

Raytheon to Deliver New Submarine Communications System



The Los Angeles-Class fast-attack submarine USS Cheyenne (SSN 773) and its crew arrive at Joint Base Pearl Harbor-Hickam, after completing their latest deployment, April 26, 2019. Raytheon Intelligence & Space has been awarded a \$90 million contractor for Submarine High-Data Rate antenna systems. U.S. Navy / Mass Communication Specialist 1st Class Daniel Hinton ARLINGTON, Va. – Raytheon Intelligence & Space, a Raytheon Technologies business, was awarded a \$90 million contract by the U.S. Navy for 23 Submarine High-Data Rate antenna systems, the company said in a Jan. 11 release. Contracted in 2020, the work is expected to be completed on the new antennas by January 2024.

The SubHDR system is used to provide submarines with high-capacity communications. The system vastly improves a submarine's mission capability and the quality of life for sailors by affording them high-data rate communications with

the world outside of the sub without sacrificing the submarine's stealth.

"Connecting people securely is essential to the success of any operation," said Denis Donohue, vice president, Communications and Airspace Modernization Systems for Raytheon Intelligence & Space.

"The SubHDR system provides secure connectivity for submarines that supports mission-critical information delivery to the right people at the right time."

SubHDR links submariners to the Global Broadcast Service, the Milstar satellite constellation and the Defense Satellite Communications System, via a unique mast antenna that connects them to the above-sea world.

The SubHDR System gives submarines high-data rate, multi-band SATCOM capability. Operating via military satellites, SubHDR enables underwater forces to be full participants in coordinated fleet battle group and joint task force network centric operations. The mast-mounted SATCOM system transmits secure wideband multimedia, secure and non-secure internet access, voice and data traffic, imagery and video teleconferencing.

Environmental Changes in the Arctic Seen Having Strategic Implications for US and

Partner Nations



The crew of the Seawolf-class fast-attack submarine USS Connecticut (SSN 22) enjoys ice liberty after surfacing in the Arctic Circle during Ice Exercise (ICEX) 2020 in this May, 2020, photo. ICEX 2020 is a biennial submarine exercise which promotes interoperability between allies and partners to maintain operational readiness and regional stability, while improving capabilities to operate in the Arctic environment. U.S. Navy / Mass Communication Specialist 1st Class Michael B. Zingaro

A Jan. 6, 2021, report from the Congressional Research Service on changes in the Arctic says the diminishment of Arctic sea ice has led to increased human activities in the region and heightened interest in, and concerns about, the Arctic's future.

Accessibility to the region has increased interest in tourism, mineral extraction, fishing and commerce. An open Arctic means during some times of the year, ships can cut about 40% of the time it takes to pass from Asia to Europe, cutting time and costs to ship goods. The resurgence of Russia's military,

which has a significant presence in the Russian Arctic, and especially the growing numbers and quality of Russian submarines, means the region's strategic importance has also increased.

And, of course, the scientific community wants to understand the environmental changes and all of the implications.

“Record low extents of Arctic sea ice over the past decade have focused scientific and policy attention on links to global climate change and projected ice-free seasons in the Arctic within decades,” the CRS report says. “These changes have potential consequences for weather in the United States, access to mineral and biological resources in the Arctic, the economies and cultures of peoples in the region, and national security.”

Broadly speaking, the report states physical changes in the Arctic include warming ocean, soil, and air temperatures; melting permafrost; shifting vegetation and animal abundances; and altered characteristics of Arctic cyclones. All these changes are expected to affect traditional livelihoods and cultures in the region and survival of polar bear and other animal populations, and raise risks of pollution, food supply, safety, cultural losses, and national security. Moreover, linkages (“teleconnections”) between warming Arctic conditions and extreme events in the mid-latitude continents are increasingly evident, identified in such extreme events as the heat waves and fires in Russia in 2010; severe winters in the eastern United States and Europe in 2009/2010 and in Europe in 2011/2012; and Indian summer monsoons and droughts. Hence, changing climate in the Arctic suggests important implications both locally and across the hemisphere.

