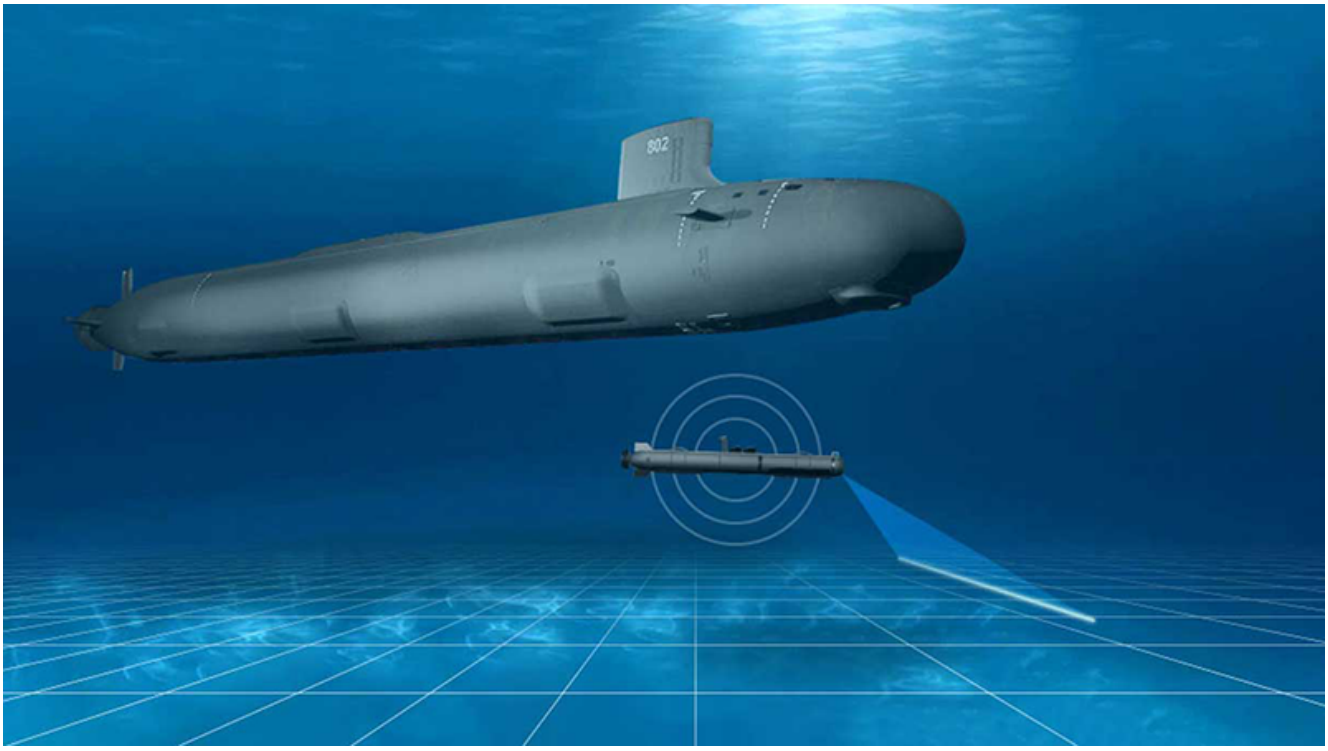
L3Harris Moves Ahead with Disruptive Capabilities



L3Harris successfully launched a recovered a Iver4 UUV from a submarine. Photo Credit: L3Harris

L3Harris (Booth 1037) hopes to use its expertise in autonomy software, uncrewed surface vessels and uncrewed underwater systems to help the Navy counter the looming threat of China and get more systems into service.

The company has a lot of interest in what Jon Rambeau, president of L3Harris' Integrated Mission Systems segment, called "disruptive capabilities," which includes moving airborne ISR capabilities from military aircraft to business jets and focusing on passive sensing and targeting for autonomous surface and subsurface vehicles.

"In the maritime domain … [we do] a lot of work around autonomous surface and subsurface vessels, and also a focus on passive sensing and targeting for the surface to allow the manned fleet to operate without having to light up their radars so often," Rambeau told Seapower in an interview. "We

think that’s a capability that can be deployed very rapidly, it’s very mature and it’s also very low cost.”

