

Navy Admirals Detail Russian Arctic Build-Up



The Los Angeles-class fast-attack submarine USS Pasadena (SSN 752) breaks through the ice in ICEX, which happened concurrently with Arctic Edge 2022. Arctic Edge is a U.S. Northern Command biennial defense exercise designed to demonstrate and exercise the ability to rapidly deploy and operate in the Arctic. (U.S. Navy Photo by Mass Communication Specialist 2nd Class Trey Hutcheson) Photo by [Petty Officer 2nd Class Trey Hutcheson](#)

WASHINGTON – Senior U.S. Navy leaders in the Atlantic and European regions discussed, in some detail, the nature of the Russian build-up and naval activity in the Arctic region during a recent seminar in Washington.

Speaking Feb. 9 at a seminar sponsored by the Wilson Center's Polar Institute and the [Center for Maritime Strategy](#) (CMS), a

think tank of the Navy League of the United States – Deterring Russia at Sea in the High North – were Adm. Daryl Caudle, commander, U.S. Fleet Forces Command and Vice Adm. Dan Dwyer, commander, U.S. Second Fleet. The seminar was moderated by retired Adm. James Foggo, dean of CMS.

“Russia now has six bases, 14 airfields, 16 deep-water ports, and 14 icebreakers built,” Caudle said of the Russian build-up.

“They dominate the Arctic geography and possess the corresponding ability to dominate in capability and infrastructure,” he said. “They do have legitimate sovereign interests and have elevated their Northern Fleet to constitute its own military district – think, combatant command.”

For decades, Russia and its prior Soviet Union entity have been especially protective of the northern approaches of the Barents Sea and Arctic Ocean out of a desire to maintain a protective bastion for its nuclear-tipped missile force deployed on its ballistic-missile submarines.

Caudle said Russia has the largest icebreaker fleet in the world and has even armed icebreakers with the Kalibr cruise missile.

“They have an active defense system that has high readiness, mobility, and firepower in the Northern Fleet,” he said. “They centralize the command-and-control authority of the S-400 [surface-to-air] missile system. They have strong anti-access and access-denial capability that reaches from the Arctic to the Baltic to the GIUK [Greenland-Iceland-United Kingdom] Gap. They have long-range, precision-guided strike weapons especially focused in and near the Kola Peninsula.”

Caudle said those weapons include submarine-launched Kalibr submarine-launched land-attack cruise missiles, the Kinzhal long-range anti-ship missile, and the Screwdriver mobile land-attack cruise missile.

Arctic Upgraded as Russian Priority

Dwyer, whose fleet had increased its excursions into the High North, said “[t]he stability that we enjoyed in the High North is in fact being challenged not only by climate change but by Russia themselves.

He said that in July 2022 Russia released its new maritime doctrine, “prioritizing the Arctic as its most important maritime direction, pledging to protect these waters ‘by all means.’ This includes increasing attention on the Arctic littorals as well as the introduction of new missile capabilities ... to focus on its bastion of the Northern Fleet... Prior to this announcement, the Arctic was their number three priority. The Atlantic was their number one priority. Now Russians realize that the Arctic is the key to their economy and to their defense as they see the receding of the Arctic ice cap.”

Dwyer also noted that in August 2022, Russia, “unveiled plans for a new strategic missile-carrying submarine cruiser for Atlantic operations. Moreover, in September Russia conducted Exercise Inka in the Arctic, deploying several submarines together, showing their capability in the High North. It is worth noting that Russia has renovated many Arctic sites and opened new ones. This is why we at JFC [NATO’s Joint Forces Command] Norfolk do everything in our power to manage and mitigate risk, prevent escalation, and ensure transparency of NATO operations in the Arctic.”

HII Plans Additional Demonstration for Pharos Launcher for LDUUVs



HII press conference 14 Feb 2023

ARLINGTON, Va. – [Huntington Ingalls Industries](#) (HII) is seeking an opportunity to demonstrate its new launch and recovery platform for large-diameter UUVs (LDUUVs) at sea on a U.S. Navy amphibious landing platform dock ship, a company official said.

Brian Blanchette, vice president for Quality and Engineering at HII's Ingalls Shipbuilding, spoke to reporters in a teleconference at West 2023 on Feb. 14, a trade show and symposium of the Armed Forces Communications and Electronics Association and the U.S. Naval Institute, and said the company would welcome a demonstration of the Pharos launch and recovery system from the well deck of an LPD either underway or in port.

The Pharos system is a prototype cradle large enough to accommodate an LDUUV than can be streamed behind the well deck of an LPD or a well-deck-equipped amphibious assault ship (LHA/LHD) to launch the LDUUV or recover it. The cradle is tethered to a winch.

The Pharos concept was developed by HII and underwent additional testing through cooperative agreements with the Naval Surface Warfare Center Panama City, Florida, and the Naval Undersea Warfare Center Division Newport, Rhode Island.

The Pharos was tested dockside in the HII Ingalls shipyard in Pascagoula, Mississippi in June 2022 and towed in a river, Blanchette said. The payload for the demonstration was HII's Proteus LDUUV.