Due to observed and projected climate change, scientists have concluded the Arctic will have changed from an ice-covered environment to a recurrent ice-free ocean (in summers) as soon as the late 2030s. The character of ice cover is expected to

change as well, with the ice being thinner, more fragile, and more regionally variable. The variability in recent years of both ice quantity and location could be expected to continue.

While it will still be a cold and inhospitable place, these changes will appear to be a warm welcome to increased human activity. Concerns about these concerns are shared by America's allies, including NATO.

Great power competition

In testimony before Congress, Chief of Naval Operations Adm. Mike Gilday said the Arctic "has become an emerging area of great power competition," and the sea services are seeking to "better understand the Navy and Marine Corps' role in protecting the Arctic homeland, safeguarding the Arctic region's global commons."

With the return of great power competition, the Department of Defense and the Coast Guard (part of the Department of Homeland Security) are devoting increased attention to the Arctic in their planning and operations, the CRS report noted. "DoD as a whole, as well as the Navy and Marine Corps, the Air Force, and the Coast Guard individually, have issued Arctic strategy documents in recent years, and the Army reportedly is planning to issue one."

The newly released Navy-Marine Corps Arctic Strategy looks at the Arctic as part of the great power competition maneuver space. "Without sustained American naval presence and partnerships in the Arctic region, peace and prosperity will be increasingly challenged by Russia and China, whose interests and values differ dramatically from ours," it says.

Navy Secretary Kenneth Braithwaite said the Navy remains committed to protecting the Arctic environment and ensuring naval forces do their part to help preserve it. The Navy, he said, will be "operating again in a more permanent manner above the Arctic Circle."

The CRS report points to remarks made by Secretary of State Michael Pompeo from a May 2019 Arctic Council meeting where he praised international cooperation in the Arctic, but specifically called out Russia and China for their lack of transparency and self-serving activities.

“Just because the Arctic is a place of wilderness does not mean it should become a place of lawlessness,” Pompeo said.

According to the report, some observers believe the U.S.-led international order in general may be eroding or collapsing, and the nature of the international order that could emerge in its wake is uncertain, with significant implications for the Arctic.

China’s growing activities in the Arctic may also reflect a view that as a major world power, China should, like other major world powers, be active in the polar regions for conducting research and other purposes.

Asserting sovereignty in the U.S. Arctic requires presence, and maritime presence requires ships. While The Coast Guard is building new multi-mission, heavy icebreakers called Polar Security Cutters, the Coast Guard currently has few ice-capable vessels, and the Navy has none.

Navy Envisions Containerized Weapon System to Arm Amphibious Ships



A Naval Strike Missile is launched from the littoral combat ship USS Coronado (LCS 4) during missile testing operations off the coast of Southern California in this 2014 photo. the NSM is a candidate to increase the lethality of U.S. Navy amphibious warfare ships. U.S. Navy / Mass Communication Specialist 2nd Class Zachary D. Bell

ARLINGTON, Va. – The U.S. Marine Corps general in charge of the U.S. Navy's expeditionary warfare directorate said the Navy is looking at options to increase the lethality of its amphibious warfare ships with a containerized weapon system. A demonstration of this capability may occur after a year of development.

Speaking to reporters on Jan. 8, MGen Tracy W. King, director of expeditionary warfare in the Office of the Chief of Naval Operations, did not specify which types of missile could or would arm an amphibious warfare [L-class] ship, but a leading candidate is the RGM-184 Naval Strike Missile (NSM) – built by a Raytheon-Kongsberg partnership, being installed on littoral combat ships and the Constellation-class guided-missile frigate.

"We have these magnificent 600-foot-long, highly survivable, highly LPD 17s," King said. "The LPDs need the ability to reach out and defend themselves and sink another ship. It's not from the aspect of using them as a strike platform; it will drastically increase their survivability if the enemy has to honor that threat. My intent is to ensure that my desire to increase lethality of LPDs doesn't interfere with [Director of Surface Warfare Rear Adm. Paul] Schlise's efforts to increase lethality on LCSs.