The company also recently successfully deployed and recovered an uncrewed underwater vessel from a submarine’s torpedo tube, using one of its Iver4 vehicles.

“We were the first company to be able to demonstrate the capability to retrieve a UUV through a submarine torpedo tube while it was underway,” Rambeau said. “A pretty big accomplishment. Others had tried and failed and we were able to be successful on our first try, which was pretty impressive and not only that, but twice in one day, so pretty neat. That team just won our corporation’s top technology innovation award this year across the entire company.”

Replicator

The U.S. Department of Defense last year announced the Replicator program, a still largely undefined effort to launch thousands of attritable, autonomous aerial and surface systems to help counter China’s growing fleet.

“That’s something we’re very interested in being a part of,” Rambeau said. “I think some of those decisions are still being made about who and how we’ll participate, but we know there’s an initiative, obviously, to drive the large-scale deployment of unmanned systems, and we think the work we do is right in the heart of that. We’ve deployed hundreds of small, undersea vessels, we’ve deployed hundreds of small surface vessels over a number of years, some in the commercial side, some in the military side of our business, and that’s where a lot of our concentration has been, small and medium vessels for subsurface and surface operations, and a lot of work particularly around the autonomy capability.”

L3Harris has an in-house autonomy development team, a capability Rambeau said is very mature, and had two autonomous ships deployed under an urgent operational needs statement

with Task Force 59 out of Bahrain, which has been demonstrating uncrewed surface vessel capabilities. The submarine-launched UUV effort also stemmed from an urgent needs requirement.

“One of the areas that we continue to focus on is that we know the customer pull is there for these, I would say disruptive capabilities, we have the technology well matured,” Rambeau said. “I think the question is, how do we quickly get from proof of concept to prototyping to production as fast as possible? Initiatives like Replicator are designed to try to move that along, and we’re hopeful that there will be opportunities for us to be part of that.”

Passive Sensing

Some of the passive sensing and targeting capabilities the company has developed for uncrewed systems can also be deployed on manned vessels, and L3Harris is planning to do some prototyping work with the Navy on that later this year.

“We’re still working through the details of how and where and when that will take place,” Rambeau said, “but we are looking to prove out the ability to sense and target an adversary without having to use a radar onboard a ship at all. That is our hope.”

Rambeau said he is seeing growing interest from the military in manned-unmanned teaming, a concept that has been around for years but which could gain new potency under a Replicator-type effort.

“I won’t speak for the Navy, but from my point of view I think that being able to link a small group of unmanned surface vessels with the manned fleet and allow those to be companions to get out ahead a little bit, do some reconnaissance, feed information back, there certainly are a lot of opportunities to employ the vessels in that way,” he said.

“… With the ability now to launch and recover an unmanned vessel from a submarine, that really gives an opportunity to extend the reach of the submarine fleet and also to provide greater survivability, because they may not have to go into harm’s way as deeply to gather data if they have an appendage that can be set free and then recovered back with some information. Minehunting, that sort of thing.”

Insitu Going Strong at 30, Focusing on Maritime Operations

Insitu’s FLARES system carries an Integrator SUAS aloft to launch it. Photo Credit: Insitu

By Richard R. Burgess, Senior Editor

NATIONAL HARBOR, Md. – Insitu, one of the most experienced companies in the small unmanned aerial systems (SUAS) market, will mark 30 years of operations in May.

The company (in parent company Boeing's Booth 1337), noted for its ISR (intelligence, surveillance, and reconnaissance) services and sales of modular SUAS such as ScanEagle and Integrator, especially for U.S. and allied operations in Afghanistan, is emphasizing maritime deployment of its SUAS with the shift of U.S. focus to the Indo-Pacific region, Diane Rose, president and CEO of Insitu, said in an interview with Seapower.

The Integrator UAS gets VTOL capability using the FLARES system. Photo Credit: Insitu

Insitu's SUAS have flown 175,000 sorties, accumulating 1.5 million flight hours, including 70,000 hours of maritime operations, Rose said. The SUAS are operated by or for 40 customers – to include 20 navies and coast guards – in 35

countries. The SUAS have been operated from 28 classes of naval vessels.

