Retooling the Workforce: U.S. Coast Guard's Oldest Command Invites Infusion of New Talent

A Coast Guard storekeeper performs his routine duties at the Coast Guard yard in Baltimore. Storekeepers procure, store, preserve and package supplies, spare parts, provisions, technical items, and all other mission-critical supplies and services. They handle all logistical functions and are experts in the Coast Guard accounting system, preparing financial accounts and reports. They also operate all types of material handling equipment, including forklifts. *U.S. COAST GUARD*

The 122-year-old U.S. Coast Guard Shipyard at Curtis Bay in Baltimore is a full-service shipyard and an integral part of the Coast Guard's Surface Forces Logistics Center.

Known simply as the yard, it has a growing workload as new

classes of cutters and boats come into the service. However, its experienced workers are retiring, creating a potential gap in skilled tradespeople. Although yard internship programs have existed for decades, growing the workforce organically has increasingly become a priority over the past several years.

New workers with high-tech skills are needed to replace the generation that is retiring, but the available pool of qualified shipyard workers near the Curtis Bay yard has decreased dramatically in recent years.

There are challenges to attracting employees. While workers at the yard are government employees with significant benefits and career potential, the salaries for entry-level engineers and naval architects are not always competitive with industry, making it a challenge to attract young professionals.

And although the yard used to be able to hire experienced workers from local shipyards – there were 40,000 shipyard jobs in Baltimore 20 years ago – today, apart from the Coast Guard yard, there are only a handful.

So, as the Coast Guard is recapitalizing its fleet, the yard is retooling its workforce.

“A lot of our older generation workers, our experienced personnel, are gone,” said John Bragaw, production manager for the Coast Guard yard. “We’re trying to fill in the gap and create that workforce for the future.”

Bragaw said the yard is intensifying its outreach efforts to acquaint the local area with what it does and the availability of quality employment opportunities. The yard has been very proactive in working with schools, arranging class visits and tours, mentorships and participation in job fairs. Through partnerships with local vocational schools and community colleges, the Coast Guard has created innovative internship programs that permit students attending classes to also work

as government employees.

“We want to be part of the community,” he said. “We have good partnerships with the local vocational-technical schools. Our employees have visited schools, mentored students and shared their excitement of working on boats. We donated old engines to the school so students could take them apart and reassemble them. We want to get the talent out of those schools and get the people who want to be the future supervisors and leaders of our shipyard.”

The yard has a diverse workforce of about 679 personnel in 12 trade shops, with 465 production craftsmen, 120 managers, engineers and support personnel and 80 military personnel.

Elijah Dorsey, 20, started as a painter and is now also a sandblaster. He has been promoted from helper to worker and will soon be a leader. That’s why Bragaw said the yard is also providing leadership training to help those workers who rise into supervisory positions.

“In the military, you get leadership training from day one, but we can have workers who do essentially the same job for years, and suddenly they get promoted to supervisor, and they don’t have the knowledge or skills,” said Bragaw. “We have to fill that gap. Right now, we train leaders once they get into that supervisory role. But we are beginning to start that leadership training process before they become a supervisor.”

Dorsey is a product of the City of Baltimore’s summer “pathways” internship with the yard.

“The interns spend nine weeks working in different departments to get an overview of what the shipyard does,” said Lamont McCloud, supervisor of the sandblasting and paint shop. “And they get paid. If they decide to enroll in college, or community college, they can continue in that pathways program. Or they can start working full time here when they graduate.”

McCloud said the internships help young people mature.

“When you become an intern and then an employee, you earn trust and can take on assignments that require you to travel,” McCloud said. “You have to know what you’re doing, because there’s limited supervision when you are on the road.”

Although several generations apart in age, McCloud and Dorsey share a lot in common. McCloud said about three quarters of the yard’s employees live within about 7 miles of the gate. McCloud comes from the same inner-city Baltimore neighborhood as Dorsey and went to the same high school. Then, as now, opportunities were limited.

“We’re part of the community. We, as men, have taken advantage of the opportunity to learn and benefit from a good job. And people see that we have good jobs and are taking care of ourselves and our families,” he said. “The Coast Guard benefits, too, because it needs a stable, trained, skilled and motivated workforce.”

And, he said they are making a difference. “Every one of these boats and ships that we’ve worked on has gone back out and is saving lives and stopping bad guys.”

Coast Guard civilian employees remove the shaft of the Coast Guard Cutter Hollyhock, a 225-foot seagoing buoy tender homeported in Port Huron, Michigan, during a dry dock at the Coast Guard yard in Baltimore, 2013. *U.S. COAST GUARD*

Starting Young

Much of the yard's outreach effort is aimed at young people in elementary, middle and high school, to make them aware of the types of careers available to them and acquaint them with the Coast Guard and how the yard supports the service and its mission. In fact, many of the yard's workers started when they were in high school.

Adam Cole grew up right down the road from the yard in Pasadena, Maryland, but wasn't familiar with it until he started attending the Center of Applied Technology North (CAT North) in Anne Arundel County. "I didn't know much about the Coast Guard Yard. I knew they had boats. But representatives from the yard came to CAT North and interviewed a few of us and told us about what they offered."

At age 16, he began in an internship program within the structural shop.

“When I began working, the average age in the structural shop was about 60 years old. I began as a WG1, going to classes and then working here after school. I started as a full-time employee when I graduated at age 18. Today I’m 36, and I’m the shop foreman.”

For Olivia Wells, working at the yard helped her decide to get her four-year degree. Like Cole, she attended CAT North, and like him, she didn’t know much about the yard beforehand.

