

# Marine Corps Sees Cargo UAVs as the Future of Logistics in Distributed Operations



140318-N-P0203-138 QUANTICO, Va. (Mar. 18, 2014) A Kamen K-Max helicopter equipped with the Autonomous Aerial Cargo Utility System (AACUS) lifts off during an Office of Naval Research (ONR) demonstration held at the Marine Corps Base Quantico, Va., as part of the Autonomous Aerial Cargo Utility System (AACUS) program. AACUS consists of a sensor and software package that when integrated into rotary wing aircraft enables autonomous, unmanned flight allowing the Marine Corps to rapidly resupply forces on the front lines as an alternative to dangerous convoys, manned aircraft or air drops in all weather conditions. (U.S. Navy photo by John F. Williams/Released)

WASHINGTON – The Marine Corps plans to continue experimentation with its two K-Max cargo unmanned aerial vehicles (CUAVs) and hopes to procure more to add to experimentation in logistics for distributed operations.

“We see this as the future of distributed operations in how we logistically supply ourselves,” said Lt. Gen. Steven R. Rudder, the Marine Corps’ deputy commandant for aviation, responding to a question about an unfunded requirement for \$18 million for the K-Max unmanned cargo helicopter from Rep. Joe Courtney (D-Connecticut) during an April 4 hearing of the Tactical Air and Ground Forces subcommittee of the House Armed Services Committee.

The Marine Corps owns two CQ-24A K-Max unmanned helicopters and deployed them to Afghanistan in 2011 through 2014 as an experiment in logistics to forward operating bases. Operated by contractors, they transported 4.5 million pounds of cargo, much of which would otherwise have been transported by 900

convoys of trucks through territory subject to ambush and improvised explosive devices.

“We endeavored to make them a program of record and are still working down that road,” Rudder said. “But we were not able to secure funding to get that flying in the fleet for test and operational usage for experimentation. We have since been able to secure funding for a cooperative research and development contract that we’re working with [the K-Max vendor].

“In the next few weeks [the two CUAVs] are going to be trucked back to Connecticut, and we’re going to give them to the vendor to let them work through a couple different things,” Rudder added. “One is autonomous logistics delivery. There are certain things you want on call but there are other things that you need going autonomously. The K-Max, with its lift capability and the way we conceive distributed operations in the future, if we get those airplanes, we’re going to configure them [the same] as we’re configuring a test vehicle in Connecticut with autonomy, which will allow them to have terrain-following radar and, [with] a push of a button, it will take the cargo to a particular point that was programmed in, drop that cargo and do it all day long. We’ve seen efficiencies with this over time.

“With the money we have funded right now – to do those two aircraft that we own – we will bring those back from Connecticut, hopefully by the end of next summer, to begin experimenting in [Marine Corps Air Station] Yuma [Arizona] and [Marine Corps Air-Ground Combat Center] Twentynine Palms [California], but the emphasis right now is to create a few more air vehicles so we can expand this usage,” he said.

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# Navy Awards Two Contracts for MQ-4C for Upgrades, Advance Acquisition



ARLINGTON, Va. – The Navy has awarded two contracts to Northrop Grumman Systems Corp. to advance the fielding of the new MQ-4C Triton high-altitude, long-endurance unmanned aerial vehicle.

Naval Air Systems Command (NAVAIR) on April 1 awarded a \$12.8 million contract modification to upgrade three Tritons “from a baseline Integrated Functional Capability (IFC) 3 software configuration to a Multi-IFC 4 software configuration,” the contract announcement said. “This modification updates drawings and associated technical data in support of the MQ-4C IFC software configuration upgrade.”

Northrop Grumman also was awarded a \$7.2 million acquisition contract modification to extend “the period of performance and provides additional funding to procure long-lead components, material, parts and associated efforts required to maintain the MQ-4C Triton Unmanned Aircraft System planned low-rate initial production Lot 4 production schedule.”

Two MQ-4Cs have been delivered to the Navy’s Unmanned Patrol Squadron 19 detachment at Naval Air Station Point Mugu, California. The Triton was slated to reach Early Operational Capability last year with a deployment to Guam, but the deployment was put on hold after one of the MQ-4Cs was damaged in a landing mishap at Point Mugu.

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# Marine Pilots Killed in AH-1Z Helicopter Crash; First Naval Aviation Loss of 2019

ARLINGTON, Va. – The loss of a Marine Corps AH-1Z helicopter March 30 was the first crash of a U.S. naval aviation aircraft since the beginning of the calendar year.

Two Marine pilots were killed when the AH-1Z Viper helicopter gunship crashed in the vicinity of Yuma, Arizona, at about 8:45 p.m. March 30, according to a Marine Corps release.

“Both pilots were conducting a routine training mission as part of the Weapons and Tactics Instructor course 2-19,” the release said.

