Hypersonic Technology Becomes a Top Pentagon Priority

WASHINGTON – Although hypersonic technology originated in the United States, “we didn’t choose to weaponize it, but now we have to,” the Pentagon’s top technology official said Aug. 1.

“The enemy gets a vote. They have chosen to weaponize hypersonic,” Michael D. Griffin, the undersecretary of defense for research and engineering, said.

To respond to that emerging threat, the Pentagon has made regaining the advantage in hypersonic technology one of its top priorities and has brought the three military departments together in a multiservice effort to develop hypersonic weapons, Griffin told a briefing sponsored by the Senate Aerospace Caucus.

“We want to have some of our first hypersonic strike weapons fielded in the early 2020s,” and are working to meet Defense Secretary James Mattis’ “goal of dominance by 2028.” That means an air-breathing” hypersonic weapon capable of a “prompt conventional strike: that can “hold an enemy at risk,” he said.

Hypersonic generally means an air vehicle that can reach and sustain speeds of at least Mach 5, or five times the speed of sound, which could be more than 3,000 miles an hour.

Griffin said he was not prepared to say what form of hypersonic vehicle they would have by 2028, whether it would be solely an expendable weapon, or an aircraft that could carry and release guided munitions and return, and whether it would be manned or unmanned.

Each of those variables raises the technological challenge to the quest.

But by using the term “air-breathing,” Griffin is ruling out the simplest solution, a rocket-propelled missile that would have relatively limited range.

Robert A. Pearce, deputy associate administrator for strategy at NASA, noted that while the agency has close ties with the Pentagon, its main focus is on commercial use of technology

“Our primary concern is reusable systems,” Pearce said.

Congress has been increasingly vocal in its demands that the Pentagon match or exceed the hypersonic capabilities of potential adversaries.

Griffin noted that international media has reported that China has successfully tested hypersonic vehicles multiple times and that Russian President Vladimir Putin bragged on Russian television of advances in hypersonics.

That is why hypersonic weapons, along with offensive and defensive cyber, was among the top priorities Mattis gave him when he took the new technology and engineering job, Griffin said.

Those technologies are important, “because much of the world is catching up” and eroding the technological advantage that the U.S. military has had in conflicts since World War II, he said.

The United States would not win a “man-to-man engagement” with our potential adversaries and “we don’t want to engage in that kind of fight.”

The way to prevent that kind of battle is to regain the technological advantage with prompt conventional strike, electronic warfare, directed energy, cyber and space, Griffin said.

“Those are the high-leverage priorities that will allow us to regain the advantage,” and “when we appear to be so strong,

people will not want to engage us. That’s the best way,” he said.

Navy’s Newest Carrier-Based Catapult, Trap Systems Steadily Advance Through Test

PATUXENT RIVER, Md. – One year ago, the Navy’s newest aircraft launch and recovery systems successfully conducted historic first sorties aboard the USS Gerald R. Ford . Today, the Electromagnetic Aircraft Launch System (EMALS) and Advanced Arresting Gear (AAG) progress through comprehensive test programs, Naval Air Systems Command (NAVAIR) said in a July 27 release.

“Data from shipboard testing indicates that both EMALS and AAG have demonstrated improved reliability projections over the solely land-based testing,” said Capt. Steve Tedford, former Aircraft Launch and Recovery Equipment (PMA 251) program manager.

Reliability is a key performance parameter for any new aircraft system, ensuring operational readiness for the fleet. EMALS and AAG are being put through the rigors to ensure they meet developmental milestones. Single-day shipboard operations show that both systems are capable of meeting operational requirements.

The EMALS and AAG teams, along with industry partner General Atomics, have developed numerous engineering changes to support the systems’ continued maturity and reliability growth, Tedford said.

Program management for both systems is multifaceted, and beyond the complex developmental engineering and test programs, the EMALS and AAG teams have remained focused on several critical support areas. In-depth logistics efforts have been underway to ensure adequate spares planning for the completion of the testing and full life cycle of these critical systems; to create the maintenance requirement cards and tools Sailors will use to operate and maintain the new systems; and to provide those Sailors with interim and permanent training solutions.