Insitu's SUAS have been provided to Ukraine via Foreign Military Sales and have been "very successful in that space," she said, and Insitu will "continue to support that effort."

Insitu continues to manufacture air vehicles and provide spare parts, system upgrades, and training to users. Modular sensors, provided by partner companies, can be swapped in the field to flexibly meet mission requirements.

"Our architecture allows us to integrate very quickly third-party sensors and payloads," Rose said. "With the customer's interests and missions in mind, we have a unique capability to offer solutions that support whatever the customer's needs may be."

Rose said there was a downtick in ISR services at land-based sites for the United States military since the end of the war in Afghanistan, but an uptick in international interest in Insitu's products and services, especially focused on the maritime domain in the Indo-Pacific region, with an associated evolution in technology to satisfy emerging and changing customer needs.

The U.S. Navy and Coast Guard continue to use Insitu's ISR services. The Navy also has procured Insitu SUAS. Navy units continue to use the RQ-21A Blackjack version of the Integrator, while Navy Special Warfare units use the RQ-27B version of the ScanEagle.

"Maritime operations are hard, and this is what 30 years of experience gives us," Rose said. "Shipboard movement, shipboard radars and antennas, the EMI [electro-magnetic interference] environment, the harsh weather conditions, global logistics – how do you re-supply your systems, how do you meet the ships at the various ports?

“There’s a lot to supporting maritime operations, and I think that’s really why you see the success of our systems’ enduring,” she said, speaking of the long service of ScanEagle in the ever-evolving field of uncrewed aerial systems.

For customers who procure Insitu SUAS, the company provides training on how to operate the systems and also operates a 24/7 Operations Action Center, which provides customers engineering support and responses to trouble reports.

This year at the Navy League’s Sea-Air-Space (SAS) Expo, Insitu will be highlighting its vertical takeoff capability in the FLARES (Flying Launch and Recovery System (FLARES) octocopter, which it introduced at the 2023 SAS. FLARES can carry an Integrator UAS aloft 500 feet and launch it on its mission, enabling the Integrator to maintain its range, endurance, and payload capacity. The octocopter alleviates the need for a launch rail, reducing the footprint of the system and making shipboard and expeditionary operation easier. The recovery method remains the same.

Rose said Insitu has one customer so far for FLARES that carries a ScanEagle aloft.

At Sea-Air-Space, Insitu will highlight its FLARES systems, which provides VTOL capability to fixed-wing UAS Photo Credit: Insitu

She said the 570-employee company is interested in growing its technical talent but emphasizes lean and efficient operations in a highly competitive industry.

Insitu continues to press forward to address battlespace challenges, including SUAS operations in a GPS-denied environment and with kinetics. The company has conducted inert-drop flight tests from Group2/3 SUAS.

Gaming to Win and Learn at

Sea Air Space

The Center for Maritime Strategy “Gaming to Win” event is in its second year at Sea Air Space and offers a little for everyone within the wider wargaming community.

It features the presidents of the Naval Postgraduate and Naval War College and directors of wargaming from NWC and the Marine Corps University Krulak Center. It also highlights top-flight wargames and their designers who will invite participants to play along, and then be part of a panel on the design and use of games.

The first panel on wargaming will Tuesday, April 9 from 2:45 to 3:45 p.m., followed by an interactive wargaming demonstration from 3:45 to 5:00 p.m. and a second panel from 5:00 to 5:45 p.m., all in the Cherry Blossom Ballroom.

Discussion at last year’s inaugural wargaming eventDiscussion at last year’s inaugural wargaming event. Photo Credit: Dan Goodrich

While the panel is called “Gaming to Win,” that is really not what wargames actually do for military commanders and civilian leaders. They perform a vital role in testing assumptions that commanders might possess, as well as offering them the opportunity to explore multiple “what if” scenarios. The late Peter Perla, a famous wargamer, described them as “a dynamic representation of conflict or competition, in a synthetic environment in which people make decisions and respond to the consequences of those decisions.” Wargames do not answer the question of which side will win, or what weapon system(s) are most effective in war. War games build confidence or raise doubts in existing plans. They are a useful tool in evaluating plans but come with limitations that are not always apparent.