"We're working with Raytheon and other partners to see if they can increase production to get it [the Naval Strike Missile] out there. I suspect what you will see in the next year that we will probably test-fire a system off of an L-class ship and let the fleet play around with it, build up the doctrine on how we will use it and to confirm or deny whether it is worth the expense, which we think it is. We need the operators to confirm that."

King said that Vice Adm. James W. Kilby, deputy chief of naval operations for warfighting requirements and capabilities, has him conducting a formal analysis and running some excursions on what the war games would tell us about lethality, and survivability and would the enemy actually honor it. He would then show empirical data to the fleet commanders.

"It's a legitimate concern [about] putting these very rare systems on an L-class ship instead of another kind of warship," King said. "We're going to do it cautiously. My prediction is that we will have one within the next 12 months. We will let the fleet play around with it probably a year or so and then decide how we're going to field it."

King said a likely solution is a containerized weapon system that the Marine Corps will be using.

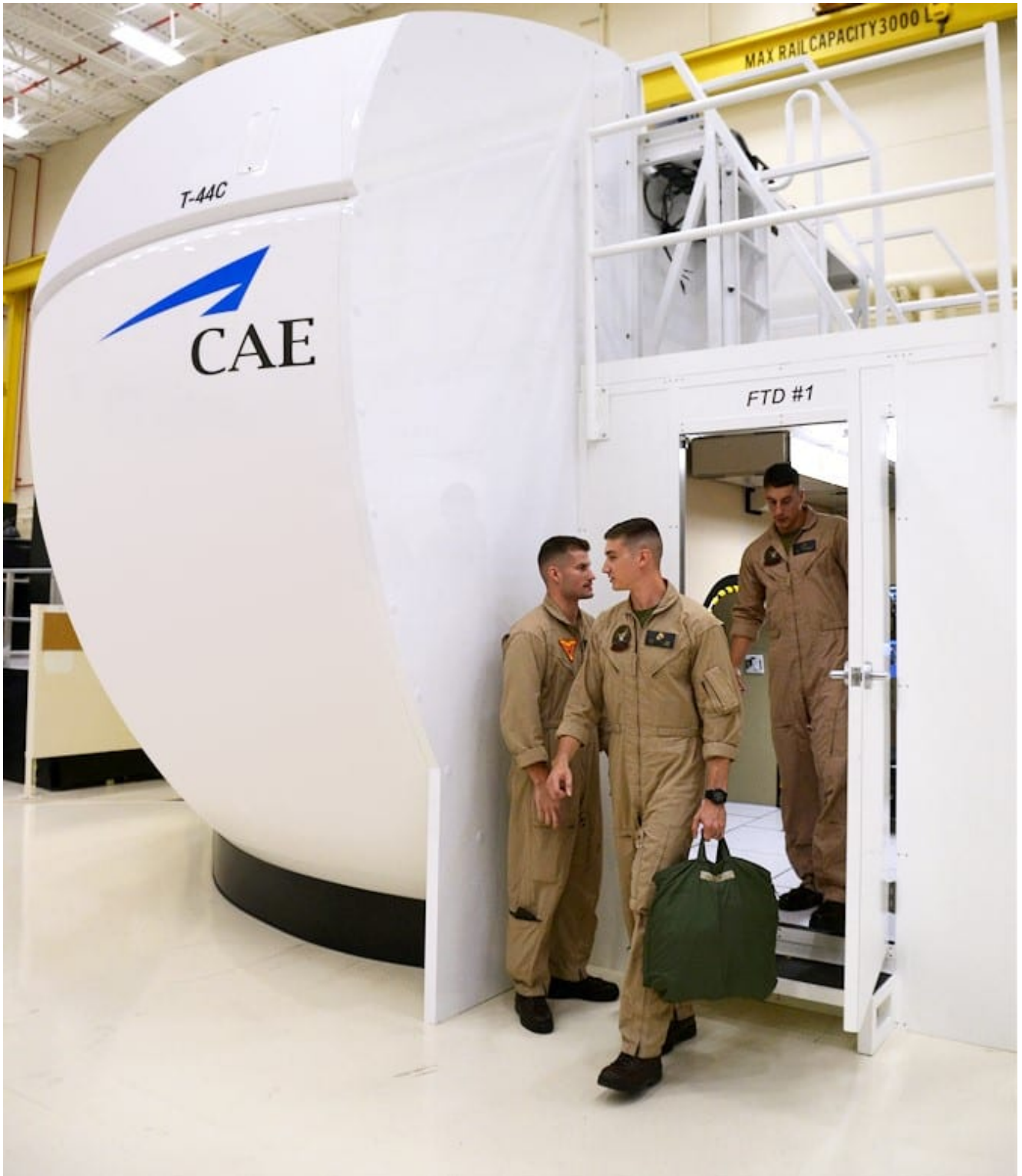
"When we jump on aboard a ship, that [weapon system] becomes available to the ship's captain," he said. "So maybe we don't