The training was being conducted by Marine Aviation Weapons and Tactics Squadron One based at Marine Corps Air Station Yuma. The helicopter was assigned to a Marine helicopter light attack squadron, but the identity of the specific squadron has not been released.

An AH-1Z carries a crew of two.

The cause of the crash is under investigation. The names of the deceased pilots have been withheld pending notification of their next of kin.

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## Richardson Prepares Sailors

# to Out-Learn and Be Ready to Out-Fight Adversaries



Admiral John M. Richardson, Chief of Naval Operations, in an interview with SEA POWER on Wednesday, March 27, 2019 at the Pentagon.

*Adm. John M. Richardson began serving as the 31st chief of naval operations on Sept. 18, 2015, and he's in his last year at the helm of the U.S. Navy. During the intervening years, Richardson has focused the Navy on the emerging "Great Power Competition" with Russia and China and has pushed for more agility and lethality in the fleet, higher velocity learning and rapid technological innovation.*

*At sea, Richardson served on two attack submarines and one ballistic-missile submarine before commanding the attack submarine USS Honolulu.*

*He also served as commodore of Submarine Development Squadron 12; commander, Submarine Group 8; commander, Submarine Allied Naval Forces South; deputy commander, U.S. 6th Fleet; chief of staff, U.S. Naval Forces Europe and U.S. Naval Forces Africa; commander, Naval Submarine Forces; and director of Naval Reactors. He also served as naval aide to the president.*

*The CNO discussed the Navy's posture with Senior Editor Richard. R. Burgess. Excerpts follow.*

**From the start of your tour as CNO, you spoke of the return of the "Great Power Competition." How has the Navy's posture shifted to counter that?**

**RICHARDSON:** We've shifted in a number of different ways. One is that the way we train and educate our people has changed. [We've] adopted a competitive mindset. The very first thing that we do with people from all over the country when we bring

them into the Navy is send them to boot camp. We've been fortunate enough to meet our recruiting goals for more than 12 years now even with a Navy that is growing about as fast as we can bring people in. Of late, we've made the assessment and the corresponding decision in the Navy that if we're going to truly be competitive, we've got to sort of start at the very beginning to instill the attributes that will be decisive in that competition including, if necessary, combat. Those attributes are things like toughness and initiative and accountability and integrity. And so, we've ramped up the difficulty level of boot camp. We've made it tougher or harder. The response of the recruits has been stunning. Our retention has gone up. We have more recruits finishing even with the new curriculum than we did before. We're teaching them a lot of resilience skills in terms of how to manage stress on their own and as a team. Those Sailors are reporting to their commands, ships, submarines and squadrons much more ready to contribute to the running of their commands. That is the feedback we're getting from their chiefs and LPOs [leading petty officers], which is about as honest a feedback as we could ever hope to get.

We've put a lot of emphasis in the acquisition of technologies, tools and capabilities that would be decisive in the Great Power Competition to make sure that we are moving forcefully into the future to evaluate and assimilate technologies like directed energy, hypersonics and unmanned things like autonomy, artificial intelligence and machine learning – all of those things that are going to be a decisive part of Great Power Competition now and in the future. Not only are we moving into these technologies because they're important, but we're trying to move into them and get them into the hands of our Sailors much faster. We've had some successes moving acquisition into the future faster.

Finally, I would say that all of that is great, but you've got to go out and you've got practice, get ready, take your

capability to sea and run it through its paces. That is the thing that combines both the people and the technology. We've been investing heavily in readiness since I got here, particularly in the last three years.

**You were a submariner in the Cold War. The Russian and Chinese navies are increasing their capabilities and quantities? Comparing then to now, what do you see are differences and similarities?**

**RICHARDSON:** The similarities are that it's really a global competition just as the Cold War was. It's a competition that I believe is going to define sort of the world order going forward. That's almost where the similarities leave off. This is a much more complex and complicated competition now with not just the bipolar Cold War phenomena that we had – really an exception to history to have the world in two camps – but now, a much more multipolar competition with both China and Russia already being global powers. With the idea of China being an Asian power, there are different aspects of that as we pivot to Asia. With the economic dimensions – with different allies and partners than during the Cold War – we've got to be mindful of the complexity that we face in this multipolar approach. Folks who take the approach that this is going to be a redux of the Cold War are really oversimplifying the challenge that faces us. We need to set our minds for the complexity that this new version of Great Power Competition brings to us.

**You've interacted with your Chinese counterpart numerous times. Has your interaction been able to affect the level of tensions in the South China Sea and the Taiwan Strait?**

**RICHARDSON:** That's a difficult question to answer. I hope that, by virtue of having a relationship and communicating frequently, we gain a deeper understanding of each other's perspectives, be less likely to be surprised by one another and through that understanding we can make sure that there is

a consistency. We can hold ourselves accountable to our actions being consistent with our words. We can also do everything we can to work together in areas where we have common interests. In those areas where we clearly have differing perspectives, we can manage and come to resolution on those perspectives in a way that minimizes the tension and particularly minimizes the chance for a miscalculation or something like that that could escalate. This communication channel allows us, if something should happen, to call one another up and, hopefully, keep it in perspective and de-escalate without it growing out of hand. Instead, we can mitigate that type of spread.

