

Sailor, Marines Killed in Kabul Terrorist Attack



UK coalition forces, Turkish coalition forces, and U.S. Marines assist a child during an evacuation at Hamid Karzai International Airport, Kabul, Afghanistan, Aug. 20. At least 13 U.S. military personnel were killed and 15 wounded in a suicide bomb attack six days later. *U.S. MARINE CORPS / Staff Sgt. Victor Mancilla*

This report was updated on Aug. 27.

ARLINGTON, Va. – A suicide bomber attacked a gate at the Hamid Karzai International Airport in Kabul, Afghanistan, Aug. 26, killing 13 U.S. military personnel and wounding at least 15 others, U.S. military officials said.

Killed were 11 Marines and one Sailor, according to official statements as of 27 Aug. A press report said that the 13th military person killed was a soldier. The service identities of the 15 wounded personnel have not been announced yet, pending notification of next of kin, though some are confirmed to be Marines, according to the HQMC statement.

The units of the dead and wounded have not been announced. The 24th Marine Expeditionary Unit, staged from the USS Iwo Jima Amphibious Ready Group, had dispatched Marines to Kabul in mid-August as part of the U.S. forces deployed to the Kabul airport to evacuate Americans and certain Afghan nationals who had helped with the U.S. war effort.

The attack is believed to have been conducted by ISIS-K, rather than the Taliban, said Marine Gen. Kenneth F. McKenzie Jr., commander, U.S. Central Command, speaking Aug. 26 via internet link to reporters at the Pentagon. At least 79 other people were killed at the scene of the attack, which included small arms fire as well as a suicide vest.

A second attack thought to have occurred at the Baron Hotel near the airport turned out not to have occurred, said Army Maj. Gen. William "Hank" Taylor, the Joint Staff's deputy director of regional operations, in an Aug. 27 briefing to reporters.

Secretary of Defense Lloyd J. Austin III issued the following statement:

"On behalf of the men and women of the Department of Defense, I express my deepest condolences to the loved ones and teammates of all those killed and wounded in Kabul today.

"Terrorists took their lives at the very moment these troops were trying to save the lives of others.

"We mourn their loss. We will treat their wounds. And we will support their families in what will most assuredly be devastating grief.

"But we will not be dissuaded from the task at hand.

"To do anything less – especially now – would dishonor the purpose and sacrifice these men and women have rendered our country and the people of Afghanistan."

Chief of Naval Operations Adm. Mike Gilday also memorialized in the following statement the Navy and Marine Corps personnel lost in the attacks:

"This is a solemn day for the U.S. Navy and Marine Corps team. Those warriors who died gave their lives to save thousands of men, women and children, Americans and Afghans alike.

"Their courage and selflessness represent the highest ideals of America. We pay solemn tribute to their sacrifice.

"To the families and loved ones who grieve – you are not alone. We stand beside you in this pain, humbled by the loss of these heroes, grateful that individuals of such valor chose

to serve among us.”

Commandant of the Marine Corps Gen. David H. Berger issued the following statement:

“It is with extremely heavy hearts that we learned several Marines and other service members were killed and wounded in the Kabul attacks today. Our thoughts and prayers are with the families as they are notified of this devastating loss.

“These fallen heroes answered the call to go into harm’s way to do the honorable work of helping others. We are proud of their service and deeply saddened by their loss. As we mourn, we also keep those who are still over there protecting Americans and our Afghan partners at the forefront of our thoughts. Our Marines will continue the mission, carrying on our Corps’ legacy of always standing ready to meet the challenges of every extraordinary task our Nation requires of her Marines.

“I am continually humbled by the courage and warrior spirit exhibited every day by Marines across the globe. The sacrifices Marines make on behalf of freedom must never go unnoticed or unappreciated. I ask that you keep these Marines and service members, and especially their families, in your thoughts and prayers.”

