Coast Guard's Force in Middle East Supports National Security Mission



Commandant of the U.S. Coast Guard Adm. Linda Fagan speaks to Coast Guardsmen assigned to Patrol Forces Southwest Asia in Bahrain, June 15, as part of her first official visit overseas after assuming her new role as the service's top officer. U.S. COAST GUARD / Petty Officer 1st Class Brandon Giles MANAMA, Bahrain – U.S. Coast Guard Patrol Forces Southwest Asia (PATFORSWA) conducted a change of command ceremony on Thursday, June 16 at Manama, Bahrain, as Capt. Eric Helgen relieved Capt. Benjamin Berg.

Presiding over the ceremony was Adm. Linda Fagan, Commandant of the Coast Guard.

"PATFORSWA has a unique area of operations and mission," Fagan said. "The cutters homeported here are attached to Commander, Task Force 55 to support U.S. Naval Forces Central Command and Combined Maritime Forces strategic objectives. They provide a constant and reliable presence to maintain maritime domain awareness, deter acts of maritime piracy and smuggling, protect critical maritime infrastructure, and ensure the safe flow of goods and materials. There is no other Coast Guard unit that has a stronger link to the joint force in support of the national defense mission."

Fagan said the cutters have participated in many high-impact operations. "They were on scene for tense boardings of commercial vessels; they navigated interactions with the Iranian Revolutionary Guard Corps Navy; and they conducted extensive interdiction operations."

Fagan recognized the 110-foot Patrol Boats that served in PATFORSWA. "Adak, Aquidneck, Maui, Monomoy and Wrangell stayed on mission to the very end with operations in the Arabian Gulf and Gulf of Oman."

One remains, USCGC Baranof, which will be decommissioned soon. "The Baranof is out conducting critical missions as we speak," Fagan said.

The 110-foot patrol boats are being replaced by the new Fast Response Cutters. "Taking the baton from the 110s, the Fast Response Cutters have proven to be an exceptional platform to project the Coast Guard's regional expertise to national and coalition forces," said Fagan.

The four FRCs now in PATFOR SWA are USCGC Charles Moulthrope (WPC 1141), USCGC Robert Goldman (WPC-1142), USCGC Glen Harris (WPC 1144) and USCGC Emlen Tunnell (WPC 1145). Two more FRCs, USCG John Scheuerman (WPC 1146) and USCGC Clarence Sutphin (WPC 1147) arrive in PATFORSWA soon.

While operating with CTF-150, a task force within the Combined Maritime Forces, newly reporting FRCs conducted boardings in the Gulf of Oman that resulted in seizures of heroine, methamphetamine and hashish with a U.S. street value of 17 million dollars.

PATFORSWA provides shoreside teams to support the cutter crews with antiterrorism/force protection, naval engineering, supply and personnel administration along the way. Training teams also support the Navy and partner nations. The Advanced Interdiction Teams embark on the U.S. warships to conduct boardings and seizures of illicit cargos. Several months ago, AITs aboard USS Tempest and USS Typhoon seized 1,400 AK-47 rifles and 226 thousand rounds of ammunition from a stateless fishing vessel in the North Arabian Sea.

"That illegal arms shipment would have contributed to violence and instability in the region had it reached its destination," Fagan said.

"Any illegal activity at sea — whether it is drug smuggling, weapons shipments, or illegal, unreported or unregulated fishing — erodes the rule of law and regional stability," Fagan said. "The United States Coast Guard is the global model for maritime governance, the positive force that protects maritime safety, security and economic prosperity."

Critical Partnerships

In today's connected world, maritime governance is a collaborative effort. Fagan said partnerships are critically important.

"PATFORSWA leads the way with international engagement throughout the region. The Maritime Engagement Team supports CENTCOM's theater campaign plan through participation in multi-lateral, interagency exercises and subject matter expert exchanges with foreign militaries. This year the team engaged with more than 350 people from 16 partner nations, sharing expertise on boarding tactics and small boat operations," she said. And the Shoreside team contributed in this area, too. "In addition to supporting the 110s and FRCs, they provided electronics and engineering assistance to the Yemeni Coast Guard, and the Lebanese Armed Forces – Navy, a critical 5th Fleet partner who will soon receive three 87-foot Coastal Patrol Boats."

Additionally, the Shoreside team deployed 25 people for three weeks of support to Operation Allies Refuge, the DoD and DHS operation to safely vet, protec, and transport more than 7,000 evacuees from Afghanistan to Bahrain.

"They were the first people the non-combat evacuees encountered on the flight line after arriving direct from Kabul," Fagan said.

Helgen is reporting from the 7^{th} Coast Guard District in Miami where he served as the deputy of the Office of Maritime Enforcement.

"I'm exceptionally honored and deeply humbled to have the opportunity to be part of a team whose members sacrifice a year away from their families to execute such a vital mission in support of the United States," Helgen said.

"PATFORSWA excelled under Captain Berg's leadership because this crew trusted him, they responded to his vision and leadership, and they rose to the challenge," said Fagan.

"It has been my absolute pleasure to serve with the outstanding Coast Guard women and men of Patrol Forces Southwest Asia. The dedication and professionalism was evident in every patrol, repair and forward deployment," Berg said. "I'm certainly pleased of the operational accomplishments of our cutters, crews and partner nation engagements, but I was more energized each day to observe the crews taking pride knowing their work was bringing stability and rule of law to the region."