**In a recent forum you talked about trying to move the ballistic-missile defense (BMD) mission of Aegis ships in the Sea of Japan, for example, ashore to free up the ships rather than keeping them in a box. Has that gotten any further or is that still just something in discussion?**

**RICHARDSON:** I think it is moving forward. It is linked to this idea of dynamic force employment, which is linked to the idea that naval forces are fundamentally maneuver forces where ships are made to move on the sea and aircraft, obviously, are made to move through the sky. It's a bad matching of capability to mission if we have a ship that is persistently assigned to a BMD mission of a land asset. Often, it's a little bit mischaracterized. I'm 100% behind the BMD mission, which is a super important mission and one that the Navy can contribute to both with the Aegis weapons system afloat or ashore. My real comment is that in the execution of this mission, if you have an emergent asset that you want to defend and a ship can get there and be effective in its defense, then by all means, the ship is a good answer to that emerging challenge. But years down the road, if it looks like this is going to be a persistent mission, then it seems to me that we should do something like build a capability ashore, a more permanent capability for a permanent mission. And then, you

liberate that multimission ship to go back to its fundamental missions of being able to maneuver around the world and flow to where the challenges are.

**Do you have any concerns about the unpredictability of Dynamic Force Employment having a negative effect on the morale of crews with their schedules constantly in flux?**

**RICHARDSON:** That's the Navy I joined in the early '80s when I was commissioned, a very dynamic, unpredictable time. You may recall that it wasn't uncommon for us to be hanging out at home and, if the ship was ready to get underway, you could get that late-night call that said, OK, it's time for us to move out. Report to the ship, grab your sleeping bag and get on down, we're getting underway. We'd get underway at night and head on out. In my case, my submarine would be missing from imagery the next day, missing from the pier where it was the day before. In order to compete effectively in this Great Power Competition, we just can't be super predictable, and so, this idea of dynamic assignments, agility, all of that is an important part. We've started to get into this a little bit with the Harry S. Truman strike group, and we're mindful that this is a little bit of a new thing for many of our families.

Overall, our Sailors and their families have responded really positively. Both our Sailors and their families joined the Navy because they wanted to go out and respond to those places where the nation needed them and still needs them. We're seeing crews lean into this mission with a lot of enthusiasm. I will tell you, though, we are learning some lessons, too, in terms of how we can better take care of our Sailors and their families as we get back into this type of dynamic maneuvering. Each one of these deployments gets a little bit better than the one before.



Admiral John M. Richardson, Chief of Naval Operations, in an interview with SEA POWER on Wednesday, March 27, 2019 at the

Pentagon.

**Your No. 1 priority is strategic deterrence. How confident are you that the Columbia SSBN's tight schedule and hefty budget will be met?**

**RICHARDSON:** It's not just the Navy's No. 1 priority, it's the nation's top priority to make sure that we maintain an effective strategic deterrent. Right now, the thinking is that the [nuclear deterrent] triad remains the best way at going about that. Of the three legs of the triad, the submarine is both the most responsive and survivable leg, so it's important for the whole nation, in fact, for the free world, to make sure that this is the capability that is reconstituted and is maintained. We've been on strategic alert since 1960, and it looks like we're going to need to remain on strategic alert. It's very important that this program deliver on time with the capabilities that it needs to do its job. It's got a tremendous amount of support across the entire enterprise – in Congress and the Department of Defense – that I feel pretty confident about. It's an incredibly complex thing to do, as you can imagine. We are challenging ourselves in terms of the timeframes in which we're going to need to build it, and so, that is my No. 1 call to the program. Right now, it's on track, but I need to get more margin into the schedule. It's complicated enough that once we start testing in sea trials, we're inevitably going to find things that are going to need fixing – unexpected things will pop up and we need to build time into it to get that done.

*“The workforce and materiel base don't respond well to fits and starts, peaks and valleys. Our hope is that by laying in a steady build rate – not only for submarines but for the rest of our Navy ships – that we've got inherent stability. In that way, we get the industrial base to a real healthy, stable condition.”*

**The desired attack submarine force level currently is 66**

**boats. Do you think that's achievable in the budget climate, especially when it looks like the budget might level off for a while?**

**RICHARDSON:** Yes, I think it is achievable. To get to a force level of 66 submarines, if it's a 33-year life, let's say, of a submarine, then that's two submarines per year. That's a pace that we've demonstrated that we can maintain. It's an interesting question you ask because it bears on shipbuilding. Our 30-year shipbuilding plan is a great read, if you're a scholar of this part of the business, and it advocates for exactly what you say – a steady approach, given the resources that we have so that the industrial base that builds and supports these ships can have some reliability and stability. The workforce and materiel base don't respond well to fits and starts, peaks and valleys. Our hope is that by laying in a steady build rate – not only for submarines but for the rest of our Navy ships – that we've got inherent stability. In that way, we get the industrial base to a real healthy, stable condition.