need to install launchers and NSMs. Maybe the Marine Corps EABO [Expeditionary Advance Base Operations] forces serve as the main battery when we are moving out. To me that just makes sense. We give the latitude and flexibility to the ship's captain to use those assets when he needs to."

King acknowledged the concern of some in the Marine Corps that the missiles could be expended in combat at sea before the Marines reach their destination.

"I am a little bit dismissive of that complaint because the ship's got to get there first," he said. "So, I think you're going to see us deploying containerized weapon systems that we can use wherever we want to use them."

CAE USA Awarded Navy Contract to Provide T-44C Aircrew Training Services



CAE USA will continue providing T-44C aircrew training to the U.S. Navy at NAS Corpus Christi, Texas. CAE USA TAMPA, Fla. – CAE USA has been awarded a U.S. Navy contract to continue providing comprehensive T-44C Pegasus aircrew training services at Naval Air Station (NAS) Corpus Christi in Texas, the company said in Jan. 7 release.

Awarded as a base one-year contract with additional one-year

options through mid-2027, the contract is valued at more than \$70 million. CAE USA provides T-44C aircrew training services to the Chief of Naval Air Training (CNATRA) under a contractor-owned, contractor-operated training program. The T-44C is the Navy's variant of the King Air aircraft used for intermediate and advanced multi-engine pilot training.

"We started delivering T-44C aircrew training to the Navy in 2013 and are honored the Navy has selected CAE USA to continue providing the essential training services for CNATRA's multi-engine training pipeline," said Ray Duquette, president and general manager, CAE USA.

CAE USA provides qualified instructors who deliver all the required T-44C classroom and simulator training at NAS Corpus Christi. CAE owns, operates and maintains a suite of T-44C training devices that are used extensively as part of the T-44C training syllabus. CAE is also introducing new virtual reality trainers based on the Microsoft HoloLens that will be used for T-44C familiarization and procedural training tasks. This will enable more student throughput by freeing the T-44C training devices and aircraft for more advanced training. In total, more than 400 U.S. Navy, Marine Corps, and international students train annually on the T-44C at NAS Corpus Christi.

"The Navy T-44C aircrew training program is a great example of how CAE partners with our military customers to introduce digital innovations such as virtual reality technologies that help contribute to more efficient and effective training," said Dan Gelston, group president, Defense & Security, CAE.

The T-44C aircrew training program falls under the responsibility of CNATRA, which oversees the Naval Air Training Command and the training of all naval aviators and naval flight officers.

France to Procure E-2D Advanced Hawkeye Aircraft from U.S. Navy



In December, France signed a Letter of Offer and Acceptance to procure three E-2D Advanced Hawkeye aircraft from the U.S. Navy like the one pictured in this October, 2020 photo. U.S. Navy

PATUXENT RIVER, Md.—France became the second international customer of the [E-2D Advanced Hawkeye \(AHE\)](#), Dec. 2, with a signed Letter of Offer and Acceptance to procure three E-2D aircraft from the U.S. Navy, for a maximum value of \$2 billion, Naval Air Systems Command said in a Jan. 5 release.