**STRATCOM Chief: China’s
Nuclear Buildup a ‘Strategic**

Breakout' Requiring U.S. Strategic Rethinking



U.S. Navy Adm. Charles A. Richard, commander of U.S. Strategic Command (USSTRATCOM), provides remarks during the 24th annual Space and Missile Defense Symposium at the Von Braun Center in Huntsville, Alabama, Aug. 12. *U.S. NAVY / Capt. Ron Flanders*
ARLINGTON, Va. – The Chinese government's rapid military buildup across all domains is a "strategic breakout" from its minimum deterrent nuclear posture to one that can coerce other nations, the commander of U.S. strategic forces warned Aug. 25.

Rapid expansion of intercontinental ballistic missile (ICBM) silos, road mobile ICBMs, six or more Jin-Class ballistic missile submarines carrying nuclear weapons that can reach the continental United States from the South China Sea, and bombers armed with air-launched ballistic missiles have given China a "true triad" of sea, air and land nuclear capability, Adm. Charles Richard, head of U.S. Strategic Command said.

In a virtual conversation with Hudson Institute Senior Fellow Rebecca L. Heinrichs, Richard said that amounted to a "final brick in the wall, a final piece of capability designed to build a military that is capable of coercion."

Given the changing threat environment, "right now is the ideal time" for Defense Secretary Lloyd Austin's planned reviews of the national defense strategy, nuclear posture and missile defense, Richard said. "We have never before had two peer nuclear-capable opponents [Russia and China] that have to be deterred at the same time, [but] we have to deter differently."

Russia remains the strategic and nuclear pacing threat "at least for a little bit longer," with over 2,000 non-treaty

constrained warheads and novel capabilities like hypersonic weapons, Richard said.

The United States is developing its own hypersonic weapons. The Navy plans to first deploy Conventional Prompt Strike (CSP) capability hypersonic missiles on Zumwalt-class guided missile destroyers and later, Virginia-class Block 5 submarines. STRATCOM has both strategic deterrence and nuclear deterrence as missions.

“If we had this [hypersonic] capability, it would enable us to accomplish strategic deterrence better than what we can do using the nuclear effect alone,” Richard said.

STRATCOM “will be ready to receive the first service hypersonic capability at intercontinental range the day they make it available,” he said. “We are already working the concepts. I have the targeting. I have the command and control.”

Analysts studying commercial satellite images in recent weeks have discovered the Chinese government is building two large fields of ballistic missile launching silos in the country’s western desert, but U.S. officials including Richard, have not commented directly on the development.

The STRATCOM chief said it is not enough to plan around all the missiles, submarines and other weaponry the People’s Liberation Army already has.

“It would not be a wise assumption to think somehow ‘They’re done,’” Richard said, explaining that officials should not lose sight of “What is the next thing we’re going to find, and where does this end?”

General Dynamics Mission Systems Introduces Badger Software-Defined Radio for Voice, Data Communications



General Dynamics Mission Systems' new Badger software-defined radio, unveiled at Sea-Air-Space 2021. *GENERAL DYNAMICS MISSION SYSTEMS*

General Dynamics Mission Systems recently introduced its new Badger software-defined radio at the Navy League's Sea-Air-Space Symposium in National Harbor, Maryland.

The Badger is based on the company's established AN/USC-61(C) Digital Modular Radio (DMR) providing secure communications aboard U.S. Navy surface combatants, aircraft carriers and submarines as well as fixed sites at shore installations. General Dynamics has delivered more than 900 DMR radios to the Navy.

According to Stan Kordana, vice president of Surface Systems at General Dynamics Mission Systems, Badger meets a customer need for a radio offering the same waveforms, security and flexibility of the four-channel DMR, but with a more compact footprint. The two-channel Badger is a quarter of the size of DMR, and provides the same level of Multiple Independent Levels of Security (MILS) for ship-to-ship and ship-to-shore voice and data communications.

"The reduced size, weight and power make it ideal for smaller platforms across multiple domains that only require two channels, and at the same time simplifies logistics and reduces costs," Kordana said.

According to Kordana, "Badger is the only radio available that

provides high frequency, very high frequency, ultra high frequency and SATCOM Mobile User Objective System [MUOS] waveform capability. The integration of MUOS significantly enhances beyond line-of-sight, or satellite voice and data communications.”

Bill Rau, vice president, Surface Ship Warfare System, said Badger has programmable embedded NSA certified Type 1 encryption that secures communications and simplifies the system architecture.