**The new aircraft carrier, USS Gerald R. Ford, has had some difficulties. Are you confident that this class of ship is going to be affordable?**

**RICHARDSON:** Yes. We must step back and appreciate just what an amazing accomplishment the Gerald R. Ford-class aircraft carrier is. It's a brand-new class of super carrier, [with a] new propulsion plant, new reactor plant, lots of new technologies in terms of power generation, world-class electrical power generation – three times the electrical power of its predecessor – and doing that for fewer people through a lot more adoption of reliable automation. What are we using that extra power for? Things like electromagnetic catapults, arresting gear that can be tuned to the aircraft type, dual-band radar [and] very powerful sensors, new technologies like these weapons elevators. We made the deliberate decision when we started this that we were going to put all these new

technologies on the first ship of the class – so very, very ambitious.

By and large, we've got through all the technical difficulties for these technologies and are stepping through it. The electromagnetic catapults are working. The advanced arresting gear is working. The dual-band radar is on track. There are some other technologies – the weapons elevators – we're continuing to work through those. The ship is in PSA [post-shakedown availability] right now, the first PSA for the first ship of the class. It's not unexpected that you may learn some things that are going to cause you some delays. That is just the nature of doing innovation.

We're having that happen at a world-class level in the Gerald R. Ford, so, in the not-too-distant future, we're going to look back and say we did something that probably only the United States of America can do in terms of innovating something at this scale and complexity. It's going to break every record for every carrier that's ever sailed, and it's going to allow real innovation to occur at the air wing, the real punching power of the carrier. By virtue of all these technologies, we're going to be able to innovate an air wing that is going to be stunning in lots of variable types of aircraft, one of which is going to be the unmanned tanker, and so, we're going to, I think, really be happy.

Despite all of that aggressive approach to innovation, the first ship of the class, of any class, almost always sees some cost overrun. The overruns for the Ford have been below average for first ships of the class, and we just need to be mindful of perspective. All the analysis that we have shows that these carriers are going to be survivable even in the face of some of the emerging technologies that people talk about. I'm looking very forward to seeing the Gerald R. Ford get back to sea.

**With a new force structure assessment coming up at the end of**

**the year, what conditions have changed since the last one was done that you think might have influence?**

**RICHARDSON:** What hasn't changed? This Great Power Competition is getting sportier every day. Both of our competitors – China and Russia – have increasingly capable armed forces, especially navies, so there is the force-on-force technological change, with technologies that are not just new at sea but new altogether. The geostrategic landscape is changing quickly as nations rise and nations shrink. China is certainly a nation with strategic expansion having a greater influence in the Asia-Pacific and around the world. For all those reasons – the geopolitical, geostrategic, technological landscapes and the human dimension of those landscapes – all of that has changed and it's changing faster and faster. Even though the last force structure assessment was done in 2016, you'd think you get a little bit of runtime on that assessment, but things have changed quickly enough that it's time to go back in and make sure that our assumptions are still valid, that we haven't missed an opportunity to take advantage of an emerging technology or an emerging geostrategic opportunity and just do that assessment again.

**Reading recently about the U.S. Asiatic Fleet in World War II and its submarine force, its performance was considered less-than-stellar. The Navy hasn't fought war at sea since World War II with the exception of a couple of confrontations like Operation Praying Mantis. What needs to be done to train our crews to be on the step for combat at sea?**

**RICHARDSON:** That's a great question, one that we think about a lot. You're exactly right. In that interwar period where we learned so much as a Navy, we had 20 years of practice to learn how to do naval aviation from aircraft carriers with visionaries like Adm. [William] Moffett and Adm. [Joseph Mason] Reeves. We did a lot of work in surface-to-surface types of engagements. And then we did a lot of the operational strategic level planning in the interwar period. We did some

work with the submarines but, strategically, we just got that wrong in the interwar period and, therefore, we built a submarine force that was largely focused on scouting and reporting and maybe closing to engage another warship.

When the war broke out, we found out a number of things. One, there is nothing like combat, and so, even though we had a tremendous amount of work in surface tactics, we found that we needed to learn on the fly. We needed to learn our way from engagements like Savo Island, where we really got defeated. We had to learn on the fly in the whole Solomon Islands campaign such that almost exactly a year later we completely flipped the coin in terms of capability so that at the battle of Cape St. George it was complete victory – 5-to-0 – in terms of destroyers. And it's minds like Arleigh Burke's and such that led us through that, but also minds like our junior officers who designed the combat information center to make best use of technologies like radar. My point being that, with respect to preparing for combat, one, you must have a very sober view of what combat may bring. That's why we're making boot camp tougher. We're delivering tougher Sailors. We've got to do our very best to approximate what that might be, and then we've got to make our training as absolutely realistic and prototypic as possible. The more realistic you can make your training, the better you're going to be making that transition into combat.

