Q&A: Rear Adm. Joseph A. DiGuardo Jr., Commander, Navy Expeditionary Combat Command

Rear Adm. Joseph A. DiGuardo Jr. *U.S. NAVY*

Rear Adm. Joseph A. DiGuardo Jr. serves as commander, Navy Expeditionary Combat Command. A native of Fallston, Maryland, he received his commission and graduated from the U.S. Naval Academy in 1991 with a Bachelor of Science in history. He commenced explosive ordnance disposal training in February

1995. He also holds a Master of Science in national security strategy from the National War College. He is a designated EOD officer with qualifications as a special operations officer, master EOD technician, surface warfare officer, naval parachutist, basic diving officer and combat craft patrol officer.

DiGuardo's sea duty and operational assignments include officer in charge, Special Boat Unit 12; auxiliary and electrical officer, USS Frederick (LST 1184); OIC, EOD Mobile Unit 8 Detachment, Bahrain; special projects officer, Joint Special Operations Command; executive officer, EOD Mobile Unit 2; deputy director, Counter Improvised Explosive Devices Task Force, U.S. Central Command; commanding officer, EOD Mobile Unit 11; and commodore, Navy Expeditionary Combat Forces Central, Task Force 56, where he was made an honorary chief petty officer. He has completed eight combat deployments in support of Operations Enduring Freedom, Iraqi Freedom and commander, U.S. 5th Fleet.

His shore assignments include OIC, Navy Counter IED Center of Excellence, Joint IED Defeat Organization; director, Navy Warfare Group, OPNAV N515; branch head, Navy Expeditionary Combat, OPNAV N957; vice deputy director, Global Operations (J39), Joint Chiefs of Staff; and director, Countering Weapons of Mass Destruction Fusion Cell, U.S. Special Operations Command.

DiGuardo responded to questions from Senior Editor Richard R. Burgess.

How is NECC affected by the end of U.S. participation in the war in Afghanistan and reduction of presence in Iraq and Syria?

DIGUARDO: There are really two sides to this coin. First, for things like force design and force employment, we're taking a look across the entirety of NECC to ensure we're adjusting our

force as necessary to continue operating in support of integrated all-domain American naval power. Adaptability has always been a key component of our expeditionary forces, and it's one of the main reasons our men and women are so good at what they do. As the big picture shifts and our mission sets change, we're being very calculated and deliberate in how we build in timing, scalability, tempo and flexibility to ultimately deliver a more agile force for our Navy and the joint force and a more capable, less predictable one to our adversaries.

The other side of that coin is that while we understand the need to adjust to the new mission priorities, we cannot forget that many of our men and women had vital roles in places like Iraq and Afghanistan over the past two decades. It's always going to be a part of them. It's essential that we remind them that just because our role in a conflict has ended, it doesn't mean the work they did to get there was done in vain. I wrote a letter to our force reminding them of that fact shortly after the withdrawal from Afghanistan.

It said we believe oppression and tyranny must always be fought against, because their defeat, whether it lasts two weeks or 20 years, is a worthwhile endeavor. That is what we saw in Iraq and Afghanistan, where we were joined by a coalition of more than 40 other nations – all in pursuit of freedom – for us and for others.

How is NECC affected by the new emphasis on high-end capabilities to counter China and Russia?

DIGUARDO: Our "what and why" have not changed … the "where and how" is evolving based on the environment and changes to Navy strategy.

Navy Expeditionary Combat Forces exist to conduct and support fleet operations by dominating in the littorals and reinforcing maritime lethality. NECF will clear the

battlespace of hazards; secure critical maritime terrain, sea lines of communication and resources; build infrastructure, awareness, logistics chains and partnerships; and protect the fleet, facilities and joint, allied and partner forces.

The Maritime Sustainment Vector model aligns the logistics enterprise with standing and developing naval concepts related to DMO [distributed maritime operations]. These vectors are core activities which provide a framework to inform the development of a more agile and resilient logistics force – one that better enables the Navy to compete in ways that are sustainable and integrated with the joint force, allies and partners in a high-end maritime conflict. NECF employs smaller, less detectable, less expensive and more risk-tolerant logistics platforms to enable the transfer of sustainment from afloat and shore based expeditionary nodes to warfighting forces in the contested environment.

NECF performs the “Rs” required for effective DMO in contested and austere areas enabling integrated American naval power to keep the fight forward.

Refuel: Fuel fleet units to ensure agility in force projection through distributed maritime operations.

Rearm: Rearm fleet units to ensure persistent lethality in the distributed maritime fight.

Resupply: Sustain fleet units to keep them on station in the distributed maritime fight.

Repair: Rapidly repair battle damage to fleet units and critical infrastructure to return them to the fight.

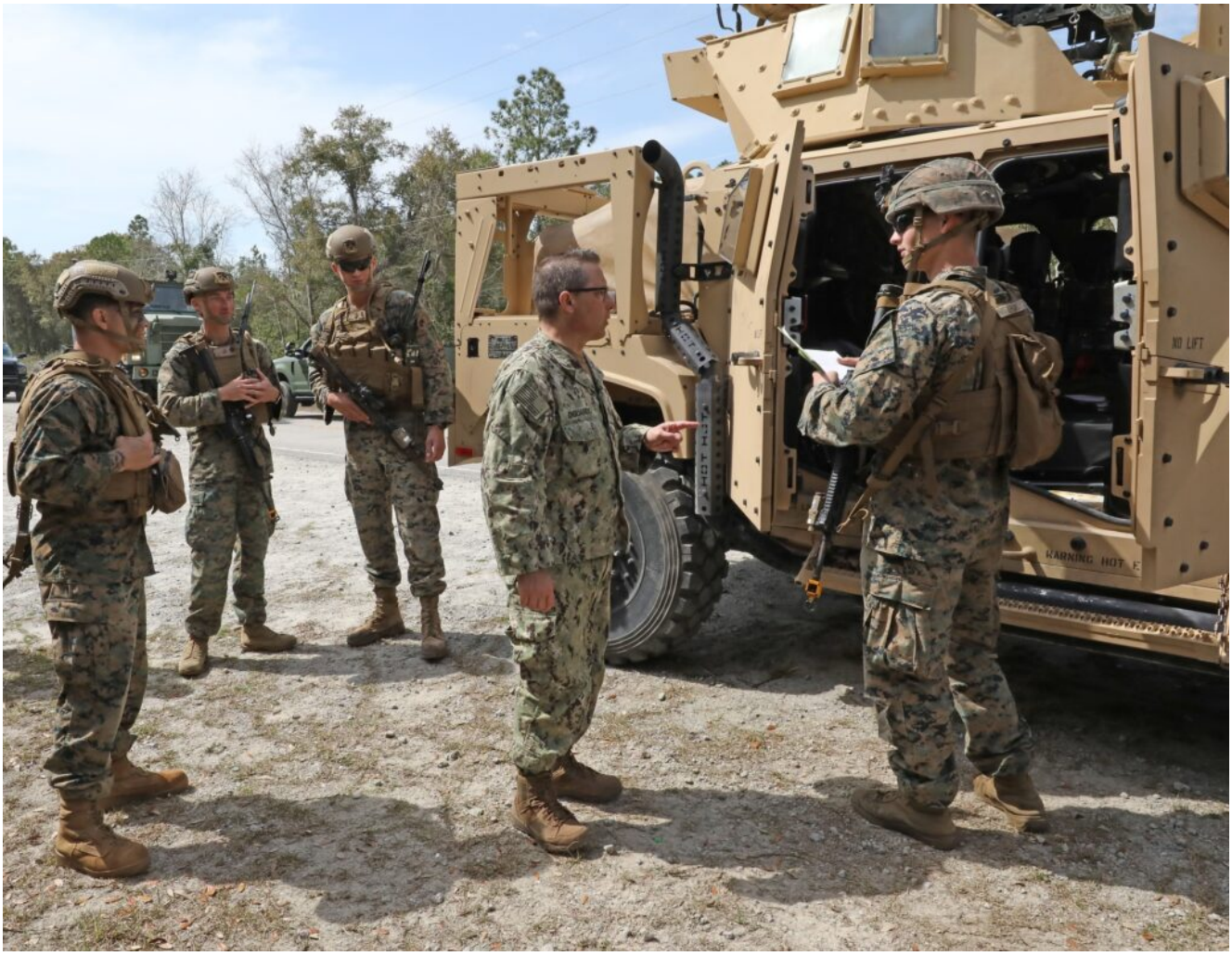
Revive: Sustain force end-strength preventing injury and illness through Force Health Protection measures and rapidly triage, diagnose, treat and evacuate or return medical casualties to the force.

Rebuild: Replace or reinforce infrastructure for Expeditionary Advanced Base Operations.

How do the new Expeditionary Advance Base Operations and Distributed Maritime Operations concepts affect the roles of NECC?

DIGUARDO: The chief of naval operations' NAVPLAN says there are six critical elements for successful DMO. They are repair, resupply, refuel, rearm, revive and rebuild. The NECF has a significant role in delivering each of these in the austere environments of the ANB [advance naval base] and EAB [expeditionary advance base].

Our ability to integrate with our Marine Corps teammates and provide essential support and expertise to the EABO model has been on display a lot in the last year through a variety of exercises and experiments.