USS Sioux City was 'Built for 5th Fleet'



Littoral combat ship USS Sioux City (LCS 11) moored pierside in Jeddah, Saudi Arabia, May 31. Sioux City is deployed to the U.S. 5th Fleet area of operations to help ensure maritime security and stability in the Middle East region. U.S. NAVY / Mass Communication Specialist 3rd Class Nicholas A. Russell USS Sioux City (LCS 11) has become the first littoral combat ship to deploy to the U.S. 5th Fleet area of responsibility.

According to Capt. Rob Francis, the commander of Destroyer Squadron 50 and Task Force 55, the Freedom-class variant is perfect for this AOR.

The Mayport-based Sioux City was commissioned in 2018. It has

more varied deployment experience than any other LCS. It deployed to the U.S. 4th Fleet last year, supporting interdiction operations in the Caribbean with a U.S. Coast Guard Tactical Law Enforcement embarked, and was served with the U.S. 6th Fleet during most of the month of May or its way to the Middle East.

The ship is equipped with the surface warfare mission package. An embarked detachment of a pair of MH-60S Seahawk helicopters from the Sea Knights of Helicopter Sea Combat Squadron (HSC) 22 is assigned to the Sioux City for its deployment.

The ship hasn't arrived in the Arabian Gulf yet, but is operating in the Red Sea, Bab al-Mandeb and the Gulf of Aden as part of Combined Task Force 153.

"LCS isn't like anything that has come out to 5th Fleet," Francis said. "We recognize that that LCS was built for this AOR. We have a CO and a crew that's 100% locked on to helping us understand how to integrate the Freedom class into our operations, because this is our future."

Francis said the plan is to conduct patrols and maritime security operations.

"Right now, she's conducting boardings, and doing the realworld mission we need her to do. She's also providing air domain awareness for the CAOC, which is something the ship wasn't designed for. We'll exercise all of the ship's capabilities. We want to find out what she can do."

Francis also said the deployment is a test of the Navy's support infrastructure in the region.

"We'll do a planned maintenance availability when they get to here to Bahrain, and we'll exercise every one of our support capabilities and facilities." Francis acknowledged the concerns about LCS fuel consumption and readiness.

"We've heard the criticism that LCS has short legs. Okay, if you run it around at 40 knots all the time, that may be true. When she's station keeping, however, it's at an economical speed that offers good fuel consumption," he said. "I don't have an oiler following her around."

Francis said Sioux City has met expectations for readiness.

"I look at all of my ships every single day, and Sioux City is green across the board. If you ask me, I'd like three or four more out here tomorrow."

U.S. Coast Guard Cutter Helps Solomon Islands Patrol Their Waters



Crewmembers aboard the Coast Guard Cutter Myrtle Hazard stand watch on the bridge while underway in Oceania. The crew recently helped to fill the operational presence needed by conducting maritime surveillance to deter illegal, unreported, and unregulated fishing in the northern Solomon Islands. U.S. COAST GUARD

SOLOMON ISLANDS – The U.S. Coast Guard has responded to a request from the Solomon Islands to help patrol that country's exclusive economic zone while maintenance was being conducted on the Royal Solomon Islands Police Vessel Taro.

The Fast Response Cutter Myrtle Hazard (WPC 1139) was dispatched on short notice to provide operational presence by conducting maritime surveillance to deter illegal, unreported, and unregulated fishing in the northern Solomon Islands.

The 154-foot Myrtle Hazard was already deployed on an expeditionary patrol in support of Operation Blue Pacific, where the is cutter was protecting against IUU fishing in the EEZs of five different Pacific Island Countries and the high seas.

According to a Coast Guard statement, IUU fishing has replaced piracy as the leading global maritime security threat and has

the potential to jeopardize the efforts of PICs to conserve fish stocks, an important renewable resource in the region.

The Solomon Islands has a population of 652,000 people, and encompasses more than 900 islands. The capital, Honiara, is located on the island of Guadalcanal. It has an EEZ of more than 600,000 square miles. Like its neighbors in Oceania, the country is reliant of fisheries for sustenance and income.

Myrtle Hazard's mission followed coordination between the Coast Guard, the Solomon Islands' commissioner of police, assistant commissioner of police, and the deputy commissioner for national security and operations.

The Coast Guard's assistance is significant because the government of the Solomon Islands recently signed an agreement on policing cooperation with China and is reportedly in the process of concluding a security agreement that could allow an ongoing Chinese military and naval presence. Such an agreement has been characterized by some as "destabilizing" for the region.

According to the Washington Post, China is trying to formalize agreements with other Pacific island countries on policing, cybersecurity, maritime surveillance, fishing rights and the creation of a free-trade area.

"We need to respond to this because this is China seeking to increase its influence in the region of the world where Australia has been the security partner of choice since the Second World War," said Australian Prime Minister Anthony Albanese in an interview with the Australian Broadcasting Corporation.

Federated States of Micronesia President David Panuelo called the deal a "smokescreen" hiding a Chinese attempt to "acquire access and control of our region."

"Through Operation Blue Pacific, the United States Coast Guard

looks for opportunities to assist our regional partners with maritime governance and security," said Capt. Craig O'Brien, chief of response of Coast Guard District 14. "Working closely with the Forum Fisheries Agency and the government of Solomon Islands, it was a privilege for the United States Coast Guard to assist the Solomon Islands while their police vessel was down for maintenance."

With the controversy over China's engagement with the Pacific nations, and the Solomon Islands in particular, the request from the Solomon Islands to the U.S. Coast Guard is especially meaningful.