“It has MILS capability which enables it to communicate simultaneously at multiple levels of security on each of the radio’s two channels – and each one can be tuned to a broad range of frequencies. Furthermore, Badger’s software-defined, flexible open architecture enables future next-generation communications including waveforms, encryption algorithms and advanced network connectivity to be easily incorporated as needs evolve.”

The first DMR units were delivered to the Navy in the early 2000s, Rau said, adding, “we’re expecting to hit the 1,000th delivery in the coming months.”

According to Rau, DMR is the first software-defined radio to become a communications system standard for the U.S. military.

“It’s on every class of surface ship, aircraft carrier, submarine and shore installation. DMR is a compact four-channel radio. With only a few DMRs, ships can essentially replace an entire ‘radio central’ room of legacy radios and equipment on older ships.”

Because these are software defined radios, Rau said, “In many cases, waveforms and features can be updated by adding software, without needing to send the radio back to a depot.”

Badger doesn’t replace DMR. “It’s a newer, smaller version based on the DMR but with two channels instead of four.” Rau

said. “Badger takes the goodness of the DMR and puts it into a smaller package with a modern voice-over internet protocol interface to the ship systems so it can be used on even more platforms, including unmanned surface vessels.”

DMR and Badger are produced at the General Dynamics Mission Systems facility in Scottsdale, Arizona.

HII Celebrates Ceremonial First Cut of Steel for the Aircraft Carrier Doris Miller



Members of Doris Miller’s family attend the ceremonial first cut of steel for the aircraft carrier Doris Miller (CVN 81) at Newport News Shipbuilding division, Aug. 25, 2021. *HUNTINGTON INGALLS INDUSTRIES*

NEWPORT NEWS, Va. – Huntington Ingalls Industries hosted a ceremonial event Aug. 25 at its Newport News Shipbuilding division that marked the first construction milestone in the life of the aircraft carrier Doris Miller (CVN 81), the company said in a release.

During a small ceremony held inside of a manufacturing facility, Thomas Bledsoe, the great nephew of the ship’s namesake, gave the order to “cut that steel” to shipbuilder Gerald Bish, who operated a large plasma-cutting machine that sliced into a steel plate. Shipbuilders, U.S. Navy leadership, elected officials and Doris Miller’s relatives signed their names on the plate.

“Today we recognize the start of construction of the fourth

ship of the Gerald R. Ford class,” said Jennifer Boykin, president of Newport News Shipbuilding. “From this day forward, our shipbuilders will put their hearts into every pipe they fit, every unit they lift and every inch of steel they weld.

“Shipbuilders, I thank you for the hard work, innovation and dedication you will put into transforming this first piece of steel into an awe-inspiring aircraft carrier.”

Ceremony participants included U.S. Rep. Bobby Scott, D-Virginia, who offered remarks; Rear Adm. James Downey, program executive officer for aircraft carriers; Master Chief Petty Officer of the U.S. Navy Russell Smith; shipbuilders and six members of Miller’s family.

“It is so fitting and timely during a period of significant discussion and change we come together to begin construction of one of our Navy’s next great aircraft carriers, in the name of one of the finest heroes of the greatest generation,” Downey said. “We will construct a sound and mighty warship worthy of his legacy.”

Members of Virginia’s congressional delegation, including Reps. Rob Wittman and Elaine Luria also attended the event. Other guests included Capt. Andrew P. Johnson, commanding officer of Supervisor of Shipbuilding, Conversion and Repair, Newport News.

Doris Miller is the second ship named in honor of Miller, and the first aircraft carrier ever named for an African American. This also is the first aircraft carrier named in honor of a sailor for actions while serving in the enlisted ranks.

Miller is credited with heroic actions while serving aboard the Newport News-built West Virginia (BB 48) during the Dec. 7, 1941, attack on Pearl Harbor, Hawaii. Miller’s bravery earned him the Navy Cross.

Doris Miller also is the second ship of the two-carrier contract award HII received in January 2019 for the detail design and construction of the Gerald R. Ford-class aircraft carriers; Enterprise (CVN 80) being the first ship of the contract.