He said that interface testing was conducted in September 2022 with a surrogate for the Navy's Snakehead LDUUV, followed in October 2022 with a ballast/de-ballast test with the Snakehead.

Scalable Concept

"When we went through the design process for this vehicle [Pharos], we did computations, including dynamic studies, to evaluate where in the wake zone of the LPD would be a favorable location for a launch and recovery vehicle and also did model basin testing at the University of New Orleans in their tow tank to look at a physical scale model and better understand the capabilities of the system at speed simulating a tow.

"We feel like we understand some of the challenges and have designed the system around those, but we look forward to at-sea testing to further validate the concept," he said. "We are in talks with the Navy trying to find a target of opportunity to interface with an LPD either pier-side or at sea."

HII also plans this year to integrate the Pharos with the REMUS 6000 UUV.

Blanchette said the Pharos concept is scalable and could be built to accommodate extra-large-diameter UUVs such as the Orca being developed by Boeing for the Navy.

Navy's SPY-6 Radar to Reach Initial Operational Capability in 4th Quarter Fiscal 2024



The fixed-face antenna of the SPY-6-(V)1 radar is shown on the

future USS Jack H. Lucas (DDG-125), the first ship equipped with the radar. (Raytheon)

ARLINGTON, Va. – The U.S. Navy's new SPY-6(V)1 Air and Missile Defense Radar is scheduled to reach Initial Operational Capability (IOC) during the fourth quarter of fiscal 2024, a Raytheon official said.

The radar, which first went to sea for trials on Flight III Arleigh Burke-class guided-missile destroyer Jack H. Lucas (DDG 125) in December, met all of its test objectives, said Mike Mills, Raytheon's senior director for Naval Radar Programs in a Jan. 6 interview with Seapower, noting that the radar will be ready for IOC late next year.

New Year, New Radar

The fixed-face SPY-6(V)1 replacing the SPY-1 in the newest version of the Arleigh Burke class DDG, Flight III.

Mills said more software enhancements to the radar will be made as it is readied for the Navy's acceptance trials scheduled for May or June.

Raytheon is under contract for 25 SPY-6 radars of the various versions, including six SPY-6(V)1 variants for DDGs. The future USS Ted Stevens (DDG 128) will be the second ship DDG to be fitted with the SPY-6(V)1.

The SPY-6(V)2 Enterprise Air Search Radar (EASR) is a rotating antenna version that is first being installed on the Flight I San Antonio-class amphibious platform dock ship Richard M. McCool Jr., the transition ship to the Flight II of the class.

The first SPY-6(V)3 EASR rotating radar has been installed on the future aircraft carrier USS John F. Kennedy (CVN 79),

currently under construction.

The SPY-6(V)4 version has a fixed-face antenna and will be retrofitted on some Flight IIA DDGs in place of the SPY-1. Mills said an adapter plate will be installed on the ships to allow for the retrofit of the SPY-6(V)4 antennas. The existing power systems will be 95% leveraged for re-use, he said.

Mills said he expects a contract for the (V)4 to be forthcoming this year.

He said the commonality of the various SPY-6 variants will simplify logistics. They will have common software and common sensor cells.

Superior Defense Capabilities

All DDGs equipped with the SPY-6 will have defense capability against ballistic missiles, Mills said.

He also pointed out that the increased range of the SPY-6 will improve the defensive capability of a DDG and free up more missile launchers for offensive capability.

“We’ve got a whole lot of international interest,” Mills said, noting that several nations that currently use the SPY-1 radars would be potential customers for the SPY-6(V)1. He said his company has given numerous briefings to potential international customers.

U.S. Navy Surface Warfare

Tactics Instructors (WTIs) to Converge in Washington



U.S. Navy Surface Warfare Tactics Instructors (WTIs) are converging in Washington for a conference January 9-12. The conference, known as a “Re-Blue,” is coordinated and hosted by the Naval Surface and Mine Warfighting Development Center (SMWDC), who leads the Surface Warfare WTI program.

Trained and Qualified Instructors

WTIs are highly trained and qualified surface warfare officers who have specialized knowledge and expertise in one of the warfighting areas of integrated air and missile defense (IAMD): anti-submarine and anti-surface warfare (ASW/ASUW), mine warfare (MIW), and amphibious warfare (AMW). WTIs provide their commanding officers with tactical expertise and provide advanced training to warfighting teams.

About 130 WTIs are expected to participate.

Leadership, Technology, and Skills

While at the Pentagon, the WTIs will hear keynote remarks from leadership across the surface force, have an opportunity to refresh their knowledge on updated tactics, and receive briefings on best practices from SWMDC’s flagship underway training, SWATT – Surface Warfare Advanced Tactical Training.

The conference is taking place with the Surface Navy Association’s 35th Annual Symposium in nearby Crystal City, Va., allowing the WTIs to hear from Navy and Marine Corps leaders and see the latest in products and technologies from exhibiting companies.

“Our WTIs are assigned across the fleet in various shore and afloat billets, some as the only WTI at a command,” said Rear Adm. Christopher Alexander, SMWDC Commander. “I’m looking forward to giving everyone the opportunity to come together with the greater WTI cadre, refresh their knowledge on the latest in surface tactics, and at the same time offer them the opportunity to attend SNA’s Annual Symposium.”

