

Canadian Technology Companies Create Holographic Sonar Display for Hunting Submarines



Kongsberg Geospatial and Avalon Holographics have partnered to develop a new holographic sonar display for submarines. *AVALON HOLOGRAPHICS*

OTTAWA, Ontario – Kongsberg Geospatial has partnered with Avalon Holographics to develop a revolutionary holographic sonar display for submarine warfare, in a project funded by the Canadian Department of National Defense IDEaS (Innovation for Defence Excellence and Security) program, Kongsberg said Sept. 29.

The system has been developed to reduce the cognitive load on passive sonar analysts by visualizing complex undersea environments on a revolutionary new holographic display.

What are sometimes thought of as 3-D displays are actually two-dimensional projections of three-dimensional scenes on a flat monitor. The geometry in the scene is necessarily distorted to create the illusion of looking at a three-dimensional object. To understand what they are looking at, an operator has to manipulate the view to look around the environment.

This is also limiting for situations in which multiple people are looking at the same display. A holographic display would provide a better solution for sharing 3-D information because the view on the data can be individualized, while the image itself remains static.

Avalon Holographics has created just that: a display that uses a complex array of millions of holographic elements or “hogels,” to create a true, three-dimensional image that can be clearly seen from different angles without requiring the use of headsets or goggles. This new display will combine passive sonar data with three-dimensional bathymetric data to create an accurate sensor picture that can be used to locate and identify possible undersea threats.

Passive sonars are used by naval ships to locate targets around the platform on which the primary sensor is located, when active sonar is not viable or tactically desirable.

The new holographic sonar display created by Kongsberg Geospatial and Avalon Holographics is designed to increase underwater situational awareness with respect to target detection, supporting faster and more confident decision making when using passive sonar systems. The system will consist of three components: a sonar sensor system, a sonar map rendering system and the holographic display.

The sonar sensor system is located on board a surface vessel which could include a towed array, hull mounted sonar, or sonobuoy receiver. Data from the system is fed to the sonar map rendering system containing the information required to create the operational images to populate the 3-D holographic display.

Kongsberg Geospatial is contributing the sonar map rendering system, a software system that leverages the company’s ISR applications, real-time situational awareness capabilities and real-time sensor integration technology. Avalon Holographics will be contributing the holographic display used to visualize the processed data.

“We’re excited to be delivering a new and unique user experience on a ground-breaking new display technology for

situational awareness,” said Ranald McGillis, president, Kongsberg Geospatial. “Our battlespace visualization systems draw on our technical legacy with defense system display projects to create a world leading capability to exploit sonar data and will help users to more effectively exploit complex sensor data.”

“Our ground-breaking holographic display technology applies to a wide range of applications, but the battlespace has always been a primary user focus,” said Russ Baker, cofounder, Avalon Holographics. “Together, Kongsberg’s TerraLens and Avalon’s Raydiance Engine are pioneering a new class of holographic situational awareness applications to transform 3-D battlespace visualization, GIS and underwater warfare. These bold steps are just one way we’re transforming the science-fiction of holographic visual experiences into science fact.”

The initial phase of the IDEaS project will run until November, during which time Avalon Holographics will be refining the performance of the display device, improving the software tools, and working with Kongsberg on software integration. Kongsberg Geospatial will be developing trials of different use cases for the systems including multi-sensor operations and target motion analysis. The goal is to proceed to the next phase of the project, which would involve enhancement of Kongsberg’s software, a more comprehensive integration with the display and porting to Avalon’s next-generation display technology.

Navy Inaugurates New Next-Gen Air Combat Training System



The Tactical Combat Training System Increment II (TCTS Inc. II) pod on its first flight on a test F/A-18 aircraft over Patuxent River, Maryland, in February. *U.S. NAVY*

PATUXENT RIVER, Md. – The Navy's Naval Aviation Training Systems and Ranges program office's (PMA-205) Tactical Combat Training System Increment II (TCTS Inc. II) and Advanced Naval Technology Exercise (ANTX)-21 teams conducted their first live-virtual-constructive (LVC) demonstration in an operational environment last month, the Naval Air Systems Command said Sept. 27.

As part of the Navy's broader initiative to enhance capability, the event displayed early LVC capability for the TCTS Inc. II system and included many "firsts" in naval aviation training.