Limitations on Wargaming

Some wargame results are interpreted as the “sure path to victory,” or the “inevitable road to defeat” depending on who

reads the results and how they interpret them. Wargame results are sometimes seen as either confirming the rise of a specific weapon system or the condemnation of another to obsolescence. These are false interpretations of game results. First, wargames are only as "good" as their input data. That not only includes order of battle being correct, but also, when available, aspects of gaming that the Naval War College calls "the intangible aspects of military planning." How "ready is any one opponent ship, aircraft, or submarine in terms of material readiness? Can that platform perform its intended mission as designed?

The board at last year's wargaming event. Photo Credit: Dan Goodrich

What looks good on paper is not always what it appears. The Russian missile cruiser Moskva was generally rated by Cold War and 1990s-era wargames as able to sustain at least four hits from a medium-sized cruise missile like the U.S. Harpoon weapon and remain afloat. In the real world, the Moskva was sunk by two such weapons, with some reports suggesting the

Russian crew immediately abandoned the stricken vessel and did not undertake damage control actions to save her.

Another intangible aspect of wargame design and conduct is the leadership and conduct of the Red Cell, the team of experts who simulate what the opposing forces do. This has in some cases been a past challenge. From the late 1940s to the late 1970s, U.S. Navy leaders believed the growing force of Soviet submarines had only one main purpose, and that was to attack NATO resupply routes from North America to Europe. Russian leaders like fleet commander Admiral Sergei Gorshkov proclaimed the Soviet navy would confront Western navies on the high seas. The large German submarine fleets of World Wars I and II were designed to break Allied supply routes across the Atlantic. Why else would the Soviets build such a force? Intelligence gathered from wiretaps on Soviet undersea communications cables in fact revealed the Soviet navy's main purpose for its submarines was defense of its ballistic missile submarine force and the protection of the Soviet Union from nuclear attack by Western naval forces. Soviet doctrine said the war would be over before the West could even consider reinforcing NATO by sea.

Getting all of these aspects of wargaming as accurate as possible from the start is essential to setting the stage for game results that can be used by commanders to evaluate plans and the systems to execute them in both peace and war. Wargaming is pursued with victory as the goal, but if it is not sourced with accurate information, it can be a futile exercise.

HII Responds to Post-COVID World with Flexibility, Supply Chain Support

Sailors man the rails during the commissioning ceremony for the Arleigh Burke-class Flight III guided-missile destroyer USS Jack H Lucas (DDG 125) in Tampa, Florida Oct. 7, 2023.
CREDIT: Department of Defense | EJ Hersom

Shipbuilder HII (Booth 1323) has embarked on a range of efforts to improve its workforce, bolster the supply chain and boost its capital investments, HII President and CEO Chris Kastner said in a briefing on the eve of Sea-Air-Space 2024.

The company saw as far back as 2015 there would be significant demand for ships, but couldn't anticipate a worldwide pandemic that affected supply chains and the workforce, followed by rampant inflation, Kastner said.

"There's really unprecedented demand in shipbuilding right now

that we saw coming, and it has arrived," he said. "With Navy leadership … the industry has been getting after this since COVID started."

The company and its subsidiaries have been outsourcing some of the work they used to do, which helps bolster the supply chain, Kastner said. Since 2020, HII has helped create more than 200 new suppliers and outsourced 3.6 million hours of work.

It has also spent $450 million on workforce training and is providing new technology tools at its workforce, including artificial intelligence to help make its practices more efficient. "If we can use AI to improve our processes, we're going to do that," Kastner said.

Issues with shipbuilding came to the fore just this past week, as the preliminary results of a Navy shipbuilding study showed major programs are years behind schedule, including the first Columbia-class submarine and the future USS Enterprise aircraft carrier.

Advanced procurement is critical to avoiding such issues, Kastner said, one reason the shipbuilder has been pushing for a two-carrier buy for CVNs 82 and 83, similar with what was done for the future Enterprise (CVN 80) and Doris Miller (CVN 81), which were procured as a two-ship buy.

"We would like to get started in [20]26, potentially in 25 on the critical suppliers, in regard to 82," Kastner said. "There's no doubt that a two-ship buy with 80 and 81 really reduced the risk of 81. The risk we had on 80 was alleviated with 81."