“They came to my class, explained what they do and the jobs that were available. They helped us with some mock interviews, and then I did an actual interview. I got accepted, started the process in my junior year of high school, and began working here during the summer before my senior year. I went to school during the day and then came to the yard and worked after classes. Now I’m planning to enter the University of Delaware to get a B.S. in construction engineering and management.”

“We’d like her to come back and work here after she gets her degree,” Cole said.

Tate Stott, Trent Craig and Jack Williams are former interns from CAT. Brandon Mack participated in the summer intern program for three summers with the New Era Academy partnership youthworks In Baltimore. They came into the electrical program but are being taught electronics out of necessity.

“It’s hard for us to find qualified electronics candidates, so we take people who come in as electricians and train them, so they’re learning both the electrician and electronics skills and they have greater promotion potential,” said Ron Viands, supervisor of the electrical and electronics shop. “We’re going to be stretched with the OPC [offshore patrol vessel] post-delivery availability, which includes the installation of

the GFE [government furnished equipment], including classified systems that the contractor won't be installing. Some of those may be done here, or we may send teams to do it at their home-ports. Either way it's going to be a huge workload.

"These young gentlemen are here to pick up knowledge, display skills and move up. They're already thinking about their future," Viands said. "They're very motivated. They're here for careers."

Viands said there are a lot of motivators for people coming to work at the yard.

"When we interview new people, we show them the ships and all the work we're doing on them, and how the men and women that go out on those ships absolutely depend on the work they will be doing here. We tell them, 'Crews depend on the work you will do on those ships, the mission support provided here at the yard is vital to operation mission capability.' They're either interested in working here right away or not."

Although they are young, they are already being entrusted with traveling to support work at remote sites. One of Viands' youngest employees, 20-year-old Tate Stott, recently returned from Alaska where he serviced Rescue 21 system transponder upgrades on remote towers that could only be reached by helicopter. Sometimes the team had to camp for several days, with the ever-present danger of grizzly bears.

The Coast Guard Yard in Baltimore undocked the Coast Guard Cutter Hammerhead March 5, 2015, from its cradle via a barge crane, following 57 days of industrial work at the shipyard inside a climate-controlled enclosure. Homeported in Woods Hole, Massachusetts, the Hammerhead is the third cutter repaired under the Coast Guard's 87 foot bow-to-stern project at the Yard. *U.S. COAST GUARD / Dottie Mitchell*

Mutually Beneficial

Anne Arundel County's two career technical schools, CAT North in Severn and CAT South in Edgewater, have a close partnership with the yard.

According to Adam Sheinhorn, the principal at CAT South, the Coast Guard yard provides opportunities for a multitude of students in a number of programs CAT offers.

"Many of our business partners have a very narrow industry that they work in," he said. "But with the Coast Guard yard, we're able to involve students in a variety of our

construction trades.”

Sheinhorn said CAT has program advisory committees – made up of people from industry, higher education and the community – for each of the curriculum programs, to make sure what the schools are offering the students is up to date and consistent with what the industries need.

“We don’t want to deliver an outdated education for kids,” he said.

The program advisory committees serve as a great connection point to connect students with industry representatives. “The Coast Guard yard is always sending representatives to those meetings that align with their needs,” Sheinhorn said.

CAT North Principal Joe Rose said he agrees.

“The Coast Guard bring our graduates back here to talk to our classes about how our school prepared them for their jobs, and what they’re doing – the work, training and travel – and the professional development opportunities the Coast Guard makes available to them. They have a lot of credibility, because those workers are not much older than the students here, and the kids can relate to them.”

Tom Dickinson, who manages internships and work study programs at both schools, said the teachers at CAT North and South do an amazing job preparing students.

“The young people that the Coast Guard are selecting are qualified to do the job and have the right attitude and work habits,” he said. Dickinson said the relationship is mutually beneficial.

“They participate as guest speakers, come to our open house events, and serve on our program advisory committee. When they have openings, they visit the classrooms and work with the students on getting their profile set up and applying for the

position. They come in multiple times during the year. They set up field trips. They help teach classes. During COVID, they created a video featuring many of our former students giving our current students a virtual tour of the yard and the opportunities there," he said. "They give a lot back."

Indian Navy Commissions New Warships

INS Vela is commission in Mumbai Nov. 25. *INDIAN NAVY*

MUMBAI — India commissioned its newest surface combatant, the 7400-ton guided missile destroyer INS Visakhapatnam (D61), Nov. 21, and its newest submarine, INS Vela (S24), Nov. 25, both in Mumbai.

Visakhapatnam is the lead ship in a class of four stealth guided-missile destroyers under Project 15B. The second ship is scheduled for commissioning in 2023, followed by the third

and fourth ships in 2025.

The Visakhapatnam was designed by the Indian navy's Directorate of Naval Design and constructed by Mazagon Dock Ltd. in Mumbai using indigenously sourced steel.

Vela, a 1,700-ton Scorpene-class air independent propulsion diesel submarine, was also built by Magazon Dock Ltd. in collaboration with the Naval Group in France. It is the fourth in a series of the six Scorpene-class submarines being constructed in India for the Indian navy. The navy operates or is building both attack and ballistic missile submarines.

While many navies are building frigates, the number of navies acquiring destroyers is relatively small.

The DDGs represent an evolutionary development for the Indian navy, starting with the 6,200-ton, three-ship Project 15 Delhi class and the three ships of the 7,400-ton Project 15A Kolkata class.

The Delhi-class was influenced by Russian weapons and combat systems, whereas the newer ships feature western and indigenous systems. The Kolkata class added the supersonic BrahMos anti-ship and land-attack missile. The P15B ships are about the same size as the P15As, but with more advanced systems from Russian, western and indigenous sources. They also have a reduced radar cross section. According to India's Ministry of Defence, the overall indigenous content of the project is about 75%.