“The E-2/C-2 program office is looking forward to continuing a longstanding partnership with France and beginning a new chapter with the E-2D,” said Capt. Pete Arrobio, program manager of the [E-2/C-2 Airborne Command & Control Systems](#)

[Program Office \(PMA-231\)](#). “This procurement will increase interoperability among the U.S. Fleet and international partners.”

The three E-2Ds are scheduled to be delivered by 2028 and will replace the three existing E-2C Hawkeyes of the French navy, Marine Nationale.

The E-2D AHE, produced by Northrop Grumman, represents a two-generation leap in technology compared to its predecessor, the E-2C Hawkeye. The aircraft features a state-of-the-art radar and upgraded aircraft systems that improve supportability and increase readiness. The centerpiece of the E-2D AHE is the APY-9 radar system, designed specifically to provide enhanced surveillance detection and tracking capability against advanced threat aircraft and cruise missile systems in the overland, littoral, and open ocean environments. With the addition of aerial refueling capabilities, the E-2D remains the most advanced command and control platform in the world.

The French navy becomes the second international customer of the E-2D Advanced Hawkeye. The Japan Air Self Defense Force has purchased 13 E-2D aircraft to date.

Navy Contracts SAFE Boats for Work on Mk VI Patrol Boats for Ukraine



A Mark VI patrol boat participates in the bilateral Mine Countermeasures Exercise 2020 (MCMEX 20) with the mine countermeasures ship USS Gladiator (MCM 11) in the Arabian Gulf, March 28. U.S. Army / Pfc. Christopher Cameron

ARLINGTON, Va. – The U.S. Navy has awarded a contract to a Bremerton, Washington-based boat builder to begin work on Mark VI patrol boats for Ukraine.

The Naval Sea Systems on Dec. 31 awarded SAFE Boats International LLC a “\$19,969,119 not-to-exceed, firm-fixed-price, un-definitized contract action for long-lead-time material and associated pre-production and planning support for two Mk VI patrol boats to be delivered to the government of Ukraine,” the Defense Department said in a Jan. 5 contract announcement. The funding is allocated under the Fiscal 2020 Title 10 Ukraine Security Assistance Initiative.

The U.S. State Department approved the possible foreign military sale of up to 16 Mk VI patrol boats and related equipment to Ukraine for an estimated cost of \$600 million, the Defense Security Cooperation Agency said in a June 17

release.

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.

The sale will “improve Ukraine’s capability to meet current and future threats by providing a modern, fast, short-range vessel,” the DSCA said.

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

Work on the contract is expected to be completed by December 2022.

Strategic Command Admiral Praises Navy’s Choice of C-130J for TACAMO Mission



A Lockheed EC-130Q Hercules, which previously handled the Navy's TACAMO work. The Navy has now decided to acquire the C-130J-30 Super Hercules as its platform for communicating with deployed ballistic-missile submarines. Wikipedia / Alain Rioux

ARLINGTON, Va. – The admiral in charge of the nation's strategic nuclear deterrent forces has praised the Navy's decision to acquire the C-130J-30 Super Hercules aircraft as a platform for communicating with its deployed ballistic-missile submarine force. Four decades ago, the Navy was using earlier C-130 versions – built by Lockheed – for the same mission.

“The Navy is fully capable of supporting my mission requirements to ensure survivable communications to the ballistic-missile submarines and I think they're making a great decision to go to the C-130,” said Adm. Charles Richard, commander, U.S. Strategic Command, speaking in a Jan. 5 webinar to the Defense Writers Group, in response to a reporter's question.

The communications role is called TACAMO by the Navy – a term

meaning "Take Charge and Move Out" – has been performed for three decades by the service's Boeing E-6 Mercury aircraft, a variant of the Boeing 707 airliner. After the Cold War, the Airborne National Command Post role previously performed by Air Force EC-135 "Looking Glass" aircraft was incorporated into the E-6 with the installation of the Airborne Launch Control System (ALCS), combining the TACAMO and ALCS in one platform.