As for the future USS District of Columbia, the first boat in the Columbia class, Kastner said it has a "very robust" risk management effort, "but you're going to have first-in-class issues. And couple that with a lot of green labor, that can yield to workmanship issues, and efficiency issues, and you

get potential schedule issues. It’s a first-of-class ship, and you’re rebuilding a workforce coming out of COVID.”

He noted that two shipbuilding programs involving HII are doing well, the LPD amphibious transport dock and DDG Flight III.

“What are the characteristics of those programs? Stable designs – and when the design changed it was very thoughtfully implemented, I’m talking about DDG Flight III – on time advanced procurement. Consistent workflow. All of those … and a really good core group of shipbuilders,” Kastner said.

Workforce Adjustments

“It’s a fact of life that you have a less experienced workforce than you had before, across the board. There’s significant loss of skill after covid. That’s been broadly understood, and it’s been a cross section of our talent base,” Kastner said.

That’s where HII is trying new things, including providing more flexibility for shipbuilders when they come in, including more time off early in the process. The company also has more programs to help their new hires enter the shipbuilding workforce.

“We used to just train them and send them out to a crew. Now, we train them, we bring their foreman in the training center and we put them out as a team. So, they have a framework and a cultural that they’re developing with their team, so they feel like they’re not alone when they go out into the shipyard,” he said.

HII is also recruiting from areas where people are likely to stay, according to data analytics. It is also using targeting incentives, where good performance and attendance lead to a boost in pay.

STEM Expo Brightens National Harbor with Exciting Science Demonstrations

The STEM Expo brought 5th through 12th grade students face to face with exciting science concepts on Sunday, April 7, filling the Cherry Blossom ballroom with laughter and gasps of wonder.

The event featured interactive workshops, hands-on demonstrations, STEM career information and just plain fun, including the famous nitrogen ice cream booth and a visit from Slapshot, the feathered mascot for the Washington Capitals hockey team.

While the event was fun, there was a serious purpose behind it, according to representatives from HII, the shipbuilder that was the Champion Sponsor for the event, alongside sponsors CACI and Booz Allen.

VR and 3D Printing

HII gave attendees a slice of real-life modern shipbuilding, demonstrating the use of virtual reality for ship inspections and welding and also showcasing 3D printing, or additive manufacturing, which is being used to create some components in the real world.

“It’s a safe space to fail, is what it really is. They learn these objectives here and don’t have any real-world consequences like injuries or anything,” said Grant Ronquillo, a software engineer at HII’s Newport News Shipbuilding.

It’s also the kind of training these students could expect to get if they pursued a career in shipbuilding.

“We’re working with our training programs to get this implemented as part of the standard training within Newport News Shipbuilding and across HII,” Ronquillo said, while behind him a STEM Expo visitor made her way through a simulated 3D room.

Visitors to HII’s booth were also shown a virtual welding booth and a 3D printer. The VR welding demonstration allowed students to take a turn, receive instruction on how to do better, and then try again, said Brian Treat, the lead general foreman at Newport News Shipbuilding.

“They think it’s the real thing,” he said, but it removes all the risk. “What’s key here is removing all the risk of real-life welding, allowing them to feature the same attributes and talk through it before somebody would go do it in real life.” Again, it’s how welders are actually being trained.

The additive manufacturing is another technology that some kids are already familiar with, said Perry Haymon, the chief technology engineer at HII's Ingalls Shipbuilding.

"We brought this today to demonstrate to the kids how 3D parts are printed," Haymon said. It's a technology that's making its way into shipyards.

"We do polymer as well as metallic," he said. "It's a great technology, it's a good thing to get into, for the kids to learn, because they like to draw, they like to create, so by doing solid models, now they can actually take that and put it into a printer and actually see what they've created."

Engaging Students

STEM is important because "it's such a broad field and it can be used in so many ways," said Notashia Thomas, a program manager at STEM sponsor CACI.

"When students come to this particular expo, they are exposed to just a myriad of options, and I think it really excites them. I absolutely see the children getting engaged. At our table we've been doing design principles. They try a design, they try it again, they try it again until they see it work, and that's what STEM is all about; the problem solving, the persistence that's involved. It's just great to see them engaged."

