

General: Marine Corps Future Force to Include VTOL Family of Systems



A U.S. Marine UH-1Y Venom helicopter prepares to land at a forward arming and refueling point at Marine Corps Base Hawaii on Feb. 3. Marine Corps plans to replace its rotary wing aircraft is evolving into a concept called VTOL family of systems. *U.S. MARINE CORPS / Cpl. Dalton J. Payne*

ARLINGTON, Va. – The U.S. Marine Corps' plan to develop future replacements for its rotary wing aircraft is evolving to a concept called VTOL FOS, or vertical takeoff and landing family of systems, a senior Corps aviation official said.

Brig. Gen. Matthew Mowery, assistant deputy commandant for aviation, speaking Feb. 9 at the National Defense Industrial Association's Expeditionary Warfare Conference, said the Corps' plans to replace its AH-1Z and UH-1Y helicopters in the

future has evolved over several iterations over the past few years, especially as Commandant Gen. David Berger's Force Design 2030 was introduced.

Mowery said the initial effort was centered on involvement in the Army's Future Vertical Lift program, specifically its Capability Set 3. As the various services branched out, the Marine Corps' effort became the Attack-Utility Replacement Aircraft, or AURA.

Mowery said the Corps "started thinking differently" about the AURA with the emergence of Force Design 2030, and now has folded AURA into the VTOL FOS. The data generated from the Marine Corps' Future Vertical Lift analysis of alternatives, which concluded in 2019, laid the groundwork for analysis and to develop the capability development document. The Marine Corps issued a request for information in September 2019 and a "broad agency announcement for the introduction of advanced technologies in model-based systems engineering and condition-based maintenance in 2020," the Corps said in information provided to *Seapower*.

The VTOL FOS program "will develop a weapon system or systems that fills capability and performance gaps identified by the Marine Corps," the Corps told *Seapower* in November 2021. "The VTOL family of systems will be designed for optimal manning and for manned-unmanned teaming with the MAGTF [Marine Air-Ground Task Force] Unmanned Aircraft System Expeditionary capability. Additionally, it will include a common mission system architecture to enable interoperability across the MAGTF. The Marine Corps' driving requirement is attached escort in tomorrow's battlespace during distributed expeditionary operations from the sea. Speed, maneuver envelope, all-weather capability and survivability will facilitate full integration of this aircraft into the MAGTF. To meet these goals, the VTOL family of systems will operate above legacy helicopter performance attributes like airspeeds, combat range, altitude and endurance with a full payload.

“The VTOL family of systems program will require a comparable mission radius and loiter time to match MV-22Bs, as well as time on station to support distributed air combat element operations,” the Corps said. “The VTOL family of systems will have a greater capability to employ a more diverse set of weapon systems and operate in a larger spectrum of environments by using fused, onboard sensor data and terrain avoidance systems. Amphibious operations and shipboard compatibility will be a key attribute to this air vehicle.”

Admiral: ‘Urgency’ Needed in Fielding of New Systems



Lt. Stephen Yaccarino observes an F/A-18E Super Hornet, assigned to the “Vigilantes” of Strike Fighter Squadron (VFA)

151, launch from the flight deck of the Nimitz-class aircraft carrier USS Abraham Lincoln (CVN 72) on Feb. 8. *U.S. NAVY / Mass Communication Specialist 3rd Class Michael Singley*
ARLINGTON, Va. – The current world geo-political climate is evidence of the need for urgency in the fielding of new systems, a Navy program executive officer said.

“It shouldn’t take 18 months to get [a new system] on contract; it should take 90 days,” said Rear Adm. Shane Gahagan, the Navy’s program executive officer for Tactical Aircraft Programs, speaking Feb. 9 at the National Defense Industrial Association’s Expeditionary Warfare Conference.

Gahagan discussed several ongoing and future programs such as a replacement for the MH-60 helicopters; the Next-Generation Air Dominance program to replace the FA-18E/F Super Hornet strike fighter; the fielding of the Block III of the F/A-8E/F, and the life-extension program for the F/A-18E/F.