The Navy has performed the TACAMO mission since 1963, beginning with four C-130G (later EC-130G) Hercules aircraft, later augmented by eight newer EC-130Q Hercules. The E-6 replaced the EC-130s, giving the two TACAMO squadrons, VQ-3 and VQ-4, a faster, quieter, more comfortable platform for the long missions.

The TACAMO aircraft are equipped with a long trailing wire antenna used to relay very-low-frequency radio messages to submerged ballistic-missile submarines. The airframes go through considerable stress as they maintain high angle of bank for long periods to maintain tight orbits to wind the trailing-wire antenna into a vertical position, needed for the radio waves to penetrate the water most effectively.

The Request for Information issued on Dec. 18 by the Naval Air Systems Command's TACAMO Program Office (PMA-271) announced that the Navy "intends to negotiate and award sole-source contracts to Lockheed Martin Corporation, Marietta, [Georgia], for the efforts associated with the procurement of up to three C-130J-30 "Stretch" green airframes in [fiscal 2022/2023] for testing and analysis.

The C-130J is the current, much more modern version of the C-130 and is flown by the Air Force, Marine Corps and Coast Guard, as well as many foreign air forces. The C-130J-30 is similar but has a 15-foot-longer fuselage. The rugged C-130J is able to operate from many more airfields than the current E-6B Mercury.

“Lockheed Martin Corporation is the sole designer, developer, and manufacturer of the C-130J-30 and is the only source capable of producing the C-130J and derivative aircraft and providing support equipment, logistics support, defensive systems services, and engineering services,” the Navy’s announcement said. “The Analysis of Alternatives results indicated that the four-engine, militarized C-130J-30 is optimally configured aircraft for performing the TACAMO mission. The characteristics of this airframe also maximize the operational deployability of the assets to austere environments. The C-130 is currently extensively fielded within the Department of Defense, and deployed at various bases that create operation, training and logistics support synergies for TACAMO execution. Lockheed Martin already has an established domestic production line that has the ability to produce test units for PMA271 that will enable acceleration of the risk reduction and subsequent engineering and manufacturing development test program.”

**BAE Systems Tapped to
Demonstrate P-8
Countermeasure System for
U.S. Navy**



An artist's rendering of a BAE Systems ALE-55 Fiber-optic towed decoy deployed on an F/A-18 Super Hornet strike fighter. BAE Systems

ARLINGTON, Va. – BAE Systems will be demonstrating for the U.S. Navy this spring a podded radio frequency countermeasures (RFCM) self-protection system on the service's P-8A Poseidon maritime patrol reconnaissance aircraft, the company said.

BAE Systems has received a \$4 million contract from the Navy to conduct a quick-turnaround demonstration of a new RFCM system for the P-8A, the company said in a Jan. 5 release.

The RFCM is designed to jam or decoy missiles guided by RF energy, including radar-guided surface-to-air missiles and some air-to-air missiles. A maritime patrol reconnaissance aircraft is more likely to face these threats while operating against a near-peer competitor than in the more benign environment of the past three decades.

"The P-8 is now considered a high-value asset with these emerging threats from hostile countries," said Donald Davidson, director of the Advanced Compact [Electronic Warfare](#) Solutions product line at BAE Systems, in a Jan. 5 interview with *Seapower*. "The Navy was interested in an

ability to rapidly prototype and demonstrate an RF countermeasures system for the platform.”

Davidson said the Navy desired a system housed in a pod similar in its outer mold lines to a Harpoon missile that could be mounted on the aircraft’s existing wing stations.

The lightweight, high-power RFCM system pod will include some components that have been proven in the ALQ-214 electronic countermeasures system installed on the F/A-18E/F Super Hornet strike fighter, including a high-powered electronics frequency converter, a launch controller, and expendable ALE-55 fiber-optic towed decoys. The RFCM pod for the P-8A will include a component called the MDX, a small form factor jammer which is about half the size of a loaf of bread and integrated with the decoy, Davidson said.

