout the shipbuilding and repair sectors there is a pressing need for more workers with the right skills, including welders, fitters, machinists, and electricians, he said, although industry partnering with technical training schools to train new workers is helping the situation.

UK Royal Navy takes NATO Response Force Helm, with Carrier as Flagship



The UK Royal Navy aircraft carrier HMS Prince of Wales is pictured at sea, working with NATO task groups, during the alliance's Dynamic Mariner exercise off the United Kingdom in late September 2021. The exercise was part of the certification process for the U.K. taking command of the NATO

Response Force (Maritime) for 2022. *NATO MARITIME COMMAND*

The UK Royal Navy has taken command of the NATO Response Force (Maritime) task force, with a transfer-of-command ceremony held onboard the U.K. aircraft carrier HMS Prince of Wales at HM Naval Base Portsmouth, U.K. on Jan. 11.

NRF-M command rotates annually and the U.K. has handed over from the French navy. Under Rear Adm. Michael Utley, commander, U.K. Strike Force and NATO high-readiness maritime force commander, the U.K. will have the helm for 2022, with Prince of Wales as flagship in the role of afloat command platform.

In the ceremony onboard the carrier, the ship's commanding officer, Capt. Steve Higham said as Prince of Wales begins its service life, it was "entirely fitting that we start that journey as a NATO aircraft carrier." During 2022, Prince of Wales will lead maritime task groups across the Euro-Atlantic theatre, including in the Arctic and the Mediterranean. The carrier will also remain at very high readiness to respond as required to contingency operations.

Sister carrier HMS Queen Elizabeth deployed to the Indo-Pacific during its own inaugural deployment, between May and December 2021.

"If [that] deployment was a manifestation of our Prime Minister's 'Global Britain' vision, then Prince of Wales' year as a NATO command platform is a clear statement of intent by our government of the U.K.'s equally important and steadfast commitment to NATO," Higham said. The U.K. is resolute and enduring in its commitment to security, stability, and peace in the Euro-Atlantic theater, he added.



Prince of Wales is pictured carrying the NATO roundel. The carrier will operate as flagship and afloat command platform for NRF-M. *LEE WILLETT*

Integrating U.K. carrier strike capability with NATO, the carrier and its multinational battle staff will work with ships, aircraft, submarines and drones from allies and partners, the CO said.

In a media briefing onboard Prince of Wales prior to the ceremony, Higham said, in the context of challenges posed by potential adversaries, "the great advantage for us is that we will be working with partners and allies from across the NATO alliance, and that strength in depth is what gives us the real edge."

The carrier will embark airwing and other capabilities as required for specific operations.

"My job as the CO of Prince of Wales, as the flag captain, is

to make sure this deck is ready to receive helicopters, aircraft and drones from across the NATO alliance, and be ready to work alongside ships and submarines from our partners and allies,” he said. The job of a command platform is to be flexible and ready to respond, he added.

Higham noted that the ship had received an uplift in command-and-control capability to enable interoperability with NATO partners.

The 65,000-ton carrier was commissioned in December 2019, was declared fully operational on Sept. 30, 2021, and spent much of 2021 in operational generation for the very-high-readiness role as Naval Response Force -Maritime flagship.

Bollinger to Build Pontoon Launcher for General Dynamics Electric Boat



An artist's rendering of the future U.S. Navy Columbia-class ballistic missile submarines. *U.S. NAVY*

LOCKPORT, La. – Bollinger Shipyards LLC will construct a new pontoon launcher for General Dynamics Electric Boat to support the construction and launching of the United States' Columbia-class ballistic-missile submarines (SSBNs), which will replace the aging Ohio-class of SSBNs and is a top strategic defense priority for the United States.

"Bollinger Shipyards is excited to expand our ongoing relationship with Electric Boat and to continue to support the capitalization and infrastructure improvements that Electric Boat has undertaken in reshaping and modernizing its Groton shipyard," said Bollinger Shipyards President and CEO Ben Bordelon. "We're honored to have been selected to build this pontoon launcher with the quality craftsmanship of the hardworking men and women of Bollinger Shipyard and we continue to be laser-focused and committed to being a leader in pushing our industry forward and ensuring that the U.S.

Industrial Base is fully self-sufficient.”

“Electric Boat continues to expand and upgrade its infrastructure to support construction of the Columbia class, the nation’s top strategic defense priority,” said Joe Drake, vice president, Real Estate and Facilities, General Dynamics Electric Boat. “Our partnership with Bollinger is an important part of that strategy.”

The concept and contract design for the 496-foot-by-95 foot pontoon launcher was performed by the Bristol Harbor Group in Rhode Island. The detail design engineering will be performed at the Bollinger facility in Lockport, Louisiana. The launcher is scheduled to be delivered to Electric Boat’s Groton, Connecticut, shipyard in 2024.

Electric Boat is the prime contractor on the design and build of the of the Columbia-class SSBN.