"Today, as INS Visakhapatnam manufactured by MDSL is successfully commissioned, there is no doubt that in the coming times, we will be shipbuilding not only for our own needs, but also for the needs of the entire world. I'm confident that INS Visakhapatnam will live up to her name and strengthen our maritime security," Minister of Defence Rajnath Singh said at the commissioning ceremony.

The defense minister said the Indian navy has an important role to keep the oceans open, safe and secure. “Challenges such as piracy, terrorism, illegal smuggling of arms and narcotics, human trafficking, illegal fishing and damage to the environment are equally responsible for affecting the maritime domain. Therefore, the role of the Indian navy becomes very important in the entire Indo-Pacific region,” Singh said.

Roundtable Sees NATO Taking a Global Approach to Maritime Security

NORFOLK, Va. — The Combined Operations From the Sea Centre of Excellence (CJOS COE), based in Norfolk, conducted its annual maritime security regimes roundtable as a virtual event last week. CJOS is one of the 27 NATO accredited cenersof excellence.

About 250 people representing 30 countries from around the

world took part in the conference.

“It’s not about having the numbers we have online, but about having the right people. We strive for tangible outputs and actions,” said Commodore Guy Thomas, the CJOS COE deputy director. “Talking and awareness is good, but action is better – a lot better.”

Welcoming remarks were delivered by Vice Adm. Daniel Dwyer, director of the CJOS COE, and U.K. Royal Navy Vice Adm. Keith Blount, who commands NATO’s Allied Maritime Command, delivered the keynote address.

Blount talked about the importance of the physical presence of NATO navies at sea, and the strategic affect that creates. He said that demonstrable credibility is a fundamental part of deterrence.

Blount said NATO has had to address a recent resurgence by Russia. Russia constitutes a spectrum of threats, from nuclear submarines and highly capable high-speed missiles to hybrid warfare forces occupying territory, he said. “After having been in the doldrums for many years following the Cold War, we see a different Russia emerging.”

He also called attention to the importance of protecting a increasingly vulnerable network of undersea infrastructure, including communication cables and energy pipelines.

Speakers during the roundtable discussed asymmetric threats such as terrorism, piracy, climate change and transnational crime, but there was also a lively conversation about China. Although not part of NATO’s traditional area of responsibility, the rise of China will be an important part of NATOs future.

The forum underscored the importance of embracing multi-domain warfighting and capabilities. However, Blount said, “It’s not so much about the individual capabilities but about

integration.”

In the view of some of the speakers, while Russia must still be reckoned with, there are only two superpowers – the United States and China. While China does not border any NATO nation, what happens with China in the South China Sea does affect the western world and NATO.

The discussions alluded to NATO’s new focus of blue-ocean warfare in the North Atlantic, to include the standing up of Joint Forces Command Norfolk and the reestablishment of the U.S. 2nd Fleet (whose commander, Dwyer, is also the director of CJOS COE).

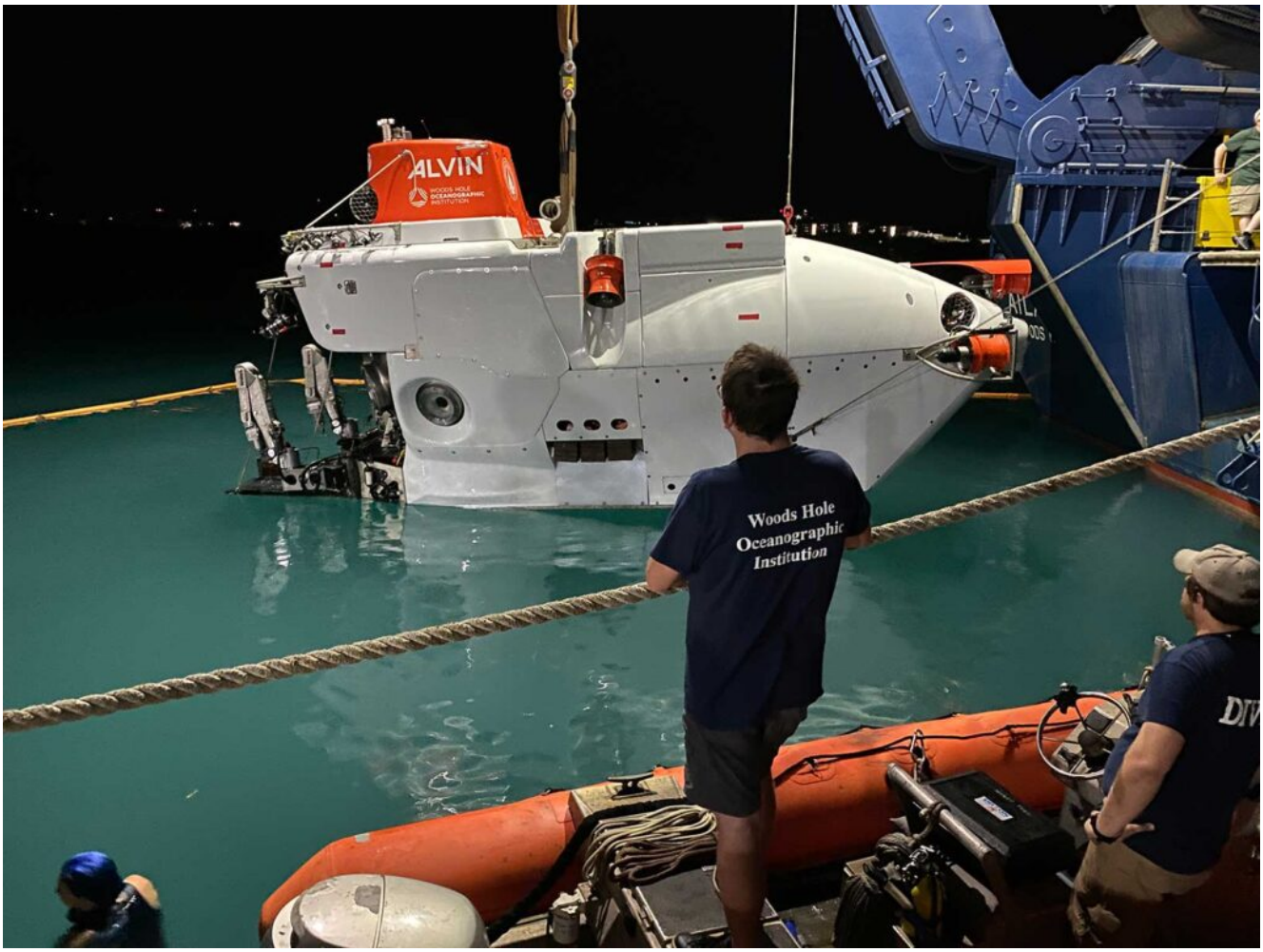
Speakers brought the participants up to date with maritime security operations around the globe, including Operation Orion in Colombia, NATO Operation Sea guardian in the Mediterranean, EU NAVFOR Mediterranean IRINI and the arms embargo off Libya and EU NAVFOR Atalanta in the Indian Ocean.