“The pressure is the idea to pull all that to the left,” he said, stressing the need to accelerate development and field systems sooner in order to counter the rapid development weapons and other systems by potential adversaries such as China and Russia.

Fleet Oiler USNS John Lewis Conducts Builder’s Trials



USNS John Lewis (T-AO 205), the Navy's lead ship of its new class of fleet replenishment oilers, conducted initial builder's trials and returned to port on Feb. 4. *GENERAL DYNAMICS NATIONAL STEEL AND SHIPBUILDING. CO.*

WASHINGTON – USNS John Lewis (T-AO 205), the Navy's lead ship of its new class of fleet replenishment oilers, conducted initial builder's trials and returned to port on Feb. 4, Team Ships Public Affairs said in a release.

Builder's trials consist of a series of in-port and at-sea demonstrations that allow the Navy and the shipbuilder, General Dynamics National Steel and Shipbuilding Co., to assess the ship's systems and readiness prior to acceptance trials and delivery to the Navy.

“Ensuring readiness through sea trials is a crucial step to bringing this ship closer to fleet tasking,” said John Lighthammer, program manager at the Auxiliary and Special Mission Shipbuilding Program Office. “USNS John Lewis will provide much needed capability to the fleet as the primary fuel pipeline at sea. We are looking forward to getting the

ship into the hands of Sailors and merchant mariners as another tool to support at-sea operations.”

The new John Lewis-class T-AOs will be operated by Military Sealift Command to provide diesel fuel and lubricating oil, and small quantities of fresh and frozen provisions, stores, and potable water to Navy ships at sea, and jet fuel for aircraft assigned to aircraft carriers. The new T-AOs will add capacity to the Navy’s combat logistics force and become the cornerstone of the fuel delivery system.

General Dynamics National Steel and Shipbuilding Co. is currently in production on USNS Harvey Milk (T-AO 206), USNS Earl Warren (T-AO 207) and USNS Robert F. Kennedy (T-AO 208). The future USNS Lucy Stone (T-AO 209) and USNS Sojourner Truth (T-AO 210) are under contract.

Two Sea Cadet Units Qualify for National CyberPatriot Finals



Band of the West and Sacramento Division Sea Cadets shown with Navy League CEO Mike Stevens in 2019. U.S. NAVAL SEA CADET CORPS

BETHESDA, Maryland – The U.S. Naval Sea Cadet Corps has qualified two teams to compete in the CyberPatriot National Final team competition set for March 17-21 in Bethesda, Maryland.

Sacramento Division and Band of the West Division will represent the youth organization at the All-Services Division Nationals. Both units are based in California and have years of experience competing in CyberPatriot annual competition.

Sacramento Division's Team Spartan has competed in the All-Services Division Nationals competition five years in a row since 2018.

"I enjoy witnessing each one of my CyberPatriot members develop their skills, foster friendships, and work as a team,"

said Sea Cadet Ensign Matt Foreman. "I feel like my job is to provide general direction, a safe place to compete, and the resources for them to succeed."

Foreman added that four of the youth team members have made it to nationals four years in a row.

"This year, three of those elite members are now celebrating their fourth year in a row, which should qualify them for special recognition," said Foreman.

Each of the Team Spartan cadets specializes in one of three platforms: Microsoft Windows, Linux, or Cisco. When he thinks of leaders and the impact they can have, he recalls the famous Gen. George S. Patton quote. "Don't tell people how to do things, tell them what to do and let them surprise you with their results."

In its 14th year, the CyberPatriot program has more than 5,200 teams competing, of which the Sea Cadet youth organization had nearly 20 teams enrolled. The CyberPatriot program helps direct students toward careers in cybersecurity or another computer, science, technology, engineering, and mathematics discipline.

Band of the West Division's CyberPatriot Team Silicon Knights Team and the Sacramento Division's Team Spartan benefit from keen experts who guide cadets, such as the instructor Lt. j.g. Ming Ikehara, who serves as a volunteer training officer and brings forth extensive knowledge and experience in cybersecurity for the Silicon Knights.

"For cadets to acquire technological skills and critical thinking to protect personal privacy to national defense is extremely essential and important," said Ikehara. "I also volunteer to inspire girls to get into cybersecurity and engineering disciplines."