The ANTX-21 fleet demonstration simultaneously connected both fleet and test F/A-18 and EA-18G aircraft, an F/A-18 simulator, an operational destroyer, a guided missile from the ship pier side, the Joint Semi-Automated Forces system, and the Next Generation Threat System all via the Navy Continuous Training Environment (NCTE). This exercise was naval aviation's first demonstration of TCTS II in an operational environment, proving to be a simultaneous, multi-system, and multi-domain integrated warfighting training capability. The demonstration results will be used to further determine how TCTS Inc. II and LVC will be implemented effectively and efficiently in naval aviation training.

"While watching ANTX-21 unfold across the globe from Navy Warfare Development Command in Norfolk, Va., I had an opportunity to see and hear the Navy's excited reaction to TCTS Inc. II at the operation's center," said PMA-205 program

manager, Capt. Lisa Sullivan. "On the surface side, ships have been using a training LVC mode for a while, networking back and forth to exercise coordinators running complex scenarios. Now aviation is part of the mix through validation of TCTS Inc. II as the host system connecting live aircraft into a LVC environment."

The early LVC capability on the TCTS Inc. II system displayed during the event demonstrated successful integration of the system with the training environment, including simulated threats controlled by JSAF over NCTE, live aircraft air-to-air engagements, and integration with an F/A-18 simulator at the manned flight simulator facility.

Chuck Kaylor, the PMA-205 TCTS Inc. II team lead, said the event included several firsts for naval aviation training. It was the first flight of TCTS Inc. II pod on an operational fleet aircraft, the first time TCTS Inc. II was used to create a LVC surface-to-air engagement, the first virtual F/A-18 engaged with a simulated/constructive aircraft, and the first pier side operational ship receiving and engaging with TCTS Inc. II information.

"TCTS Inc. II is a critical enabler of Navy LVC, helping to close competition gaps in both operational security and training capabilities for the high-end fight, and this event comes with TCTS II already in production and approximately one year prior to initial operational capability" said Kaylor.

The program office in coordination with U.S. Fleet Forces Command, U.S. Pacific Fleet, and U.S. Naval Forces Europe conducted this exercise, which was designed to refine how the U.S. Navy synchronizes maritime operations across multiple fleets, in support of the joint force. The training is based on a progression of scenarios that will assess and refine modern warfare concepts, including distributed maritime operations, expeditionary advanced base operations, and littoral operations in a contested environment. This is the

first iteration of what will become a triennial exercise with plans for future iterations to include partners and allies from around the world.

SURFLANT Stands Up Task Group Greyhound



Task Group Greyhound was formally introduced by Rear Adm. Brendan McLane, commander, Naval Surface Force Atlantic, and Rear Adm. Brian Davies, commander, Submarine Group Two and deputy commander, 2nd Fleet, at an event held at Naval Station Mayport aboard the guided-missile destroyer USS Thomas Hudner (DDG 116), Sept. 27. *U.S. NAVY*

MAYPORT, Fla. – Task Group Greyhound was formally introduced by Rear Adm. Brendan McLane, commander, Naval Surface Force Atlantic, Rear Adm. Brian Davies, commander, Submarine Group Two and deputy commander, 2nd Fleet, at an event held at Naval Station Mayport aboard the guided-missile destroyer USS Thomas Hudner (DDG 116), Sept. 27, said Lt. j.g. Caroline Leya, SURFLANT public affairs.

Task Group Greyhound (TGG) is a force generation initiative within the Optimized Fleet Response Plan, the standard ship cycle construct that guides a roughly 36-month readiness roadmap. It is designed to provide the fleet with continuously ready, fully certified warships ready to accomplish a full range of on-demand missions at all times. TGG will assign and task Arleigh Burke-class guided-missile destroyers to be at-the-ready to support sustainment operations and to counter Russian undersea threats to the homeland.

The day's event comprised of a cake-cutting, a virtual media

availability and an anti-submarine warfare scenario conducted for the official party in the combat information center aboard Thomas Hudner.

McLane gave a Bravo Zulu to the first two TGG ships, Thomas Hudner and the guided-missile destroyer USS Donald Cook (DDG 75), and emphasized that maintaining an undersea warfare edge over Russian submarines off the East Coast is a growing priority.