To date, Sailors from CVN 78 have been trained on EMALS and AAG. Development of a curriculum and instruction of system-specific courses has been conducted by the General Atomics and Navy team.

“We are extremely pleased to see how well General Atomics’ EMALS and AAG operations and maintenance training program has served CVN 78 Sailors at both our Shipset Controls laboratory in San Diego and at NAVAIR’s land-based test sites,” said Scott Forney, president of General Atomics Electromagnetic Systems Group.

“The dedicated EMALS and AAG teams have excelled in overcoming numerous challenges and will continue charging ahead, completing these concurrent test programs, continually increasing confidence in these technologies and getting both systems mission ready,” said Tedford.

Courtney Urges Pentagon to

Keep Columbia-Class Funding Separate

WASHINGTON – The provision for separate funding for the Columbia-class ballistic-missile submarine program is not being followed by Pentagon budget officials, which could "put tremendous pressure on the rest of the shipbuilding account," the top Democrat on the House Armed Services Seapower and Projection Forces subcommittee said July 24.

Rep. Joe Courtney, D-Conn., noted that in 2014 he and former Rep. Randy Forbes, R-Va., then-chairman of the Seapower panel, introduced legislation to create the National Sea-based Deterrent Fund to provide funding for the Ohio-replacement submarine.

"We proposed to take funding for the Columba-class program out of the shipbuilding account as a way of taking the pressure off the rest of the Navy's fleet, that was under its own pressures due to the existing [budget] top lines," Courtney told a Mitchell Institute breakfast.

The legislation was passed and still is law, he said.

"But the real question is whether the Pentagon will treat it as really a separate account," he said.

Right now, Columbia still comes out of overall pie that pays for shipbuilding.

"It's still got issues as far as the budget folks over in the Pentagon," said Courtney, who represents a Connecticut district that includes the New London submarine base and the Electric Boat submarine construction yard.

Currently, funding for Columbia is relatively low, paying for final design and fabrication of the missile compartments. But

with an estimated price tag of more than $7 billion each, paying for Columbia construction would “put a big hole in shipbuilding,” he said.

Full construction of the first Columbia is scheduled to start in fiscal 2021. A total of 12 are planned, to replace the 14 Ohio-class boats that are nearing the end of their service lives.

“This has been a totally a non-contested issue,” Courtney said.

There have been a lot of complaints about the enormous cost of the entire program to modernize all three legs of the nuclear deterrent triad, with the Air Force working to replace its Minuteman III intercontinental ballistic missiles and buying the B-21 bomber to replace the B-52s and B-2s in the nuclear delivery mission.

But, Courtney said, “the sea-based deterrent, I think, is the least-contested leg of the triad.”

He noted that the compromise version of the fiscal 2019 National Defense Authorization Act was approved by House-Senate conferees the previous evening and probably would be passed in the House on July 26.

The bill provides “roughly $3 billion,” for Columbia detail prototyping and construction of the missile compartments, which also will go into Great Britain’s new ballistic-missile sub, the Dreadnaught, Courtney said.

“The program is moving forward. Our biggest problem is to prevent any slowing down,” because the Ohios’ service life has been extended to 42 years, which is considered the absolute limit to their ability to submerge for deterrent patrols.

The first Columbia is expected to go into service when the first Ohio must retire.

The Navy missile boats are “the work horse of our national deterrence. … To have one of the old ships go off line, and not have a Columbia ready to replace it, obviously would create risk,” Courtney said.

Coast Guard Icebreaker Healy Deploying to Arctic Ocean

SEATTLE — The Coast Guard Cutter Healy is scheduled to depart July 24 for a four-month deployment to the Arctic Ocean to carry out multiple scientific research missions, the 13th Coast Guard District announced in a release.

Healy will provide presence and access to the Arctic while conducting three major science research missions. In partnership with the National Science Foundation, National Oceanic and Atmospheric Administration (NOAA) and the Office of Naval Research, scientists will conduct physical and biological oceanographic research in the Arctic Ocean.

Healy’s first mission is a NOAA-sponsored mission to increase understanding of biological processes along Alaska’s Continental Shelf. This mission comprises three mission subsets: Distributed Biological Observatory, Northern Chukchi Integrated Study, and the Ecosystems and Fisheries-Oceanography Coordinated Investigations.