Newport News currently is performing early manufacturing of Doris Miller, which includes structural fabrication and shop work. The ship also will be the second aircraft carrier built completely using digital drawings and procedures rather than traditional paperwork packages and products.

Doris Miller's keel is scheduled to be laid in 2026 and delivered to the Navy in 2032.

"The Doris Miller story provides so many lessons to us as Americans," Bledsoe said. "The Miller family cannot express in words what this means to us, to Americans and to anyone inspired by Doris Miller's story."

The Ford class features new software-controlled electromagnetic catapults and weapons elevators, a redesigned flight deck and island, and more than twice the electrical capacity of the preceding Nimitz-class carriers. These aircraft carriers are designed to be the centerpiece of the nation's security strategy and support and protect the global economy through the protection of sea lanes around the world.

**Pentagon: FDA Vaccine
Approval Opens Way for**

Mandatory Vaccinations

Military



U.S. Navy Hospital Corpsman 2nd Class Orbie VanCurine, a native of Mansfield, Texas, with Combat Logistics Battalion 22 (CLB-22), prepares a COVID-19 vaccine during the opening of the state-run, federally supported Center City Community Vaccination Center at the Pennsylvania Convention Center in Philadelphia on March 3, 2021. *U.S. MARINE CORPS / 1st Lt. Kevin Stapleton / Combat Logistics Battalion 22*

ARLINGTON, Va. – The U.S. Food and Drug Administration’s approval of the Pfizer-BioNTech COVID-19 vaccine paves the way for the Defense Department to require all military personnel to be vaccinated against the coronavirus strain, officials say.

Because the three available anti-COVID vaccines were only approved for human application by the FDA under an emergency use authorization (EUA), no one – including members of the military – could be compelled to get vaccinated. More than 73% of active duty personnel had received at least one shot of the vaccines by mid-August. However, thousands more service men and women declined to roll up their sleeves for inoculation.

“Now that the Pfizer vaccine has been approved, the department is prepared to issue updated guidance requiring all service members to be vaccinated,” Pentagon Press Secretary John F. Kirby told reporters Aug. 23. He said a timeline for completing vaccination of the total force would be provided in coming days.

“We’re going to move forward, making that vaccine mandatory,” Kirby said. “We’re preparing guidance to the force right now. In other words, how we want to see it get done. We’re working through that right now.”

Kirby noted Defense Secretary Lloyd Austin announced Aug. 9 that with the increasing spread of more lethal COVID variants, he intended to mandate vaccination as soon as the FDA licensed one of the three available anti-COVID vaccines from Pfizer, Moderna or Johnson & Johnson. If none received FDA licensure by mid-September, Austin said he would seek a waiver from President Joe Biden to make vaccination mandatory for the military, which Biden indicated he would grant.

In announcing FDA approval of the Pfizer vaccine for the prevention of COVID-19 in individuals 16 years of age and older, acting FDA Commissioner Dr. Janet Woodcock said, "the public can be very confident that this vaccine meets the high standards of safety and effectiveness, and manufacturing quality the FDA requires of an approved product."

For service members with religious objections to receiving the vaccine, exemptions are governed by the individual military services' regulations, Kirby said Aug. 10, adding there are provisions for medical exemptions to mandatory vaccination, including pre-existing medical conditions.

Meanwhile, the number of COVID-19-related deaths among uniformed personnel has climbed to 34 as of Aug. 18, including the first death in the Marine Corps.

Sgt. Edmar J. Ismael died on Aug. 14 in Seattle due to complications related to COVID-19. Ismael, 27, a native of Alaska, was an electrician assigned to Support Platoon, Engineer Support Company, 8th Engineer Support Battalion, II Marine Expeditionary Force, according to a Marine Corps statement.

Across the uniformed services there has been a total of 222,138 cases of COVID-19, resulting in 1,998 service members requiring hospitalization while 211,034 have recovered.

Del Toro Taps Berger to Perform Duties of the Undersecretary of the Navy



Deputy Secretary of Defense Dr. Kathleen H. Hicks swears in Meredith Berger as the assistant secretary of the Navy at the Pentagon, Washington, D.C., Aug. 5, 2021. *DOD / U.S. Air Force Staff Sgt. Jack Sanders*

ARLINGTON, Va. – Secretary of the Navy Carlos Del Toro selected Meredith Berger to perform the duties of the undersecretary of the Navy effective Aug. 25, the Navy announced in an Aug. 23 release.