Petty Officer 1st Class Arkin Si, team captain, Silicon

Knights, emphasized the amount of time devoted to the CyberPatriot team leading up to the annual competition to the nationals.

“Our team practiced every week for an hour each time, which doesn’t include the countless hours outside of practice that members needed in order to become accustomed to the various operating systems that they were unfamiliar with, especially the strategies needed for the competition,” said Si.

The Silicon Knights have been to National Finals three previous times, in 2016, 2018 and 2020. The members join the CyberPatriot team. They practice and compete outside of their regular drill time since they represent the nation’s only Sea Cadet band.

Team Spartan is like Team Silicon Knights in the type of dedication these cadets displayed.

“Most learning took place independently via school classes, independent practice, and team collaboration,” said Foreman. “These cadets are passionate about preparing for CyberPatriot competitions. They spend countless hours preparing for each competition.”

The Sea Cadets who participate and lead the teams, such as Chief William Smith, who serves as the captain of Team Spartan, said participating in CyberPatriot has been an unforgettable experience for each of them and they are honored to represent the Sacramento Division again this year.

“CyberPatriot has provided Team Spartan the unique opportunity to broaden our cybersecurity skills through learning from real-world scenarios and threats,” Smith said. “We are very grateful for the tremendous support from Sacramento Division of the Sea Cadet Organization. The discipline, teamwork, and leadership skills we’ve trained have helped us qualify for National Finals in the past five years.”



Band of the West and Sacramento Division Sea Cadet teams at the 2019 CyberPatriot finals. *U.S. NAVY SEA CADET CORPS* Foreman added that new team members experience a steep learning curve, but senior team members mentor the new cadets and foster their skills.

“Overall, the success of team Spartan is not forced. Rather, it is fueled by their desire and personal interest,” said Foreman.

Ikehara said she enjoys teaching the youth about cybersecurity, and her motivation to instruct the youth centers on introducing them to cybersecurity career paths, but more importantly to training them to be vigilant cyber citizens in everyday life.

The Silicon Knights team has a better understanding of cybersecurity from participating in CyberPatriots.

“Understanding cybersecurity is crucial to ensure safety as the world moves toward automation and increases its reliance on computers. It is also important to understand how to secure a computer and ensure that it has no vulnerabilities that can be exploited,” said Si.

Each member spends at least 80 hours of instructor-led and online courses each season. Many of the cadets spend more hours on their own to study and research materials on their own.

“We have great resources to tap into and of course, it furthers esprit de corps and brings pride to our unit. We are also proud to serve and represent the NSCC on a national level,” said Lt. Cmdr. Jo-Anne Dao, commanding officer, Band of the West Division. “I always remind my cadets that this is their team, not mine. And they may take it as far as they wish, but I am here to offer support in any way or form for them to succeed. But ultimately, it is their hard work, determination, and teamwork that will get them to where they want. Great life lessons here.”

For the Silicon Knights Team, many of their youth members start as middle schoolers and continue to the high school team. In the past six years, their team has consistently achieved the Platinum tier. The unit has a second high school team, the Silicon Ensembles, which has also achieved 1st place in the state awards in season 10.

Dao emphasized the sheer level of training, commitment and talent that went into competing this year.

“The Silicon Knights must be in good standing in the Band of the West in order to even participate,” she said.

This means that in addition to the weekly drill, team members train, practice, and compete outside drill hours from November through March. This is a huge commitment from cadets and staff,” said Dao, but all that effort definitely paid off.

“For me, I am just so proud of my cadets. They come from all over the San Francisco area from different backgrounds and they all work together as a team to make it this far,” said Dao.

She added that the cadets competing in CyberPatriot are also based in Silicon Valley and from her vantage point, it is important because so many cadets have an interest in this field for future careers.

Lt. Cmdr. Jeffery Dao, who is married to Jo-Anne Dao, serves as the regional director for the U.S. Naval Sea Cadet Corps.