Also, we are very mindful that, as much as we prepare, as good as our estimates are, it's going to be different when combat erupts on the opening rounds. So, we've got to remain flexible and continue to learn in the early parts of conflict, because it's the nature of our business. It's not going to go perfectly the first time. It's not going to go exactly how we foresee it. We've got to build in flexibility. That's why the "Design for Maintaining Maritime Security," both version one and now version two, puts such a premium on the ability and the agility of learning, because the team that learns faster

than the other is the team that wins. We basically just outlearned our enemies in World War II. That learning combined with our industrial capacity were the keys to victory. That learning happened at every single level in the Navy, from five-star Adm. [Chester] Nimitz all the way down to the junior officers and junior Sailors who were innovating and creating on the fly.

We've got to make sure that our connectivity – the network that connects us all – is more resilient than the enemy's. It will degrade, but we'll have to be more effective in the degraded state than our enemy, and we'll heal faster than they do, too, and we'll get reconnected faster. I think probably we'll see less operating independently than we did before.

I have great confidence that, as the network degrades and we're more autonomous, more on our own than maybe we are right now, we're going to be at a great advantage because of the way we train our officers to think on their own. The idea of mission command is an important part of our preparation for conflict right now.

### **Anything else you would like to add?**

**RICHARDSON:** We're starting and ending a lot of our talks, speeches and conversations with, I would call them, first principles. Our first slide in many of our briefs right now has a picture of George Washington and this quote: "It follows then as certain as that night succeeds the day, that without a decisive naval force we can do nothing definitive, and with it, everything honorable and glorious." We spend some time talking about what America means and represents to the world. That idea of life, liberty and the pursuit of happiness – those principles that are instilled in all our founding documents like the Declaration of Independence, the Constitution – are reflected in some of the greatest speeches that our leaders have given. Our Navy has been there since the very founding of the country defending those principles. We

have a responsibility as a military power, but also as a diplomatic power. Very important diplomatic events have happened on Navy warships in sovereign U.S. territory – signing of treaties, hosting by our ambassadors, that contribution to national power. At the very start of the Navy, we were out around the world defending our sea lanes. America is a maritime nation. Two-thirds of our trade, two-thirds of our jobs, two-thirds of our economy are tied directly to the sea, so we continue to be out advocating for a system of rules and norms that allows free trade across those sea lanes to go to and from America's markets, that allows access to markets overseas for us to sell and purchase our goods. It's important that the American people and our Sailors understand that the Navy is a principal advocate for everything that America stands for, and an American Sailor in uniform on a liberty call ashore is often the first person, the first American, that somebody overseas may meet. It's a great responsibility, but our Sailors are magnificently prepared to be warfighters at sea, but also diplomats defending our prosperity. ■

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## **Navy Awards Raytheon Contract for Next 3 SPY-6 Radars for Destroyers**



ARLINGTON, Va. – The Navy has ordered three shipsets of the Raytheon-built SPY-6(V)1 Air and Missile Defense Radar (AMDR) for installation on three Arleigh Burke Flight III guided-missile destroyers (DDGs).

Raytheon Integrated Defense Systems has been awarded a \$402.6

million fixed-price-incentive (firm target) modification to previously-awarded contract to exercise Low-Rate Initial Production options for three SPY-6(V)1 radars, the Defense Department announced on March 14.

The SPY-6(V)1 replaces the SPY-1 in the Aegis Combat System in the forthcoming Flight III DDGs. It features 37 radar module assemblies (RMAs) on four fixed antenna faces.

The order brings to seven the number of AMDR radars ordered for the Arleigh Burke DDG program. The work will be performed in Marlborough, Massachusetts, and is expected to be completed by March 2023.

“We are on track right now with Shipset One, which we plan to deliver to Huntington Ingalls next year for [DDG]125,” said Scott Spence, Raytheon’s director of Naval Radars in a March 15 teleconference with reporters.

Raytheon also is developing the SPY-6(V)2 Enterprise Air Surveillance Radar (EASR). Spence said the Engineering and Manufacturing Development model of the EASR was delivered to the Navy’s test site at Wallops Island, Virginia, on March 11 and installed on a test tower the next day. This rotating radar, equipped with nine radar module assemblies (3 by 3 on a rotating face), will be tested for six months through the summer, with its air-traffic control and weather capabilities testing being included. Spence said that testing will lead into orders of long-lead materials for full-rate production of the EASR, expected to begin in late summer or the fall of 2019. The SPY-6(V)2 will be fitted onto amphibious assault ships and older aircraft carriers to replace the SPS-48/49 radars.