Rear Admiral Joseph DiGuardo, commander Navy Expeditionary Combat Command talks with Marines at the Expeditionary Advanced Base entry control point during Fleet Battle Problem (FBP) 22-1. *U.S. NAVY / Chief Mass Communication Specialist Kim Martinez*

What changes, if any, are affecting the Naval Construction Battalions and the Naval Expeditionary Logistics Force?

DIGUARDO: Across the board, we're making the force more lethal, resilient, sustainable, survivable, agile and responsive as 2022 National Defense Strategy describes and CNO NAVPLAN implements.

As EABO and ANB continues to evolve, it's becoming clearer to those operating in the battlespace just how essential NECF is in reinforcing DMO lethality.

Our role at the last tactical mile, ensuring logistics nodes are sustained through things like airfield damage repair and port damage repair efforts, is where our support of the fleet and joint force is so important. Our ability to adapt to complex and austere environments, scale the size of our necessary forces and remain agile to evolving mission requirements is something consistent across our force.

Our Seabees within the Naval Construction Forces and logistics experts at Navy Expeditionary Logistics Support Group are essential to building the infrastructure necessary to enable and sustain operations forward.

In recent wars, EOD provided critical support to operations on land. Is that focus changing more in the direction of maritime operations?

DIGUARDO: We're always going to adapt to any new requirement, and today with strategic competition driving a greater need for emphasis in the maritime environment, that's where we're putting a lot of our focus.

Maritime traffic is increasing, new sea lanes are opening and

with our adversaries getting more creative and autonomous in how they can disrupt that environment, the need for Navy EOD is greater than ever.

Operating in the maritime arena, and all the nuances and complexities that come with it, though, are nothing new to us. That's what sets Navy EOD apart – we are uniquely qualified to understand those challenges, overcome them and do our part to reinforce maritime lethality.

Our expeditionary mine countermeasures capability is increasingly important to the fleet and provides a fast, scalable and adaptable option for clearing threats away from our ships and forces. This is one area where this particular skillset allows us to use the enduring EOD knowledge to remove old threats in the maritime arena, but learn about, develop and introduce emerging technologies that will better equip us in the high-end fight ahead.

All that said, the Navy still owns a role as the Joint Service EOD executive agent, so we have responsibilities across the entiretyof Department of Defense. We are also mindful not to forget the hard lessons learned while operating in Iraq and Afghanistan. While much of our focus for Navy EOD may be in the maritime environment for the foreseeable future, we have a responsibility to ensure proficiencies across the full spectrum of operations.

How is the new 40-foot patrol boat an improvement over the boats it is replacing? How many are being procured?

DIGUARDO: The current platform was a speed to fleet procurement that was not fully suited for the missions performed and has reached end of useful service life.

When looking at a replacement, there was a need for a platform specifically designed to meet the needs of our mission requirements.

These boats and our operators serve a significant role for our force and for the fleet in operating at sea, in harbors, rivers, bays and across the littorals while conducting maritime expeditionary security operations across all phases of military operations.

They defend and protect high value units, critical maritime infrastructure, ports, and harbors both inland and on coastal waters against enemies as well as conduct operational plan level missions and sustained day-to-day security in all force protection threat levels. The initial contract is for 56 boats, which could grow to 120 over the next 10 years.

Why does the Navy plan to remove its Mark VI patrol boats from service?

DIGUARDO: The Navy analyzed the Mark VI's ability to compete against a near-peer adversary as part of the strategic alignment analysis that is the beginning of the POM [program objective memorandum] process for every fiscal year. Navy ship procurement focuses on a force structure that aligns with the demands of the National Defense Strategy, and the Navy determined the savings from divesting of Mark VI could be better invested in higher priority platforms better suited for competition with a near-peer adversary.

Why did the Navy retire its riverine boat force?

DIGUARDO: Like many of the other topics we've discussed, this was just part of the ongoing refinement of our Navy Expeditionary Combat Force to maximize the efficiency of our warriors and their ability to deliver in the high-end fight.

This particular mission set with the riverine force was generated to support Marine Corps operations as part of Operation Iraqi Freedom, and as that requirement wound down, we took those proficiencies, the lessons we learned from it, and applied them in a way that was more relevant to battlespace we were transitioning into.

Our Maritime Expeditionary Security Forces continue to play an essential role every day in anti-terrorism/force protection operations across the globe and in support of our fleets.

What would be needed to reconstitute the riverine force if needed?

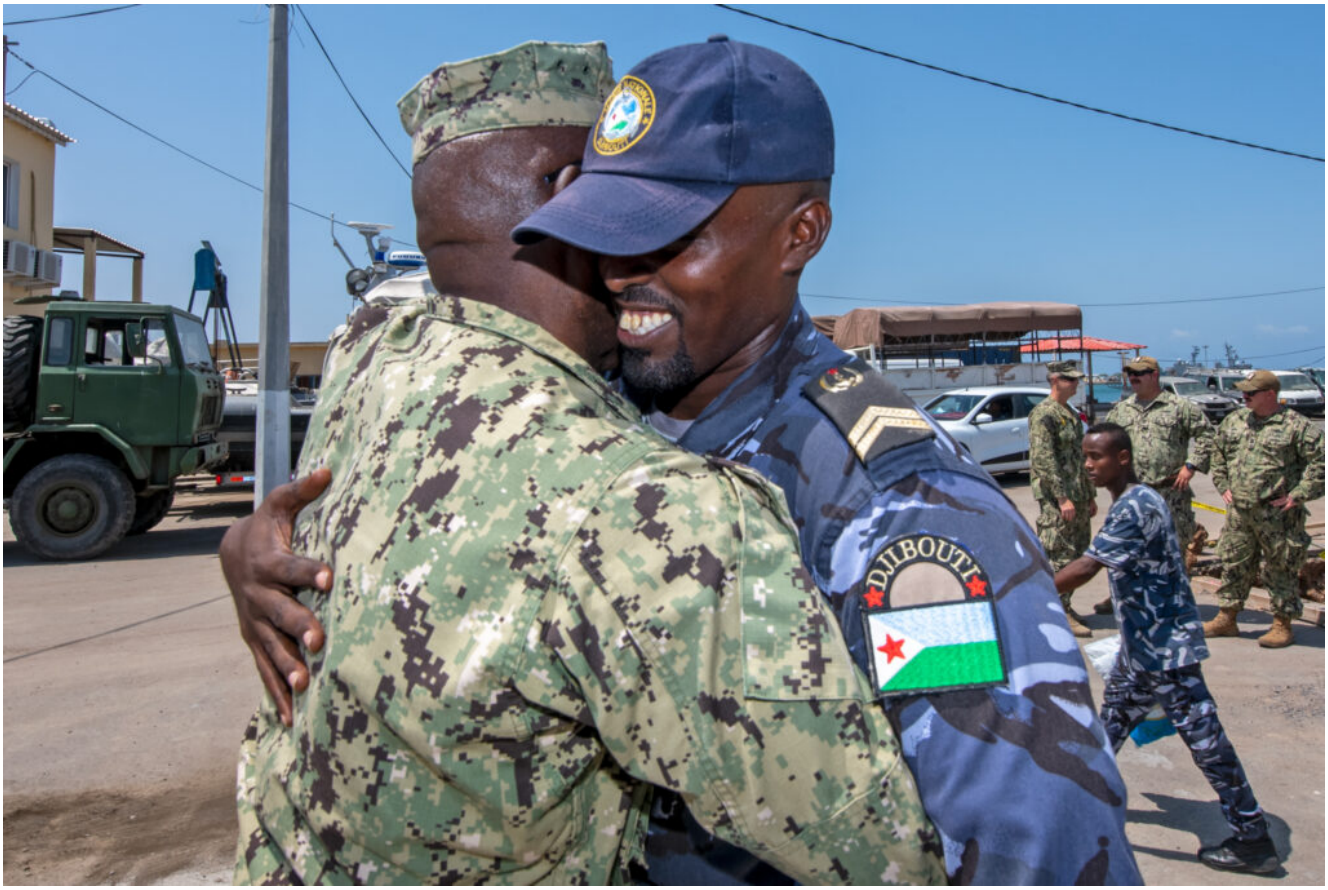
DIGUARDO: If ever asked to reconstitute a riverine mission, it would require the equipment, training, and methods we used to generate the Riverine force for Iraq. We have done so before and could do so again. However, we do not anticipate this and remain focused on our MESF core missions.

How are unmanned systems being used by NECC?

DIGUARDO: We are increasingly utilizing unmanned systems across our force. This is done to modernize the technology that our warfighters are familiar with, but also to enhance their capabilities they bring to the fight.

Clearing the battlespace of explosive, physical and security hazards is one of our main lines of operation. Unmanned technology extends our organic sensor range, increases our area coverage and improves our detect-to-engage sequences at the front of those efforts, while mitigating risk to our operators.

Much of our effort has been in in the underwater realm in support of expeditionary mine countermeasure operations with things like UUVs [unmanned underwater vehicles] and ROVs [remotely operated vehicles], but we continue to explore platforms outside of that and other mission areas for application of that technology.