Maintaining a Competitive Edge

WTIs help maintain the competitive edge of the surface fleet and are the foundation of SMWDC’s five lines of efforts:

- Warfare tactic instructor production
- Advanced tactical training
- Doctrine and tactical guidance development
- Operation support to combatant commanders, numbered fleet commanders, and task force commanders
- Capability assessments, experimentation, and future requirements

The program is open to all qualified surface warfare officers in paygrades O1 to O4. Chief warrant officers and limited duty officers may also apply to the program.

Ships and Human Performance: Surface Forces Take Holistic Approach to Sailors, Crew

Training



Human performance company 02X led littoral combat ship crews

in two days of exercise and yoga classes during a workshop in San Diego in late 2021. *U.S. NAVY*

On the surface of it, the idea of training Sailors about nutrition, exercise, fitness, injury prevention, sleep and mental well-being didn't seem like a hard sell. Two days of classroom instruction, workout drills and yoga sessions, all led by professional trainers, gave them a temporary break in their routine aboard ship in homeport at Naval Base San Diego.

The workshops led by O2X Human Performance over the past year are an outgrowth of an innovative program that began in 2021 at Surface Warfare Officers School to teach future ship commanders how to better lead their crews by maximizing their own work performance, physical fitness, mental health and mental readiness. The holistic approach to these programs are among the surface Navy's continuing course changes after investigations into the causes of shipboard mishaps, including collisions and groundings, found commanders and crews plagued by sleep deprivation, stress, fatigue and inadequate training.

The initial series of workshops for ships' crews – supported by Naval Surface Force officials in concert with Naval Health Research Center's Crew Readiness and Watchstanding (CREW) efforts – found that all Sailors benefit from the training and incorporated it into their own work and personal lives.

"We've collected a substantial data. It's loved. Everybody likes it," said Dale Russell, the Naval Surface Force's operational safety and human factors advisor in San Diego.

As of mid-October, 770 Navy personnel have gone through the O2X program since it was incorporated into the Prospective Commanding Officer/Executive Officer courses at Surface Warfare Officer School in Newport, Rhode Island, according to O2X Human Performance, a Scituate, Massachusetts-based company founded by three former Navy SEALs. That includes 440 officers at SWOS and 305 sailors and officers from Naval Surface Forces Pacific ships in San Diego, including destroyer USS Preble

(DDG 88), littoral combat ship USS Manchester (LCS 14) and, more recently, the Blue Crew of USS Omaha (LCS 12).

Buoyed by the positive feedback, Naval Surface Force is weighing the next step and plans to expand its investment across the waterfront by developing a program in-house. Consider it the human equivalent of preventative maintenance measures the Navy long has had in place for its multi-billion-dollar inventories of ships and aircraft.

Preventative Maintenance

It would be “an O2X-like program that is organic to the fleet and is built around firefighting and damage control,” Russell said. “It will give the team something to rally around. It’ll build unit cohesion, solidarity, camaraderie... [and] it’ll give them a context to get into physical shape. This will give them something to train around.”

An ongoing CREW study, into wearables for fatigue management, is helping get “this curriculum in front of as many Sailors, leaders and surface fleet that we possibly can,” said Adam La Reau, a former SEAL and co-founder of O2X Human Performance. Sailors “are excited that the Navy is putting the time into them.

“We’re providing skills-based training. That education, just like with their skills-based training with the jobs that they do every single day, continues,” La Reau said. “Human performance is no different than [training] in their roles as a navigator. They constantly have to learn.”

“This is not something that you provide one time,” he said. Ideally, “they have to be built into their routine, built into their battle rhythms, but also at touchpoints. These are hard installs of education along the way. It could be when a ship is coming out of a maintenance cycle. It could be at Great Lakes, post-A School. It could be periodically when a ship crew change-out happens.”



The 02X classes are an outgrowth of a program that began in 2021 at Surface Warfare Officers School to teach future ship commanders how to better lead their crews by maximizing their own work performance and physical fitness. *U.S. NAVY*
02X's mantra focuses on one making small but important incremental changes of 1% – whether in sleep or nutrition habits, managing stress or exercise routine. Each workshop

wraps up with an all-hands discussion on making that goal a daily reality. "It's not just with the leaders, it's with the entire crew and teaching them about taking ownership," La Reau said.

"It's like everyone's on a team, and you're walking into a locker room every single day and we continue to fill each other up. We find ways as an organization, not necessarily waiting for the CO or the XO or one of the senior enlisted to step up and say something. Everybody has a voice here," he added. "The Sailors have a ton of examples of previous ships and past experiences that may be small things that we could potentially change. We don't have to do it the way we've always done it."

O2X Human Performance is working with Naval Health Research Center over the next year in the CREW study and with the Navy's Center for Security Forces and is talking with aviation and safety commands for potential collaboration in similar vein as the fleet.

"There's quite a bit of appetite and opportunity," La Reau said, noting the training touches on safety, health, wellness, readiness, resilience, retention and maybe recruitment. "There's also a risk-mitigation factor here. It's driving self awareness. It's understanding what your capabilities are, understanding ... how to persevere through challenging times or in the moment to be able to dig into resources to execute at a very high level."