“We are so proud of the cadets and grateful to Lt. j.g. Ikehara for making this opportunity possible,” said Dao, who serves as the executive officer for Band of the West, was thankful to the Navy League Marin County Council for their financial support and the Navy League STEM Grant which allowed his unit to equip its cadets with the computing gear and instructional materials needed for this training. “U.S. Naval Sea Cadet Corps units should apply for STEM grants,” he said.

Teledyne FLIR Defense to Service U.S. Navy and Coast Guard Sensor Systems

THOUSAND OAKS, Calif. – Teledyne FLIR Defense, part of Teledyne Technologies, announced Feb. 9 that the U.S. Naval Surface Warfare Center has awarded the company an indefinite delivery, indefinite quantity contract worth up to \$43.9 million to service electro-optical sensor systems used for intelligence, surveillance and reconnaissance.

The contract will provide replacement parts and technical support for several land- and sea-based systems used by the United States Navy and Coast Guard, including the BRITE Star II, the Sea Star SAFIRE III, and the Star SAFIRE 380-HD.

In addition to the IDIQ award, the Defense Logistics Agency also recently awarded Teledyne FLIR two contracts with a combined value of \$16.2 million to procure BRITE Star II multi-sensory imaging systems. Those systems will support the U.S. Navy/Marine Corps H-1 program.

“Our commitment to product service and support ensures customers derive the highest level of performance over the lifespan of every system we offer,” said JihFen Lei, executive vice president and general manager of Teledyne FLIR Defense. “We’re proud to provide the U.S. Navy, Coast Guard, and Marine Corps with world-class surveillance technology and help them maintain these sensors to detect any threat, anywhere, on land, maritime and airborne platforms.”

The Star SAFIRE and BRITE Star family of systems are manufactured in Wilsonville, Oregon, and offer users superior image stabilization, ultra-long-range performance and internal navigation for precise targeting. The systems are fully hardened for military fixed-wing and helicopter operations and include a mid-wave infrared thermal imager, low-light cameras and multiple laser payload options.

**AARGM-ER Completes 2nd
Successful Missile Live Fire**

Test



An AARGM-ER is successfully launched from a U.S. Navy F/A-18 Super Hornet during a recent test at the Point Mugu Sea Range, California. *U.S. NAVY*

LOS ANGELES – Northrop Grumman Corp. announced Feb. 7 the successful completion of the second flight test of its AGM-88G Advanced Anti-Radiation Guided Missile Extended Range.

The U.S. Navy launched the missile from an F/A-18 Super Hornet aircraft Jan. 21 at the Point Mugu Sea Range off the coast of southern California. The missile performed an extended range profile, engaging a land-based, emitter target staged at the range on San Nicholas Island.

“This second flight test verified AARGM-ER’s ability to detect, identify, locate and engage a land-based air defense radar system from an extended range,” said Captain A.C. Dutko, Navy Program Manager for Direct and Time Sensitive Strike (PMA-242). “Through the exceptional efforts of our government-

industry team, we are another step closer to delivering capability to suppress the most advanced adversary air-defense systems without putting our warfighters in danger.”

Since achieving a milestone C decision (authorization for low-rate initial production) in September 2021, AARGM-ER prime contractor Northrop Grumman has continued to lead its industry team in developing the system. Northrop Grumman is currently under contract to deliver production units of AARGM-ER to support a 2023 initial operational capability fielding. In December 2021, Northrop Grumman received a \$45.6 million contract for the second lot of AARGM-ER LRIP.

AARGM-ER leverages existing state-of-the-art AARGM sensors, electronics and digital models with the addition of a new high-performance air vehicle, solid rocket motor propulsion system and advanced warhead.

“AARGM-ER provides the U.S. Navy with the capability to stay ahead of evolving threats,” said Mary Petryszyn, corporate vice president and president of Northrop Grumman Defense Systems. “This flight test further demonstrated the critical capability of AARGM-ER to precisely engage long-range threats, while enabling launching aircrew to remain at a safe distance.”

AARGM-ER is being integrated on the Navy F/A-18E/F Super Hornet and EA-18G Growler aircraft as well as F-35A/B/C aircraft.