Spence said the SPY-6(V)3, three sets of 9-RMA fixed-face antennas of the EASR for ships including new aircraft carriers, also is aimed for Full-Rate Production by the end of 2019.

The company also is working on a lighter version of the AMDR for back-fitting on the Flight IIA DDGs. This radar would feature 24 radar module assemblies on fixed faces.

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## **CNO Richardson: Technology Agility a 'Strategic Achilles' Heel'**

WASHINGTON – The Navy's top officer said that he is concerned about the agility of the Navy to outpace its potential adversaries in the current era of great power competition.

"This is a strategic Achilles' heel for us," Chief of Naval Operations Adm. John M. Richardson said March 13, speaking at the McAleese Defense Programs Conference in Washington. "We are just not moving capability forward to the hands of our sailors as fast as we need to."

"I worry sometimes that we say, this conflict is going to go OK because our sailors are better trained than their sailors," Richardson said. "That margin is too close for me. But when I'm relying on the quality [of our sailors], it's true, but when I'm relying on the quality of our training, that's far too close a margin."

"Or we say, 'Hey, we're mechanically a more innovative people' – that may be true," he said, noting that still is too close a margin.

"Part of this is to make sure that our worst pilot can beat their best pilot because we put him or her in an aircraft that is just that vastly superior," Richardson said. "We don't send

our teams into a fair fight.”

“We’ve got to get that capability moving faster,” he said. “We’ve done a lot in our budget to try to accelerate these things. We’ve got about \$1.3 billion in what we call accelerated acquisition programs.”

As examples, Richardson listed some accelerated programs such as high-power lasers (including one being installed on a ship this year); unmanned systems such as the MQ-25 unmanned aerial refueling aircraft; new family unmanned underwater and surface vehicles; Conventional Prompt Strike; the Digital Warfare Office; and live virtual constructive training.

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## **Wittman: Third SSN in Budget Helps Reduce Risk for Columbia SSBN**



WASHINGTON – The addition of a third Virginia-class attack submarine (SSN) in the proposed 2020 defense budget is a long-sought goal of the leaders of the Seapower and Projection Forces subcommittee of the House Armed Services Committee. If approved, the third SSN would help with the construction of the Columbia-class ballistic-missile submarine, a congressman claimed.

“Chairman Joe Courtney [D-Conn.] and I were pretty adamant with [then-Defense] Secretary Mattis and said, ‘Listen, we need to add another Virginia-class submarine as we’re transitioning into Columbia class,’ ” said U.S. Rep. Rob Wittman (R-Va.), speaking March 13 at the McAleese Defense

Programs Conference in Washington. "It does two things: it gives us an additional submarine and gets us hopefully above the 42 number [the low in 2028 before the number increases toward 66] and, if you do that in combination with taking existing nuclear plants that we can replace into some of the 688[-class] submarines [Los Angeles-class SSNs], we can get close to 50 [SSNs] when it's all said and done.

"But it also helps us to de-risk Columbia," Wittman said. "It lets us put work force into place that develops the knowledge, skills and abilities to transition directly over from building a third Virginia-class submarine to building the Columbia class. As we know with new boats in these programs – we watched it with Virginia class and others – the learning curve is steep, where all the risk is embedded in the early side. When you look at welds and all the things that happen with these ships, we want to make sure we de-risk that.

Courtney, who also spoke at the conference, noted that the effort to include the third SSN in the 2019 budget failed, but also noted that, with the administration now supporting the third SSN in the 2020 budget, "even though we lost the battle [in 2019], we won the war."

On another topic, the Navy's plan to cancel the Refueling and Comprehensive Overhaul (RCOH) of the aircraft carrier USS Harry S. Truman was met with concern from both Courtney and Wittman. The Truman is 23 years old, and its service life could be extended to 50 years with the RCOH, as has been done with the oldest half of the 10 Nimitz-class carriers to date.

Courtney, who pointed out that the Navy already has purchased the nuclear reactors for the Truman, said the plan to cancel the RCOH "doesn't make any business sense to me."

Wittman, noting that the move would drop the aircraft carrier force level to 10 ships, said: "I would argue that it is not wise."

Aircraft carriers “are still extraordinarily critical elements of sea power, projecting power forward,” Wittman said.

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## **Navy Requests \$205.9 Billion Fiscal 2020 Budget**



The Department of the Navy (DoN) is requesting \$205.6 billion for fiscal 2020 – \$159.7 billion for the Navy and \$45.9 billion for the Marine Corps. The 2020 request represents a significant increase over the fiscal 2019 budget of \$196.1 billion.