New Safety Command Isn't Just About Safety, It's About Readiness



NORFOLK (Feb. 4, 2022) Rear Adm. F.R. Luchtman, right, reports to Chief of Naval Operations, Adm. Michael Gilday, as he assumes command of the Naval Safety Command during the establishment ceremony for the Naval Safety Command. The Naval Safety Command serves as the naval enterprise lead for nonnuclear safety standards, expertise and oversight of the Navy Safety Management System (SMS). The command will operate with the requisite authorities and responsibilities to establish a SMS that provides defense-in-depth and ensures the Naval enterprise is both safe to operate and operating safely. (U.S. Navy photo by Mass Communication Specialist 2nd Class (SW/AW) Weston A. Mohr)

"Our mission and our focus every day is to enable warfighting capability by reducing preventable mishaps, loss of life and damage to materiel," says Rear Adm. F.R. "Lucky" Luchtman, commander of the new Naval Safety Command. "Everything we do is to save the lives of Sailors and Marines, whether they're wearing a uniform or civilian clothes. That's what keeps us motivated. We're focused on Sailors and Marines every day."

The Department of the Navy has had a safety management system, but there have been incidents and accidents that would indicate that the service's SMS is "inconsistently effective," according to Luchtman.

The new command assumed the functions of the Naval Safety Center but raised it to a command that reports directly to the chief of naval operations.

By elevating the Naval Safety Center to the Naval Safety Command, the service is making is a statement that it's going to start looking at problems differently.

"It's a refocus of our current missions. We want to get after leading indicators and become the regulation authority that can evaluate the effectiveness of the safety management system as a whole," Luchtman said.

"Some things won't change a whole lot," he acknowledged. "For example, we have an investigations branch of world-class investigators that help us understand the root causes of mishaps wherever they occur, whether on the surface, below the surface, in the air or on the land. Their mission is not really going to change a whole lot. Within our knowledge management directorate, we have a center of excellence with respect to data analytics. We have tremendous capability and capacity look at leading indicators and how we can use those indicators to reduce preventable loss of life and materiel."

Also within the data analytics and safety promotions directorate is safety promotions, which shares safety awareness dispatches; publishes some well-known publications such as Approach, Mech, GroundWarrior and Ride; and has a robust social media presence on LinkedIn, Twitter, Facebook, Instagram and a public-facing website it uses to target the message to the fleet. "What will change is the modernization of our safety management system," Luchtman said.

The SMS is a high-level framework that identifies and communicates risk and helps mitigate or eliminate it.

"Safety Command will implement the Navy's safety management system, which is a formal organization-wide approach to enhanced risk management reduction, problem solving and, really importantly, critical thinking," said Chief of Naval Operations Adm. Michael Gilday, speaking at the command's Feb. 4 establishment ceremony. "It will move us away from reacting – reactively managing safety, to proactively managing risk by making sure accountability for risk is held at the appropriate level."

Luchtman said, "We currently have an SMS, and we're looking to modernize it and meet the international ISO 45001 standard for occupational health and safety. But we've done some analysis that shows that we're just not learning from some of the lessons-learned from previous mishaps. We know that because as we look at causal factors over time, many of them appear again and again over time.

"We're going after the gaps and seams to ensure our SMS functioning at 100% to reduce preventable mishaps. If we surmise that we're not learning as effectively as we should, or as consistently as we could, we want to know why, and take corrective action. The Navy that proves it can learn and adapt is going to be better postured for that fight than the one that does not."

Luchtman said leadership should be absolutely engaged in the SMS design and implementation. Under SMS is the Safety Management Program, which gets into the tactical level of policies and procedures. "Our goal is to identify risk, communicate risk and, at the appropriate level, mitigate or eliminate that risk via accountability."



Sailors assigned to USS Gerald R. Ford (CVN 78) and Carrier Air Wing 8 prepare to conduct a foreign object debris walkdown on the flight deck, March 22. U.S. NAVY / Mass Communication Specialist 3rd Class Riley McDowell

Safety Assessment

Luchtman said the Navy is now stressing accountability to make sure safety management is effective.

"As we get our SMS to where we want it to be, then how can we assess it to make sure that it's operating the way we want it to? That's where the Naval Safety Command comes in," he said.

The command will assess the effectiveness of the SMS through unit-level spot inspections focused on compliance, deviation from standard and self-assessment and self-learning.

"We're going to walk onto a ship or submarine or into a squadron," he said. "And we're going to take compliance with guidance and policy that exists throughout the safety management system. And then we're going to note deviation from those practices. And then we're going to ask the question, why? That question really is foundational to everything we're doing. It's important to get those safety issues addressed right away, but that noncompliance can also be used as an indicator as to the health of the entire enterprise broadly."

Gilday said the Safety Command, much like the Navy's Board of Inspection and Survey, "is going to take a look at our commands, our units, our squadrons, our submarines, our ships' ability not only to comply with safety instructions, but … the real magic is going to be their ability to take a deeper look at our commands' ability to self-assess and to self-correct."

The design for the fleet assessments is not final yet, Luchtman said.

Identifying Risk

When a unit deploys, there are factors that develop and evolve that affect risk — such as training, manning shortfalls or equipment status or casualties — that require an understanding of the aggregation of risk to make decisions about how best to continue the mission, he said. But risk is more encompassing than just safety.

"In our profession, risk follows us around 24 hours a day, seven days a week. We're always making risk decisions involving challenges and opportunities. There's no escaping it."

"There is almost no aspect of naval operations that can be separated from risk," Gilday said. "But risk can be controlled."

Luchtman said his command will identify best practices that can be applied throughout the fleet.