“Task Group Greyhound provides us a way to increase continuity between training and operating against high-end competitors in a dynamic environment,” McLane said. “These destroyers are now designated under Task Group Greyhound in the western Atlantic on watch 24/7 ready to practice, integrate, and operate at a moment’s notice.”

Facing the considerable threat from Russia requires focus, continuous monitoring and a team approach to undersea warfare. The TGG initiative will ensure that designated post-deployment East Coast destroyers remain in an extended sustainment phase on a rotating basis with other destroyers. This will be supported by incremental maintenance availabilities and sustained readiness certifications.

The TGG model is a reference to the World War II destroyers, or “Greyhounds of the Fleet,” that patrolled the seas in the “Battle of the Atlantic.” The modern version is similar to how readiness is maintained aboard forward deployed naval forces in Spain.

Cmdr. Bo Mancuso, Thomas Hudner commanding officer, acknowledged the importance of the initiative and of his command being selected to take the first watch.

“Being chosen as one of the initial ships to serve in this capacity is humbling, and a big responsibility that we are

more than ready to honor," Mancuso said. "It was our pleasure to host Rear Adm. McLane today and show him what we're capable of and that our crew is up to the task."

DARPA'S Hypersonic Air-Breathing Weapon Concept Achieves Successful Flight



An artist's conception of the Hypersonic Air-breathing Weapons Concept (HAWC) missile. RAYTHEON MISSILES & DEFENSE

ARLINGTON, Va. — DARPA, in partnership with the U.S. Air Force, completed a free flight test of its Hypersonic Air-breathing Weapon Concept (HAWC) last week, the agency said in a Sept. 27 release.

The missile, built by Raytheon Technologies, was released from an aircraft seconds before its Northrop Grumman scramjet (supersonic combustion ramjet) engine kicked on. The engine compressed incoming air mixed with its hydrocarbon fuel and began igniting that fast-moving airflow mixture, propelling the cruiser at a speed greater than Mach 5, or five times the speed of sound.

The HAWC vehicle operates best in oxygen-rich atmosphere, where speed and maneuverability make it difficult to detect in a timely way. It could strike targets much more quickly than subsonic missiles and has significant kinetic energy even without high explosives.

"The HAWC free flight test was a successful demonstration of the capabilities that will make hypersonic cruise missiles a

highly effective tool for our warfighters,” said Andrew “Tippy” Knoedler, HAWC program manager in DARPA’s Tactical Technology Office. “This brings us one step closer to transitioning HAWC to a program of record that offers next generation capability to the U.S military.”

Goals of the mission were vehicle integration and release sequence, safe separation from the launch aircraft, booster ignition and boost, booster separation and engine ignition and cruise. All primary test objectives were met.

The achievement builds on pioneering scramjet projects, including work on the X-30 National Aero-Space Plane as well as unmanned flights of NASA’s X-43 vehicles and the U.S. Air Force’s X-51 Waverider.

“HAWC’s successful free flight test is the culmination of years of successful government and industry partnership, where a single, purpose-driven team accomplished an extremely challenging goal through intense collaboration,” Knoedler added. “This historic flight would not have been possible without the dedication of industry, U.S. Air Force, and Navy flight test personnel who persevered through the pandemic to make the magic happen.”

The HAWC flight test data will help validate affordable system designs and manufacturing approaches that will field air-breathing hypersonic missiles to our warfighters in the near future.

Coast Guard to Recapitalize

Aids-to-Navigation Boats



Coast Guard service members, from Aids to Navigation Team Astoria, aboard a 26-foot aids-to-navigation boat, tend a buoy in the Columbia River near Westport, Oregon, Jan. 30, 2019.

U.S. COAST GUARD / Petty Officer 3rd Class Trevor Lilburn

ARLINGTON, Va. – The Coast Guard, responsible for maintaining the safety of the inland waterways of the United States, is planning on building a new class of aids-to-navigation boats (ANBs), the Coast Guard commandant said.

The ANBs care for and maintain the various marine navigation aids – such as signs, buoys, markers, beacons, radar reflectors and other systems – that mark channels and obstacles to provide for safe navigation of commercial, government and recreational boating.

As of last year, the Coast Guard operated a fleet of ANBs that included three 64-foot and four 55-foot ANB, 26 49-foot stern-loading buoy-servicing boats, 90 26-foot and five 17-to-23-foot transportable ANBs, as well as numerous smaller skiffs.

