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 humanunderstandable 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 lesscontrolled 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).

Keel-Laying for Columbia SSBN Set for June 4



An artist's rendering of the future U.S. Navy Columbia-class ballistic missile submarines. *U.S. NAVY* WASHINGTON – The keel-laying ceremony for the first newgeneration nuclear-powered ballistic-missile submarine (SSBN) will take place June 4.

The keel-laying date for the future USS Columbia (SSBN 826)

was mentioned by Rep. Joe Courtney, D-Connecticut, during a May 18 hearing of the Seapower and Projection Forces subcommittee of the House Armed Services Committee. The ceremonies will be held at the General Dynamics Electric Boat Shipyard at Quonset Point, Rhode Island.

The date was announced to employees of Electric Boat the same morning. The missile compartment and other components are built at Quonset Point. Final assembly of the submarine will take place at the Electric Boat facility in Groton, Connecticut.

HII's Newport News Shipbuilding in Newport News, Virginia, builds 22% of the submarine, including the bow and stern.

General Dynamics Electric Boat was awarded a \$5.1 billion contract in September 2017 to complete the design of the lead boat and in November 2020, the company received a nearly \$9.5 billion award for construction and test of the USS Columbia and lead work on the USS Wisconsin. Including the Columbia, hull numbers SSBN 826 through 837 have been reserved for the new class, which previously was known as the Ohio-class Replacement Program.

The Columbia design features a new reactor with a core designed to last the life of the boat. The Columbia class also will feature an X-stern plane configuration with a waterjet propulsor, electric drive and integrated power system, a sixmast sail with sail planes and a large-aperture bow sonar. The subs will retain the Trident D5LE missile system.

Advance construction of the Columbia began in 2019 and delivery is expected in 2027. The first Columbia SSBN is scheduled to be on patrol in fiscal 2031 to maintain the undersea leg of the nation's nuclear deterrent force.

The Columbia class is to completely replace Ohio class SSBNs by 2039.

Marine Corps to Neck Down Operational Support Aircraft Types; Increase Indo-Pacific Capabilities



UC-12W U.S. MARINE CORPS

ARLINGTON, Va.—The Marine Corps plans to neck down the number of types of operational support aircraft (OSAs) over the next decade in order to achieve economies with reduced operating costs while increasing capability. The Corps also plans to increase its OSA capabilities in the Indo-Pacific region.

"OSA directly provides an economical and efficient alternative for the movement of personnel and cargo by reducing the burden that small payloads place on large tactical aircraft," the recently released 2022 Marine Corps Aviation Plan said. "Moving high volumes of small payloads to widely dispersed Marine air-ground task force (MAGTF) elements poses logistical challenges for Marine Corps aviation; OSA relieves this burden. Marine Corps OSA units perform the same airlift missions whether deployed or at their home stations. Unpredictable, short notice movements are not compatible with the United States Transportation Command's and United States Air Force's airlift missions or commercial route structures. This flexibility is vital to MAGTF logistics, communications and security in all phases of deployment."

The Marine Corps operates 27 OSAs and keeps two of those deployed to support Marine Forces Europe/Africa and Marine Forces Central Command. The Corps plans to replace four UC-12F, two UC-12M, and 10 UC-35D aircraft a total of 28 UC-12Ws including eight already on strength. The current program of record for UC-12Ws is 12 aircraft.

"The cost of sustaining UC-35s is increasing and the USMC is looking to replace the UC-35 fleet with UC-12W," the aviation plan said. "This will require an increase to the program of record of UC-12Ws to 28. Divestment of UC-35s will be based on the procurement and delivery of the UC-12Ws."

The Marine Corps operates one transport squadron, VMR-1, which flew two C-9B Skytrain II aircraft from Joint Base Andrews-NAF Washington, Maryland, until 2017, when the squadron moved to Naval Air Station-Joint Reserve Base Fort Worth, Texas, to provide crews to share C-40A Clipper transports with Navy Fleet Logistics Support Squadron 59. VMR-1 is receiving two C-40As of its own this fiscal year. The squadron will move to Marine Corps Air Station Kaneohe Bay, Hawaii, by fiscal 2024 to replace the two C-20G Gulfstream IV transports there that support the Indo-Pacific Command.