The second mission of Healy’s Arctic deployment is sponsored by the Office of Naval Research and is focused on understanding how upper-level ocean stratification and sea ice in the Beaufort Sea is responding to inflow and surface forcing changes. The Stratified Ocean Dynamics of the Arctic project aims to increase understanding by deploying subsurface

moorings and specialized on-ice instruments to observe the fluctuations across an annual cycle.

Healy's final mission is sponsored by the National Science Foundation and will examine the effects of the Pacific water inflow into the Arctic and its associated boundary current on the ecosystem. This study is part of a multiyear endeavor that combines shipboard measurements taken in the spring and fall, with measurements from a subsea mooring deployed in the center of the boundary current.

Currently under the command of Capt. Greg Tlapa, Healy is the nation's premiere high-latitude research vessel and is one of the only U.S. military surface vessels that deploys to and is capable of operating in the ice-covered waters of the Arctic. In addition to science operations, Healy and the crew are capable of conducting a range of Coast Guard operations such as search and rescue, ship escorts, environmental protection and the enforcement of laws and treaties in the Polar Regions.

Healy provides access and presence throughout the Arctic region to protect U.S. maritime borders and to safeguard the maritime economy. Homeported in Seattle, Healy is the largest ship in the U.S. Coast Guard at 420 feet long with a displacement of over 16,000 tons and a permanent crew of 87.

Los Angeles SSN Life-Extension 'Creates Own Issues'

WASHINGTON – The ranking member of the House Armed Services Seapower and Projection Forces subcommittee said failure to

fund extra Virginia-class attack submarines (SSNs) in 2022 and 2023 will aggravate the submarine shortage in the next decade, and a plan to extend the lives of five older Los Angeles-class SSNs has "its own set of issues."

U.S. Rep. Joe Courtney, D-Conn., told an audience at the Hudson Institute, a Washington think tank, July 18, that the option of extending the lives of Los Angeles-class SSNs should be looked at carefully.

The Navy's SSN force stands at 53 boats today and is on track to decline to 42 in the mid-2020s. One plan to mitigate the decline is to fund three Virginia-class SSNs in both 2022 and 2023, when the submarine contractors Electric Boat and Newport News are building the first Columbia-class ballistic-missile submarine.

"If we don't do that, we're really going backwards," Courtney said, referring to the shipbuilding plan, now a matter of law, to build the Navy's fleet to 355 ships.

The Navy also is looking at extending the service life of up to five Los Angeles SSNs to help mitigate the gap.

"I'm not religiously opposed to that, but [life extension] creates its own set of issues," said Courtney, whose district includes Electric Boat. "These are old boats, built in the 1980s and '90s. They don't have the same capabilities that a Virginia-class [SSN] has. We have to refuel the reactor and you have to check the hull to make sure that it's okay. They've been running hard in the decades they've been out there.

"There's a whole separate issue," he added. "Technologies change in terms of shipbuilding: where you get the spare parts, where you find the [blueprints]. This thing is not as easy as it sounds. It's not like putting a quart of oil in your 10-year-old car and hope it runs for the next five years."

LCS Anti-Submarine Warfare Mission Package Completes Two Testing Milestones

WASHINGTON – The Navy's Program Executive Office Unmanned and Small Combatants announced July 16 the successful completion of two littoral combat ship (LCS) Anti-Submarine Warfare (ASW) Mission Package testing milestones.

The first was a 10-day Dockside-1 test event on the Dual-mode Array Transmitter (DART) Mission System Towed Body and associated launch-and-recovery assembly components in Fort Pierce, Florida. The second was a full-power, in-water test of the active array at the Naval Undersea Warfare Center Seneca Lake Detachment's test facility in Dresden, New York.

"The Seneca Lake test was a huge step forward for the DART System and the ASW Mission Package as a whole," said Capt. Ted Zobel, LCS Mission Module program manager. "This revolutionary technology is critical to countering the rising submarine threats worldwide."