"We're really focused on units and their ability to properly assess where they are, and whether or not they've implemented changes at the local level to address those gaps. So, that's the unit level assessment. But we're also going to be assessing the effectiveness of the safety management system from a higher echelon perspective, including the large staffs at the fleets, type commands and systems commands, to make sure they can properly identify the risk that is out there.

"We want to ensure the upper echelons understand the aggregation of risk that is occurring below them, appropriately communicate that risk both up the chain and down the chain, and are holding at the appropriate level the accountability to address those concerns that are found in risk identification process. That process of assessing higher echelon is brand new for the Naval Safety Command," Luchtman said. "We have not done that in the past."

Luchtman said this journey started with the thesis that the Department of the Navy's safety management system is inconsistently effective.

"We looked at how we solve the problem. We started doing our homework to look at industry best practices, our sister services and our international partners, and we realized that we can do a lot better. We have to be honest with ourselves and recognize our capabilities and our limitations, understand those gaps, and fill those gaps through the safety management system."

He said there are two commodities at stake, the first being money.

"The Navy spends about a billion dollars a year on mishaps across the communities. Wouldn't it be better to apply that money in areas of readiness, rather than replacing materiel or human life that we've lost because we weren't in compliance with an effective safety management system?"

The other commodity is trust.

"Every preventable mishap erodes public trust. We need to be able to say with credibility that we understand our business, we understand where the risks are and we put into place mitigations to allow us to operate at the very highest level, while minimizing unnecessary loss to human life and materiel. And there's also a level of trust with taxpayers and the American public. Nobody wants to see ships damaged, aircraft crashed or lives lost on the front page. We actually are a pretty safe enterprise considering the number of days we steam or the hours we fly," Luchtman said. "We actually do it pretty well. But when we fail, it's normally a high visibility event.

"We want to have the conversation not about safety, but about readiness and warfighting capability."

Students Help Coast Guard to Find Unmanned Smuggling Boats



A student-built unmanned autonomous surface vessel is brought aboard a Coast Guard patrol craft to conduct detectability testing near Galveston, Texas. U.S. COAST GUARD / Petty Officer 3rd Class Alejandro Rivera GALVESTON, Texas – A unique student project is helping the Coast Guard find small and hard to detect unmanned autonomous

Coast Guard find small and hard to detect unmanned autonomous surface vessels that might be used to transport drugs into the U.S.

Several USVs have been recovered attempting to transit drugs across the maritime border with Mexico and into California. The boats can carry about 90 pounds of cargo, which could be illegal narcotics or other hazardous cargo.

To learn how these boats might be detected by sensors, the Coast Guard engaged the National Security Innovation Network, a Department of Defense office which collaborates with major universities and the venture community to develop solutions that drive national security innovation. With Coast Guard Sector San Diego as the project sponsor, NSIN capstone students at San Diego State University and Rice University in Houston, Texas, have been prototyping boats this semester.

Four USVs have been seized by federal law enforcement authorities in Southern California. The first was found in March 2018, another in December 2020, and two more in February and March of 2021, suggesting a high likelihood there are many more that have gone undetected.

The vessels are three to four feet long and have a freeboard of just seven inches. They navigate autonomously and can travel for about 66 nautical miles at a speed of about 2.5 knots.

According to information provided by the U.S. Coast Guard, their above-water profile is minimal, which makes it hard for existing maritime domain awareness tools and detection capabilities to see them. Not only are they capable of reaching uninhabited shores with illegal narcotics, they could also penetrate defense layers surrounding coastal and harborbased high value targets – military bases, power plants, or critical infrastructure – with explosives.

The purpose of the NSIN project is to improve coastal surveillance, detection and interdiction capabilities to threats posed by this evolving threat. The students were tasked with designing and testing a USV with similar characteristics to ones previously detected, and to test and demonstrate detection using an existing surveillance tool.

Students from Rice University built a replica boat that was "reverse engineered" and demonstrated in Galveston, Texas, March 29-30 to see how a special high-resolution and wideangle camera called the WAV Surveillance System could be used to detect the boat in realistic conditions.

"The Rice student team designed and constructed a model that can be used to test existing systems leading to enhanced capabilities and also providing a roadmap for others to replicate similar platforms to routinely test their own system," said Fritz Kuebler, Rice University's Office of Research NSIN program director.

"This project has been underway for about two months and has involved extensive research, design and testing by the student team with regular interaction from the project sponsor," Kuebler said.

"Coast GuardSector Houston-Galveston has been an ardent supporter of this project and provided assets to assist with the testing including deploying and recovering the [unmanned vessel] on the testing days, and coordinated participation with local maritime security stakeholders," said Kuebler.

WAV is a long-range video surveillance solution for homeland security applications and other situations that require persistent visual-domain awareness of very wide areas. It was designed by and developed by Innovative Signal Analysis Inc., of Richardson, Texas, and has both commercial and military applications. WAV is uniquely able to function as both a wideangle and zoom camera at the same time, and is currently deployed in San Diego Harbor.

"The WAV surveillance system is capable of finding these low probability of intercept targets, because it can survey a wide area, 90-degrees, at a high resolution at a higher refresh rate than a standard point-to-zoom camera," said Jonathan Ray of Innovative Signal Analysis of Richardson, Texas, the company that makes WAV. "We take advantage of these components in our algorithms to build a history of detects of the object to improve location accuracy and object detection confidence."

WAV's imagery led to the eventual discovery of the autonomous USVs.

"This project highlights the value of bright, dedicated STEM students working with national security experts to make a real difference," Kuebler. "It also serves as a proof of concept and example for how creative thinking and new methodologies advances broader U.S. strategic objectives regarding maritime security and the value of this critical infrastructure."