The best part, he said, is "we're seeing these individuals saying, 'I need to make a change. Me being a good leader is definitely tied to taking care of myself and me being a good example. Especially onboard a vessel, onboard a ship. People are emulating what I do and how I live my life. I need to take care of myself, so I can take care of my ship and my Sailors and so I can be the best leader that I can be. And I can do the things that the country has asked me to do.'"

Naval Surface Force and Naval Health Research Center continue to process and analyze feedback and data collected through the workshops' participants who use wearable devices that track sleep, exercise and other information. "The scientific literature is pretty clear: If you exercise, your biophysical response makes you sleep better, which gives cortisol, which makes you feel better. It builds social bonds, which make you feel better, sleep better, exercise better," Russell said. "So, it's a positive feedback loop."

The reality of daily life in the fleet, however, makes physical training extremely hard for many Sailors and crews to sustain, he acknowledged. But Sailors want just that. In safety climate assessments across the fleet, collected as part of the CREW effort over the last two years, "Sailors have voiced: We really want to work out more. We're bummed that we don't have group PT," Russell said. "A very small percentage of the ships even have mandatory PT, because of the nature of the environment they work in. We've realized that a paradigm shift is needed, but that's easier said than done in a large organization like ours."

Naval Surface Force officials, led by Vice Adm. Roy Kitchener, are working to change that. As it develops its organic human performance training, the surface Navy also will roll out a new watchbill software, OWL, designed to help leaders and crews manage fatigue.

"We are right now pilot-testing that on, I think eight ships this fall, currently. If this works out, then we'll start rolling it out to the fleet next year, fleetwide," Russell said. "We are getting ready to rewrite our CREW Endurance instruction to capture that."



Buoyed by positive feedback, Naval Surface Force plans to expand its investment across the waterfront by developing a similar program in-house. *U.S. NAVY*

Wearable Devices

SURFOR also is looking at using wearable devices as “an occupational management” tool, he said, provided they can develop algorithms that work for shipboard life. Trackers such as Fitbit work if one is “walking on terra firma, not on water, which throws off some of the sensors on it,” he said. With 18 months of data collected so far, SURFOR is “putting motion sensors aboard the ships so we can kind of get a feel for how a ship like an LCS bobs in the water as opposed to an amphib, so we can tweak the algorithm based on whatever ship they’re on.

“The plan will be to roll out 55,000 wearables to the entire fleet,” he said, acknowledging the challenge since one-third of a ship’s crew turns over annually. More likely those

devices would be fielded to field it to “key, critical billets,” likely the bridge, engineering and combat information center.

Several months ago, Kitchener allocated \$1 million for the authority to operate “a wireless hub to go on ships and pull the data off the wearables to the ship’s network – CANES – and feed it into OWL,” Russell said. If all goes as planned, that connectivity will be up and running on those ships during exercise Talisman Saber in 2023 “so we can kind of pressure-test it.”

“OWL will give the leadership on the ship that visibility of what’s going on. ... They can break it down by department, watchbill, however they want to slice and dice that data,” he said. Connectivity can be spotty at sea, so they’re looking to push data off the ship and into Jupiter, the Navy’s enterprise data link environment. The combination of OWL implementation and wearables could provided a “check engine,” light, for example, for someone who didn’t sleep well at night.

“That could the touchpoint” for a leader to then ask them to go see medical or ask about their sleep, Russell said. “So no matter – whether you have COVID or whether you haven’t slept well or you had a fight with your loved one or you’ve got an STD – it’s your heart-rate variability and deviation from that. ... We’re just trying to trigger that touchpoint and say, something’s wrong. Let’s go see what might be wrong.”

Capt. Shea S. Thompson



Capt. Shea S. Thompson. U.S. NAVY

A native of San Marcos, California, Thompson received his commission from the U.S. Naval Academy in 1997. His sea tours included USS George Philip (FFG 12), USS Cape St. George (CG 71), and USS John Paul Jones (DDG 53). He served as executive officer and then commanding officer of USS Chafee (DDG 90).

Subsequently he commanded USS Bunker Hill (CG 52).

Thompson's tours ashore include Naval Postgraduate School where he earned a Master's Degree in Financial Management; Ballistic Missile Defense Syndicate Lead at Tactical Training Group Pacific; Ballistic Missile Defense Training Officer at U.S. 3rd Fleet; Joint Interface Control Officer at Headquarters U.S. European Command (J3); C4ISR Operations Branch Chief at U.S. Strategic Command, Joint Force Component Command Global Strike (J6); N8/9 Branch Head Headquarters Surface and Mine Warfare Development Center.

Thompson discussed the roles of Surface Development Squadron One with Senior Editor Richard R. Burgess. Excerpts follow.

How did your background prepare you for your current command?