Commandant Sees Bigger Role

for Marine Raiders in Great Power Competition



Marine Raiders rehearse advanced military free fall jumps at Camp Lejeune, N.C., Sept. 1, 2021. Military free fall sustainment training is necessary for a Marine special operations team to stay proficient and ready at all times for future operations. *U.S. MARINE CORPS / Cpl. Ethan Green*

ARLINGTON, Va. – Like the rest of U.S. Special Operations Command, Marine Raiders will have a bigger role to play in the military's competition with a rising China and resurgent Russia, the Marine Corps commandant says.

After 20 years with a heavy focus on counter insurgency and counter terrorism in Iraq, Afghanistan and other flashpoints around the globe, "I do see a bigger role for them and probably an adjusted role," Gen. David Berger said Feb. 8 at the National Defense Industrial Association's virtual Expeditionary Warfare Conference.

“Now, how do we use special operations forces in great power competition?” Berger said, adding he thought Marine Special Operations Command would follow a similar path as the rest of the Marine Corps in the near future, “Back to naval roots. How does it support the naval expeditionary forces forward?”

Among their roles, Marine Raider units train, advise and assist friendly host nation forces, including naval and maritime military and paramilitary forces. The aim is to help local forces support their governments’ internal security and stability, counter subversion and reduce the risk of violence from internal and external threats, according to the MARSOC website.

“Their great value,” Berger said “is their persistent presence forward” as well as their deeper cultural understanding and language skills in the places they operate. “Conventional forces don’t normally have any of that. They also don’t have the finer, nuanced, higher level skills that MARSOC Marines have, and I’m not talking about kicking down a door,” he said.

Instead, he meant Raiders’ skills in collecting information and intelligence in a discreet manner while deployed far forward. “If you married that up with a higher performing infantry battalion or conventional force, you will have the best of all worlds,” he said.

In late January, Marines from the 3rd Marine Raider Battalion worked with the 8th Marine Regiment’s 1st Battalion on close-quarters battle training, including hallway and stairwell clearing procedures and sensitive site exploitation. The three-day training session at Camp Lejeune, North Carolina, sought to improve cooperation among the conventional Fleet Marine Force and Special Operations Forces.

Going forward, Berger believed MARSOC, like the entire Corps, would have to adjust their focus from 90% counterinsurgency and counter terrorism to “a much better balance of integrated

deterrence, campaigning, crisis response, in other words, meeting us somewhere in the littorals, where the Corps' skillset strength is."

Analysts: Navy's LAW Shipbuilding Program Must Resist Requirements Creep



The crew of U.S. Army logistics support vessel Lt. General William B. Bunker (LSV-4), loaded equipment and supplies on LSV-4 in Guam in July 2021 for theater distribution operations in support of Defender Pacific 2021. Some call for the LSV to be used as a bridge to the Navy's planned light amphibious warship. *U.S. ARMY / Staff Sgt. Kevin Martin*

ARLINGTON, Va. – The U.S. Navy’s program to build a force of light amphibious warships faces challenges, including an uncertain amphibious warfare fleet force structure requirement and a risk of requirements creep, according to analysts.

Eric Labs, senior analyst for Naval Forces and Weapons, Congressional Budget Office, and Ron O’Rourke, naval affairs analyst for the Congressional Research Service, spoke Feb. 8 at the National Defense Industrial Association’s Expeditionary Warfare Conference, addressing Navy shipbuilding plans with a focus on amphibious warfare ships.

The Navy, in response to the need of the Marine Corps for a large number of smaller amphibious warfare ships for distributed maritime operations and expeditionary advance base operations, is planning to design and build the light amphibious warship to augment the amphibious lift fleet. The LAW would be able to beach and discharge Marines and their vehicles on a shore.

Labs pointed out that the future of amphibious forces is “facing challenging times for the next five years,” and finds that there is “no natural constituency” for the LAW.

Labs said the number of LAWs needed by the fleet has not been refined. Recent shipbuilding plans, he pointed out, have variously assumed a build range of 24-35 LAWs. The requirement for large and medium-sized amphibious warfare ships – amphibious assault ships (LHA/LHDs) and amphibious transport dock ships (LPDs) – is no longer 38 ships, but over the last year variously is said to be 24 to 32 ships. The Navy has not provided to Congress a 30-year shipbuilding plan for two years.