Submarine Program 'Alive and Well,' Lawmakers Tell Industry Leaders



The future USS Oregon (SSN 793) heading out from Groton, Connecticut, on sea trials in December 2021. *GENERAL DYNAMICS ELECTRIC BOAT*

WASHINGTON, D.C. — Navy new submarine construction is on track, members of the Submarine Industrial Base Council were told by federal lawmakers during a visit to Washington.

Virginia-class submarines and the new Columbia class are moving forward, thanks in part to the efforts of the council, said Rep. Joe Courtney (D-Connecticut), chairman of the House Armed Services Committee's Seapower and Projection Forces subcommittee and co-chair of the Submarine Caucus.

"The submarine program is alive and well. Your presence here today to make sure that Congress understands that ... I think that's a really big part of why that success is actually happening today," Courtney said. "If you look at the momentum, in terms of both full funding for two per year for Virginia, and the eye-watering progress with Columbia."

Courtney, whose district includes the General Dynamics Electric Boat Shipyard in Groton, Connecticut, acknowledged the progress with the fiscal year 2022 defense budget, which is going to show a 6% increase in spending. Courtney said the broad, bipartisan support the Columbia program enjoys is evident because its funding was exempted from the effects of the continuing resolution, which freezes spending at previousyear levels.

Courtney talked about the importance of maintaining a hightempo submarine production rate, possibly going even higher. He mentioned the aspirational goal of three Virginiaclass Block V submarines per year, which his committee approved.

AUKUS Opportunity

In addition to U.S. submarine programs, Courtney said the Australia-U.S.-U.K nuclear submarine program called AUKUS will also provide opportunities for American companies. By law, sharing nuclear technology with other nations must be approved by Congress, something that was done for the United Kingdom in 1958, and will be required for Australia – Courtney said he's confident that will happen.

AUKUS will be a huge program and a boon to Australia's

industrial base, he said. But Courtney, who also chairs the Friends of Australia Caucus, said some of that capability and capacity will need to be provided here in the U.S.

"Australia is an incredible ally. But it isn't reasonable to expect that a country of 30 million people can do it all by themselves. The spirit is there, but it's probably a reach that they just can't get to with their own indigenous workforce," he said.

While the technicalities of an agreement with Australia need to be worked out, Courtney said it is his personal opinion that Australian naval officers should already be training at the Nuclear Power School in Charleston, South Carolina.

"They have good submariners, but they're obviously familiar with diesel electrics, and they need to start getting people over to South Carolina and connected with the system," he said. "You can't just snap your fingers and have nuclear trained submariners."

Courtney talked about major investments in infrastructure at Electric Boat's shipyard in Groton and facility in Quonset Point, Rhode Island, as well as Huntington Ingalls Newport News Shipbuilding, where work is being performed on the Virginia and Columbia classes.

Courtney said he takes a keen interest in workforce development nor only because of the necessity of having a trained employment base to support submarine construction, but also because he's on the education and labor committee. He said the current omnibus spending package will include 30% more funding for registered apprenticeships, which can support defense companies, as well as workforce development money in the defense budget on top of that.

"We're also slated to update the large federal job training plan called the Workforce Investment Opportunity Act, WIOA. It's a five-year reauthorization process that's coming up this year and will support pre-apprenticeship programs," he said. "Giving young people a pathway to a skill and a job is almost existential for our economy right now."

Courtney said that some of the new shipyard structures literally change the local skyline. "It's just unbelievable what's happening. But the fact is, we need more, in my opinion."



General Dynamics Electric Boat delivered the nuclear-powered attack submarine Oregon (SSN 793) to the U.S. Navy on Feb. 26. GENERAL DYNAMICS ELECTRIC BOAT Budget Issues

Rep. Elaine Luria (D-Virginia), vice chair of the House Armed Services Committee and the Seapower and Projection Forces and Readiness subcommittees, said bureaucratic and legislative foot-dragging is having an impact on getting the defense budget completed.

Luria represents the Hampton Roads area, which conducts 25% of the shipbuilding and repair in the United States.

"It's 42% of our local economy," she said. "So, we've got to get this defense bill passed."

She talked about hearing consistent testimony from Navy leadership about the threat, particularly from China in the Indo-Pacific region.

"In order to confront that threat, we need to grow our Navy, and the place we maintain that strategic advantage is our submarine fleet," she said. "But the budget we got wanted to decommission more ships than we proposed to build."

The Navy proposed decommissioning seven Ticonderoga class cruisers, which Luria said represents the loss of more than 400 vertical launch system cells that can fire Tomahawk land attack missiles.

"In an environment where we are confronting a rising and increasingly aggressive China, it made absolutely no sense," she said.

Luria reiterated Courtney's comments on the Columbia-class ballistic missile submarine to replace the aging Ohio-class fleet.

"We all understand that the Columbia-class submarine is the cornerstone of our national defense. As we sit today, we see the importance of that capability with the other events that are happening in the world. And we have to keep the Columbia class program on track. It's absolutely essential."

Luria also followed up on Courtney's remarks about the AUKUS nuclear submarine program.

"It's a huge opportunity. It's also a huge risk. If you think

about it, it's a huge message to the Chinese. It's a message to the Chinese that we are collaborating with Australia – that the U.S., Britain and Australia are cooperating, we're building nuclear submarines, and we're going to have this presence in the Pacific."

Luria told the industry representatives they will be part of that effort to develop the plan and deliver support to Australia to build those submarines. The risk lies in the size of the project, she said.

"As you know, there is not the infrastructure, the training or the industrial base within Australia to just start from scratch and build a nuclear submarine program akin to what either we or the British have," she said.