Master Chief Culinary Specialist Dexter Baird, senior enlisted leader assigned to Maritime Expeditionary Security Squadron 11 (MSRON-11), Commander, Task Group 68.6, currently deployed to Camp Lemonnier, says goodbye to members of the Djiboutian navy following a six-week professional maritime orientation course, Oct. 14, 2021. The course, initiated by MSRON-11, was designed around basic line handling, man overboard, engineering, seamanship, lifesaving, and nautical terminology. *U.S. NAVY / Mass Communication Specialist 2nd Class Jonathan Word*

With that said, we're always exploring opportunities to experiment with and identify potential areas of unmanned aerial and surface technology that would effectively integrate into our force.

What role, if any, does NECC have in training foreign forces in operation of patrol boats, EOD operations and other expertise?

DIGUARDO: One of SECNAV's enduring priorities is for us to strengthen strategic partnerships, and we're certainly doing that.

Although the Navy divested from the Maritime Civil Affairs and Security Training Command in the early part of the last decade, and even without a specific command coordinating those efforts within NECC, our men and women continue to build partner capacity through subject matter expertise exchanges and exercises with partner nation forces around the world.

These exchanges are effective, and the relationships and partnerships that result are truly authentic. There's a photo from late last year where we had Maritime

Expeditionary Security Squadron 11 conducting a six-week professional maritime orientation course to the Djiboutian navy, and the photo shows one of their guys hugging our master chief at the end of it. There was gratitude and joy, but more importantly, a relationship.

That photo is validation of the importance of those types of exchanges. Not only that, but now there are 15 more Djiboutian sailors with a better level of technical aptitude in an extremely critical part of the world.

And our EOD take advantage of some of those same training and interoperability opportunities to continue our partnership initiatives and the long-term benefits that come from doing them.

What aspect of NECC do people find the most surprising?

DIGUARDO: NECC's relevancy to current fight. It is not all about carriers, submarines and airplanes. Those are essential components of American naval power, but for NECC, our people are our weapons system. Much of what they do is in support of those larger platforms, but NECF do so through operations forward, in austere environments, while integrated with the joint force, allies and partners, or in concert with our Marine and Coast Guard teammates.

The fleet needs our Navy Expeditionary Combat Forces to close

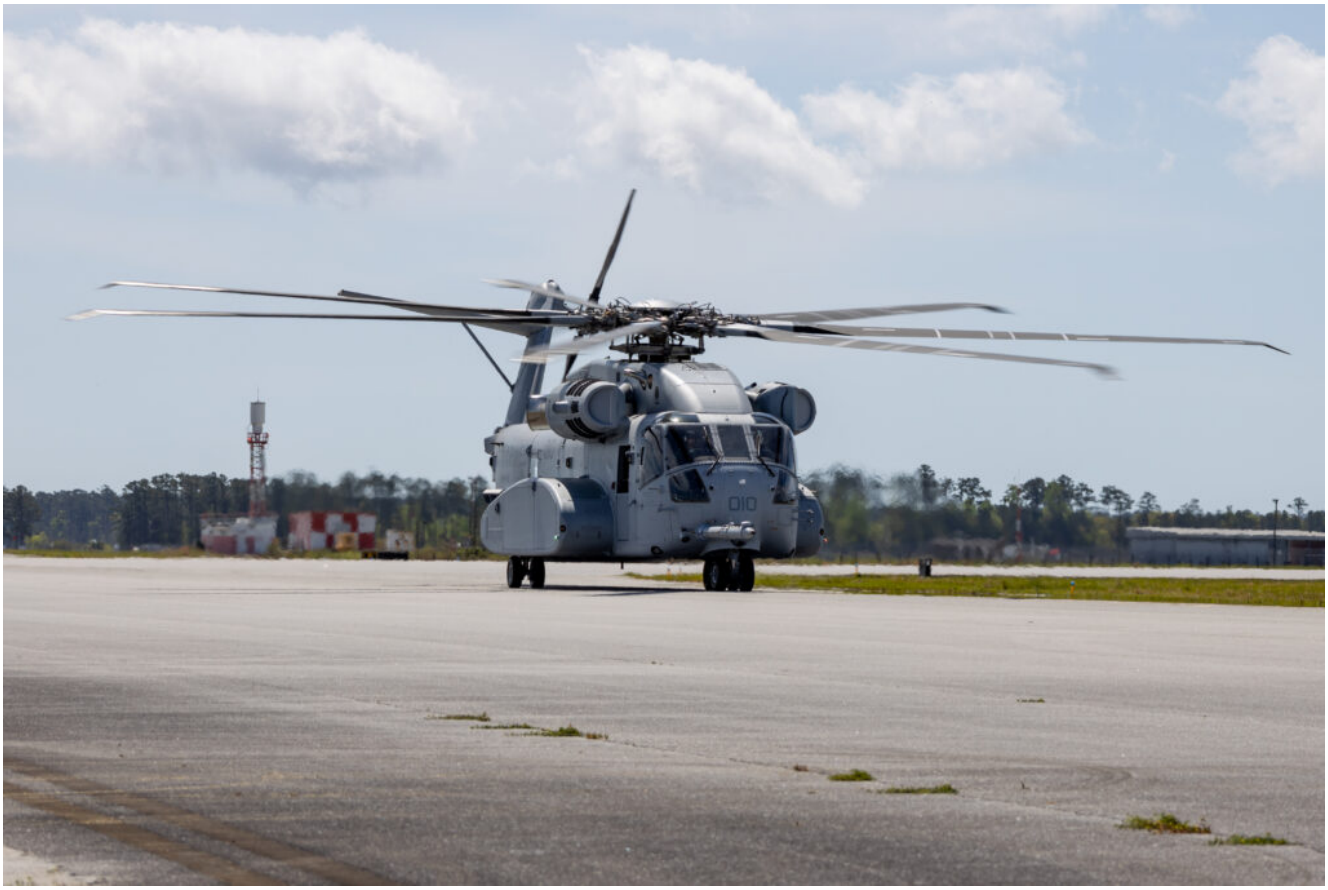
the last tactical mile so those vital platforms never run out of fuel, ammunition or other needed supplies. They need us to clear, secure, build and protect across the spectrum of operations.

We’re already doing that, but what might come as a surprise is how widespread that support is. In 2021

alone, we had more than 5,300 NECF Sailors deployed forward to 55 countries, supporting 64 requirements generated by six geographic and two functional combatant commands. That is enabling DMO lethality.

Our forces clear, secure, build and protect for the fleet and joint force. NECC is uniquely qualified to deliver at the time and point of need, often exclusive capabilities, to support integrated American naval power.

Navy Orders Two CH-53K Helicopters for Marine Corps



U.S. Marines with Marine Heavy Helicopter Squadron (HMH) 461 taxi in a CH-53K King Stallion after its first operational flight at Marine Corps Air Station New River, North Carolina, April 13. *U.S. MARINE CORPS / Lance Cpl. Elias E. Pimentel III*

ARLINGTON, Va. – The U.S. Navy has placed an order for two more CH-53K King Stallion heavy-lift helicopters for the Marine Corps.

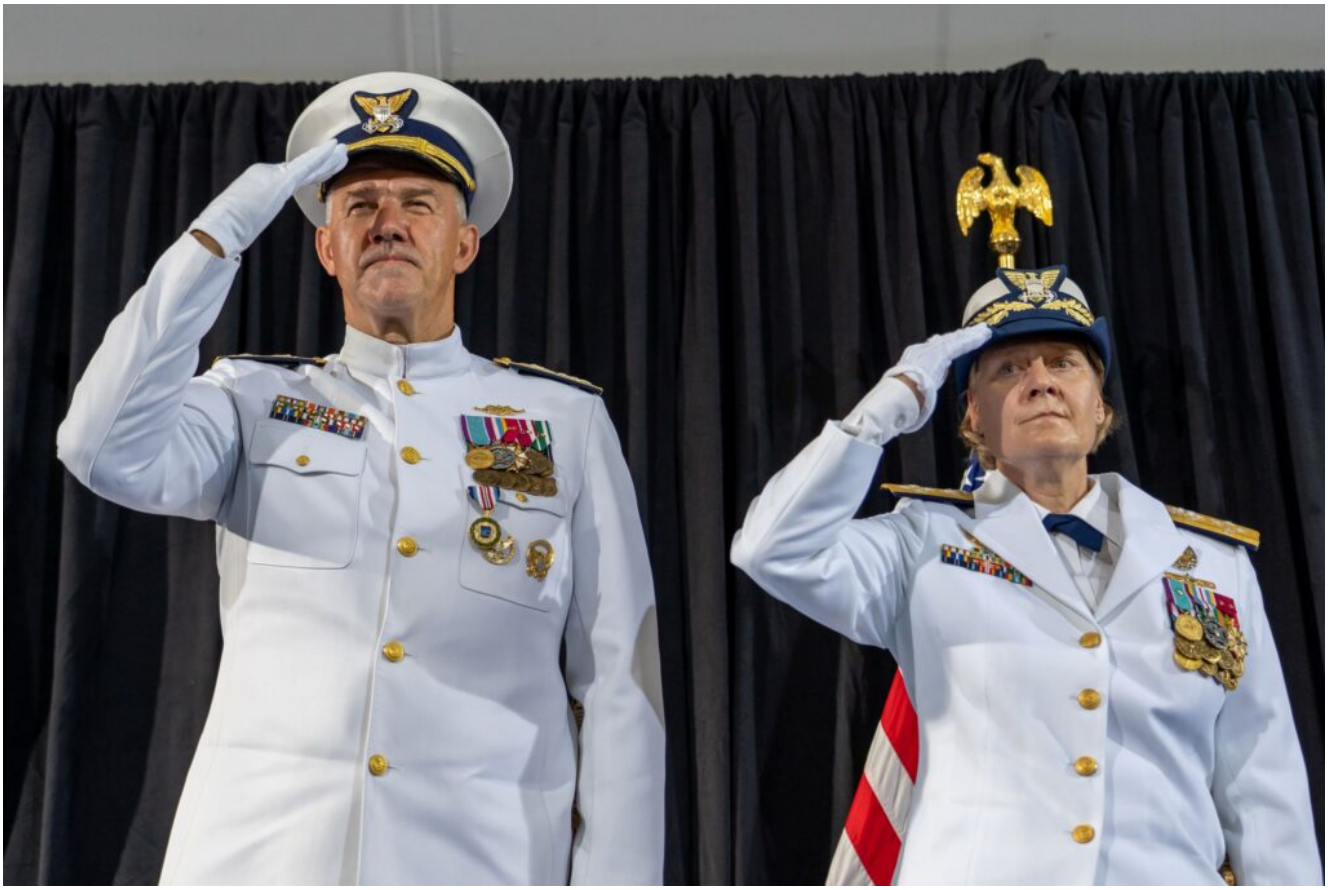
The Naval Air Systems Command awarded a $185.7 million contract modification to Sikorsky Aircraft Corp., a Lockheed Martin company, to add two CH-53Ks to low-rate production Lot 6, the Defense Department said May 31.