O’Rourke warned against requirements creep that could increase the cost of the LAW program and threaten the Navy’s estimate of a LAW’s cost of \$130 million to \$150 million.

“The LAW represents an effort to break that price trend,”

O'Rourke said.

He noted the success of the Arleigh Burke-class guided-missile destroyer (DDG) in its beginnings, when the Navy determined to build five DDGs in one fiscal year, designing ships not just with capabilities in mind but also with numbers of ships in mind, and was able to meet its goal of five in one year.

O'Rourke noted there is some pushback in Congress about the LAW concept because of concerns about the survivability of the ship and of the ability to resupply Marines inside an island chain where the Marines would be delivered.

O'Rourke also noted a suggestion as an option that a small number U.S. Army's logistic support vessels – similar in size to that envisioned for the LAW – be used as surrogates for the LAW, as a bridge to the LAW. The Army LSVs are equipped with a bow ramp to discharge vehicles on shore.

IMSC Integrates Unmanned Vessel During IMX/CE22



A Saildrone Explorer unmanned surface vessel sails in the Gulf of Aqaba during International Maritime Exercise/Cutlass Express 2022. *U.S. NAVY / Mass Communication Specialist 2nd Class Dawson Roth*

NAVAL SUPPORT ACTIVITY BAHRAIN – International Maritime Security Construct participated in unmanned integration operations in the Arabian Gulf during International Maritime Exercise/Cutlass Express 2022, Feb. 3, the Coalition Task Force Sentinel Public Affairs Office said Feb. 8.

IMSC personnel operated with two Saildrone Explorer unmanned surface vessels. The Saildrones were launched by Task Force X, a combined task force established for conducting portions of the exercise focused on unmanned systems and artificial intelligence integration.

The Saildrone Explorer is a 23-foot-long, 16-foot-tall USV reliant on wind power for propulsion. The vessel houses a package of sensors powered through solar energy for building a shared picture of the surrounding seas.

Leaders from IMSC observed the capabilities of unmanned systems deployed during operational training scenario at sea from aboard the Royal Bahrain Naval Force ship RBNS Al Muharraq.

“The exercise was a perfect demonstration of progress towards delivering a genuinely ‘digital ocean’ where navies increasingly employ a combination of manned and unmanned systems, on, above, and below the surface, to deliver unparalleled situational awareness and operational choice to the commander,” said Commodore Don Mackinnon, commander of CTF Sentinel.

CTF Sentinel is a multinational maritime effort that promotes maritime stability, ensures safe passage, and enhances freedom of navigation throughout key waterways in the Arabian Gulf, Strait of Hormuz, Gulf of Oman, Gulf of Aden, the Bab al-Mandeb and the Red Sea. The coalition is comprised of eight member nations including Albania, Kingdom of Bahrain, Republic of Estonia, Lithuania, Kingdom of Saudi Arabia, United Arab Emirates, United Kingdom and the United States.

U.S. Navy Selects NCI for \$13.4M NAVAIR Fiber Optic Network Modernization

RESTON, Va. – NCI Information Systems Inc. announced Feb. 8 it has received a five-year, \$13.4 million prime contract from the U.S. Naval Air Systems Command Naval Air Warfare Center, Weapons Division.

Under the Installation Fiber Optic Networking Support Services

contract, NCI, with its partner IntelliBridge, will enable faster, more secure network connections for the Navy by delivering state-of-the-art engineering and implementation fiber optic networking support services.

“The operational readiness and survivability of today’s warfighters are more closely tied to the speed and security of network technology than at any time in our nation’s history,” said Paul A. Dillahay, president and CEO of NCI. “We are honored to partner with IntelliBridge on this program to support the Navy with better, faster and more secure connectivity to support fleet modernization and mission readiness at sea.”

Under the contract, NCI and IntelliBridge will transform system interoperability and integration for networks supporting NAWCWD and NAVAIR, enabling seamless and secure computer connectivity. The two organizations will provide E&I fiber optic networking support services such as state-of-the-art network designs, fiber builds, infrastructure mapping and networking solutions.