Although the U.S. is investing in infrastructure upgrades, including shipyards, Luria said the nation needs to make more investments in its public yards. She cited issues with the Norfolk Naval Shipyard where the drydocks are old and rising sea levels are affecting ship maintenance.

"The infrastructure there needs to really be brought up into the 21st century," Luria said.

Asked about the Navy's long-term shipbuilding plans, Luria said the service's 30-year shipbuilding plan is usually obsolete by year five. The plan needs to be more compelling, she said.

"We need maritime strategy that lays out why we need a Navy, and this is where we need the Navy to be and be deployed," she said.

China Deterrent

Rep. Mike Rogers (R-Alabama), the ranking Republican on the House Armed Services Committee, told the attendees about the importance of the Indo-Pacific region and the need for the nation to build a modern, credible deterrence to counter ongoing Chinese aggression.

"Effective military strength in the Indo-Pacific is essential to the security of our allies, global trade and democracy," he said. "The strength of our Navy is central to that effort."

Rogers said China is rapidly growing and modernizing its navy.

"Our fleet of 296 ships has already been eclipsed by the Chinese fleet of 350 ships and submarines. China is no longer far off threat; they are a pacing threat," he said. "China is rapidly modernizing its navy, and building a fleet to project power far beyond the South China Sea. By the end of this decade, China could equal our numbers of ballistic missile submarines and have a substantial fleet of attack submarines."

Rogers said the U.S. "must recapitalize our submarine fleet to maintain our strategic advantage, and we should be expanding and modernizing our naval capabilities."

Unfortunately, he said, the Navy's shipbuilding budget doesn't come close to meeting the strategic requirements. He agrees with the assessments that the Navy needs 500 ships, both manned and unmanned vessels.

"This includes increasing our attack submarine fleet from 49 to 66, and building a ballistic missile fleet of at least 12," he said. "Our attack submarine fleet will be on the front lines in any conflict that we have with China.

"We need to expand our industrial base to support three attack submarines per year," Rogers said. "Doing that with multi-year construction contracts will save money and deliver the capability we need quicker. We've got to also fully fund the Columbia class. Columbia class is going to cost over \$110 billion – and that's a lot of money – but they are a central part of our [nuclear] triad." "We need this administration to publicly commit to rapidly expanding our submarine and surface fleet," Rogers said. "And we need to see that reflected in the shipbuilding plan."

Russian Air Defenses Working Well When Operated by Ukrainians, ACC Chief Says

Air Force Gen. Mark D. Kelly, commander, Air Combat Command. U.S. AIR FORCE

WASHINGTON – Air Force Gen. Mark D. Kelly, who leads Air Combat Command, was asked about the capabilities of Russia's air defense systems since the beginning of Russia's invasion of Ukraine.

"They're operating pretty well when they're operated by

Ukrainians," he said.

Kelly was one of the presenters at the McAleese & Associates conference in Washington on Wednesday, March 9. Generally speaking, Kelly said Russia does not have an air base defense challenge.

"They operate on layer upon layer upon layer of S-300 and S-400 (anti-air missiles), as well as SA-23s, etcetera," he said.

Some of these systems are operated by Ukraine. According to Kelly, "The Russian air defense units, operated by the Ukrainians, they're pretty capable systems."

In the current war, Kelly acknowledged Russia has faced logistics and moral challenges. Furthermore, they are not used to operating without complete air dominance.

"The Russian air force has not adapted agile combat employment for a couple of reasons. One, in my opinion they're not capable of doing it; and two, they don't need to," Kelly said. "They can operate pretty safe from their main air bases with that layer of defense over them."

"The Russians themselves, I think – and 'think' is a key word – they're struggling with fighting Russian systems and they're not adhering to Russian doctrine. And we see the challenge that they have. But we also see the challenge of what happens your joint force is organized, trained, equipped to operate with air superiority, and not remotely designed operate without air superiority, what happens when you don't have it," he said.

In the Q&A after his remarks, Kelly commented on the value of the F-35 Joint Strike Fighter, even after all of its weapons have been expended.

Kelly said the F-35 can do significant amount of sensing,

including the ground moving target indicator capability inherent to the aircraft.

"Very often, in big 'Red Flag' exercises, [the F-35] will expend all its weapons, and where traditionally we would go home once we'd expended all of our weapons, the information that it puts out to the rest of the joint force is so valuable, and with its air sensing ground sensing and data linking, they like to keep it out there to contribute to the rest of the joint force," he said.

Cost of Critical Metals for Submarine Construction Climbs During Ukraine Crisis

The Bystrinsky Mining and Concentration Plant is the largest greenfield project in the Russian metals industry. *WIKIPEDIA* /

Andrey Kuzmin

WASHINGTON, D.C. – The availability of raw materials and components was a topic of conversation at yesterday's Submarine Industrial Base Council congressional breakfast in Washington, D.C.

Attendees noted the pandemic's impact on the supply chain has made just-in-time deliveries virtually impossible. In the case of specialty steel companies, the availability and prices of raw material such as nickel, especially critical for the highquality steel used in submarine construction, has been particularly troublesome.

The London Metals Exchange, one of the oldest commodity exchanges, had to suspend trading of nickel because of heavy activity and the concern over Russia's invasion of Ukraine. Nickel is a critical ingredient in heavy-duty vehicle batteries, stainless steel and other alloys and is vital to many defense-industry products.