THOMPSON: Actually, my background prepared me quite well. Following my command tour on USS Chafee, I had the privilege of being assigned to the Surface and Mine Warfighting Development Center [SMWDC] where I served as N8/9 Branch Head for Future Requirements & Resources and Experimentation from 2016 to 2019. During that time, I had significant exposure to the acquisition and budgeting process as well as requirements generation. SMWDC's Warfare Improvement Programs fell under my portfolio for those three years. We produced the surface fleet's Integrated Prioritized Capabilities List for surface warfare Integrated Air and Missile Defense, Surface Warfare, Amphibious Warfare and Mine Warfare. That experience really benefited me as I became intimately familiar with the capability gaps across all those mission areas.

I've worked with a number of stakeholders to include the technical community on how we would get at closing those gaps and back in 2017, we recognized unmanned systems had a role to play in closing a number of gaps across those mission areas. The beauty was, as I also wore the N9 hat, I was able to partner with industry and experiment with new and innovative

capabilities that helped close those gaps. For example, I personally worked closely with industry on the first-ever remote operation of Sea Hunter [unmanned surface vessel] from a surface combatant to validate that capability. So, the learning curve of employing and operating unmanned platforms with and from manned surface forces wasn't that steep for me as I came into this job.

In fact, when I took command of SURFDEVRON, I was encouraged by the progress I saw had been made since my time in SMWDC and my time taking command here. We've come a long way since 2017 [with] the current and future capabilities and possibilities that exist with manned and unmanned teaming, how that will enhance the lethality of the surface force going forward.

How many personnel comprise your command?

THOMPSON: On staff here at SURFDEVRON I have 13 Officers, 58 enlisted, and one civilian permanently assigned. USS Michael Monsoor (DDG 1001) and USS Zumwalt (DDG 1000) each muster about 180 personnel. Obviously, I'm eagerly awaiting delivery of USS Lyndon B. Johnson (DDG 1002) when that day comes. USV Division 1 was formally established during the SURFDEVRON 1 change of command ceremony on May 13 and is now commanded by CDR Jerry Daley. That squadron has actually grown to 103 Sailors comprised of 12 officers and 91 enlisted. Those folks are there to provide dedicated support to USV operations.



Cmdr. Jeremiah Daley, commanding officer, Unmanned Surface Vehicle Division One, Secretary of Defense Lloyd J. Austin III and Capt. Shea Thompson, commodore, Surface Development Squadron One, tour USV Sea Hunter at Naval Station Point Loma, California, Sept. 28. *DOD / Chad J. McNeeley*

How has the Chief of Naval Operations' new Navigation Plan influenced the focus of your work?

THOMPSON: The CNO's Navigation Plan is the guiding framework for my efforts for USV experimentation and fleet integration. In there, it talks about [how] unmanned surface platforms will increase the fleet's capacity for distribution and expand our intelligence, surveillance and reconnaissance advantage, add depth to our missile magazines, supplement logistics, and enhance fleet survivability. This transition will gradually rebalance the fleet away from exquisite manpower-intensive platforms for smaller, less expensive yet lethal platforms. The capacity goal, if I remember correctly, is approximately 150 USVs.

That plan also emphasizes the importance of the

manned/unmanned teaming in future fleet operations. We're really getting at that. For example, one of the concepts we're working on is further distributing the force through manned and unmanned teaming. Your typical surface action group, or SAG, consists of three destroyers. Right now, we're trying to reimagine that traditional SAG. Instead of three manned DDGs making up that SAG, we're exploring options to have one DDG as the center of a SAG teamed up with a number of unmanned surface vessels that would be one SAG. That also frees up the other two destroyers to create other manned/ unmanned SAGs and further distribute the force and enhance the capability and lethality of those SAGs as well. Honestly, I envision a future where this is the standard SAG construct and my team here is moving out full speed on proving out that concept.

What kind of experiments have you been working on with the Zumwalt-class DDGs?

THOMPSON: I would say that for the class, it's been less about experimentation and more about class capability validation. That's not to say we haven't been leveraging those platforms for experimentation efforts.

I know you're aware that Zumwalt is currently employed in the Indo-Pacific region, and she is working on fleet integration and participation in fleet exercises. We're pushing her forward to learn how the ship can best operate and integrate with other fleet assets and how this integration is done at the tip of the spear. You can only do so much learning pierside. It is important to accelerate her introduction into fleet exercises and this learning is going to inform future employment of the class. Prior to this employment, Zumwalt went through your standard workups for employment, conducting basic training certification events and participating in the Surface Warfare Advanced Tactical Training, otherwise known as SWATT.

Earlier this year, Monsoor participated in an ASW

[antisubmarine warfare] exercise known as SCC Mini-wars, and she did that with coalition partners and the USV Sea Hawk in the Hawaiian op area. Monsoor also recently participated in the first RIMPAC exercise for the class where, again, she focused on force integration and continued her work with unmanned vessels in that exercise.

Do you expect the Zumwalt DDGs to return to your squadron after their modification with the Conventional Prompt Strike capability?

THOMPSON: They're going to come back to me following deployment and they're going to be with me for the foreseeable future. The future plans for the class remain in work. We are gathering data right now regarding Zumwalt's current deployment and Michael Monsoor's RIMPAC support. We're going to leverage that data and lessons learned on any future deployments to include how to maintain and sustain the platform in an operational environment when deployed forward. I will say the best way to continue learning and validating the existing capabilities and TTPs [tactics, techniques and procedures] for the class is to keep them underway and employed, whether that's with 3rd Fleet or 7th Fleet.