The Navy sees the value of STEM as well, contributing several displays and demonstrations for the expo, including in robotics and medicine.

"What is the value of STEM? The importance of STEM in the Navy cannot be overstated," said Commander Shannyn Fowler, commanding officer of Navy Talent Acquisition Group Richmond. "It's the backbone of how we operate, in terms of our engineering programs, in terms of our aviation programs, information technology, cyber warfare, explosive ordnance

disposal, and so many more. It’s what keeps our Navy afloat, it’s what keeps our aircraft in the sky, and it’s what keeps our enemies afraid of us.”

Fowler said she was pleasantly surprised by the enthusiasm she saw in the students coming through the expo.

“The enthusiasm is beyond measure,” Fowler said. “The excitement of young people between the ages of 5th grade and 12th grade and in STEM programs is beyond my expectation walking in on this.”

NAVAIR Sees AI as Future of Air Wing

NATIONAL HARBOR, Md. – In a well-attended presentation by Naval Air Systems Command (NAVAIR) on April 3 at Sea-Air-Space 2023, RDML Stephen Tedford, program executive officer for Unmanned Aviation and Strike Weapons (PEO (U&W)) explained the need for trust in autonomous systems while providing an overview of the Navy's unmanned aircraft, weapons, and target systems.

"If we have trust in autonomy, we can then make the move to truly artificial intelligence and in the future of the air wing," Tedford said.

He encouraged a real-world perspective when thinking about autonomous systems, remarking that, "I know many of you here that are in suits now are retired military. Many of you […] flew jets. At some point all of you were up and trying to find the tanker late at night, trying to get on the back side of the hose to get home. We learned that lesson over Afghanistan."

"How can you make in-flight refueling autonomous possible?" Tedford queried. "What if a pilot just has to get close enough and then let the system take over for itself. And make it more reliable, make it consistent and make it easier," he continued.

Open architecture may be the key.

"We always want open architecture systems," Tedford said. "We need them for flexibility in our systems. Just like applications on your phone that you can add and get rid of. We need to be able to do that with our mission systems in the unmanned environment as well."

Tedford also focused on the people behind the tech and stressed that autonomous systems and artificial intelligence don't operate in a bubble. Fundamentally, an unmanned system is still a human system.

“We know that unmanned really isn’t actually unmanned,” said Tedford. “There’s a huge support staff that’s involved in getting an aircraft in the air and conducting the mission. What we’re talking about […] having direct connectivity between our unmanned platforms and a manned platforms where the unmanned becomes an extension of the manned mission.”

Combatting Climate Change

Captured by SD 1078 in the Atlantic Ocean during Hurricane Fiona, Sept. 22, 2022. (Video: NOAA and Saildrone)
Excerpted from the upcoming article in the May 2023 issue of Seapower Magazine

As climate change increasingly affects weather patterns over the Atlantic Ocean and Gulf of Mexico, tracking hurricanes and monitoring their intensity has become more critical than ever.

The National Oceanic and Atmospheric Administration (NOAA) reports that between 1980 and 2021, hurricanes caused 6,697 deaths and over $1.1 trillion in damages. Hurricanes’ massive waves and roaring winds can also have catastrophic effects on ships at sea, making accurate forecasting a must for naval operations.

While new technology has steadily improved hurricane-tracking forecasts since the 1990s, predicting how rapidly a tropical storm or hurricane may intensify has been more problematic. To understand storm intensity, scientists measure heat and momentum, collecting data on the exchange of energy between the ocean and atmosphere. But in order to do this in the most accurate way, scientists need data from inside the storm itself.

That’s where uncrewed systems come in. “With uncrewed systems, we can either do what we’re already doing, but do it more productively and efficiently, or we can go get data we just couldn’t get before,” said NOAA Corps Captain William Mowitt, director of NOAA’s Uncrewed Systems Operations Center.

You can read the full article about how the U.S. Navy, NOAA, and private partners are using uncrewed systems and new technologies to forecast hurricanes in the May issue of Seapower Magazine.

Vicky Uhland is a Colorado-based writer and editor who also covers the Navy League’s annual Sea-Air-Space conference.