These two helicopters were in the Marine Corps' fiscal 2022 unfunded priorities list and were added to the 2022 budget appropriation by Congress. Lot 6 originally included nine CH-53Ks under a Feb. 3 contract award for $685 million.

The King Stallion achieved Initial Operational Capability in April 2022 when Marine Heavy Helicopter Squadron 461 received its fourth CH-53K.

The Marine Corps program of record is 200 CH-53Ks to replace the fleet of CH-53 Super Stallion helicopters. The Lot 6 helicopters are expected to be completed by December 2025.

Fagan Succeeds Shultz as Coast Guard Commandant, First Woman to Rise to the Top



Adm. Linda Fagan relieves Adm. Karl Schultz as the 27th commandant of the Coast Guard during a change of command ceremony at Coast Guard headquarters June 1, 2022. Fagan is the first woman service chief of any U.S. military service. *U.S. COAST GUARD / Petty Officer 1st Class Travis Magee*

WASHINGTON – Adm. Linda Fagan succeeded Adm. Karl Schultz on June 1 to become the 27th commandant of the U.S. Coast Guard,

the first woman to command the service and the first woman to lead any of the U.S. armed services.

In ceremonies at Coast Guard Headquarters in Washington, President Joe Biden and Homeland Defense Secretary Alejandro Mayorkas spoke in praise of Shultz's performance as commandant and of Fagan's service that influenced her selection as commandant.

Mayorkas noted that Fagan graduated from the sixth class of the Coast Guard Academy to accept women as cadets – the Class of '85 – and was the only woman in the crew of the icebreaker USCGC Polar Star in her first assignment.

"Today is a historic day for the U.S. armed forces and a historic day for the United States," Mayorkas said.

Biden spoke of Fagan's "trail-blazing career," noting that "there are no doors closed to women" and that Fagan's daughter Aileen is now a Coast Guard lieutenant. He also noted that Fagan was one of only 16 women – 8% of her class – commissioned at the Coast Guard Academy, but now 40% of the 1,000 cadets at the academy are women.

"Now we need to keep working to make sure Adm. Fagan may be the first but not the only person [to head a service]," Biden said. "We need to see more women in command at the highest levels of the Coast Guard and across every service in the armed forces."

In her first speech as commandant, Fagan praised Schultz for is leadership and dedication.

"We are truly a more ready, responsive and relevant Coast Guard today as a result of your leadership," she said of Schultz. "It has been a true honor to serve with you."

Fagan collectively thanked the hundreds of people who influenced and mentored her since she decided at age 16 to

apply to the Coast Guard Academy, but she singled out one in particular, Adm. Owen Siler, the 15th commandant, who she said had the courage to integrate the Coast Guard Academy in the summer of 1975.

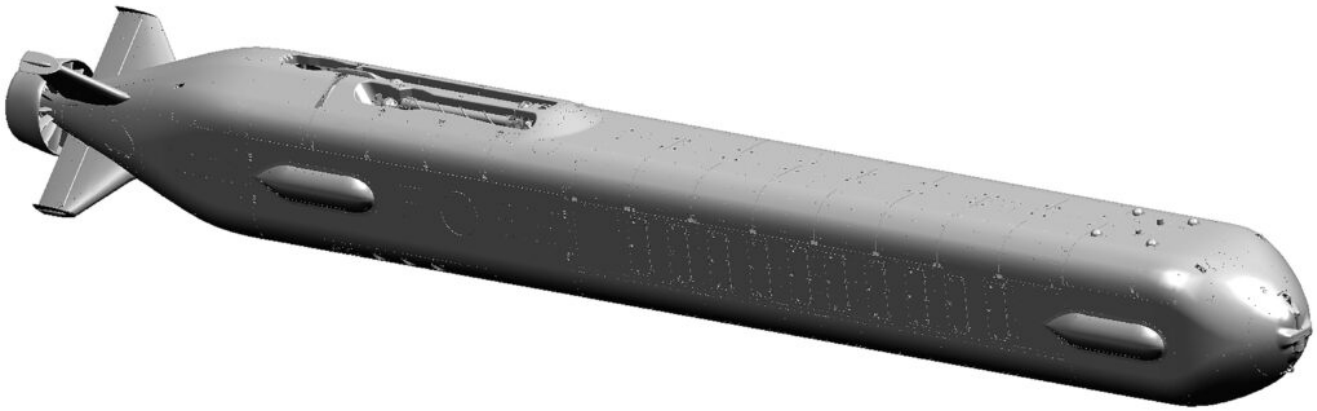
“If it were not for Owen Siler’s courage, I do not believe I would not be standing here today,” Fagan said. “I want to thank him; I’m wearing his shoulder boards that he wore as 15th commandant.”

Speaking of her command ahead, Fagan noted “the demand for Coast Guard missions has never been higher. … Today we will advance the Coast Guard America needs for tomorrow. Tomorrow looks different and so will we. We will be more adaptive and connected, generate sustained readiness, resilience and capabilities in new ways to enhance our nation’s maritime safety, security and prosperity.”

Fagan said her highest priority as commandant will be to “transform our talent management system. We will deliver each of you tools, policy, training and support to succeed across all missions. We will empower you with reliable cutting-edge assets – cutters, boats, aircraft as well as data systems and shore facilities – that you need to remain the world’s best coast guard. We will unite people, assets, systems and data in new ways to be a more agile force.”

Navy’s Orca XLUUV Will Carry 34-Foot Payload Module for

Mine Laying



A graphic illustration of the Orca, an extra-large class unmanned undersea vehicle. *U.S. NAVY*

ARLINGTON, Va. – The Orca extra-large unmanned underwater vehicle (XLUUV) being built by Boeing for the Navy will carry a large payload module for covertly deploying sea mines and other payloads, a Navy official said. The Navy also will have an extra vessel built for test purposes.

Capt. Scot Searles, the Navy's program manager for Unmanned Maritime Systems, speaking May 25 in Monterey, California, at the 15th International Mine Technology Symposium of the Mine Warfare Association, said the payload module is 34 feet long, designed to be carried by an Orca to an area at which to lay the mines.

Boeing is building five Orcas, the first of which will begin in-water testing later this summer, Searles said. The first Orca was placed in the water in April.

The 80-ton Orca XLUUV is an open-architecture, reconfigurable UUV that will be modular in construction. The XLUUV core vehicle will provide guidance and control, navigation, autonomy, situational awareness, core communications, power distribution, energy and power, propulsion and maneuvering, and mission sensors. The Orca, too large to be carried by a submarine, will be pier-launched. Mine laying will be the first role for the XLUUV.

“Getting that large, unmanned diesel submarine put together and then putting it in the water is a big deal,” Searles said. “It’s an important step in the development of the program to be able to have the components together, do a fit check and then an in-water check. We will continue populating the hull and begin to do in-water testing later this summer, all driving program maturity forward.”

The Orca is based on the smaller Echo Ranger UUV built by Boeing.