Presenters also addressed the growing use of new technologies, especially unmanned and autonomous systems, to help create larger and more effective sensor networks.

Matthew Searle, chief technology officer with Maritime Arresting Technologies, was one of the technology speakers. “I was impressed by the diversity of the presenters, who covered all aspects or maritime security from high level strategy and global issues down to specific threats,” he said.

Searle’s company makes maritime security barriers both above and below the water, specializing in rapidly deployable port security booms. “The event was a great opportunity to discuss the use of non-kinetic effectors in grey zone encounters with many stakeholders,” he said.

Navy-Owned Deep-Diving Alvin Being Certified for Operations to 6,500 Meters



Alvin undergoing certification in Bermuda on Nov. 2. *WHOI / Ken Kostel*

The deep-diving Human Occupied Vehicle Alvin is being certified for return to service following completion of a series of modernization and improvements. Alvin is currently undergoing certification dives near Bermuda.

Thanks to Alvin's three-inch-thick titanium sphere, researchers can study the deep ocean while safe from the

crushing pressure and deadly cold.

Alvin is owned by the U. S. Navy Office of Naval Research and operated by the National Deep Submergence Facility (NDSF) at Woods Hole Oceanographic Institution (WHOI) and was last certified in 2013 to dive to 4,500 meters. Although a $50 million overhaul was conducted between 2011 and 2013, some of the necessary improvements to certify the vehicle to conduct deeper dives were not yet available. An $8 million upgrade was commenced last year. Alvin's upgrade and operations are largely funded by the National Science Foundation.

According to Andy Bowen, a principal engineer of applied ocean physics and engineering at WHOI and director of the NDSF, the most recent overhaul will extend Alvin's depth certification from 4,500 to 6,500 meters.

"This increase in depth capability involves a wide range of improvements from a new titanium personnel sphere, variable ballast system, hydraulic power plant and upgraded floatation," he said. "There has also been a myriad of improvements to the vehicle's propulsion system, imaging capabilities and overall electronic upgrades.

"We are engaged in the early stages of sea trials to verify performance of all the vehicle systems, including life support, stability, variable ballast, manipulation and hydraulic components," Bowen said. "Progress in verifying perforce has been steady with initial dives tethered to the support vessel RV Atlantis accomplished with satisfactory results. We expect to complete the first untethered dives this week in the harbor here in St. Georges, Bermuda. Once this has been accomplished, Atlantis and Alvin will move into open ocean and continue with a series of deeper dives until we have achieved our full depth of 6,500 meters."

Alvin will make its first 6,500-meter dive, or 21,325 feet – nearly four miles below the ocean's surface – in mid-

November. It takes about three and a half hours to reach that depth. Missions can last as long as 10 hours, although most missions do not travel to the vehicle's maximum depth.

Atlantis completed its own one-year, $50 million overhaul in July.

"We planned to do the one-year refit of Atlantis to coincide with the work on Alvin, so the mothership and sub would be done in parallel," said Tim Schnoor, a contractor supporting ONR's research ship programs. "The work on Atlantis included improvements to and recertification of Alvin's launch and recovery system, and the upgrades to the storage hangar where Alvin is kept between missions."

Brian Pelletier, assistant program manager for advanced undersea systems at Naval Sea Systems Command (NAVSEA), said the certification process will ensure Alvin can be operated safely with people on board. "We ensure the system is safe for manned operations per the manual for deep submergence systems. Our NAVSEA team has been observing the November test dives in the Bahamas, and engineers from Team SUB will provide independent representatives to make sure the tests are being performed in accordance with the requirements of NAVSEA P9290, which is the Navy's system certification procedures and criteria manual for deep submergence systems."

After the certification dives, Bowen said Alvin will move into a brief series of test dives to prove its scientific capabilities in the waters around Puerto Rico. "With these accomplished, Alvin's first scientific dives will be in support for Dr. Craig Young from the University of Oregon," he said.

Alvin usually operates with a pilot and carries two scientists, and can be fitted with the appropriate instruments and science payload for the mission being conducted.

ONR is responsible for acquisition and life cycle support,

with funding also provided by the National Science Foundation and the National Oceanic and Atmospheric Administration. Alvin's operations are managed by the NDSF and scheduling is coordinated by the University-National Oceanographic Laboratory System.