“We’re going to do a detailed design and construction award in the spring of 2022 to replace our half-century working aids-to-navigation boats,” said Adm. Karl Schultz, the Coast Guard commandant, speaking 28 Sept. at a webinar of the Heritage Foundation.

Shultz said the service plans to procure about 35 new ANBs, “but I believe we will be able to shrink down to about 30 really capable boats,” although he did not specify the type or types of ANBs to be replaced.

The admiral pointed out that many of the current ANBs do not have personnel accommodations for female crew members and the new boats would help to open more boats to female crew members.

Boeing Awarded Contract for Five P-8A Aircraft for Germany



Boeing has been awarded a production contract for five P-8A Poseidon aircraft for Germany. *BOEING*

ARLINGTON, Va. –The U.S. Navy awarded Boeing a production contract for five P-8A Poseidon aircraft for Germany, the company said Sept. 28. First deliveries are slated to begin in 2024 when the P-8A Poseidon will eventually replace Germany's fleet of P-3C Orion aircraft.

"We're pleased to have finalized this sale to Germany and to expand our footprint in-country by bringing the P-8A and its unique multi-mission capabilities to the German Navy," said Michael Hostetter, vice president, Boeing Defense, Space & Security, Germany. "The P-8 will ensure the German Navy's ability to perform long-range maritime surveillance missions and will play a pivotal role in the region by leveraging existing infrastructure in Europe and full interoperability with NATO's most advanced assets."

German industry is a critical partner with the P-8A Poseidon program. By working with local partners, Boeing will provide support, training and maintenance solutions that will bring the highest operational availability to fulfill the German Navy's missions. On June 17, Boeing signed agreements with ESG Elektroniksystem-und Logistik-GmbH and Lufthansa Technik AG to collaborate in systems integration, training, and sustainment work. German companies that currently supply parts for the P-8A include Aircraft Philipp Group

GmbH, Aljo Aluminium-Bau Jonuscheit GmbH and Nord-Micro GmbH.

“With strategic agreements and industry partnerships already in place, we stand ready to deliver a robust sustainment package for the German Navy’s P-8A fleet,” said Dr. Michael Haidinger, president, Boeing Germany, Central & Eastern Europe, Benelux and Nordics. “Together with the German Navy, the Federal Ministry of Defense and local industry, we will ensure maximum operational availability that will allow the German Navy to meet the full range of its maritime challenges.”

Deployed around the world with more than 135 aircraft in service, and over 350,000 collective mishap free flight hours, the P-8A will significantly advance Germany’s antisubmarine warfare, antisurface warfare, intelligence, surveillance and reconnaissance and search and rescue mission capabilities.

Germany is the eighth nation to have acquired the P-8A, joining the United States, Australia, India, the United Kingdom, Norway, Korea and New Zealand.

Coast Guard Nabs 2 Smugglers, Seizes \$7.5 million in Cocaine in Caribbean Sea



Coast Guard Cutter Kathleen Moore interdicted a drug smuggling go-fast vessel in the Caribbean Sea with 250 kilograms of cocaine and the crew apprehended two smugglers Sept. 25, 2021, in waters south of the Dominican Republic. *U.S. COAST GUARD*
SAN JUAN, Puerto Rico – The Coast Guard Cutter Reef Shark

transferred custody of two smugglers and offloaded approximately 250 kilograms cocaine at Coast Guard Base San Juan Saturday, following Coast Guard Cutter Kathleen Moore's interdiction of a go-fast smuggling vessel in the Caribbean Sea, the Coast Guard 7th District said Sept. 27.

The apprehended smugglers are Dominican Republic nationals, who were charged with possession with intent to distribute cocaine aboard a vessel subject to the jurisdiction of the United States. The cocaine seized has an estimated wholesale value of approximately \$7.5 million. U.S. Coast Guard Special Assistant United States Attorney Jordan H. Martin is in charge of the prosecution of this case.

The interdiction resulted from multi-agency efforts in support of U.S. Southern Command's enhanced counter-narcotics operations in the Western Hemisphere and coordination with the Caribbean Corridor Strike Force.