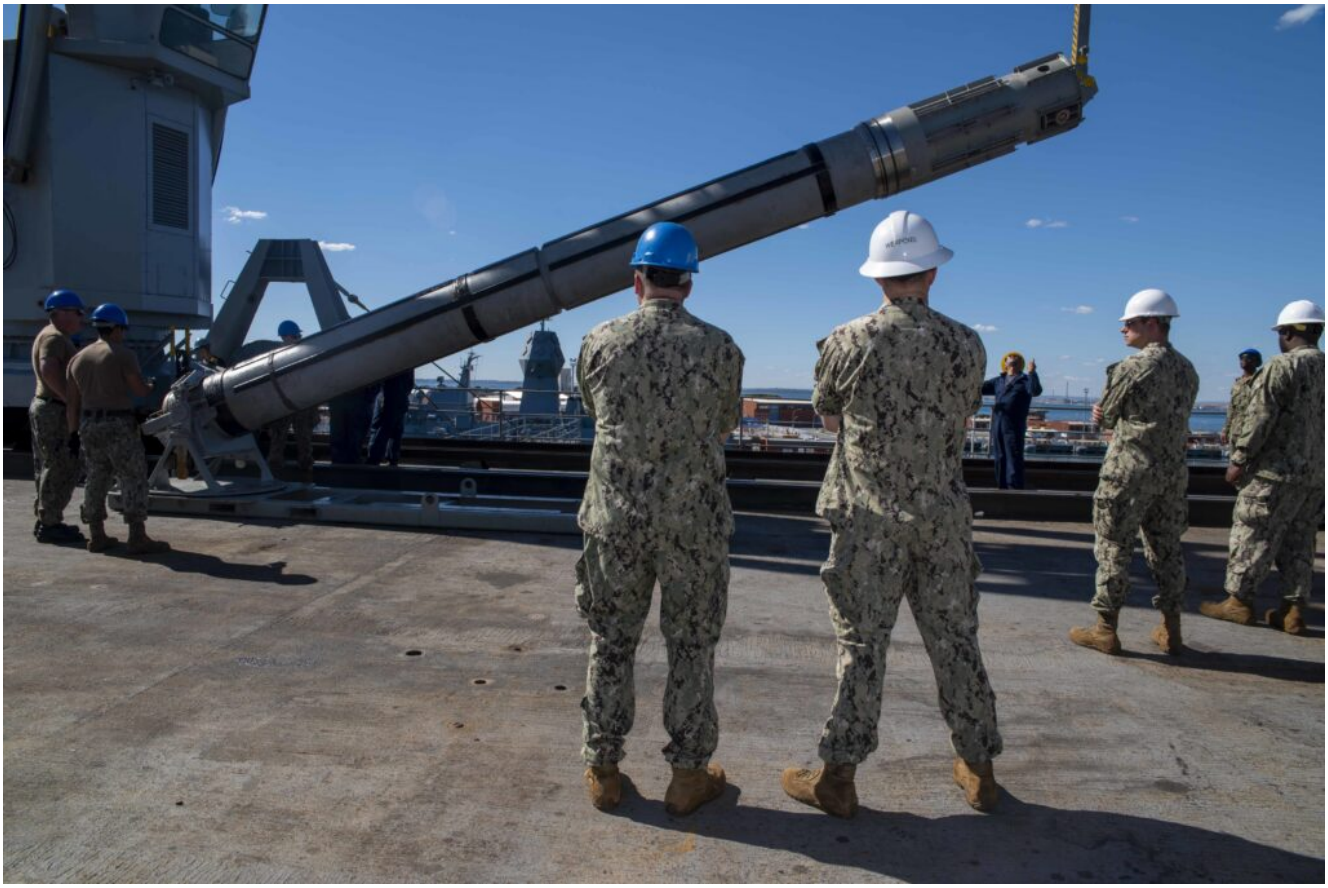
“Leveraging that technology, we’ve decided to add another EDM [engineering development model] into that program as well,” he said. “We’re calling it XLE-0. It’s a risk-reduction asset in addition to the five articles that we will deliver to the fleet, [so] we’ll also have that test asset as well.”

Searles pointed out the speed of the development of Orca as a first-of-class ship.

“That capability is going to deliver in less than five years to the fleet,” he said. “There is no first-of-class ship out there that is going from concept to requirements development to fielding in that kind of timeline.”

Searles praised “the very tight collaboration” between the science and technology community, academia, the defense industry and its internally funded research, and the various Navy research and acquisition offices for the rapid development of the Orca.

Navy Orders Tomahawk Cruise Missiles for Marine Corps, Army



Sailors aboard the Emory S. Land-class submarine tender USS Frank Cable (AS 40) prepare to transfer an inert Tomahawk missile training shape from the Frank Cable to the Los Angeles-class fast-attack submarine USS Springfield (SSN 761) on April 24. *U.S. NAVY / Mass Communication Specialist 1st Class Charlotte C. Oliver*

ARLINGTON, Va. – The U.S. Navy put in another order for Tomahawk cruise missiles May 24, but this order also includes, for the first time, Tomahawks for the Marine Corps and Army.

Raytheon Missiles and Defense, of Tucson, Arizona, was awarded a $217.1 million fixed-price-incentive, firm-fixed-price contract for 154 full-rate production Block V Tactical Tomahawk All-Up Round Vertical Launch System missiles, including 70 for the Navy, 54 for the Marine Corps, and 30 for

the Army, the Defense Department said May 24. The full-rate production Lot 18 missiles are scheduled to be delivered by 2025.

“This is a major accomplishment for the program as we move forward into a new era for the Tomahawk Missile System,” said Capt. John Red, Tomahawk Weapons System program manager (PMA-280), said in a May 24 release from the Naval Air Systems Command. “We look forward to delivering this capability not only to the fleet, but to our Marines and Soldiers around the globe.”

The Lot 18 missiles will be of the Block V configuration, which has the capability for inflight course guidance and target location updates.

“Future Block V capabilities will include the Maritime Strike Tomahawk variant and the Joint Multiple Effects Warhead System,” the release said.

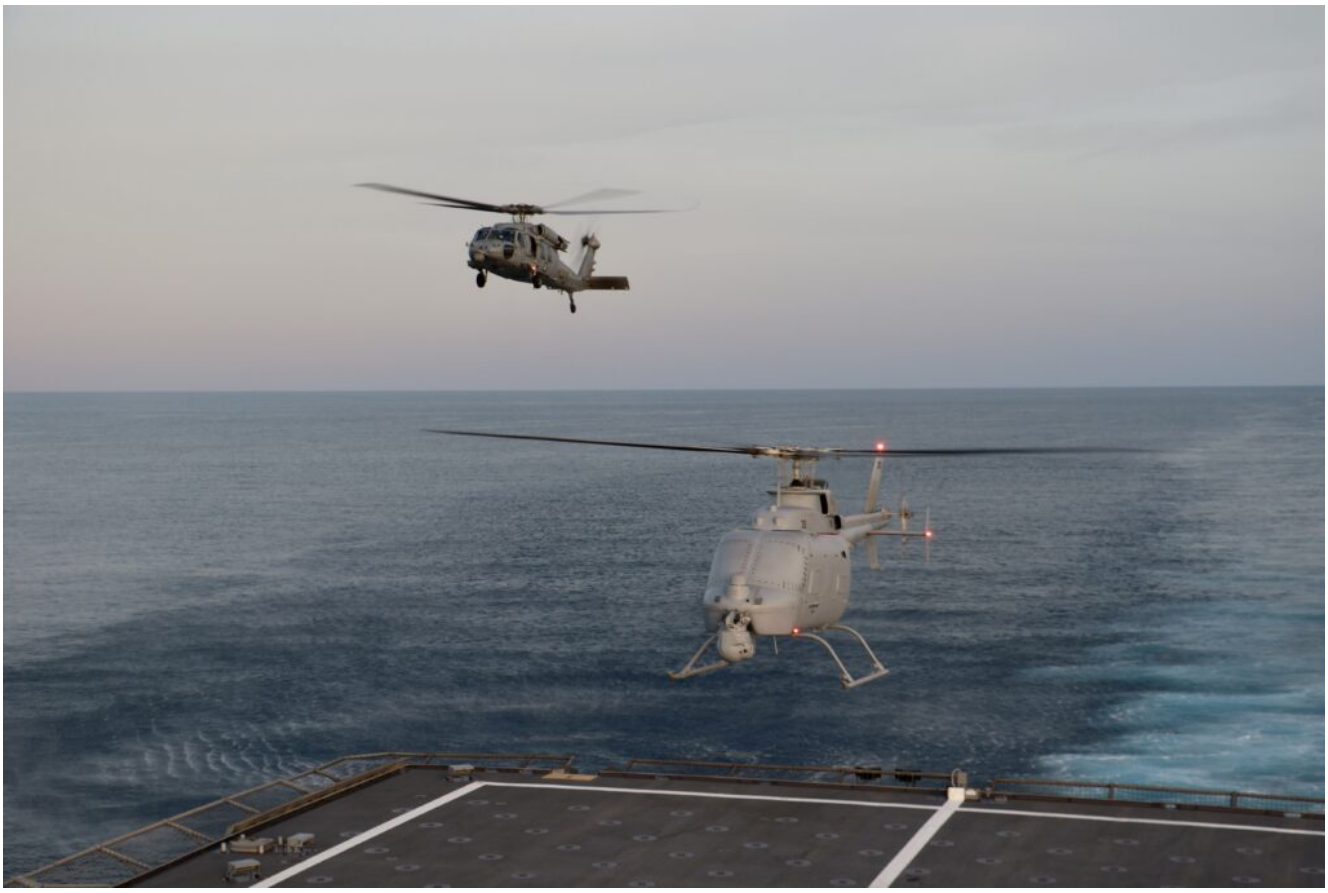
The Marine Corps is developing and fielding a ground-based Tomahawk launcher, which will be operated by ground units in support of Expeditionary Advance Base Operations.