Berger who is currently serving as the assistant secretary of the Navy for energy, installations and environment, will relieve James F. Geurts, who will retire Aug. 28 after 34 years of government service.

“The Department of the Navy has been strengthened by the wisdom and leadership generated by Mr. Geurts,” said Del Toro. “I value his commitment to our personnel in uniform, his service to our great nation and his teamwork and communication amongst the personnel in this building. I know that Ms. Berger will carry on this strong tradition of collaboration as she performs the duties of the undersecretary of the Navy.”

Geurts served for 22 years in a variety of acquisition positions, focused on engineering and program management while on active duty in the Air Force. Afterwards, he served as the U.S. Special Operations Command acquisition executive before joining the department in December 2017 as the assistant secretary of the Navy

for research, development and acquisition. He was selected to perform the duties of the undersecretary of the Navy in February 2021.

“It’s been an honor serving the Sailors, Marines and their families,” said Geurts. “I have great confidence that the Department of the Navy team is well positioned to take on the many challenges they will face in the uncertain future.”

Berger holds a bachelor of arts in American Studies and Spanish from Vanderbilt University, a juris doctor from Nova Southeastern University and a master’s degree in public administration from the Harvard Kennedy School. She has served in various positions in state and federal government to include the Florida Department of Financial Services, the Environmental Protection Agency and the Department of Defense. Berger served as the deputy chief of staff to the secretary of the navy from 2014 to 2017.

“I am driven by the mission of supporting the department’s nearly one million Sailors, Marines, and civilians who do the brave work of defending our nation,” Berger said. “Ensuring they have the resources necessary to tackle current and future challenges, improve warfighting, and build resiliency and readiness is my top priority.”

US, Singapore Reaffirm LCS, P-8 Rotational Deployments



Vice President Kamala Harris is greeted by Cmdr. Brandon Cornes, commanding officer, aboard the Independence-variant littoral combat ship USS Tulsa (LCS 16), Aug. 23, 2021 in

Singapore. *U.S. NAVY / Mass Communication Specialist 3rd Class Richard Cho*

ARLINGTON, Va. – The United States and Singapore have reaffirmed a strong military partnership that includes continuing rotational deployments of U.S. naval units to Singapore, the White House said.

Singapore, an island nation at the tip of the Malay peninsula in the South China Sea, hosts a U.S. naval logistics presence at a base in Changi, one that has hosted the first rotational deployments of the U.S. Navy's littoral combat ships. The location's importance to regional security has increased with the development in recent years of Chinese bases built in atolls in the South China Sea.

In an Aug. 23 statement, the White House announced cooperation with Singapore on a number of issues, including military partnership.

"Singapore provides critical access for U.S. military units deployed to the region, hosting nearly 1,000 service members, civilians, and dependents which support port visits and sorties transiting the country's military airfields – while Singapore has the second largest military presence in the United States of any foreign partner, with 1,000 Singapore military personnel and dependents stationed across the country," the statement noted.

"The United States and Singapore remain deeply committed to working together to uphold regional peace, security, and stability," the statement said. "The United States and Singapore reached agreements that reaffirm the strength of our bilateral Strategic Partnership, the critical importance of our security relationship, and the U.S. enduring commitment to maintaining a robust presence in Southeast Asia, including through rotational deployments of U.S. P-8 aircraft and littoral combat ships to Singapore."

Huntington Ingalls Industries Names Danny Hernandez Corporate Director, Public Affairs



Danny Hernandez, HII's pending new corporate director of public affairs. *HUNTINGTON INGALLS INDUSTRIES*

NEWPORT NEWS, Va. – Huntington Ingalls Industries announced today that Danny Hernandez will succeed Beci Brenton as the company's corporate director of public affairs upon Brenton's Oct. 31 retirement. Hernandez will join HII on Sept. 13, transition into the position, and report to the executive vice president of communications, while based in the company's Washington, D.C. office.