In addition to Alvin, the NDSF also operates the Navy-owned remotely operated vehicle Jason and autonomous underwater vehicle Sentry for the ocean science community.

While researchers can learn a lot from unmanned systems, Bowen said there is no substitute for the human. "Humans are still the most effective means for exploring the unknown," he said.

Rapid HIMARS Deployment to Remote Location Demonstrates Distributed Lethality

The U.S. long-range artillery rocket system HIMARS is launched on Swedish territory. *Joel Thungren/Försvarsmakten*

GOTLAND, Sweden – Sweden and the United States conducted a recent exercise to deploy a mobile rocket launcher to a remote location and quickly engage targets.

Both Swedish and American C-130 Hercules aircraft demonstrated the ability to land on roads in a remote location on the island of Gotland in the Baltic Sea Oct. 23.

A U.S. MC-130J Commando II Special Operations aircraft carried a Wisconsin Army National Guard M142 HIMARS (High Mobility Artillery Rocket System) long-range artillery system on

board. The HIMARS was promptly unloaded and assembled for firing, then loaded onto the Swedish C-130H (designated as a TP 84 in the Swedish Air Force) and flown to another location in the northern part of the country, escorted by Swedish air force JAS 39 Gripen fighters, for a live firing event. The launch was successful.

According to the Swedish armed forces, “Within a few minutes, the system was assembled and ready to launch. It was then loaded on board the aircraft again and transported up to northern Sweden to demonstrate live firing. It was the first time this feature was fully exercised.”

“During the ongoing special forces exercise, new capabilities and weapon systems have been tested to enhance the joint operational capability in the vicinity of Sweden,” said a statement from the Swedish Ministry of Defense.

“Everything went very well. The joint exercises conducted this past weekend demonstrate how far we’ve come in our cooperation with the U.S.,” said Swedish Army Lt. Gen. Michael Claesson, Sweden’s chief of joint operations.

Gotland is Sweden’s largest island, and one of tens of thousands of islands strategically located in the Baltic Sea. Sweden is a neutral and independent country, and not a member of NATO treaty. It does, however, follow NATO military procedures and frequently participates in NATO and U.S. bilateral exercises.

The exercise demonstrates the ability to rapidly deploy lethal capabilities to remote locations, a key to the Navy and Marine Corps distributed maritime operations concept.

Maritime Security Regimes Round Table Will Address Present Challenges, Future Opportunities

The Combined Joint Operations from the Sea Centre of Excellence (CJOS COE) is conducting a virtual Maritime Security Regimes round table (MSR RT) Nov. 3-4.

With an international staff representing 13 nations, the CJOS COE is led by Vice Adm. Daniel Dwyer – who is also Commander, U.S. SECOND Fleet and Commander, Joint Forces Command Norfolk – and is one of 27 NATO-accredited COEs, which serve as hubs for innovation and expertise.

The 2021 MSR RT theme is "Challenges and Threats in Global Maritime Security."

"As the host, CJOS COE aims to enhance knowledge and raise awareness on important issues in maritime security and, by doing so, support and preserve the interests of NATO Allies and partner nations," said Royal Navy Commodore Thomas Guy, deputy director of CJOS COE.

Guy said the round table will bring maritime security stakeholders – military experts, academics, and representatives of the industry – together to exchange experiences, knowledge, and concerns in the field of Maritime Security. "Their participation and that of the greater community of interest will serve as an enriching forum to advance the achievement of a safer maritime domain within which everyone will be better prepared to face future challenges," Guy said.

According to Cmdr. Nathaniel Hathaway, the MSR RT project officer, the round table is intended to bring about a better understanding of some of NATO's most pressing geographical hot spots in terms of maritime security, the issues found there, and the challenges they pose. That includes understanding the most influential actors within those hot spots, their motivations, and how they are affected by the interests and actions of external global actors, as well as the international legal aspects of maritime activity, the intersection of naval activity and commercial shipping, and new more complex threats faced by the international community.

"We want to share awareness across the community of some current at-sea operations, discuss technical and operational challenges, breakthrough technologies, and knowledge gaps to facilitate future research and collaboration across the community, and inform the maritime security community of the spectrum of work accomplished through the MSR RT working groups," Hathaway said.

"Through a series of expert panels, the MSR RT will delve deeply into several of the most relevant and important issues in Maritime Security," Hathaway said. "Challenges of the present will go hand in hand with opportunities for the future, as the MSR RT explores how the maritime security community of interest is addressing today's threats while examining potential for future advantages."

"We started the MSR roundtable in 2012 as a forum for sharing best practices and mutual education," Guy said. "At that time, NATO was more focused on maritime security instead of warfighting. Since then, NATO has focused much more on high-end warfare, but there still is a demand signal for global maritime security issues, and we've got a good pedigree in facilitating that."

For more information, visit http://www.cjoscoe.org/?p=2083.

Wreck of Storied Revenue Cutter Found

Appearing very different from her last Greenland visit in 1884, USS Bear (AG-29) returned in 1944 as part of the Coast Guard's Greenland Patrol. *U.S. NAVY*

One of the America's most iconic ships, which sailed the high seas in the Revenue Cutter Service, Coast Guard and Navy from the Arctic to Antarctica, has been found on the bottom of the ocean. The U.S. Revenue Cutter (USRC) Bear served for nearly 80 years before sinking in the North Atlantic in 1963, and now has been found.

"Today, I'm pleased to announce that with a reasonable degree of certainty, we found the final resting place of the historic revenue cutter Bear, a steamer ship purchased by the United States government in 1884. They went on to patrol the Arctic for 41 years," said Rear Adm. Nancy Hahn, deputy director for operations of the NOAA Office of Marine and Aviation Operations and deputy director of the NOAA commissioned officer corps.