During a routine patrol Wednesday, a U.S. Maritime Enforcement Aircraft detected a suspect go-fast vessel, approximately 145 nautical miles south of the Dominican Republic. Coast Guard watchstanders in Sector San Juan diverted the cutter Kathleen Moore to carry out the interdiction. With the assistance of the cutter's small boat, the crew of the Kathleen Moore interdicted the 25-foot vessel that was carrying two men and 10 bales of suspected contraband onboard, which tested positive for cocaine.

"The crew did a great job working with interagency partners and Coast Guard watchstanders preventing this drug smuggling go-fast from making landfall," said Lt. Andrew R. Collins, cutter Kathleen Moore commanding officer. "We are glad to help keep these drugs off the streets, and we will continue to work diligently with fellow Coast Guard units and our interagency partners to stop these drug-smuggling attempts in the high seas."

The seized drugs and detainees were transferred to the Coast Guard Cutter Heriberto Hernandez and then to the Coast Guard Cutter Reef Shark for transport to Puerto Rico, where federal law enforcement agents from the Caribbean Corridor Strike Force received custody.

Cutters Kathleen Moore and Heriberto Hernandez are 154-foot fast response cutters respectively homeported in Key West, Florida, and San Juan, Puerto Rico. Cutter Reef Shark is an 87-foot coastal patrol boat homeported in San Juan, Puerto Rico.

NAVFAC Northwest Awards \$21M Contract for Shipyard Facility Upgrades



Puget Sound Naval Shipyard in Bremerton, Washington, is home to one of seven Defense Logistics Agency Land and Maritime's detachments. *DEFENSE LOGISTICS AGENCY LAND AND MARITIME / Gary T. Sutto*

SILVERDALE, Wash. – Naval Facilities Engineering Systems Command (NAVFAC) Northwest awarded a \$21 million contract Sept. 13 for seismic repairs and life safety improvements to building 431 at Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS & IMF), Washington, the command announced Sept. 24.

Building 431, used to repair and test ship parts, was built in 1934, with an addition built in 1943.

“This award action is a continuing example of NAVFAC

strengthening our shore installations through seismic resiliency and better positions our shipyard infrastructure for the advancement of naval lethality,” said NAVFAC Northwest Commanding Officer Capt. Ben Miller. “I am very pleased by the team effort to award the contract and look forward to working with our contractor partners to get this important project underway.”

The work to be performed includes demolition, abatement, excavation, placement of micropiles, reinforcement of existing pile caps, placing grade beams and concrete slabs, reinforcing walls, among others, and salvage and reinstallation of existing government-owned equipment.

“Our partnership with NAVFAC Northwest is vital to our mission success,” said PSNS & IMF Commanding Officer Capt. Jip Mosman. “This project is the continuation of several phased projects to repair building 431. Infrastructure upgrades are an important step in providing world-class facilities to the workforce and ensuring the shipyard’s ability to maintain, modernize and retire the Navy’s fleet for decades to come.”

Work will be performed in Bremerton, Washington, and is expected to be completed by August 2023. Fiscal 2021 operation and maintenance (Navy) funds in the amount of \$20.8 million are obligated on this award. Jabez-Abscher-1, a Joint Venture, of Orting, Washington, received the award.

Developing The Workforce: Next-Generation Ships Will Be

Built By Next-Generation Workers



A shipbuilder holds a rope to help guide John C. Stennis' (CVN 74) port side anchor to the ground for repairs at Huntington Ingalls Newport News Shipbuilding. *HUNTINGTON INGALLS INDUSTRIES / Ashley Cowan*

U.S. shipyards are busy building the next generation of Navy ships and Coast Guard cutters. As the current workforce is retiring, and taking their skills and knowledge with them, the next generation of naval architects, naval engineers, tradesmen and technicians are needed.

The Navy is building guided missile destroyers, amphibious ships, attack submarines, littoral combat ships, and replenishment oilers and embarking on a new guided missile frigate, large surface combatant and ballistic missile submarine programs, not to mention a number of new, smaller ships. The Coast Guard is introducing the national security cutter and fast response cutter and starting the offshore patrol cutter, polar security cutter and waterway commerce cutter programs.

Formal apprenticeship and internship programs are delivering long-lasting results. Many graduates of these programs stay with their organizations for a full career and rise to leadership positions.