Brenton joined HII as corporate director of public affairs in 2011 after serving in various public affairs roles during her 26-year career with the U.S. Navy. Prior to joining HII, Brenton acted as the special assistant for public affairs for former Secretary of the Navy Ray Mabus.

"Beci joined HII shortly after it became an independent, publicly traded company, and from day one, she played an integral role in helping build HII's corporate communications team and telling the HII story to our many stakeholders," said Jerri Dickeski, HII's executive vice president of communications. "Her leadership, insight and public affairs knowledge have been an incredible part of our success, and I'm very thankful to her and wish her the very best in her well-deserved retirement."

As corporate director of public affairs, Hernandez will be responsible for the creation, execution, alignment and sustainment of public affairs and media communications for HII. He will lead HII's corporate media relations team to develop external communications that advance critical business themes and messages to support HII's portfolio of programs, corporate and division-level events, community relations and more.

"Danny brings nearly three decades of communications and public affairs acumen to this position," Dickeski said. "His years of naval service offer an invaluable perspective to the communications team, as well as his extensive experience in media relations and crisis communications."

Prior to joining HII, as a captain in the U.S. Navy, Hernandez served as director of communications to the assistant secretary of the Navy (Research, Development and Acquisition) where he was the spokesperson for the Department of the Navy's most senior acquisition executive. He also served as director of public affairs and communications engagement for U.S. European Command and director of communications for the chief of naval operations. Hernandez was commissioned as a naval flight officer in 1991 and became a Navy public affairs officer in 1993, serving multiple tours in communications, public affairs and media relations. He earned a bachelor's degree from California Polytechnic State University, San Luis Obispo and a master's degree from the U.S. Naval War College.

Huntington Ingalls Industries is America's largest military shipbuilding company and a provider of professional services to partners in government and industry. For more than a century, HII's Newport News and Ingalls shipbuilding divisions in Virginia and Mississippi have built more ships in more ship classes than any other U.S. naval shipbuilder. HII's Technical Solutions division provides mission-critical national security solutions to government and commercial customers worldwide. Headquartered in Newport News, Virginia, HII employs about

44,000 people operating both domestically and internationally.

General Dynamics Moves Knifefish Production to New UUV Center of Excellence



General Dynamics Mission Systems and U.S. Navy representatives dedicate the opening of the General Dynamics Unmanned Underwater Vehicle Center of Excellence at Taunton, Massachusetts. The facility will manufacture the Knifefish mine countermeasures UUV. *GENERAL DYNAMICS*

General Dynamics Mission Systems cut the ribbon to open a new and expanded production line for its Knifefish medium-class surface mine countermeasure unmanned underwater vehicle (SMCM UUV) systems at the company's UUV Center of Excellence (COE) in Taunton, Massachusetts.

Up until now, Knifefish has been assembled at the General Dynamics Bluefin Robotics facility in Quincy, Massachusetts. The system achieved a successful Milestone C decision and approval to enter low-rate initial production (LRIP) in 2019, followed by a contract for five Knifefish systems (10 total UUVs) and support equipment in August of 2019. The first of those Knifefish under that contract were delivered to the Navy in March.

The 20,000 square-foot COE occupies repurposed manufacturing space within the company's Taunton facility to provide manufacturing, assembly and testing capabilities for Knifefish and Bluefin UUVs. The 500,000 square-foot Taunton manufacturing plant develops communications systems for the

U.S. Army and provides engineering, manufacturing and production support for a number of the company's products and programs.

"Our manufacturing facility has decades of experience in manufacturing high-consequence, highly critical components and electronic assemblies for many agencies across the Department of Defense," said Paul Dalton, vice president of undersea systems. "And we are thrilled today to be adding unmanned underwater vehicles to that strong legacy of manufacturing performance."

Carlo Zaffanella, vice president and general manager of maritime and strategic systems for General Dynamics Mission Systems, was pleased that the company has invested about \$30 million in UUV design and manufacturing, and is bringing manufacturing work for its traditional Navy businesses to the Taunton plant that has long supported Army customers.