What kind of things are you doing with the two Overlord USVs and what are you planning in the future once the other two Overlord USV are on strength?

THOMPSON: All four of the USVs that I own right now were involved in RIMPAC: Sea Hunter, Sea Hawk, Nomad and Ranger. Their involvement in RIMPAC really helped determine and define how the capabilities of the unmanned fleet will integrate with our manned ships. RIMPAC was an excellent arena to showcase the USVs' usefulness in electronic warfare, data collection and how warships can leverage USVs in the high-end fight. In every exercise we do from SCC mini wars to SWATT to RIMPAC, the objectives being accomplished form the building blocks of realizing the manned/unmanned concept. A USV tracking a

submarine using its ASW payload or providing target-quality tracks to a surface combatant – think EW [electronic warfare] payloads, sensor suite, etc. – we’re proving the USV is value added in providing our warships with more flexibility in meeting the mission.

How about your experimentation with Sea Hunter and Sea Hawk USVs?

THOMPSON: They each bring different payloads and capabilities. And so, we’re working with those to further validate our concepts. For the broader unmanned campaign plan, Surface Development Squadron One is developing those concepts in the playbooks, in the TTPs and we’re doing that with other stakeholders. We’re not doing that in a vacuum. I see those concepts and TTPs playing in the potential surface battles of tomorrow. The prototype USVs are being heavily leveraged to validate these concepts and TTPs. When the program of record USV does come online, we can quickly transition it into fleet operations. The goal to me will be for them to be embedded into fleet operations to further distribute the force, provide manned warships with target quality tracks and, also, for adjunct magazines.

One important note I think is worth mentioning is we’re focused on autonomous USVs with a man-on-the-loop technology. That means that even though a USV may be in an autonomous mode while conducting a mission, it is always being monitored – including its health status – and at any time the man-on-the-loop, whether on board a ship or shore, can take direct control as required.

Are there any specific accomplishments you want to mention with regard to the USVs or the Monsoor in RIMPAC?

THOMPSON: Sea Hawk was out during the SCC Mini-Wars and did excellent work. She validated the value of her ASW payload. Not just here at the Echelon 5 level but all the way into the

Echelon 2 level. In the near future, we're participating in a fleet exercise that we'll explore how that capability supports our expeditionary capability and the Marine Corps' efforts on that front, too. The big ship-to-shore movement of USVs' C2 [command and control] nodes, officially we're working with PMS-406 to gain unmanned, unescorted, OTH [over the horizon] proof-of-concept testing.

For Monsoor, RIMPAC was really a test of the operational concepts and to gather insights about further employment for the class. She flexed her capabilities across all mission areas to include SUW, ASW, and air defense. She also conducted an experiment that consisted of launched employment and recovery of a UAV to enhance maritime surveillance. All four USVs that participated in RIMPAC demonstrated how they fit into the composite warfare commander concepts either attached to a destroyer or sent out on individual missions. It really helped to determine how the capabilities of the unmanned fleet integrate with our manned ships, with focus on ASW, EW, surface warfare, interoperability and transfer of control of those USVs between manned ships and ashore or vice versa.



Then-Cdmr. Shea Thompson gives remarks during the Surface Development Squadron One change of command ceremony in May. During the ceremony, Thompson relieved Capt. Jeffery Heames as commander Surface Development Squadron One. *U.S. NAVY / Mass Communication Specialist 2nd Class Diana Quinlan*

With the Navy developing the Next-Generation Destroyer (DDG(X)) and the Large USV, are you actively engaged in providing feedback for development of those vessels?

THOMPSON: Yes. As we worked fleet introduction for DDG 1000 class and the USVs, there are a number of lessons learned that can be applied to both the DDG(X) and LUSV, not just from a capability validation perspective but also from a maintenance and sustainment perspective. And so, those lessons are being shared across the enterprise. The LUSV program is in the prototyping stage while we develop and demonstrate the technology for critical subsystems, through a comprehensive land-based and afloat test program across HM&E [hull, mechanical and engineering], C2, autonomy, perception and integrated combat system aspects prior to moving into serial production. By the end of 2023, we expect to have seven USV prototypes

operating under the direction of Surface Development Squadron One and that's in partnership with PMS-406 and the USV Program Office.

USVs are planned to be the high-endurance adjunct [missile] magazine based on commercial designs built around the common missile launcher and combat systems. The initial capability will be to support both surface warfare and strike warfare, but I anticipate that being expanded and air defense as well. The six LUSV studies contracts were awarded in September of this year. Those contracts are going to help refine specifications and requirements to inform future LUSV detail design and construction.

What advances have you seen in unmanned operations technology and sustainment since your squadron was established?

THOMPSON: Since Surface Development Squadron One was established, the advances I am most encouraged by are, we've got much more confidence in safe autonomous operations. We've been out and operating with these platforms for a long period of time. That resiliency really translates to increased on-station time, our abilities to control from ship or shore or, again, transfer control from ship-to-shore and vice versa. The capabilities of the various payloads for USVs provide the operators and leadership the confidence that manned/unmanned teaming does, in fact, enhance the lethality of the surface force.