The Navy’s Tomahawk program office “worked closely with the Army’s Rapid Capabilities and Critical Technologies Office to execute the contract in an effort to deliver the missiles on an accelerated schedule,” the Navy said. “The Army is leveraging PMA-280’s ongoing modernization efforts, investment strategies, and joint test events for its Mid-Range Capability program, a system that is on track to be delivered to its first Army unit in FY23.”

The same day, according to the Defense Department, Raytheon was awarded a $22.6 million contract modification that “provides for the production of the Navy/Marine Corps Expeditionary Ship Interdiction System (NMESIS) Naval Strike Missile (NSM) Launcher Unit (NLU) and Weapon Control System (WCS) Production Representative Models. NMESIS is a land-based

missile launcher platform that provides the Fleet Marine Force with an anti-ship capability. NMESIS integrates an NLU, capable of launching two NSMs, onto a remotely operated ground unit for Expeditionary Fires carrier. The NLU is controlled by the WCS located externally in a command-and-control vehicle.”

Navy Unmanned Task Force Lead: Common Control System Critical to Enable Artificial Intelligence



An MH-60S Sea Hawk and MQ-8C Fire Scout unmanned aerial vehicle, assigned to Helicopter Sea Combat Squadron 23,

conduct concurrent flight operations as a manned-unmanned team while embarked on the Independence-variant littoral combat ship USS Jackson (LCS 6). *U.S. NAVY / Lt. j.g. Alexandra Green*
ARLINGTON, Va. – The head of the Navy's Unmanned Task Force said a control system common for aerial, surface and underwater unmanned systems is still the goal as the Navy develops and fields unmanned systems for the fleet, and is critical to enabling artificial intelligence for data management.

"Certainly," said Michael Stewart, leader of the Unmanned Task Force, speaking to reporters May 25 at the Pentagon, when asked if the Common Control System is progressing to operate for all three domains.

"If you're going to enable AI [artificial intelligence], if you're going to have multiple sensors, you have to solve the open-architecture data management problem and you have to have a common control system so that you can take all of this sensor data and then put it in something where you can run algorithms," Stewart said.

"We've talked with some of our allies of their journey through that it only highlighted that that is the critically important thing," he said. "When I showed up at NATO at first, some people were talking about standards and open architecture, I really didn't understand the importance of it.

"Now that I've seen it in operation with some of the allies, I understand critically why it's important and why we have to go do that right, because if you want to make AI a thing with a whole bunch of different sensors, you've got to be able to do that," he said.

The Unmanned Task Force is a team of teams with the mission of "bending the curve" of fielding unmanned systems to solve operational problems and deliver solutions more rapidly.

"We're doing unmanned to solve operational problems; we're

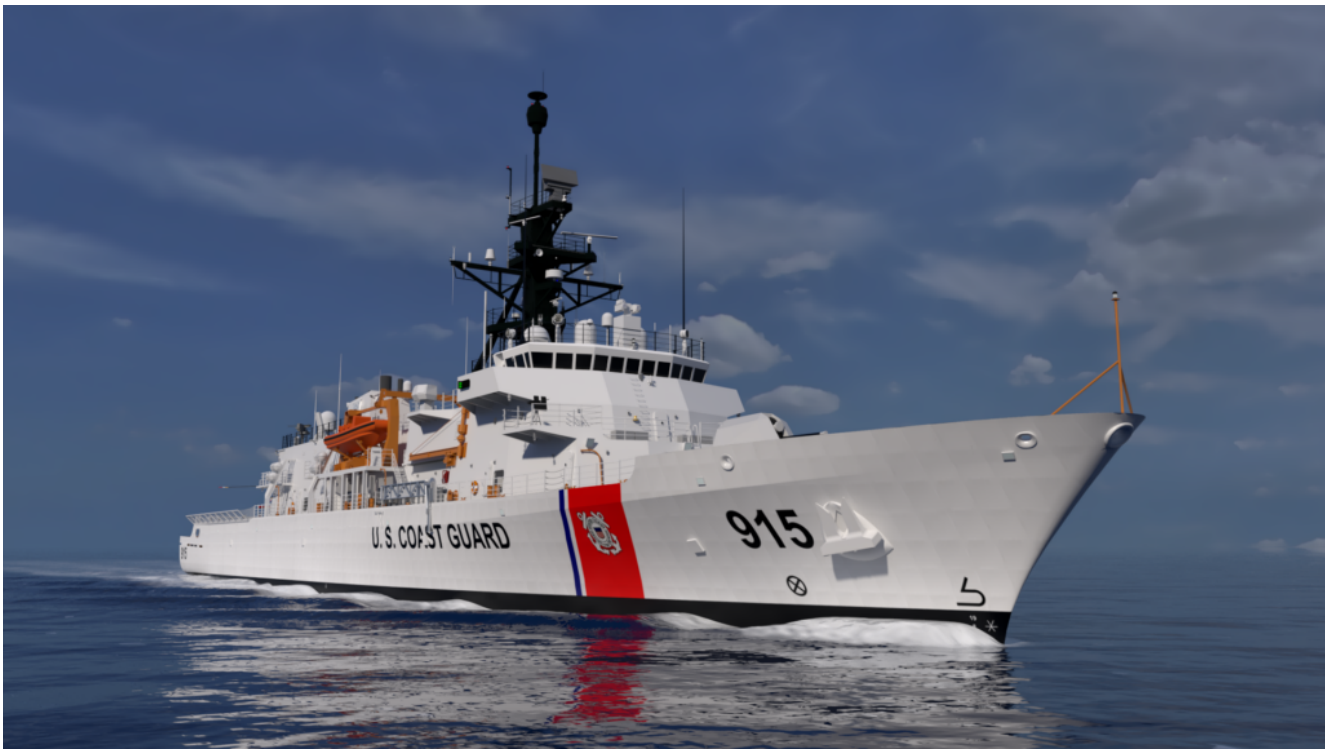
doing artificial intelligence to solve operational problems," Stewart said.

He also said funding had to be very agile to move funding around portfolios to achieve rapid development where it is needed most.

Stewart said the task force wants experimentation to establish the relative value of various unmanned concepts and systems while "dispelling the mythology of unmanned and AI."

"Let's let them prove what we think they can do," he said.

Northrop Grumman Integrating Systems for Coast Guard's Offshore Patrol Cutter



Northrop Grumman is integrated the control systems for the

Coast Guard's Offshore Patrol Cutters, such as the USCGC Argus, shown here. *NORTHROP GRUMMAN*

ARLINGTON, Va. — Northrop Grumman is integrating the control systems for the U.S. Coast Guard's Offshore Patrol Cutters being built by the Eastern Shipbuilding Group in Panama City, Florida.

The systems are being readied for installation in the four cutters when they are ready to receive the systems. The company is also looking beyond to other programs, including the Navy's DDG(X) next-generation destroyer program

Northrop Grumman is "the prime ship integrator for the OPC, amongst delivering many other capabilities to that platform, to include the navigation system, the bridge systems, the machinery control systems," said Rudy Fernandez, director for Strategy and Business Development, Naval and Oceanic Systems, Northrop Grumman Mission Systems, in an interview with *Seapower*. "So, we integrate all of that, plus other systems for the platform."

Northrop Grumman has had plenty of experience integrating systems on other warships, Fernandez said, including bridge and navigation system for the Navy's Arleigh Burke-class guided-missile destroyers, including the WSN-7 and WSN-12 inertial navigation systems and the machinery control systems.

"The new role for us is the system integrator role, which we really value in the partnership we have with ESG to be able to carry out that role in support of this very critical Coast Guard program," he said.

Northrop Grumman's Maritime Systems and Integration Operating Unit is part of its Naval and Oceanic Systems Business Unit, which is part of the Maritime Land Systems and Sensors Division in Charlottesville, Virginia. The company competed for the OPC contract as part of the Eastern Shipbuilding Group

team.

Northrop Grumman built a land-based test facility and a test and integration facility in Charlottesville that is used to test equipment before it is shipped to ESG.

“Working with ESG, we’ve also been able to build a mock-up of the [OPC’s] bridge and navigation center so that we could test all the equipment that we are delivering in a much more integrated fashion before it goes on the ship itself,” Fernandez said, noting that the facility is at one of ESG’s shipyards and is helping to reduce risk in the program.

Fernandez said his company is involved in pursuing the contract for the second batch of OPCs, but he was not at liberty to discuss which builder it was teamed with, “but I can tell you we’re very anxious to see that award come through.”

He said the down-select was expected “in the near term.”

Northrop Grumman is looking at the Coast Guard’s Waterways Commerce Cutter program, but Fernandez was not free to provide any details of the company’s plans. The company also is looking at potential work of future contract awards for polar security cutters. Fernandez also said his company was “very attuned” to the Navy’s future DDG(X) program.