"Opening this manufacturing and assembly facility allows us to leverage the highly skilled and extremely experienced Taunton workforce. This skill set found in our Taunton employees is exactly the type of expertise we need to manufacture highly reliable UUVs," said Zaffanella. "We have expanded our maritime operations to include the Taunton UUV Manufacturing and Assembly Center of Excellence to produce our existing best in class small and medium UUVs and allow for additional expansion space for growth on future UUV programs of all sizes. This location was specifically selected to provide additional capacity that will allow for larger scaling and optimization of UUV production with purpose-built manufacturing cells, fixtures, and special test equipment, while maintaining proximity to our Bluefin Robotics engineering team in Quincy."

General Dynamics moved the production line to Taunton to allow for growth. Once Knifefish gets into full rate production with the Navy, the company said there's still room here to grow to

support the Navy, commercial customers or foreign military sales.

“Capacity was a big reason for setting this up,” said Craig Regnier, who manages the Taunton operation. We want it to be able to scale to meet the demands, likely in the volume of systems. With our Bluefin-9 and Bluefin-12, and our other commercial vehicle production lines running at the same time, we needed the ability to scale all those up in volume to meet demand. We dedicated our 8,000 square feet today, and we can expand easily up to 12,000 square feet and beyond.”

Regnier said the factory has the space, capacity, and most of all, the skilled workers to take on the new product line. “The kind of manufacturing that was already done here is exactly the kind of manufacturing that we need for Knifefish. The workers will learn certain processes that are new and unique and different. But generally speaking, we already have the right people who are highly skilled at electronic system integration. We can do immersive salt water testing in a very controlled environment here at our manufacturing facility, and then bring it to Quincy, where we have our waterfront and our own dedicated ship that we can go out into the harbor and launch and recover, and do the different levels of testing that the navy needs from us. It’s really just ideal setup for us.”

Knifefish is based on the Bluefin-21 UUV. It is intended for deployment from the Navy’s littoral combat ship (LCS) MCM mission package, as well as operating from other Navy vessels of opportunity. Knifefish will reduce risk to personnel by operating within minefields as an off-board sensor while the host ship stays outside the minefield boundaries.

General Dynamics Mission Systems is the system integrator for the Independence-variant of the Navy’s LCS. “We brought some of our expertise to making the mission modules and mission packages that go on that ship,” Zaffanella said.

The Navy program of record is for 30 Knifefish systems, with each system including two vehicles and associated equipment.

“It goes back to taking the man out of the minefield, the more we can do and expand that portfolio of capabilities that can be done unmanned, the more we can remove those threats from the sea. Unmanned is a gamechanger in that regard,” said Capt. Godfrey “Gus” Weekes, Program Manager, LCS Mission Modules (PMS 420).



A Knifefish unmanned undersea vehicle training model undergoes crane operations aboard the Military Sealift Command expeditionary fast transport vessel USNS Spearhead (T-EPF 1) as part of a training exercise enabling mine countermeasure missions from an EPF as a vessel of opportunity. *U.S. NAVY / Master-at-Arms 1st Class Alexander Knapp*

While Knifefish is one of the mission modules in the LCS mine countermeasures mission package, the full mission package has not reached initial operating capability.

As the prime contractor for the SMCM UUV, which later became Knifefish, General Dynamics partnered with Bluefin Robotics to provide the vehicle, and in 2016, General Dynamics Mission Systems bought Bluefin Robotics.

The battery-powered Knifefish can propel itself, use its sensors and process large amounts of data on board for missions of 24 hours and more. The Taunton facility will manufacture the batteries used in Knifefish and other Bluefin Robotics vehicles.

Knifefish has a low-frequency broadband sonar system (LFBB) capable of detecting bottom and buried “proud” mines, as well as identifying mines in high clutter environments.

According to the Naval Research Laboratory’s Acoustics Division Superintendent, Dr. Brian Houston, LFBB is an active sonar that employs synthetic aperture processing, and

artificial intelligence for detection and classification.

“LFBB exploits the structural acoustics involved with underwater sonar. When you transmit sound, the acoustic return is very different depending on the physical object reflecting that acoustic energy. It might be a naturally occurring thing like a rock on the bottom, or something that’s man-made, like a mine. In the water column, it might be a submarine versus a whale. What’s in the acoustic return is very different for each of those targets. Sonar has traditionally helped us know where something is, how far away it is, and sometime provides an image. But in addition to bearing and range, we can now determine what it is,” Houston said. “That return has specific physics in it that we can exploit, and we can know something about the physical object and based on how it responds.”