Nickel is already in short supply, with inventories available on the LME being reduced by half since October. LME nickel prices more than doubled on Tuesday, March 8, to more than \$100,000 per ton. The market panic caused the LME to temporarily stop posting prices for the mineral. Other exchanges have experienced similar activity.

Russia is a major supplier of nickel – about 10% of global output – and Russian company Nordickel is the world's largest supplier of battery-grade nickel, providing 5%-20% of the world's supply.

Prices on other commodities like copper, tin, lead and zinc are also higher this week

LME hopes to reopen trading on nickel soon. LME's website currently states that the exchange has "been continuing to work on the evolving nickel situation, with the intention of ensuring it is able to reopen the market, with trading continuing in an orderly manner, in an appropriate timeframe."

"The current events are unprecedented," the LME said in a notice to members.

University of Maine Manufactures World's Largest 3D-Printed Boat for Military

The University of Maine's Advanced Structures and Composites Center in Orono has printed two of the largest 3D-printed vessels for the U.S. Marine Corps for testing. UNIVERSITY OF MAINE AT ORONO ORONO, Maine – The world's largest polymer additive

manufacturing machine printed the world's largest 3D printed

vessel at the University of Maine's Advanced Structures and Composites Center in Orono, Maine. In fact, it printed two of them.

The prototype vessels were built with Marines in mind. One of the two logistics support vessels can carry a pair of 20-foot shipping containers, while the other can transport a Marine rifle squad with three days of food, water and supplies.

This isn't the first time the UMaine Composites Center printed a vessel. In 2019, the Center printed 3Dirigo and earned two Guinness World Records – the world's largest 3D printed boat and the world's largest 3D printed object. The 25-foot, 5,000pound boat was printed in 72 hours. "Dirigo" is the motto of the State of Maine and means "I lead" in Latin.

The two new vessels are multi-material composites with engineering polymer and fiber reinforcement. The composites center fabricated and assembled one of the vessels in a month instead of up to year, which is typical using traditional methods and materials.

The university hosted a ceremony attended by the state's two senators, Republican Susan Collins and Independent Angus King, along with representatives from the Defense Department on Friday, Feb. 25, to mark the production of the vessel. In a statement issued by the senators and university, the achievement was called "a significant milestone towards demonstrating advanced manufacturing techniques to rapidly constitute critical DoD assets closer to the point of need."

Due to national security concerns, no photos or video of the boats was allowed.

'The Future of Manufacturing'

"Marine Corps Systems Command's Advanced Manufacturing Operations Cell, in collaboration with the UMaine Composites Center, used advanced manufacturing techniques to successfully develop the expendable polymeric composite ship-to-shore vessels," the statement says. "The longer of the two vessels, the largest ever 3D-printed, simulates ship-to-shore movement of 20-foot containers representing equipment and supplies. The second vessel can transport a Marine rifle-squad with organic equipment and three days of supplies. The prototypes can be connected, maximizing the transport capability of a single-tow vehicle."

"This is literally the future of manufacturing that's happening right here at the University," King said.

The Marine Corps established the Advanced Manufacturing Operations Cell in 2019 to support Marines with new advanced manufacturing and technologies and techniques, as well as to conduct testing, experimentation and analysis.

Multiple small logistics vessels will be needed by the Navy-Marine Corps team to support distributed maritime operations and expeditionary advanced base operations.

"This project demonstrates the art of the possible and the potential for AM [additive manufacturing] to fundamentally alter how we think about connectors and their role in mobility and distribution within a contested environment," said Lt. Gen. Edward Banta, Deputy Commandant – Installation & Logistics, U.S. Marine Corps.

"The University of Maine is at the forefront of cutting-edge research and high-impact technologies, including advanced manufacturing, AI and 3D printing important for industries in Maine and beyond," said University of Maine System Chancellor Dannel Malloy. "These prototype vessels are the latest innovations from the Composites Center that demonstrate the future of manufacturing."

"Two years ago, we demonstrated that it was possible to 3D print a 25-foot patrol vessel in three days. Since then, partnering with the DOD, we have been improving material

properties, speeding up the printing process and connecting our printer with high-performance computers that can monitor the print. With these tools in place, we have now printed a prototype vessel that will be tested by the U.S. Marine Corps."

From the lab in Orono, the boats will travel next go to California for sea testing and evaluation.

Dahlgren Focuses Energy Weapons on Target

Arleigh Burke-class guided-missile destroyer USS Stockdale (DDG 106) Sailors prepare to conduct a replenishment-at-sea with Nimitz-class aircraft carrier USS Carl Vinson (CVN 70), July 12, 2021. Stockdale's Optical Dazzling Interdictor (ODIN) laser system is seen just below the bridge. U.S. NAVY / Mass Communication Specialist Seaman Elisha Smith DAHLGREN, Va. - The U.S. Navy has been researching and perfecting directed energy weapons to include railguns, highpowered microwaves and lasers, along with hypervelocity projectiles - to make futuristic weapons a reality on ships today.

The Naval Surface Warfare Center Dahlgren Division in Dahlgren, Virginia, has been leading the way in creating capabilities to give warfighters a high-tech advantage at sea, to include directed energy weapons.

"We take great pride in being a hands-on research, development, test and evaluation institution, where we possess and practice the organic technical knowledge for the Department of the Navy with respect to surface warfare," said Dale Sisson, NSWC Dahlgren Division's technical director. "That ends up being a fairly broad ranging mission, for sure. Having the opportunity to design, develop, test and integrate warfighting systems through the confluence of a physical range infrastructure, and a digital architecture such as our digital proving ground, is fundamentally who we are.