The array previously was tested at Raytheon's shallow-water facilities in Portsmouth, Rhode Island. This test on Seneca Lake was the first opportunity for the new technology to be demonstrated in an open-water test environment, which allows better understanding of how the system will perform when deployed on an LCS. The successful completion of this test event provided Navy officials and industry partners valuable information on performance specifications and options for future modifications.

DART development includes incremental testing of the

individual system components followed by progressively more inclusive integration and testing until the full ASW Mission Package has been tested.

The Dockside-1 test a week prior to the Seneca Lake event had LCS Sailors overseeing and actively engaging in the operation of the DART Mission System at the Florida Atlantic University Harbor Branch Oceanographic Institute's waterside product integration, assembly and test complex.

Dockside-2 testing, planned for the fall, will expand the scope of DART system integration to add three additional Raytheon mission modules to complete the system. The Navy will take delivery of the DART Mission System from Raytheon later this year and plans to take the system to the Atlantic Undersea Test and Evaluation Center early next year for additional testing.

Naval Reactors Awards Naval Nuclear Laboratory Contracts to Fluor Marine Propulsion

WASHINGTON – Naval Reactors, a joint program of the Department of Energy (DOE) and the Department of the Navy (DON), has selected Fluor Marine Propulsion LLC (FMP) as the new DOE and DON contractor for the Naval Nuclear Laboratory (NNL), Naval Reactors Public Affairs said in July 13 release. FMP, a limited liability company, is a wholly owned, special-purpose subsidiary of Fluor Corp.

Naval Reactors conducted a full and open competition for the new NNL contracts. The estimated combined award value of these

contracts is approximately $30 billion over ten years if all options are exercised.

The current DOE and DON contracts for the NNL with Bechtel Marine Propulsion Corp. expire on Sept. 30. An approximate three-month transition period commenced on July 12, which will provide stability for the workforce employed under the Bechtel NNL contracts and ensure essential continuity of operations for vital Naval Reactors work. The contracts awarded to FMP represent the best value to the government and will provide 10 years of stability for the NNL.

The NNL comprises the DOE-owned locations and personnel responsible for developing advanced naval nuclear propulsion technology, providing technical support to ensure the safety and reliability of our nation's naval nuclear reactors, and training the Sailors who operate those reactors in the U.S. Navy's submarines and aircraft carriers. The NNL includes the Bettis and Knolls Atomic Power Laboratories, the Kenneth A. Kesselring Site and the Naval Reactors Facility, which have supported the nation since 1946.

Zumwalt DDG's Gun Munition Still on Hold

ARLINGTON, Va. – The Navy's program executive offer in charge of most shipbuilding said that development of a new munition for the Advanced Gun System (AGS) on the DDG 1000 Zumwalt-class ship continues to be on hold.

Speaking July 11 at a Navy League Special Topic Breakfast, Rear Adm. William J. Galinis, program executive officer, Ships, said a replacement for the Long-Range Land-Attack

Projectile (LRLAP) developed for the AGS "is on hold at this point."

The LRLAP was canceled in part for its high cost given economies of scale when the DDG 1000 program was reduced from 32 planned ships to only three, leaving the AGS without a round available in quantity.

"Last fall, the Navy made the decision that we were going to transition [the Zumwalt] from a primary land-attack mission to more of a surface strike mission set," Galinis said. "As we brought this platform on line and learned about the capability of the platform, it fits that mission requirement very well. There are some changes we need to make to the ship, but they are not significant."

Galinis said the Navy has had challenges with getting the desired ranges from rounds fired from the AGS.

"Last summer, we had essentially a fly-off of four or five different rounds," he said. "We've taken the analysis of those test firings. It's kind of on hold at this point as we transition to surface strike."

Galinis said that USS Zumwalt is expected to return to sea at the end of next month following installation of its combat systems in San Diego. The second hull, Michael Monsoor, is in Bath Iron Works shipyard in Maine for a post-delivery availability. One of its main turbine engines suffered a casualty and will be replaced.

The third hull, Lyndon B. Johnson, is expected to be launched by the end of the year and to begin sea trials by the end of 2019.

PEO Ships: 'A Little Risk,' 'Evolutionary Approach' to Shipbuilding Needed

ARLINGTON, Va. – The Navy admiral in charge of building most of the Navy's ships advocates taking a bolder approach to ship design, but one that also leverages existing hulls and technology to incrementally develop new ship classes.