The Navy’s base 2020 request is 29 percent of the overall Defense Department base request of \$545 billion. The total DoD request of \$718 billion includes the \$545 billion plus Overseas Contingency Operations funding of \$164 billion and \$9 billion for emergency funding for activities such as hurricane relief. The DoN’s OCO funding of \$44.7 is included in the DoN’s budget total.

The DoN’s \$205.6 billion request includes \$52 billion for military personnel; \$68.5 billion for operations and maintenance; \$61 billion for procurement; \$20 billion for research, development, test and evaluation (RDT&E); \$3.1 billion for military construction; and \$366 million for family housing.

“This [budget] fields a formidable force in all domains of operations,” said Rear Adm. Randy B. Crites, deputy assistant secretary of the Navy for budget, briefing reporters March 12 at the Pentagon.

The end-strength of active-component Navy personnel is planned to rise to 340,500, an increase of 5,100 over 2019. Reserve personnel are planned to decrease slightly by 100 to 59,000. DoN civilian manpower is slated to grow, from 214,284 to 217,476.

During 2020, 10 ships are planned for delivery: four Arleigh Burke-class guided-missile destroyers (DDGs); three Virginia-class attack submarines (SSNs); two littoral combat ships (LCSs); and one Spearhead-class expeditionary fast transport (T-EPF). Also during the year, the Navy plans to retire two Los Angeles-class SSNs and three Avenger-class mine countermeasures ships. The battle force strength will grow by five ships to 301 in 2020.

The Navy has budgeted \$23.8 billion for shipbuilding and conversion, the largest amount requested in 20 years, although, because in 2019 Congress added three ships in the 2019 budget, the 2019 total was larger at \$24.2 billion. The 2020 budget requests funds for 12 ships: the third Gerald R. Ford-class aircraft carrier, the future USS Enterprise; three Virginia-class SSNs, two of which will be equipped with the Virginia Payload Module; three Flight III Arleigh Burke-class DDGs; one FFG(X) frigate, the lead ship of its class; two John Lewis-class fleet replenishment oilers (T-AO); and two towing, salvage and rescue ships.

For the Columbia-class ballistic-missile submarine, the Navy has requested \$533 million in RDT&E funds. Construction of the first Columbia-class hull is planned for 2021.

The Navy expects to save \$254 million (\$2.5 billion over five years) from divestment of the planned service-life extension of Ticonderoga-class cruisers.

Also requested in the shipbuilding account are the construction of four LCU 1700 utility landing craft and the refueling and comprehensive overhaul of one Nimitz-class

aircraft carrier. The Navy is gapping for a year the procurement of the LCAC 100 class of ship-to-shore connectors as that program is restructured.

The Navy is requesting the cancellation of the future RCOH – scheduled to begin in 2024 – for the aircraft carrier USS Harry S. Truman with plans to retire the ship early and use the funds towards other programs. the procurement of Ford-class carriers. The Navy's official budget document said the adjustment is made to balance the fleet's high-end platforms with "a greater number of complementary, more affordable, potentially attritable options."

The Navy plans to fund two large unmanned surface vessels (LUSVs) with \$373 million in RDT&E funds and begin experimenting with them to develop such vessels with an offensive missile capability. Transition to procurement is expected to begin in 2021.

The Navy requests \$18.6 billion in 2020 for 148 aircraft for the Navy and Marine Corps. The fixed-wing aircraft include 10 F-35B and 10 F-35C Lightning II strike fighters for the Marine Corps and 10 F-35Cs for the Navy; 24 F/A-18E/F Super Hornet strike fighters; four E-2D Advanced Hawkeye early warning aircraft; six P-8A Poseidon maritime patrol aircraft; three KC-130J Super Hercules for the Marine

Corps; and 22 ex-Swiss Air Force F-5 adversary aircraft, 11 each for the Navy and Marine Corps to recapitalize the older F-5 inventory.

Rotary-wing and tiltrotor aircraft requested in the budget include six CH-53K King Stallion heavy-lift helicopters and six VH-92A presidential transport helicopters for the Marine Corps; 38 helicopters of a design yet to be selected to replace TH-57 training helicopters; and 10 CMV-22B Osprey carrier-onboard-delivery aircraft for the Navy. Deliveries of more MV-22B Ospreys for the Marine Corps is gapped for 2020.

Large unmanned aircraft requested include two MQ-4C Tritons for the Navy and three MQ-9 Reaper medium-range UAVs, the first of this type for the Marine Corps.

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## **Surge Sealift Force in Need of Urgent Recapitalization, Officials Say**



CHUK SAMET, Thailand (Jan. 27, 2019) A Soldier attached to U.S. Army Pacific (USARPAC) directs a vehicle down the ramp of the Military Sealift Command chartered ship M/V Cape Hudson (T-AKR 5066) during an offload at Chuk Samet, Thailand, Jan. 24, 2019.