The Apprentice School, located at Huntington Ingalls Newport News Shipbuilding in Newport News, Virginia, was founded in 1919 and has delivered more than 10,000 graduates since its founding.

"We're considered as the leadership factory of the company," said Latitia McCane, The school's director of education. The program is in high demand. "We have 4,000 applications for 200

slots," McCane said.

The company has a pre-apprentice program that gives high school students an early start with a job at the shipyard and preparatory courses to get them ready for school. The Apprentice School and its leadership are structured within Newport News Shipbuilding, a division of Huntington Ingalls Industries.

The school's facilities range from traditional classrooms to waterfront production facilities.

"We have more than 70 craft instructors who are apprentice graduates," McCane said.

Retired Rear Adm. Brad Williamson, executive director of the Hampton Roads Maritime Industrial Base Ecosystem (MIBE), said senior-level workers are retiring faster than new ones can be hired.

"The senior workers have a wealth of practical experience that they are taking with them into retirement," he said, adding that shipyards and other marine industry employers are all looking for talent. "When it comes to these challenges, we're not alone in shipbuilding. It's all of the trades, in every industry."

Williamson called for cooperation instead of competition to help everyone obtain the workforce they need.

"It's better to come together and to think as a team instead of individual companies," he said.

Craig Savage, director of communications and external affairs at Mobile, Alabama-based Austal USA, said the workforce development programs benefit everyone.

"Apprenticeship programs not only benefit our industry, but they also provide opportunities for our local communities to learn a valuable trade and apply that skill to either our

industry of defense and maritime manufacturing, or other industries in our region,” he said. “These programs are a win-win all the way around.”

Austal currently builds the all-aluminum Independence-class variant of the littoral combat ship and expeditionary fast transport for the Navy. As those programs wind down, the company is transitioning to a capability to build steel ships for the Navy.

AIDT Maritime Training Center, a subsidiary of Alabama Industrial Development Training (AIDT), provides company-specific job training in welding, pipefitting, design, structural fitter, safety and leadership to support Alabama’s shipbuilding industry. The center is co-located with the Austal USA shipyard and trains workers to Austal’s methods, tools and standards, and will be vital to training the existing and new workers on steel ship fabrication.



Nuclear Quality Division’s (Code 2350) Nuclear Quality Support Specialist Catherine Hobb observes her brother Rigging and Equipment Operation’s (Code 740) Apprentice Noah Coburn as he rigs up equipment. *HUNTINGTON INGALLS INDUSTRIES / Shelby West*
Starting Young

Fincantieri Marinette Marine (FMM) in Wisconsin is building the Freedom-class variant of LCS and multi-mission surface combatant for Saudi Arabia. It has also been selected to build the Navy’s new Constellation-class guided missile frigate, which requires reconfiguring the yard and upgrading facilities to build the larger ships – and hiring more workers.

“We’re working very closely with community partners to help us to find the majority of those positions locally,” said Bethany Skorik, senior manager of public affairs and government relations with FMM. “We’re working with our local school systems, from elementary to middle to high school, on how we can get students interested in shipbuilding. They can start

thinking about the really satisfying careers in manufacturing and being able to make something complex like a ship from start to finish.”

Skorik said the shipyard is the largest employer in the region, but occasionally has to remind people the yard is growing and hiring.

“We’re working closely with the area technical colleges. The students come to learn about what we’re doing, tour the shipyard and talk to our employees. We help the schools build curriculum, so that students have a direct path to a job. They can get a two-year degree and an actual job, and we have programs where students can start working towards a tech degree while they’re in high school. And we can hire them right out of high school.”

Skorik said FMM partners with the Northeast Wisconsin Technical College, which built an impressive facility a block away from the shipyard.

“They have welding booths and a ship mock-up to teach electrical work, for example. They not only train people who can come work for us, but we send our employees there to get specific marine electrical training, conduct research or expand their knowledge,” she said.

While some shipyards have grown, a number have also downsized or failed, leaving skilled workers without jobs. In those communities where naval ship construction and repair work has dwindled, public-private partnerships have strived to keep good paying maritime jobs in their regions. When the Philadelphia Naval Shipyard and commercial shipyards building ships for the Navy closed, a consortium of educators, the Collegiate Consortium for Workforce and Economic Development (CCWED), came together to help displaced civilian workers retrain, retool and find other jobs.