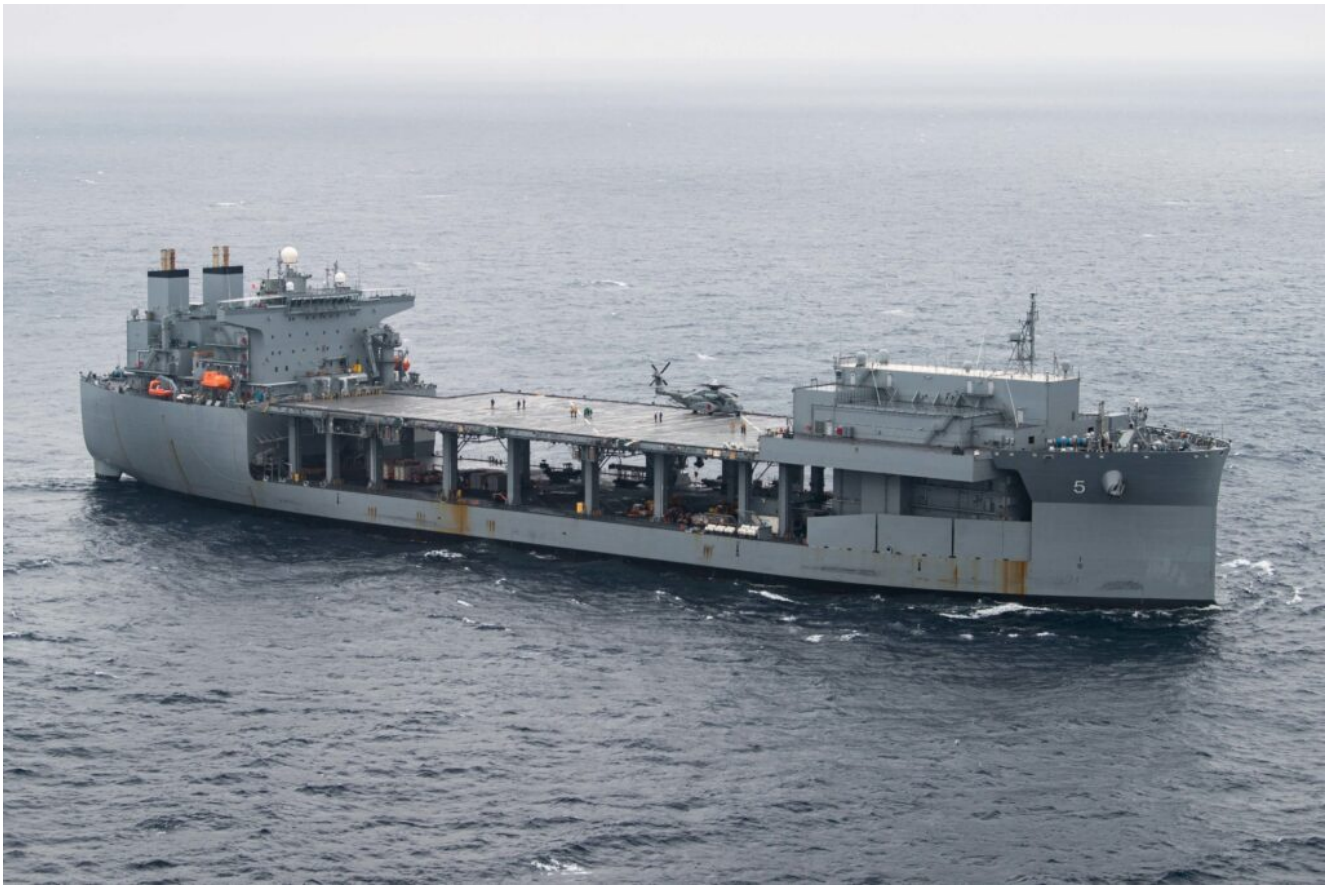
“DDG(X) is an exciting opportunity for us … and we’ve interacted with our customer on several occasions already to understand better where they’re going,” he said, noting Northrop Grumman already delivers the power systems for the SPY-6 radar and SLQ-32 Surface Electronic Warfare Improvement Program. The effort is focused on the DDG(X)’s integrated power system.

“We’ve already done a tremendous amount of risk reduction for that platform,” he said. “We’re making as a company tremendous investment in that area.”

Fernandez also said his company is very interested in developing or adapting power systems and controls for the Navy's future unmanned surface vessels.

"That's going to take a bit of ingenuity because automation and reliability have to come into play," he said.

Navy: Mine Countermeasures Mission Packages to Be Available for Vessels of Opportunity



The expeditionary sea base ship USS Miguel Keith (ESB 5) conducts flight operations during Exercise Noble Vanguard.

ESBs are likely vessels of opportunity for mine countermeasure packages. *U.S. NAVY / Mass Communication Specialist 2nd Class Gregory A. Pickett II*

ARLINGTON, Va. – The Navy's mine countermeasures mission packages will be available not only to littoral combat ships but to other vessels and units, a Navy official said.

Capt. Mike Egan, branch head for mine warfare in the Office of the Chief of Naval Operations, speaking May 24 in Monterey, California, at the 2022 International Mine Warfare Technology Symposium of the Mine Warfare Association, said the MCM mission package is on track to achieve initial operational capability in the fall of 2022 and the Navy plans to procure a total of 24 packages.

The Navy plans to equip 15 Independence-class littoral combat ships with the MCM mission package, which will leave an additional nine mission packages for use elsewhere.

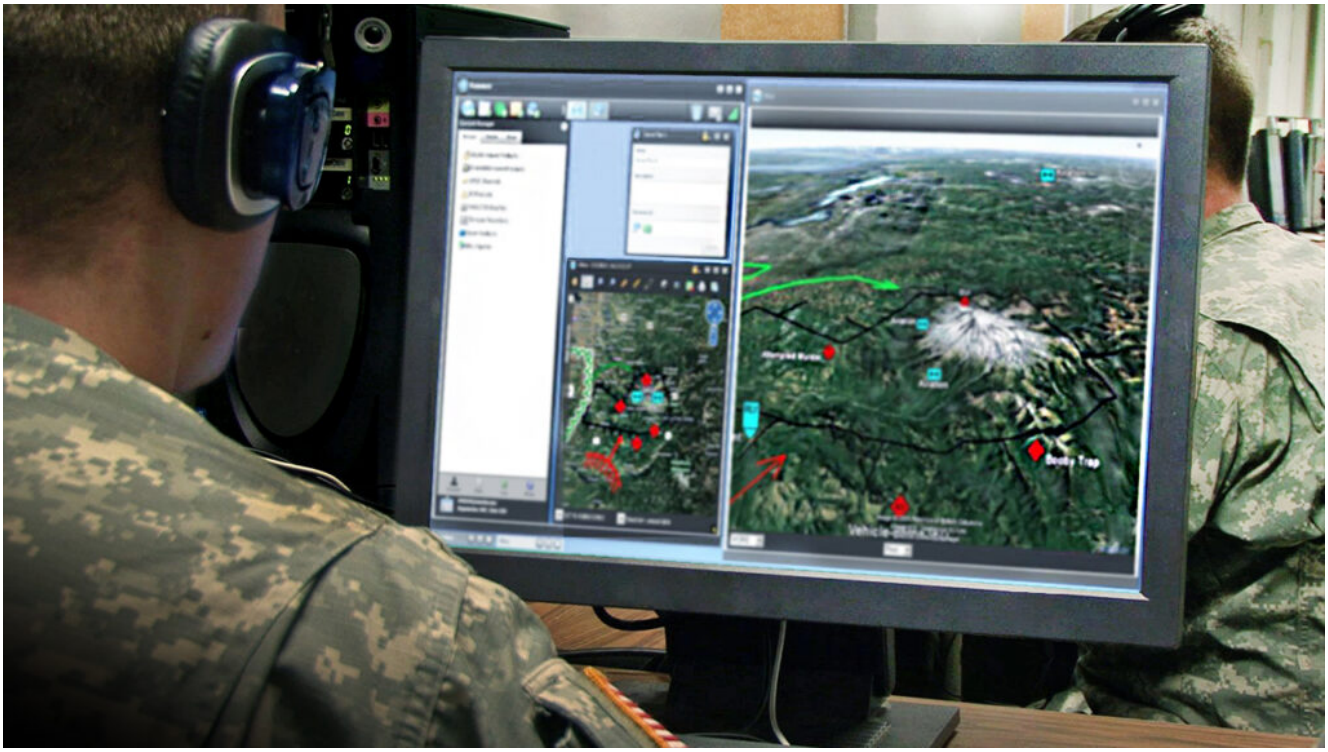
Egan said those excess mission packages won't be sitting around in a warehouse.

"We're going to put them on vessels of opportunity, put them ashore, we're going to integrate them into ExMCM [expeditionary MCM] companies to use those and try to make sure [to] step up MCM capability to be expeditionary, to be scalable [and] modular," he said. "That's where we're headed."

The Navy's expeditionary sea-base ships, which already host MCM forces, are considered likely vessels of opportunity for an MCM mission package. These ships host MH-53E MCM helicopters and mine-hunting craft and unmanned underwater vehicles.

The Navy has commissioned three Lewis-B. Puller-class ESBs and has two more under construction.