Because of its capabilities, Knifefish is subject to International Traffic in Arms Regulations (ITAR) restrictions. But the basic Bluefin Robotics vehicles are commercially available. “We’ve constructed and architected our commercial vehicles so that they’re largely ITAR free. In fact, the Bluefin-9 and Bluefin-12 are being delivered today into a program for a military customer overseas,” said Zaffanella. “When we designed those vehicles, the intent was to keep them free from ITAR restrictions.”

Knifefish is the only UUV that can identify proud mines. But, with its open architecture and modular design, General Dynamics officials say that Knifefish could be equipped with other sensors, as well. Knifefish is designed and architected – both software and hardware – to accommodate upgrades as it goes forward. “We designed Knifefish using an open architecture concept that can be quickly and efficiently modified to accommodate a wide range of missions,” Zaffanella said.

“What makes Knifefish different from other vehicles is the sonar that can detect buried mines,” said Zaffanella. “But the

sensor is not something that's bolted on to the vehicle. The electrical and mechanical integration of the sonar into the vehicle is a fundamental part of its design and is necessary in order to make it work. Buttoned up it looks like a relatively simple and straightforward UUV. But the amount of technology that is inside of that is breathtaking."

The free-flooding design allows the vehicle to be assembled in sections, which makes it easier to ship and store. "This is genuine modularity – both physical and software modularity. It comes apart in sections and you can upgrade each of the things that are in there, whether it's the system electronic portion, the communications, or the batteries. In a modular system like this, it's pretty easy to change out one section for another to add or change capability," Zaffanella said.

Knifefish operates autonomously, so that an operator doesn't have to tell it what to do. "We strongly believe that the era of maritime autonomy is very much upon us," said Zaffanella. "The ability to make systems that are unmanned, that can do things that manned vessels cannot, and take sailors out of harm's way, that era, and engineering the technologies needed, all of that now exists."

"We foresee unmanned vessels will eventually be part of the fundamental fabric of how the Navy conducts its operations," he said. "Our Taunton facility and the great manufacturing expertise here will be at the forefront of it all."

Leonardo DRS Link-22 Signal

Processing Controller Successfully Completes Interoperability Testing



An artist's conception of Leonardo DRS' Link-22 Signal Processing Controller in action. *LEONARDO DRS*

ARLINGTON, Va, – Leonardo DRS announced it has successfully completed formal interoperability testing of its Link-22 Signal Processing Controller (SPC) within the NATO Improved Link Eleven (NILE) Link-22 Network. Compliance with this standard allows Leonardo DRS to provide world-class production of the technology and full interoperability with all NATO and allied partners supporting operations and exercises in the Indo-Pacific Command theater.

Leonardo DRS worked closely with the NILE team to successfully complete all cycles and posture for future advancements. The success illustrates that Leonardo DRS SPCs are compliant with Link-22 Block Cycle 9 specifications for current and emerging mission requirements for users around the world.

Link-22 tactical datalinks are used by the U.S. military and other allied military forces to increase joint and coalition communications in the surface, subsurface, land, and air domains by providing unprecedented situational awareness across the battle space. It is the primary means to exchange data, including radar tracking information beyond line of sight.

“Leonardo DRS is very proud to provide a fully compliant Link-22 solution to our allies around the world,” said Larry Ezell, senior vice president and general manager of the Leonardo DRS Airborne and Intelligence Systems business. “These systems are positioned for current and emerging mission requirements and the signal processor controllers ensure U.S.

and allied forces have the best long-haul communications and situational awareness possible.”

With over 40 years of tactical datalink experience, 1,100 Link-22-capable SPCs and more than 3,000 Link-11 Data Terminal Sets delivered, deployed, and on order, military services around the globe depend on Leonardo DRS for beyond-line-of-sight communications guaranteeing interoperability across domains, platforms, and nations. The company continues to invest in Link-22 technology, giving users high performance for today’s battlefield while offering capability and growth for future mission sets.