"After nearly two decades of searching, NOAA Ocean Exploration, the NOAA Office of National Marine Sanctuaries' Maritime Heritage Program, the U.S. Coast Guard, and a number of academic research partners have located with reasonable certainty the final resting place of U.S. Revenue Cutter Bear," said Brad Barr, expedition coordinator in the NOAA Office of National Marine Sanctuaries Maritime Heritage Program.

The search for the location of the famous ship was conducted from Sept. 14 to 28, and located it approximately 260 miles

due east of Boston and 90 miles south of Cape Sable, Nova Scotia.

The Oct. 14 announcement was made pierside next to the Coast Guard's medium icebreaker USCGC Healy in Boston, which has just transited the Northwest Passage from the West Coast.

"Having served for nearly 80 years, including in the U.S. Revenue Cutter Service, the U.S. Navy, and as a ship of exploration in the Antarctic, Bear is considered one of the most historically significant ships in U.S. history for its long and meritorious service," said Barr.

"Knowing where the wreck of Bear is located provides an opportunity to preserve what remains. Given its location in Canadian waters, whatever preservation of this significant historic site is deemed necessary and appropriate will be another story yet to be written," Barr said.

The 198-foot, 700-ton ship was built by Alexander Stephen & Son of Dundee, Scotland, for the sealing trade in 1874. Bear entered government service and was deployed extensively in some of the most inhospitable waters on Earth. It was acquired by the U.S. government in 1884 for the Navy's rescue mission to save the starving men of an Arctic expedition led by Army Lt. Adolphus Greeley.

The following year the Treasury Department placed it into service as a revenue cutter, spending more than four decades patrolling the Bering Straits and Arctic.

In 1897, under the command of Capt. "Hell Roaring" Mike Healy, Bear crewmembers conducted the famous "overland rescue of 1897." Led by executive officer, Lt. Davis Jarvis and a rescue team that included 2nd Lt. Ellsworth Bertholf, U.S. Public Health Service Surgeon Samuel Call and three enlisted men, they drove a herd of 450 reindeer 1,600 miles to rescue the men of eight whaling ships stuck in the ice at Barrow, Alaska.

Alaska was a far more dangerous maritime frontier in the late 1800s than it is today. According to Coast Guard Historian Dr. By William H. Thiesen, “Bear secured witnesses for a murder case; transported Alaska’s governor on a tour of Alaska’s islands; shipped a U.S. Geological survey team to Mount Saint Elias; carried lumber and supplies for school construction in remote locations and the Arctic; delivered teachers to their assignments; carried mail for the U.S. Postal Service; enforced seal hunting laws in the Pribilof Islands; supported a Coast & Geodetic Survey team; provided medical relief to native populations; served life-saving and rescue missions; and enforced federal law throughout the waters and shorelines of Alaska.”

Bear reverted back to the Navy during World War I, and the supported relief operations in the in and around Alaska during the Spanish flu epidemic of 1918. It served until 1929, when it became a museum ship in Oakland, California. But it didn’t stay in port for long. Adm. Richard Byrd purchased the ship to support the 1933-35 and 1939-1941 Antarctic expeditions. When World War II broke out, Bear served again under a Navy commissioning pennant, patrolling the waters around Greenland. After the war, the ship was sold with the intent it be returned to commercial service as a sealer, but the fur market was such that its owners abandoned it. Eventually, a promoter saw a future for the storied ship as a restaurant and attraction and had it towed on a final voyage to Philadelphia in 1963, but it never arrived.

”At the time of the loss of Bear, it was already recognized as a historic ship,” said Joe Boyd, maritime heritage program coordinator for the Office of National Marine Sanctuaries.

A possible stern tube of the shipwreck explored in 2021. *NOAA / MITech*

The story the Bear doesn’t end with its loss in 1963. Instead, a new chapter in the Bear story opened when the search for the

historic ship began in 1979 with the Massachusetts Institute of Technology and Dr. Harold Edgerton, inventor of the side-scan sonar. He deployed his revolutionary technology from a Coast Guard buoy tender near the last known position of the Bear before it left the surface. They were unsuccessful in finding the Bear, but that effort launched a 40-year quest that included not only MIT, but the Canadian government, U.S. Navy, Commonwealth of Massachusetts, Woods Hole Oceanographic Institution, Coast Guard District One, the Chief Historians Office, Coast Guard Research and Development Center, the Coast Guard Academy and NOAA.

“Identifying the final resting place of the Revenue Cutter Bear is just another example of knowing that Coast Guard joining forces to do more collectively than either of us could do individually, and showing how we work together to advance our collective missions. What makes this effort to locate the Bear special is the partnership that made it possible and incredibly valuable experience we both gained during the search for the historic vessel,” said Hahn.

“Each moment of the surveys that led to this exciting discovery was put to use to improve crew readiness, enhance skills essential to searching for sunken vessels, including adapting existing Coast Guard ships to deploy and recover remotely operated vehicles. NOAA has been in the shipwreck survey business for a very long time,” Hahn said. “And we can tell you that we are profoundly impressed by the Coast Guard’s ability to adapt to this new challenge and apply what they’ve learned throughout this project.”

India, Japan Conclude Joint Naval Exercises in Arabian Sea

Navy ships from India and Japan take part in JIMDEX, a bilateral exercise in the Arabian Sea. *INDIAN NAVY*

A significant bilateral naval exercise just completed in the Arabian Sea. The navies of Japan and India conducted JIMDEX 2021, the fifth iteration of their joint maritime exercises, which ran Oct. 6-8.

The exercise was led by Rear Adm. Ajay Kochhar, flag officer commanding the Western Fleet of the Indian navy, and Japanese maritime Self Defense Force (JMSDF) Rear Adm. IkeuchiIzuru, commander, Escort Flotilla Three.