Navy’s Frigate Program Pushing Hard for 2026 Delivery of USS Constellation

Captain Kevin Smith responds to workforce pipeline question from Ann Tropea, Editor-in-Chief at Seapower. Photo Credit: Dan Goodrich

NATIONAL HARBOR, Md. —The Navy is pressing full bore to ensure that its new guided-missile frigate joins the fleet on time, the ship's program manager said.

"We're pushing hard with our industry partners to deliver that ship in 2026," said Captain Kevin Smith, program manager, Constellation Class Frigate, speaking to an audience at the Navy League's Sea-Air-Space Expo in National Harbor. "A lot of hard work has gone into the design, the production readiness, and now we're actually building it up in Marinette, Wisconsin."

A frigate, in modern terminology, is "primarily an escort for high value units that don't have their own self-defense," Smith said. "It's also to help offset some of the work of the large surface combatants like the cruisers and destroyers. It is a primary anti-submarine warfare platform, just like the FFG 7 [the Perry class frigates which have been decommissioned]."

"I am very happy with the performance we're seeing thus far," Smith said. "Obviously, we did change to a different variable to sonar a few years ago. … The performance is astounding. … Its integration with the [SQQ]-89 [antisubmarine warfare system] is going to be huge for the United States Navy and will be welcomed by the fleet."

Smith also said the Aegis Baseline 10 combat system and the Enterprise Air Search Radar will give the new ship "a lot of capability."

Fincantieri Partnership

The future USS Constellation (FFG 62) is one of three frigates under contract to Fincantieri's Marinette Marine shipyard, the others being FFGs 63 and 64, under a 10-ship contract,

including options. Smith said construction of FFG 62 will start soon and he expects the option for FFG 64 to be awarded this year as part of a four-ship buy.

The Navy worked with Fincantieri to design an advanced construction pilot, “to really exercise all of the capital improvements, all of their workflow processes, all of their instructions, all the way through the value stream … from materials planning and getting the work orders to the workforce, making sure all those are understood.”

The frigate’s Aegis Combat System and SPY-6 Enterprise Air Search Radar are being integrated at the Lockheed Martin test lab in Moorestown, New Jersey, and at Wallops Island, Virginia. The propulsion plant and machinery control systems will be tested at a land-based test site in Philadelphia.

Need for Skilled Workforce

Smith said the Navy is working closely with Marinette Marine in strengthening the company’s supply chain and develop and retain its skilled work force “to make sure we have a good strong industrial base workforce to build these frigates for the next decade and decades to come. We need that as part of our industrial base risk reduction.”

The program manager also discussed the challenges of recruiting a skilled work force, in response to a question from Seapower.

“How do you build a community that people want to live and grow and raise families and be shipbuilders?” he asked rhetorically. “We have people on our staff that have experience in that. The other part is working with Marinette on how we can really build the workforce. There’s training, there’s investments on how they can get people to come work and stay and then be retained.”

“Some shipbuilding people come out of high school … and they

stay there a year, maybe two," Smith said. "But if they don't make it past two years, they're not going to stay. So how do we get people to stay for longer than a year or two? And how do we how do we really get them excited about shipbuilding?"

"You may read about some of the things Colombia [the Columbia-class ballistic-missile submarine program] is doing," continued Smith. "We're looking at doing the same exact thing … to think about Wisconsin … There's other jobs out there that maybe are better … but we're working on a lot of those things with the company and kind of coaching them with some of this funding we got from Congress. The big message here is I would predict that this company is going to be around for a long time and we need to get into the shipbuilding business long term as far as a prime and then we'll be able to count on them for decades."

Shall We Play a Game? Winning Isn't the Point, Experts Say

NATIONAL HARBOR, Md. – War games may be a useful tool for leaders dealing with regional conflicts and great power rivalry, but the purpose isn't to win, according to a panel of gaming experts.

"Many people think war games are a boot camp for victory, in reality, war games get you to think about multiple choices, courses of action for the tactical, the operational and the strategic levels of war, so it's really not necessarily about winning," said panel moderator Dr. Steven Wills, Navalist, at the Center for Maritime Strategy, Navy League of the United States.

Panel members echoed Wills' comment at the Navy League's 2023 Sea-Air-Space Expo.