Speaking July 11 to an audience at a Navy League Special Topic Breakfast, Rear Adm. William J. Galinis, program executive officer (PEO), Ships, said the Navy spending "far too much time studying a problem in trying to minimize risk really gets us to an unresponsive [acquisition] system."

Galinis said that the Navy's top leadership is encouraging the acquisition community to "take a little bit of risk" given the current sense of urgency in the renewed climate of great power competition.

"Include that in your business practices," he urged the defense industry representatives at the event.

Galinis said the Navy is taking a more "evolutionary approach to new ship classes [and] introducing new technology, leveraging parent designs."

He cited the DDG 51 Flight III program, the new guided-missile frigate program and the Flight II of the San Antonio-class amphibious platform dock ship as examples of the evolutionary approach. Another example he mentioned is the evolution of the America-class amphibious assault ships, the most recent of which – Bougainville – will feature restoration of a well deck and be equipped with the new Enterprise Air Search Radar that uses technology in common with the Air and Missile Defense Radar being installed on the DDG 51 Flight III.

Galinis pointed out the success of incrementally modernizing ships in the example of the third Arleigh Burke guided-missile destroyer USS Barry (DDG 53), which emerged from a recent modernization availability with the same capability of USS John Finn (DDG 113), a new ship commissioned last year.

He said Navy's Future Large Surface Combatant design will represent "more of an evolutionary approach as we migrate from the DDG 51 Flight III to the Large Surface Combatant" [and] will be "operationally driven."

The first two ships of DDG Flight III are under construction by Huntington Ingalls and Bath Iron Works.

"The revolutionary piece certainly plays a part," Galinis said, referring to new technologies that are being developed for shipboard use. The Navy has been developing laser weapons, electromagnetic rail guns and integrated power systems for newer ships.

AUVSI Launches Unmanned Maritime Systems Advocacy Committee

ARLINGTON, Va. – The Association for Unmanned Vehicle Systems International (AUVSI), the world's largest nonprofit organization dedicated to the advancement of unmanned systems and robotics, has formed an Unmanned Maritime Systems (UMS) Advocacy Committee to focus on the development of policy positions to support the advancement of the industry, the association announced in a July 9 release.

“Unmanned maritime systems allow military and commercial operators alike to go farther and deeper than ever before,” said Brian Wynne, president and CEO of AUVSI. “The input provided by the UMS Advocacy Committee will help us speak with a unified voice and enable all our members to advocate for the growth of the industry.”

The UMS Advocacy Committee will be chaired by Thomas Reynolds, vice president of Business Development for Hydroid Inc./Kongsberg Maritime. Reynolds, who currently leads all Kongsberg Maritime business with the U.S. government, previously served as a commissioned officer in the U.S. Navy, where he served as commander of the Explosive Ordinance Disposal Task Group, U.S. Fifth Fleet, among other roles.

Wayne Prender, vice president for Applied Technology and Advance Programs at Textron Systems, will be the committee’s vice chair. In his role at Textron, Prender is responsible for engineering development programs, advancing areas such as the Common Unmanned Surface Vehicle and Cased-Telescoped Weapons and Ammunition, as well as emerging capabilities and development programs. He is a former commissioned officer in the U.S. Army, where he was deployed to Iraq and awarded the Bronze Star.

The committee includes representatives from BAE Systems, L3 Technologies, Leidos, Lockheed Martin, Northrop Grumman and Seaborn Defense.

The UMS Advocacy Committee recently formalized a set of Policy Priorities to help guide the committee’s legislative and regulatory actions. The priorities state that the UMS Advocacy Committee shall:

■ Establish the UMS Advocacy Committee as the preeminent industry voice influencing acquisition and regulatory policies and processes.

■ Facilitate the growth of UMS through active engagement with

the government and commercial sectors.

■ Collaborate with ship owners, operators, shipyards, ports, federal maritime agencies, technology developers, classification societies and academia to further integrate advanced automation for maritime platforms into the domestic market.

■ Develop the future of the UMS workforce through technology-focused education.