India's guided missile destroyer INS Kochi (D64) and guided missile frigate INS Teg (F45) operated with Izumo Class-multi-purpose destroyer Kaga (DDH 184) and destroyer JS Murasame (DD 101).

According to an Indian ministry of defense press release, the forces were engaging in a high tempo of operations focused on air, surface and sub-surface dimensions of maritime operations as well as the air domain.

"The complex maritime exercises undertaken will enable the two navies to further strengthen their already wide-ranging strategic partnership and, when required, to jointly safeguard their maritime interests and ensure peace, security and stability in the region."

Both navies share some similar platforms and systems, like the P-8 maritime patrol aircraft. Both navies operate indigenous ships and aircraft, like the Kochi and Izumo, which looks more

like a helicopter carrier than a destroyer (at 27,000 tons fully loaded, Izumo is the largest ship in the JDMSF fleet). India's and the Russian designed stealth frigate Teg and MiG 29 fighters might be representative of potential adversaries.

During the exercises the units conducted over-the-horizon targeting, antisubmarine warfare, naval gunnery and underway replenishment. The ships' embarked cross-deck landings to demonstrate interoperability. The exercise involved what the Indian MoD statement described as "a high tempo of flying operations with MiG 29K fighters coming in for multiple simulated air strike on surface units."

India's cooperation with other navies may be seen as statement to an increasingly competitive China.

"The IOR [Indian Ocean Region] is quickly becoming the home of a contest between India and China," wrote Aman Thakker in New Perspectives in Foreign Policy, published by the Center for Strategic and International Studies. "China has made aggressive moves to advance its strategic interests in the region, particularly by gaining access to military bases and strategic ports by employing illiberal and predatory economic practices.

"India now recognizes that it cannot allow China to replicate the playbook it used in the South China Sea and challenge territorial claims and international norms of freedom of navigation, overflight, and unimpeded commerce in the IOR," Thakker wrote.

It is also significant for Japan in that it is conducting exercises far from home waters and with a nation other than the U.S., which can also be interpreted as a signal to China.

"The complex maritime exercises undertaken will enable the two navies to further strengthen their already wide-ranging strategic partnership and, when required, to jointly safeguard

their maritime interests and ensure peace, security and stability in the region," the Indian navy said in its statement.

Royal Navy Looks to Canadian Coast Guard for Arctic Training and Expertise

The U.K. Royal Navy's HMS Lancaster recently returned from a deployment to the Arctic. *U.K. ROYAL NAVY*

The U.K. Royal Navy is learning the cold facts about operating in the Arctic from shipmates in the Canadian Coast Guard, who have a great deal of cold weather experience.

British sailors are training with Canadians to learn how to navigate through icy waters and how to break ice where necessary, while Canadian Coast Guard personnel will have operational training opportunities and gain experience with crewless technology with the Royal Navy, according to a press release from the Royal Navy.

An agreement to formalize the arrangement was signed between the two NATO nations at the Canadian Coast Guard's (CCG) headquarters in Ottawa by its commissioner, Mario Pelletier, and Second Sea Lord Vice Admiral Nick Hine on Oct. 8.

"I am delighted to sign this agreement that will see the Royal Navy and Canadian Coast Guard work even closer together in the Arctic, sharing and developing our ice experience, as we strive to become ever more interoperable and interchangeable," said Hine.

“The Canadian Coast Guard welcomes the opportunity to build on the existing close relationship between Canada and the United Kingdom. Through this memorandum of understanding, we will benefit from the Royal Navy’s operational experience and expertise, and we look forward to sharing our skills and knowledge of the Arctic,” said Pelletier.

The two services have worked together before. In 2020, several Royal Navy watchkeeping officers from HMS Protector, the UK’s sole ice patrol ship, sailed with a CCG vessel to gain experience in ice operations.

“The sharing of the Canadian Coast Guard’s wide experience and expertise will mean British sailors are better equipped when sailing to the frozen region,” the Royal Navy statement said.

Canadian Coast Guard icebreaking vessels, from hovercraft to heavy and light icebreaking and long-endurance ships, keep Canadian ports open year-round, freeing ice-bound vessels, escorting ships through ice-covered waters and maintaining a constant presence the High North during the navigable season.

The Royal Navy has shown a renewed interest in the Arctic region in recent years because of its key strategic importance to the security of the U.K.

“Warships are a regular presence in the region, while Royal Marines train in Norway annually as the U.K.’s specialists in the cold weather warfare,” said the Royal Navy statement. “HMS Lancaster recently returned from a on a 3,000-mile round-trip through the Norwegian Sea and into the Arctic Circle – the latest Royal Navy vessel to head to the High North over the past few years.”

NATO’S Naval Mine Warfare Centre of Excellence Leverages Institutional Knowledge, Expertise

Standing NATO Mine Countermeasures Group One (SNMCMG1) is one of four standing maritime groups composed of ships from various allied countries. These vessels are continuously available to NATO to perform different tasks ranging from participation in exercises to operational missions. *NATO*

The NATO Naval Mine Warfare Centre of Excellence (NMW COE) in Ostend, Belgium, is NATO’s main source of expertise regarding all aspects of NMW, leveraging the collective knowledge and expertise from the entire NMW community in support of the alliance.

Like the 26 other COEs accredited by NATO, the NMW COE focuses four main pillars: education, training, exercise and evaluation; analysis and lessons learned; doctrine development and standardization; and concept development and experimentation.

The center brings mine warfare experts together for an annual symposium. Although its two previous conferences were canceled for COVID-19 and other reasons, the 2021 conference was held virtually in June.