I really believe it's a game-changing concept, not only for the future force structure but from a tactical, operational and strategic perspective. Those are the big differences I see from back in 2017 when I was just proving out that I can actually operate a USV from a destroyer to where we are today. I'll tell you that with the USV prototypes, we're rapidly expanding their participation in the exercises as well as conducting independent operations such as a recent missile test from an Overlord USV. The maturing fleet experimentation

and testing program only serves to increase the fleet's knowledge on USV integration and operational and infrastructure support requirements.

What do you see as the remaining challenges of deploying, operating, and sustaining USVs?

THOMPSON: Well, you know, we're going to continue working to make the USVs more reliable and sustainable through experimentation, lessons learned, testing, evaluation and increased employment. You can't learn when those things are pierside, so we got to keep pushing them out there. Every USV underway hour provides us additional data and learning opportunities that support the maturation of economy and reliability. I said that one of the encouraging things was an increased confidence level and the safe autonomous operations. We still have some work to do in that area. Obviously, COLREGS [International Regulations for Preventing Collisions at Sea 1972] remains a focus area for the program. Today, the autonomy and reliability conduct vessel avoidance for 1v1 [one versus one] COLREGS encounters. However, we're still got some work to do in complying with the full scope of COLREGS. That's the hierarchy of vessels, low visibility compliance, autonomous lights, autonomous sound signals, etc.

Making Space for Women Aboard Coast Guard Cutters Helps with Retention, Careers



BM3 Hailey LaRue of the U.S. Coast Guard Cutter Wire in Saugerties, New York, in 2021. LaRue was able to serve on the Wire after Senior Chief Petty Officer Ramona Mason worked with service officials to create extra rack space. *U.S. COAST GUARD / Daniel Henry*

On June 1, the Coast Guard made history with the ascension of Adm. Linda Fagan to its top position as commandant, relieving outgoing commandant Adm. Karl Schultz. She took over as the first woman to head the Coast Guard and the first woman to head any U.S. military service.

Fagan arrived at that position at a time when there are still a few Coast Guard cutters afloat where women can't serve due to a lack of rack space. That's an issue the service has been working to eradicate for years and is on the cusp of doing so, a move expected to help boost women's careers in the service and increase retention.

Of the service's approximately 260 cutters, only 50 are male only, according to the Coast Guard, and those cutters are slated to be replaced. All new cutters coming online are able

to accommodate male and female crewmembers.

“With the modernization of our fleet, that will all be taken care of. All the newer cutters are being built with mixed crews on board in mind,” said Senior Chief Petty Officer Ramona Mason, the enlisted women afloat coordinator at Coast Guard headquarters in Washington, D.C. “All these new ones are already mixed-gender berthing.”

Even before all the cutters are ready, “We have gotten extremely creative, to create more opportunities for female enlisted members to serve underway,” she said.

“With all these creative ways that we have come up with, our afloat numbers for enlisted women afloat has gone up. We have way more females serving on afloat platforms now than we ever did before, and the numbers have gone up every year,” Mason told Seapower. “And it’s all because they are choosing, they wanted to go afloat. We’re giving them the opportunities now.”

“Today more women are remaining in our service longer,” Schultz said in his annual State of the Coast Guard speech in 2022. “Today we have 375 more women in the service at the critically important E6/E7 and O-4 mid-grade leadership ranks than we had five years ago in 2017... that’s a 28% increase of women at these mid-career pay grades, and a trend that outpaces their male counterparts.”

He also said the service is “making progress” on the acquisition of 30 Waterways Commerce Cutters, tenders that will maintain 28,000 aids that mark more than 12,000 miles of navigable inland waterways.

“And, for the first time in history, our entire inland fleet will be able to accommodate mixed-gender crews, providing all junior enlisted members these unique afloat experiences,” Schultz said.

President Joe Biden spoke at the Coast Guard change of command

ceremony when Fagan took the service's top spot.

"When Admiral Fagan commissioned in 1985, only five years after the first women graduated from the academy, she was one of just 16 commissioned female ensigns – only 8 percent of her graduating class. She was the only woman aboard Polar Star for the first set of orders," Biden said.

"Currently, the Corps of Cadets at the Academy – more than 1,000 cadets strong – 40 percent are women.

Forty percent are women."

Even as more women enter the service, keeping them there can be a challenge.

A recent study by the RAND Corp., "Why Do Women Leave the Coast Guard, and What Can Be Done to Encourage Them to Stay?" listed a variety of issues that answered the title question, among them the lack of berthing.

"Female focus groups cited issues with advancement, including the perception of bias in subjective evaluations, as influencing decisions. Furthermore, participants noted that berthing restrictions for women can limit opportunities," the study says.

Mason said it's important to provide as many afloat opportunities as possible to female Coast Guard members, as it can affect their career.

"Certain rates have requirements that you have to have a certain amount of years afloat, so it is a requirement for advancement. It's a requirement for certain ratings or certain competencies that you can only earn afloat," she said.

And while anyone in the Coast Guard can go afloat at any point in their careers, and are encouraged to do at least one tour afloat, "in order for advancement, in certain rates you have to receive the afloat time at a certain point in your career,"

she said.