Karen Kozachyn, vice president of workforce and economic

development at Delaware County Community College in Media, Pennsylvania, and a member of the Business Development Team for CCWED, said the local community colleges have worked together to provide skilled employees.

“If a company asks for training in advanced welding, the consortium team evaluates the need, develops a training plan, locates a training site and then assigns the training to whoever has the capacity,” Kozachyn said. “The curriculum and competencies of the training are established by the employer, so it aligns to the company’s need – it’s never hit or miss.”

Those opportunities exist along a broad spectrum. The Maritime Administration recognizes this and is supporting 27 community colleges, training academies and organizations as Centers of Excellence.

“We are no longer focused only on mariners who go to sea on big ships, but coastal and inland mariners, as well as the shore jobs and trades related to the maritime industry,” said Shashi Kumar, MARAD national coordinator for maritime education and training.

“These smaller institutions, many of which are near ports or waterways, understand the local need. They’re more agile, and can create new programs and accomplish things faster,” he said.

Submarine construction is growing at the General Dynamics Electric Boat submarine construction yards at Quonset, Rhode Island, and Groton, Connecticut, as are new state-of-the art facilities to fabricate and assemble them. Electric Boat expects to hire 2,400 engineers, tradesmen and support personnel this year alone, but finding enough trained and qualified workers continues to be elusive.

The Southeastern New England Defense Industry Alliance (SENEDIA) is a next-generation industry partnership supported by workforce development stakeholders. SENEDIA membership

include 130 companies, mostly in southeastern new England, but beyond as well supporting submarine construction and undersea technology. It has an \$18.6 million DoD contract to develop the Next Generation Submarine Shipbuilding Supply Chain Partnership in Connecticut, Massachusetts and Rhode Island. The partnership is comprised of state workforce agencies, academic institutions, training providers, and Manufacturing Extension Partnerships and Procurement Technical Assistance Centers in the region.

According to SENEDIA Executive Director Molly Magee, the partner organizations are teaching basic trade skills to make new shipyard workers immediately productive.

“One of our key goals at SENEDIA is to help engage the next generation workforce so that they see and consider the many high-wage, high-demand, high-growth opportunities, whether STEM or trade/industrial skill related, there are through defense-related career pathways,” Magee said.

Complex Skillsets

Building complex warships can take place far from the waterfront, for equipment such as sensors, propulsion plants and integrated combat systems.

James Birge, president of Massachusetts College of Liberal Arts (MCLA), located in North Adams, sees a mutually beneficial relationship between his school and the largest engineering and manufacturing employer in the region, General Dynamics Mission Systems in Pittsfield.

“The company’s business of developing and building complex combat management systems is growing, and there is a need for electrical engineering skill sets – that’s just one discipline – that we could be responsive to. And we want to offer good jobs to our graduates.”

Birge said MCLA is looking at its course offerings as “future-

based,” in that “some of the jobs our students will have don’t exist today.”

Ellen Kennedy, president of Berkshire Community College, said her school works with employers and industry sectors in her service area in western Massachusetts to develop a stable and prepared workforce.

“We and MCLA meet with General Dynamics on a regular basis to make sure that our programming aligns with their needs,” she said.

Students from both MCLA and Berkshire, along with other schools, can have internships at General Dynamics.

“Interns are an incredible pipeline to our future workforce,” said Brenda Burdick, director of marketing and public relations for General Dynamics Mission Systems. “We typically see a 65-75% conversion rate from interns to full-time employee.”

General Dynamics Mission Systems invests in its employees and their education and professional development. Employees can be assigned mentors and allow them to participate in rotational assignments that allow them to explore their areas of interest and learn about each facet of the company. It also funds graduate education to develop leaders, business managers and executives, and technical experts.



Lauryn-Mae Pang started her career at Pearl Harbor Naval Shipyard and Intermediate Maintenance Facility in the apprenticeship program and working as a diesel mechanic in the crane shop. Ten years later she’s a nuclear mechanical engineer at PHNSY-IMF. *U.S. NAVY*

Government Yards

Like industry, the four government-owned yards have had a large workload coming into shipyard and have been hiring a lot of people. According to John Snell, director for Training and

Workforce Development Program Manager for the naval shipyards at Naval Sea Systems Command, there has been a seismic shift in demographics at the yards.