Charles River Analytics: Artificial Intelligence is Challenged in Arena of Competition



The intuitive user interface of the Explainability and Terrain Reasoning for Autonomy (EXTRA) effort will deliver human-understandable explanations of deep reinforcement learning software behavior. *CHARLES RIVER ANALYTICS*

ARLINGTON, Va. — A small company developing artificial intelligence technology for the Office of Naval Research is halfway through a 24-month contract performance toward demonstrating its AI technology for the Navy.

"It's all about trying to develop technologies that can help decision makers," said Jeff Druce, senior research scientist at Charles River Analytics, in an interview with *Seapower*.

“They have lot on their plate as far as the watch-floor commanders, making decisions with limited, partial, incomplete information.

“AI has shown – at least in an academic setting – promise at being able to reason about these complex scenarios and make really effective decisions in a variety of arenas,” Druce said, noting rhetorically that with autonomy, “Can you have a system that gives information about the world and tries to take actions that are going to beneficial to the entity in some way?

“There’s not a lack of information out there; it is getting the right information in the right format to be useful,” he said. “What is the relevant information, especially if you’re in a divided-attention task, it becomes like a human-factors problem, as in, ‘What is the most useful information to provide this person in what format that they can use it to make better decisions?’”

Druce envisions AI “as not taking over at all but very much a collaborative human-machine teaming where AI can handle these processes that require a lot of attention and are time consuming but sort of easy to be done in that there’s no incredibly challenging reasoning that has to be done but ultimately will help with the attention problem of the human user.”

Charles River Analytics started out with Small Business Innovative Research Phase 1 work, Druce said, but “a lot of that technology and that motivation ended up going into this larger, EXTRA [Explainability and Terrain Reasoning for Autonomy] effort [for ONR].

“We’re trying to bring in some of the modern AI tools” to the effort, he said. “The deliverables are mostly demonstrations and software based. These things are pretty leading edge.”

Druce said a “demonstration in a representative domain that

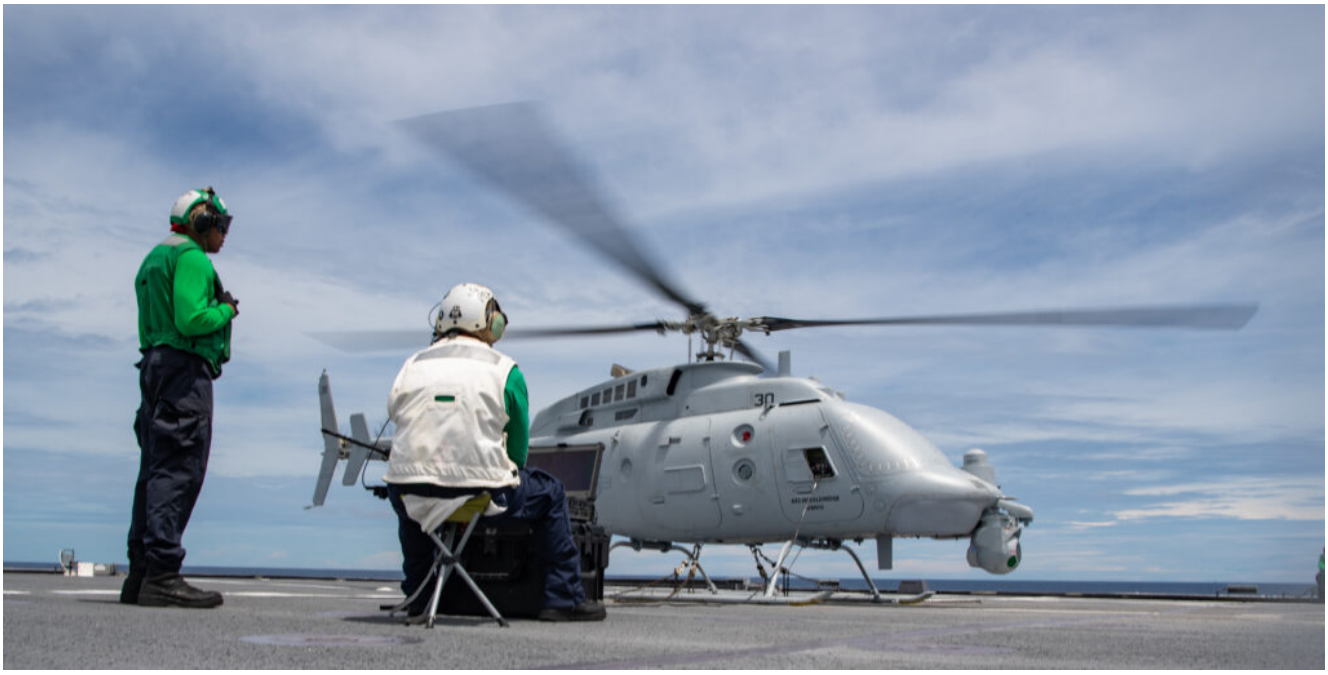
these autonomous agents are doing reasonable things could lead towards a good performance in the physical environment."

He said the technology his company develops needs to be demonstrated in an "arena of competition … pitting AIs against each other to see how they perform. … Can you take your technology and pit it against somebody else's in a less-controlled environment … and see how it does?"

Druce said AI is challenging to his company's workers, but the challenge is what promotes their best work.

"These are hard questions with unknown answers," he said. "When you give smart people these challenging problems, you can see that [with] doing cool things, they motivate themselves."

Navy's MQ-8C Fire Scout Operating in Westpac; MQ-8Bs to Be Retired



Aviation Electronics Technician 1st Class Corie Wooldridge, from San Marcos, California, performs ground turns on an MQ-8C Fire Scout, attached to the "Wildcards" of Helicopter Sea Combat Squadron 23, assigned to the Independence-variant littoral combat ship USS Jackson (LCS 6). *U.S. NAVY / Mass Communication Specialist 3rd Class Charles DeParlier*

ARLINGTON, Va. – The Navy's MQ-8C version of its Fire Scout unmanned helicopter is now operating on its first deployment to the Western Pacific, the second deployment of the type so far. Meanwhile, the Navy is proceeding with plans to accelerate retirement of the fleet of older MQ-8B versions in fiscal 2023.

The Independence-class littoral combat ship USS Jackson (LCS 6) is operating with a detachment from Helicopter Sea Combat Squadron 23, which includes an MQ-8C. The Jackson in the first LCS deployed to the Western Pacific since the summer of 2020 and began operations with the MQ-8C on April 20. Two other LCSs are deployed in the Indo-Pacific region with the older MQ-8B version

The Northrop Grumman MQ-8C, based on the Bell 407 airframe, can carry the Leonardo ZPY-8 Osprey radar, the Teledyne FLIR Brite Star II electro-optical/infrared sensor and the Automatic Information System for surface search and tracking,

said Scott Weinpel, Northrop Grumman's business development director for Fire Scout, in a May 23 interview with *Seapower*. It can augment the MH-60S Seahawk manned helicopter also deployed with the helicopter squadron detachment.

Weinpel said the COBRA II (Coastal Battlefield Reconnaissance and Analysis II) sensor is being developed to give the MQ-8C a day/night mine-hunting capability over a larger area and in a deeper water column than the COBRA I deployed on the MQ-8B.

The MQ-8C first deployed in December 2021 on the Freedom-class LCS USS Milwaukee (LCS 5) in the U.S. 4th Fleet area of operations.

The Navy has 36 MQ-8Cs on strength. In the Navy's fiscal 2023 budget request, the service plans to place about half of the MQ-8Cs in long-term preservation, Weinpel said, attributing the decision to the Navy's budget priorities.

"We really are hoping that, with our mission extension efforts and the capabilities and enhancements that we want to incorporate with Fire Scout, that the future looks bright, especially as we look towards the future [Constellation-class] frigate, where Fire Scout is incorporated into [the Navy's] Capabilities Development Documents for FFG 62," he said. "We fully expect that we will be a part of that requirement.

"It would be an appropriate time to pull those [MQ-8Cs] out of preservation and incorporate them with that [frigate] fleet," he said, noting that the MQ-8C could easily pivot to the antisubmarine warfare mission set, deploying sonobuoys and relaying the acoustic data that they would collect to the mother ship or another ASW platform.

Weinpel also said Northrop Grumman could relatively easily restart production of the MQ-8C if required.

He also confirmed the Navy's decision to accelerate retirement of its fleet of MQ-8Bs to fiscal 2023 from 2024, also a result

of budget pressure. He said the retired MQ-8Bs could be adapted to homeland security roles, including service with Customs and Border Protection.

Weinpel said the MQ-8C performed well on its first deployment.

“We had great feedback from the operators of the HSC-22 detachment,” he said. “They were able to use the radar and EO/IR, [and] had great TCDL [Tactical Common Data Link] operational use, so they were able to fly out to the maximum range of the Fire Scout and then they were also distribute some of the information that was getting down to the Fire Scout control station to other areas of the ship where it became relevant as they were able to conduct some counter-narcotics missions.”

Earlier this month, an MQ-8C provided bomb hit analysis for a Hellfire Longbow missile shoot from the Independence-class LCS USS Montgomery (LCS 8).