This is Bollinger Shipyards’ third contract awarded with Electric Boat. In late 2019, Bollinger Shipyards was selected to construct the ocean transport barge for Electric Boat, which was delivered in 2021 and in late 2020, Bollinger was selected to construct a floating dry dock, all of which support the construction and maintenance of the Columbia-class SSBN.

**HII Launches Amphibious
Transport Dock Richard M.**

McCool Jr.



Huntington Ingalls Industries launched amphibious transport dock ship Richard M. McCool Jr. on Jan. 7. *HUNTINGTON INGALLS INDUSTRIES*

PASCAGOULA, Miss. – Huntington Ingalls Industries' Ingalls Shipbuilding division announced Jan. 7 the successful launch of amphibious transport dock Richard M. McCool Jr. (LPD 29).

Richard M. McCool Jr., the 13th LPD in the San Antonio class of amphibious assault force ships, will support U.S. amphibious assault, special operations and expeditionary warfare missions through the first half of the 21st century.

"The LPD class ships, like all of our programs, are critically important to U.S. national security," said Kari Wilkinson, president of HII's Ingalls Shipbuilding division. "In addition, thousands of Americans, from engineers to electricians, have worked on LPD 29 over the years. Ingalls Shipbuilding is proud to build them and even more proud of the

talented people that make up our shipbuilding team.”

With the assistance of tugs, Richard M. McCool Jr. came off the floating dry dock Wednesday morning, after first being translated via Ingalls’ rail car system. The dock was moved away from the pier and then ballasted to float off the ship.

Launching Richard M. McCool Jr. is the first of a series of significant milestone events in bringing the ship to life, and eventual delivery to the U.S. Navy which is planned for later next year.

Ingalls Shipbuilding is building the entire San Antonio class of ships, the newest addition to the Navy’s 21st century amphibious assault force. The 684-foot-long, 105-foot-wide ships that displace 25,000 tons are used to embark and land Marines, their equipment and supplies ashore via air cushion or conventional landing craft and amphibious assault vehicles, augmented by helicopters or vertical takeoff and landing aircraft such as the MV-22 Osprey.

Leonardo DRS Taps Cari Ossenfort as VP/GM for its Naval Electronics Business



Cari Ossenfort, Leonardo DRS' new senior vice president and general manager of Naval Electronics. *LEONARDO DRS*

ARLINGTON, Va. – Leonardo DRS Inc. has named Cari Ossenfort as the senior vice president and general manager of the company's Naval Electronics business unit, responsible for the business by leading operations, programs, business strategy and future growth opportunities, the company announced Jan. 6.

Ossenfort brings more than 20 years of experience in engineering, operations and leadership in the defense and commercial industries, including working on a range of programs for U.S. military and government agencies.

Most recently, she was the Leonardo DRS corporate vice president of operational excellence and quality, responsible for the creation, evolution, growth and strategy for that program. In her time in the role, Ossenfort successfully developed and executed company-wide performance improvement initiatives across eight business units and the corporate office by addressing operational inefficiencies and driving standardization throughout the more than 6,500-person employee base.

“We are excited to have someone of Cari’s caliber lead our Naval Electronics business,” said Bill Lynn, CEO of Leonardo DRS. “Her experience, foresight and leadership qualities will help chart a clear path forward to grow the business and support our important U.S. Navy customer in existing and future programs.”

Before her role leading the Leonardo DRS operational excellence program, she was the vice president and general manager for the L3 Infrared Products group leading the infrared focal plane business in Dallas, Texas.

Ossenfort is a trained engineer and has held multiple senior engineering, operations, and management roles in previous positions at Leonardo DRS, Raytheon, Texas Instruments and Avery Dennison. She received her engineering degree and master’s in business administration from Auburn University.

The Leonardo DRS Naval Electronic business is a leader in naval computing infrastructure, network and data distribution and middleware enterprise services, as well as world-class advanced manufacturing and support capabilities of critical importance to the U.S. Navy and other military branches.

**Aegis Going Through
Substantial Digital
Transformation, Lockheed
Martin Says**



USS Wayne E. Meyer (DDG 108) arrives recently at Naval Surface Warfare Center, Port Hueneme Division with the help of a tug boat. The ship's namesake is the late Rear Adm. Wayne Meyer, widely recognized as the Father of the Aegis Weapon System, considered a cornerstone of the military service. *U.S. NAVY / Photo by Eric Parsons*

ARLINGTON, Va. – The Aegis Combat System is going through substantial digital transformation as its processing speed is increased and more sensors and weapons are integrated with it, a Lockheed Martin official said.

The Aegis Combat System's "relevance to the fleet has never been greater," said Jon Rambeau, Lockheed Martin's vice president and general manager for Integrated Warfare Systems and Sensors, in an interview with *Seapower*.

Rambeau, who formerly worked with the company's Acoustic Rapid Capability Insertion programs to periodically and rapidly upgrade U.S. Navy submarine sensor capabilities through software refreshes, is now continuing the same concept with Aegis.