The RFCM system will be demonstrated in the spring of 2021, Davidson said, “and if the demonstration proved effective, then [the Navy] would look to move to a more formal EMD [Engineering and Manufacturing Development]/production program to get it fielded as soon as possible.”

He said that a successful demonstration would “lead to opportunities for additional funding” as the Navy develops its program budget in the 2022-2023 time frame.

“The ability to meet this unprecedented response time underscores our agility, focus on meeting customer needs, and our ultimate goal of protecting our warfighters,” Davidson said in the BAE release. “A process that used to take 18 to 24 months has been scaled to five or six months, which is remarkable, as is deploying this new self-protection capability.

BAE Systems said the “rapid response is the result of collaboration among small focus teams who developed an innovative approach to the design and fabrication of the system’s mechanical parts. As a result, BAE Systems will

design, build, integrate, and ship the RFCM system in approximately five months, followed by two months of flight testing on the P-8A Poseidon platform.”

Work on the RFCM contract will be performed at the company’s state-of-the-art facility in Nashua, New Hampshire, the release said.

Navy Orders Logistics Support & Engineering for BQM-177A Targets



A BQM-177A subsonic aerial target. Kratos Defense & Security SAN DIEGO – Kratos Defense & Security Solutions Inc. will receive an additional \$3.6 million from the U.S. Naval Air Systems Command for the next option of its Contractor Logistics Support (CLS) and Engineering Services contract

supporting BQM-177A subsonic aerial target system (SSAT) operations, the company said in a Dec. 28 release.

“Now that we’re beyond the full-rate production acquisition milestone, we’ve entered the operations and sustainment phase of the SSAT lifecycle,” said Steve Fendley, president of Kratos Unmanned Systems Division. “CLS and engineering services are vital to ensuring the continuing adaptation, operations, and maintenance of this agile, realistic, and highly configurable aerial target system designed specifically for the Navy’s challenging threat representation missions. Kratos is proud to be providing this support today and for the future as the number of missions and operational sites increase.”

The work under this contract will be incrementally funded and conducted primarily in Kratos facilities in both Sacramento and Point Mugu, California. When fully funded, the total contract value after exercise of this option is \$7.4 million.

Navy Orders More Coyote Supersonic Targets from Northrop Grumman



Northrop Grumman has been awarded a production contract for 19 “Coyote” supersonic sea-skimming target vehicles. Northrop Grumman

CHANDLER, Ariz. – Northrop Grumman Corp. has been awarded a production contract for 19 GQM-163A “Coyote” supersonic sea-skimming target (SSST) vehicles, the company said in a Dec. 22 release. The \$57 million award could be worth up to \$250

million with options for an additional 84 target vehicles. This brings the GQM-163A targets ordered to date to 200.

“The Coyote is the only supersonic sea skimming target in production in the U.S.,” said Rich Straka, vice president, launch vehicles, Northrop Grumman. “This is our fourteenth full-rate production contract of reliable and proven threat representative targets.”

The Coyote is a high performance, supersonic target missile used to test naval ship defenses. The company uses 3-D printing extensively to build mockups, tooling, and preliminary design modifications. The design integrates a solid-fuel, air-breathing ducted rocket propulsion system with high performance avionics capable of providing multiple threat scenarios.

Northrop Grumman designed, developed and first flew the Coyote in 2003. The company has since delivered 124 targets to the U.S. Navy and successfully launched them 79 times.

The Coyote program is managed by the Naval Air Systems Command at the Patuxent River Naval Air Station in Maryland. The Coyote provides the Navy with a cost-effective target to simulate advanced supersonic anti-ship cruise missile threats. It can be used as a Mach 2.5+ sea skimming target or as a Mach 3.5+ diving target from an altitude of 52,000 feet.

The Coyote is designed and built at Northrop Grumman’s state-of-the-art launch vehicle production facility in Chandler, Arizona.