“Our focus was how we can learn from each other – not only from military, but also from civilians, and how we can work together in the future,” said Cmdr. Herman Lammers of the Royal Netherlands Navy, director of the NMW COE.

In addition to holding its own conference, the NMW COE participates in a long list of working groups, training

courses, conferences and exercises.

“We’re part of NATO’s naval armament, standardization and defense planning working groups, as well as any conference where Naval Mine Warfare is on the agenda. Those meetings are paramount to ensure efficient networking and exchange of expertise and knowledge,” Lammers said. “If we want to be a hub, we need to be present at all those meetings.”

The NMW COE is collocated with EGUERMIN (Ecole de Guerre des Mines), the Belgian-Netherlands Naval Mine Warfare School at Ostend, and assists with their national and international courses when required. Belgium and the Netherlands are founding “framework nations,” with Poland and Italy joining the COE as sponsoring nations. Germany participates via EGUERMIN, through a memorandum of understanding. Lammers said other nations are welcome, too.

Lammers said the center serves as a “hub of knowledge.” The Lessons Learned and Analysis (LL&A) branch is actively involved in collecting and analyzing lessons learned and lessons identified that are forwarded through the NATO Lessons Learned portal, the NATO Allied Maritime Command (MARCOM) at Northwood, United Kingdom, or directly to the NMW COE. After analyzing the problem, a remedial action is proposed and sometimes even tested, so necessary improvements can be made. Lammers said the NMW COE shares this knowledge with MARCOM, The NATO Joint Analysis and Lessons Learned Centre in Lisbon, Portugal, and among the other maritime COEs.

“It’s important to identify what works, as well as understand what doesn’t work and learn from our mistakes,” said Belgian Navy Cmdr. Ward De Grieve, the center’s chief of staff. “It’s the only way to improve.”

As a COE, Lammers said his team is constantly monitoring and evaluating the future trends and technologies.

“Staying on top of all the new developments in a continuous

task. By enabling the exchange of information and experience throughout the maritime community, we can help identify synergies," Lammers said. "I refer to maritime instead of naval because mines and unexploded ordnance in the maritime domain are no longer exclusively a military issue."

The COE actively contributes to and participates in exercises like BALTOPS and Bold Move by providing advice and scenario inputs. They develop and evaluate new operating concepts and adapt existing doctrine, as well as establish experimentation with new technologies.

The center conducted experiments during BALTOPS 50 to test and validate experimental tactics involving the use of unmanned underwater and surface vehicles and implemented them into the existing naval mine countermeasures planning and evaluation software tool MCM EXPERT.

The center helps to achieve interoperability among NATO navies through understanding and promoting standardization proposals and updates.

"We are actively participating and contributing to the various working groups and syndicates within NATO to provide balanced advice and proposals to adapt, improve and update existing doctrine," Lammers said.

Lammers said the NMW COE's team of seven subject matter experts and small support staff has extensive NMW knowledge and expertise, and can use its relationships, partnerships and connections to assist in many ways.

"If we don't have an answer to a question, we can rely on our extensive network to provide the necessary answers," he said. "The NATO NMW COE is the hub of knowledge within NMW. Our focus is not only on the long term, assisting NATO in transformation, but also on real-time practical support to the units at sea."

Italian army Gen. Paolo Ruggiero, the deputy supreme allied commander transformation, said, “the alliance has been successful because it has constantly adapted and transformed into what was needed to be relevant.”

He credits part of that success to the 27 accredited NATO COEs, including the NMW COE, and the work they do on the four pillars.

According to Ruggiero, the COEs belong to the participating nations, not NATO per se, but are accredited by NATO. There are a set of prerequisites and a rigorous process for a center to be accredited and periodic assessments are required for a COE to maintain its status.

The COEs provide all of the nations a venue to share what they do best. “Each one of them has unique expertise,” Ruggiero said. “They can cover similar areas of interest in terms of domain – for instance, maritime, land, air – but they’re specific in one specific military area and expertise.”

The COEs may not involve every NATO nation, but most represent more than one country, and in some cases, they are joined by partner nations such as Sweden, Finland, Switzerland and Austria.

“Our partners benefit from this sharing of information, and we benefit from them,” Ruggiero said.

A meeting of the NATO Naval Mine Warfare Centre of Excellence, based in Ostend, Belgium. *NMW COE*

Contributing to the Alliance

Ruggiero said the COEs have provided a way for NATO’s post-Cold War member nations to visibly contribute to the alliance.

“A new country could contribute to NATO by hosting a center of excellence, while at the same time raising the flag of NATO in their country,” he said, adding that COEs are an extraordinary

force multiplier for NATO.

“The COEs provide the alliance with a community of nearly 1,000 military and civilian experts that provide their knowledge and experience,” Ruggiero said.

Capt. Robert A. Baughman, USN, mine warfare division director at the U.S. Naval Surface and Mine Warfighting Development Center (SMWDC), presented at the recent conference. He said the NATO NMW COE is analogous to SMWDC as a warfighting development center working on tactics, doctrine development, experimentation and integration of new technologies.

“NATO officers can truly specialize as career mine warfare experts,” Baughman said. “The NATO NMW COE provides a unique opportunity for us to leverage all that institutional knowledge and expertise. They’re also co-located with EGUERMIN, their schoolhouse, and we’re plugged in with both of those organizations.

“We leverage their courses of instruction – specifically the staff officer and principal warfare officer courses, for our warfare tactics instructors training pipeline, and take part in their exercises for staff training. We also participate in the NATO Naval Mine Warfare battle rhythm, conferences and in their working groups,” he said. “Mine warfare is a team sport, so it’s critical for us to understand how our allied and partner mine countermeasures systems work, and to integrate into combined operations to build interoperability.”