"A single, well-designed game predicts 'a' future, not 'the' future," said Commander Phillip Pournelle, USN (Ret.), Senior Operations Analyst and Wargame Design at Group W, an analysis, modeling and research company. The best it can do is provide insights into the future, "in a manner similar to how a

shotgun hits a duck."

"Winning is the wrong way to look at wargaming," said Jeremy Sepinsky, Lead Wargame Designer, CNA. "If you win a war game, you have discovered one potential way of success among an infinite number of choices that all must follow that exact alignment for your success to be realized." But losing a wargame identifies "how your systems are going to fail," Sepinsky said, adding even if you don't know how it failed it can point to what happens if it fails and how to mitigate that failure.

The session ended with all of the panelists demonstrating wargames they had developed like the Taiwan Straits game by Dr. Matt Cancian, of the U.S. Naval War College and the Center for Strategic and International Studies.

Most were complex with a blizzard of rules like IUU (illegal, Unreported, Unregulated) Fishing game, with a variety of dice, playing cards representing fishing boats, tiny fish, zoned areas marked with numbers indicating fisheries' size. "You are a fishing fleet, your job is to fish," explained Sepinsky, "each of the ships has a certain profit quota that you're trying to make."

The cards representing the ships have two sets of gauges "one for the welfare of the people on your ship. What are you wages. How are your social security benefits? Are you paying into their retirement plans," said the game-co-creator." On the right hand side you've got the safety of the ship. Is it patched? Is it leaking oil. Does it meet regulations and standards for the waters you're going to be fighting in?"

In some wargames "you want them to lose just a little bit," Dr. Yuna Wong of the Institute for Defense Analyses said. The purpose was to see what could go wrong and identify potential problems and weaknesses. Some organizations want to use wargames to validate or prove plans. "Remember wargames can't

prove anything and they can’t validate anything,” she said.

Navy’s Newest Carrier to Deploy in May, Program Official Says

Caption: Captain Kevin Smith responds to workforce pipeline question from Ann Tropea, Editor-in-Chief at Seapower.

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Fincantieri Partnership

The future USS Constellation (FFG 62) is one of three frigates under contract to Fincantieri's Marinette Marine shipyard, the others being FFGs 63 and 64, under a 10-ship contract, including options. Smith said construction of FFG 62 will start soon and he expects the option for FFG 64 to be awarded this year as part of a four-ship buy.

The Navy worked with Fincantieri to design an advanced construction pilot, "to really exercise all of the capital improvements, all of their workflow processes, all of their instructions, all the way through the value stream … from materials planning and getting the work orders to the workforce, making sure all those are understood."

The frigate’s Aegis Combat System and SPY-6 Enterprise Air Search Radar are being integrated at the Lockheed Martin test lab in Moorestown, New Jersey, and at Wallops Island, Virginia. The propulsion plant and machinery control systems will be tested at a land-based test site in Philadelphia.

Need for Skilled Workforce

Smith said the Navy is working closely with Marinette Marine in strengthening the company’s supply chain and develop and retain its skilled work force “to make sure we have a good strong industrial base workforce to build these frigates for the next decade and decades to come. We need that as part of our industrial base risk reduction.”

The program manager also discussed the challenges of recruiting a skilled work force, in response to a question from Seapower.

“How do you build a community that people want to live and grow and raise families and be shipbuilders?” he asked rhetorically. “We have people on our staff that have experience in that. The other part is working with Marinette on how we can really build the workforce. There’s training, there’s investments on how they can get people to come work and stay and then be retained.”

“Some shipbuilding people come out of high school … and they stay there a year, maybe two,” Smith said. “But if they don’t make it past two years, they’re not going to stay. So how do we get people to stay for longer than a year or two? And how do we how do we really get them excited about shipbuilding?”

“You may read about some of the things Colombia [the Columbia-class ballistic-missile submarine program] is doing,” continued Smith. “We’re looking at doing the same exact thing … to think about Wisconsin … There’s other jobs out there that maybe are better … but we’re working on a lot of those things with the company and kind of coaching them with some of this

funding we got from Congress. The big message here is I would predict that this company is going to be around for a long time and we need to get into the shipbuilding business long term as far as a prime and then we'll be able to count on them for decades."