"We're also in the threat engineering business, which means we understand those threats well, and that knowledge translates back into understanding how to develop the weapons to counter that on a defensive standpoint, as well as create the offensive advantage that puts us ahead of the game," said Sisson.

While the Navy's railgun efforts are currently on hold, laser systems are installed or in the process of being integrated into ship combat systems today. In fact, much of Dahlgren's work on railguns is being leveraged today for new capabilities such as hypervelocity projectiles.

Today, lasers are a reality in the fleet. A prototype Optical

Dazzling Interdictor, Navy, or ODIN system, designed and built by Dahlgren, is being evaluated aboard the Arleigh Burke-class guided missile destroyers USS Dewey (DDG 105), and other Burke-class ships. The Lockheed Martin High-Energy Laser with Integrated Optical-dazzler and Surveillance system is being tested aboard another Burke-class ship, USS Preble (DDG 88). The Solid-State Laser Technology Maturation (SSL-TM) program is developing an integrated Laser Weapons System Demonstrator, built by Northrop Grumman, which is installed and being tested aboard landing ship dock USS Portland (LPD 21).

All of them can thank Dahlgren for vital concept development, design and testing. Dahlgren's Laser Lethality Laboratory and Laser Firing Range have provided knowledge, expertise and experience to mature the technologies and integrate the capabilities into the combat systems on the Navy's warships.

"Our laser firing range allows us to fire across Upper Machodoc Creek so we can examine how the maritime boundary layer between the water and the atmosphere affects laser performance. We have a two-story building within our explosive experimental area we use as a backstop for laser beams," Sisson said. "We can shoot up to about four kilometers, depending on where we position lasers on the range from the backstop."

Dr. Chris Lloyd, distinguished scientist for laser weapon system lethality, leads the Navy's laser lethality efforts.

"NSWCDD has extensive experience in integration of Navy laser weapon systems, from subcomponents up to full systems. The Navy laser lethality team supports development, assessment and deployment of laser weapons and conducts rigorous testing, modeling and simulation to drive requirements for advanced laser weapon system development for the Navy. Lethality is more than simply damaging materials, but understanding how threats are going to respond. We have to understand threat response, based on the damage we inflict, and apply that data, along with weapon system parameters and propagation information to tell the complete weapon effectiveness story," he said.

"Our industry partners team closely with the government directed energy workforce to integrate and test laser weapon systems at Dahlgren test ranges as well as other DoD test locations in the country," said Lloyd. "If they have a system that's ready to be tested in preparation for deployment, we can use actual system performance test data in our lethality and effectiveness analyses to validate models and assess overall lethality."

1001 Amphibious transport dock ship USS Portland (LPD 27) successfully disabled an unmanned aerial vehicle with a solidstate laser, Technology Maturation Laser Weapon System Demonstrator (LWSD) MK 2 MOD 0 in May 2020 in this still image from U.S. Navy video from Pacific Fleet Public Affairs. U.S. NAVY

Working Together

Lloyd said the Dahlgren team has been part of technical area working groups that have been together for the better part of 20 years, and, as a result of that, have become very proficient at working together and sharing data.

"We collaborate closely with the Army, Air Force, Missile Defense Agency and the Joint Directed Energy Transition Office," he said. "We also work with the FFRDCs [Federally Funded Research and Development Centers] and academia to advance key S and T [science and technology] areas."

Dahlgren's lethality lab has several key features, including a repurposed World War II tunnel for longer range propagation studies. It's environmentally controlled, and can introduce moisture and aerosols to see how they affect not only propagation but lethality.

"We can look at battlefield contaminants, atmospheric conditions, and understand lethality through those conditions," said Lloyd.

"We're in the business of putting holes in targets and damaging components. That's the 'target vulnerability' piece of it," he said. "But we're interested in the overall weapon lethality. We have to understand the weapon system performance specifications, as well as the atmospheric conditions and the impact on overall effectiveness. We work very closely with the atmospheric community to grasp those principles and pull them into the modeling. We also collect vulnerability data on different materials all the way up to subsystem components and full systems."

Another aspect of Dahlgren's laser lethality efforts involves the modeling and simulation analysis team. "Fundamental properties for the materials we test against are fed into those models, along with all the basic parameters like conductivity," said Lloyd. "It all has to be well understood."

Sisson said the science and technology is important, but Dahlgren's staff knows how to put that knowledge into practical systems. "We have the technical knowledge to build a system. But that's not enough. We have that true subject matter expertise that knows how to design, develop, deliver and field systems. When we're working on a tactical laser system, our engineers also understand systems integration and what it takes to go acquire things. We have to be able to install and operate that system on a ship reliably and effectively," Sisson said. "We need a system to target the beam and conduct battle damage assessment, and it has to integrate with the ship's combat management system. We have to be able to make it fit and work on a ship in a challenging maritime environment."

Not Just A Laser

"Dahlgren has been instrumental in the continued technology maturation for high energy lasers and the success of LWSD," said Donna Howland, acting general manager of Northrop Grumman's Directed Energy operating unit. "We learned from their expertise on how to operationalize high energy lasers."

"It's not just a laser. We want to integrate the laser – as both a sensor and weapon – as a full participant in the combat system," said Capt. Casey Plew, NSWC Dahlgren Division's commanding officer. "We're building a weapon that includes the mount, power, thermal management, command and control, tracking and doctrine, all done in coordination with government, industry and academia partners.

"Lasers are a great piece of the mission we perform, but they are only one part of the complex puzzle. And the awesome women and men of NSWC Dahlgren Division have been helping to solve our surface navy warfighting puzzles – for almost 104 years. It is in our DNA. It is what we do," said Plew.