“We used to train our young mechanics said under a few experienced master mechanics, but those senior people have or are now retiring. As these young people have been coming aboard, we’ve needed to get them up to speed quickly.”

Snell said in the not too distant past the Navy was delivering the training in brick-and-mortar schoolhouses, with PowerPoint presentations and a little bit on hands-on training with displays in the back of the classrooms.

“We realized that this was not the path we needed to take to get us into the future,” he said.

That’s why the Navy is updating its training systems to provide more relevant learning that is appropriate for today’s workforce.

“We believe a mechanic needs to touch things – turn a valve, turn a wrench, strike an arc. It’s not the kind of training people can do remotely from home. Most of the online, on-demand training is leadership and supervisory training,” Snell said. “But we are always looking for new simulation capabilities and online tools that can improve and accelerate learning.”

While someone can get a good direct-hire job at one of the naval shipyards, he said the yards’ apprentice programs are a pathway to rewarding, life-long careers.

“The apprenticeship program teaches a lot of things about shipbuilding and repair besides the more-narrow technical skills for a particular trade, and it provides the associate’s degree from one of our community college partners,” he said.

The Pearl Harbor Naval Shipyard and Intermediate Maintenance

Facility (PHNSY & IMF) Apprenticeship Training Program is certified by the U.S. Department of Labor and administered through a contract between Honolulu Community College and PHNSY & IMF. The program offers 7,200 hours or more of on-the-job training, trade theory and academic study, culminating in an applied science degree in applied trades and a journeyman job in the shipyard.

Classes are taught in a Honolulu Community College facility on the yard. Jobs are available in structural, mechanical, electrical/electronic engineering, piping, air conditioning and refrigeration and other trades. Qualified and motivated apprentice program graduates can pursue a four-year degree through the Apprentice to Engineer program.

Lauryn-Mae Pang was working several jobs when she found out about the PHNSY & IMF apprentice program. She wanted more than assorted jobs: She wanted a career. She applied, was accepted and completed the apprentice program, becoming a diesel mechanic in the shipyard's crane shop. Pang took advantage of the Apprentice to Engineer program and went on to receive a Bachelor of Science from the University of Hawaii. She is now serving as a nuclear mechanical engineer at the shipyard.

"Some of the people coming into the apprenticeship programs are looking for structure. We give them an educational program with academic standards and teach them a trade with performance standards they have to adhere to," Snell said. "They grow in that environment. And the next thing you know, they're leaders in the shipyard."

Boeing Delivers First Operational Block III F/A-18 Super Hornet to the U.S. Navy



Boeing has delivered the first of 78 contracted Block III F/A-18 Super Hornets to the U.S. Navy. *BOEING*

ARLINGTON, Va. – Boeing has delivered the first of 78 contracted Block III F/A-18 Super Hornets to the U.S. Navy, the company said in a Sept. 27 release. Block III gives the Navy the most networked and survivable F/A-18 built with a technology insertion plan that will outpace future threats.

“The fleet needs capabilities to keep its edge,” said Capt. Jason “Stuf” Denney, U.S. Navy F/A-18 and EA-18G program manager. “Getting the first operational Block III in our hands is a great step forward in supporting our capability and readiness goals.”

Capabilities of the Block III include the advanced cockpit system with a 10-inch-by-19-inch touch screen display, enhanced networking, open mission systems, reduced radar signature and a 10,000-hour airframe.

Block III’s new adjunct processor translates to a fighter that will do more work and in far less time increasing a pilot’s situational awareness. The jet is ready to receive apps-based solutions that will allow upgrades to the aircraft throughout its life span.

“We invested in Block III technology and developed the capabilities in partnership with the U.S. Navy to meet its emerging requirements,” said Jen Tebo, Boeing vice president of F/A-18 and EA-18G programs. “The hardware upgrades are complete. Today we are maximizing the open hardware and software and developing the apps to keep Block III ahead of

future threats. We are giving Navy pilots the tools to make the fastest and most informed decisions possible now and in the future.”

Boeing will continue to deliver Block III capabilities to the Navy through the mid-2030s from three lines. One new build production, and two Service Life Modification lines extending the life and eventually upgrading Block II Super Hornets to Block III. The first aircraft delivered will complete the U.S. Navy flight test program before deploying to a squadron.