The company is implementing automated test capabilities for Aegis. Rambeau cited the implementation of those on Baseline 10 version as "the most comprehensive evolution of Aegis we've ever undertaken. ... So, we we've automated about 20,000 of our software test procedures as part of our Baseline 10 efforts to try to improve our efficiency and speed of capability to the fleet."

He said the company is "working to implement model-based engineering processes across the board with the goal of getting the same quality product we've always delivered but getting that to the fleet much more rapidly. So, we're focused on speed of capability to make sure we're keeping the fleet relevant."

In a broader perspective, Rambeau said the company is working to focus its culture on creating an environment where government, small business and academia can integrate efforts with the company to work seamlessly across the Aegis enterprise. He credited the work of the Forge, a Navy software development "ecosystem" activity designed to field advanced capability more rapidly, and said the company is working to be positioned to receive the capabilities developed by the Forge "and make sure we're bring the systems engineering rigor and the collaboration to support the responsible integration of those capabilities into the Aegis baseline."

Rambeau also said the company is working to keep Aegis relevant by integrating future hard-kill and soft-kill capabilities, including that of reducing the cost per kill of systems to defeat ballistic and hypersonic missiles. He cited the company's HELIOS laser weapon system, which is the first laser weapon system integrated with Aegis and is going through its first installation on the Arleigh Burke-class guided missile destroyer USS Preble.

Israel to Purchase CH-53K King Stallion Helicopters



An artist's rendering of a CH-53K helicopter for the Israeli air force. *SIKORSKY*

NAVAL AIR STATION PATUXENT RIVER, Md. – The Israeli air force signed a letter of acceptance with the United States government on Dec. 30 to purchase the CH-53K King Stallion heavy lift helicopter, Naval Air Systems Command said Jan. 4.

“We’re happy the IAF recognizes the unrivaled capabilities and performance of the K and have chosen to move forward with us,” said Col. Jack Perrin, program manager, heavy lift helicopter program office (PMA-261). “Welcome to the CH-53K family.”

The CH-53K is the most powerful helicopter ever built by the U.S. government and will replace the IAF’s current fleet of modified CH-53D Yasur helicopters, which have been flying for over 50 years.

The signed agreement states first deliveries of the aircraft are planned for 2025. In addition to the aircraft, the agreement includes T408-GE-400 engines; facilities study, design and construction; spare and repair parts; support and test equipment; publications and technical documentation; aircrew and maintenance training; U.S. government and contractor engineering, technical and logistics support services; and other related elements of logistics and program support.

As the long-range logistic support backbone for the U.S. Marine Corps, the CH-53K will support Israeli special operations programs first, as well as provide the Israeli defense forces with a platform that has the speed, safety and gross weight capability to support all of its missions, including troop and cargo transport, and search and rescue.

The decision wraps up a multi-year negotiation process. In the end, the King Stallion offered more capabilities and the latest technology compared to the competition. During this period, PMA-261 hosted multiple visits by IAF leadership as they compared aircraft, including orientation flights and flight evaluations with IAF pilots and acquisitions professionals.

The CH-53K King Stallion program is in the initial operational test and evaluation stage and is on track to achieve initial operational capability in early 2022, with first fleet deployment planned for fiscal 2024.

Fairbanks Morse Defense

Acquires Federal Equipment Co.



BELoit, Wis. – Fairbanks Morse Defense, a portfolio company of Arcline Investment Management, has acquired Federal Equipment Co., Fairbanks said Jan. 5.

The acquisition significantly expands FMD's product capabilities and services for shipyard, defense, and industrial customers, with emphasis on its support for and offerings to the U.S. nuclear navy.

The transaction includes FEC Military, a global leader in designing and manufacturing mission-critical components and systems for the U.S. Navy and U.S. Coast Guard, including its advanced cargo elevators, engineered doors and specialized material handling equipment. The transaction also includes FEC's commercial business, which delivers handling solutions to manufacturing customers outside the defense market.

"Fairbanks Morse Defense is committed to the values that define us as a leading defense contractor. The capabilities, experience, and quality reputation that we're acquiring with FEC reinforce this commitment and solidify our position as a proven, single-source provider to our naval customers," said FMD CEO George Whittier. "Both FEC and Fairbanks Morse Defense have highly experienced teams who understand the critical role that our customers play in protecting the nation, and they are all dedicated to delivering the highest quality service in support of that mission. Combining our knowledge and capabilities makes us a powerful asset for the defense

industry.”

The FEC acquisition adds extensive capabilities to FMD, solidifying Fairbanks Morse Defense’s position as an integrated defense contractor and turnkey solutions provider to the Navy and Coast Guard. In recent years, FMD has completed multiple acquisitions to better serve defense customers, including its acquisitions of Hunt Valve Company, Ward Leonard, and Welin Lambie.

Founded in Ohio in 1982, FEC has approximately 145 employees. The company is headquartered on its campus near Cincinnati, Ohio, which includes two facilities totaling 100,000 square feet. In addition, FEC has begun construction on a 50,000 square foot facility, which will further increase its manufacturing capacity and capabilities. This building is expected to open in mid-2022.

**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.