WASHINGTON – The nation’s seaborne logistics capability is atrophying and in need of rejuvenation, senior government officials said in testimony before Congress. Maintaining older ships is proving more costly than anticipated, driving officials to seek new or used ships to replace some in the current inventory.

Testifying March 7 before a joint hearing of the Seapower and Projections Forces subcommittee and Readiness subcommittee of the House Armed Service Committee were Army Gen. Steve Lyons, commander, U.S. Transportation Command, and retired Navy Rear Adm. Mark Buzby, administrator of the Maritime Administration (MARAD), a Department of Transportation agency that maintains the Ready Reserve Force (RRF), a fleet of sealift and specialized ships available on a reduced operational status for call up to service.

Of interest are the 46 ships of the RRF and the 15 sealift

ships operated by the Military Sealift Command. The average age of the RRF ships is 44 years and are becoming increasingly difficult to maintain. Of the RRF ships, 21 are steam-powered, an obsolescent propulsion technology for which qualified mariners to operate it are decreasing in numbers.

Lyons noted that commercial ship companies look to retire ships at the 15-year mark to avoid the maintenance and repair costs of older ships.

He said the readiness of the 15 surge sealift roll-on/roll-off ships currently is only 65 percent.

“The need to recapitalize is urgent,” Lyons said. “I believe accelerating the used vessel purchases with the authority ... Congress provided in the last two years is the most practical way ahead.”

Buzby said the key to sustaining sealift capability is the “acquisition and conversion of used ships for the RRF, beginning with the purchase of two vessels as authorized by the FY [fiscal year] '18 NDAA [National Defense Authorization Act].”

He said that in January the Navy, in coordination with U.S. Transportation Command, “provided MARAD with the desired characteristics for replacement ships to be acquired from the commercial market. MARAD then released a request for information to identify suitable ships, and responses are due back [on March 16].”

Buzby said that of the 50,000 large, oceangoing commercial vessels in the world, 181 sail under the U.S. flag, including 82 vessels operating exclusively in international trade and the remainder in domestic trade. He said that these commercial ships are critical to sustaining the employment base for mariners for the RRF. He also noted that of 82 U.S.-flag ships in international trade, MARAD’s Maritime Security Program helps sustain a fleet of 60 militarily useful ships with

mariners fully qualified for sealift operations.

“I am deeply concerned about our ability to muster an adequate number of mariners to operate the sealift fleet for surge and sustainment operations during a mobilization lasting about six months,” Buzby said.

Buzby said the Navy is funding some service-life extensions (SLEPs) of MARAD ships, but “the pace of repair is outpacing the pace of service-life extension,” noting that many of the repairs involve structural steel repairs. “We’re not making any headway toward extending that service life.”

He said that the SLEPs for each ship cost from \$800,000 to \$3.5 million, and often three times what was budgeted.

Service-life extensions are not returning the investment that we thought,” Lyons said.

Buzby said that used ships vary in cost “from \$25 million, maybe to \$60 million” depending on age “and a new ship is 26 times that.”

“If you look at the investments the Navy in the out-years, it’s very, very hard to compete a sealift new-build that is 26 times as expensive as an acquired used [ship] solution,” Lyons said.

New or used roll-on/roll-off ships are the primary recapitalization requirement for sealift, Buzby said.

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**Navy**

**Awards**

**AARGM-ER**

# Development Contract to Northrop Grumman



ARLINGTON, Va. – The extended-range version of the AGM-88G Advanced Anti-Radiation Guided Missile – Extended Range (AARGM-ER) is proceeding into engineering and manufacturing development (EMD) with the March 7 Defense Department contract announcement of a contract award to Northrop Grumman.

Northrop Grumman Innovation Systems, Northridge, California, was awarded a \$322.5 million cost-plus-incentive-fee contract from the Naval Air Systems Command to provide for the EMD phase, which will include “the design, integration and test of a new solid rocket motor for the AARGM-ER.”

The AARGM-ER will be integrated on the F/A-18E/F Super Hornet strike fighter and EA-18G Growler electronic attack aircraft and configured for internal carriage on the F-35AC Lightning II joint strike fighter.

“AARGM-ER extended range coupled with AARGM lethality will meet a critical defense suppression requirement while protecting our strike aviators,” said Cary Ralston, vice president, defense electronic systems, Northrop Grumman, in a March 8 release.

“The AARGM-ER program is leveraging the AARGM that is currently in production,” the Northrop Grumman release said.

The AARGM is an improved version of the AGM-88 High-Speed Anti-Radiation Missile (HARM), an air-launched missile used to suppress and destroy enemy air defenses. The AARGM is currently deployed with the U.S. Navy and U.S. Marine Corps on the F/A-18C/D Hornet; the U.S. Navy F/A-18E/F Super Hornet and EA-18G Growler aircraft; and the Italian Air Force’s Tornado electronic combat aircraft.

Work on the EMD phase is expected to be completed in December 2023.