Making even smaller Coast Guard cutters able to accommodate mixed crews has other benefits that can aid in retention, Mason said.

“We’ve opened up a lot of the smaller cutters with enlisted females, which have always been in higher demand for the females due to the shorter underway time and the family life you can have when you’re only away for two to three weeks versus two to three months,” she said. “With us opening the smaller space to females, it has helped with retention, because they now see they can get under way on small platforms and not be such a family burden.”



Senior Chief Petty Officer Ramona Mason has worked to find rack space aboard Coast Guard cutters to enable women to serve on them. *U.S. COAST GUARD / Richard J. Kolko*

Making Room

Part of Mason's job is to find room on Coast Guard cutters for women even if they aren't designed with separate living quarters. She does that by sometimes repurposing space.

In a 2021 post to the Defense Visual Information Distribution Service, Chief Petty Officer Ryan Burger recounts how he got a call from Mason after he was appointed officer in charge of the Coast Guard Cutter Wire, a 65-foot ice-breaking tug. She asked if he could accept a female Boatswains Mate Third Class. He said yes. When she asked if he could accept another female as well, he said they had to do some work.

They ended up removing a convertible fold-out rack that had been used for executive petty officers and revamping it to hold two racks. They then proceeded to make a similar change to two other 65-foot cutters operated by Sector New York.

"We've assigned women to these cutters in command cadre positions in the past, however, assigning a third-class boatswains mate aboard is new," Mason told writer Daniel Henry. "For the first time, a woman in a non-command position has received orders to the Coast Guard Cutter Wire."

Petty Officer Third Class Hailey LaRue, a boatswains mate who was then able to serve on the Wire and reported there in the summer of 2020, said the move broadened the learning opportunities available to her, which wouldn't have been possible on the 87-foot cutter she had served on previously.

"I knew I wanted to go afloat out of A-school to get rated sea time so that it would help me in my future career," LaRue said. "It's smaller and it's a tight knit crew. There are tons of learning opportunities on both deck and engineering side so you'll become a better-rounded individual in your [rating]. There are opportunities you'll get here that you won't necessarily get on a bigger cutter where you're focused on a specific area."



Vice Adm. Linda L. Fagan is promoted to the rank of admiral during a ceremony at Coast Guard Headquarters, June 18, 2021. Fagan is the Coast Guard's first woman to serve as a four-star admiral. *U.S. COAST GUARD / Lt. j.g. Pamela Manns*

Cmdr. John Singletary, Chief of Waterways Management for Sector New York, told Henry, "providing this mixed gender berthing gives those members the opportunity to start their careers out early. They get to lead as a BM3 or a BM2. Eventually that path will lead to XPO positions on the new waterways commerce cutters that are being commissioned in late 2024."

Not Just Afloat

The need to create berthing space for female Coast Guard members isn't just for the water. In late September 2021, Coast Guard Station Morro Bay in California, part of Sector Los Angeles/Long Beach, made such an addition, according to the Coast Guard.

The station is home to 27 Coast Guard members and two 47-foot

motor life boats. The station constructed a one-story, 806 square foot addition to the existing facility, creating room for up to six additional crewmembers and allowing overnight duty crews to be made up of men and women.

Women had been assigned to Morro Bay previously, but couldn't always be accommodated for some of their duties due to a lack of berthing.

"We needed a dedicated accommodation for [women] and we now have that with the building expansion," Petty Officer 1st Class Joshua Sheppard said in a My CG blog post. Women "can now be completely integrated as a member of the unit without being excluded from missions or opportunities and without posing a significant burden to the operational readiness."

Mason wasn't part of that effort – her duties extend only to women who serve afloat – and said the part of her job devoted to finding female berthing is coming to an end as the Coast Guard continues its modernization.

"The coordination part will go away, but the advocacy for women afloat will stay. My job is somewhat more transitioning into a women afloat career counseling position as well," she said.

"I do year-round career counseling with all the females in the Coast Guard that are interested in afloat assignments," working on resumes and timetables for them to go afloat, "when should they get underway, when do they have to get underway.

"So, the counseling part will stay around for the enlisted women of the Coast Guard."

Hawaii-based Coast Guard Units Conclude RIMPAC 2022 Participation



A U.S. Navy Sailor directs Navy and U.S. Coast Guard Sailors to a U.S. Navy MH-60R Seahawk helicopter during flight operations during Rim of the Pacific 2022. *U.S. COAST GUARD / Petty Officer 3rd Class Taylor Bacon*

PEARL HARBOR – Four Hawaii-based Coast Guard units concluded operations contributing to the largest Coast Guard participation in the history of RIMPAC and returned to service of the residents of Hawaii and the Pacific region on Aug. 4, the Coast Guard 14th District said in a release.

U.S. Coast Guard Cutters Midgett and William Hart, the Pacific Dive Locker, and Maritime Safety and Security Team Honolulu partnered with military members from Australia, Peru, Republic of Korea, Canada, France and Japan throughout the in-port and

at-sea portions of the Rim of the Pacific 2022, which ran from late June to early August. The exercise marked a series of “firsts” for Coast Guard participation.

Coast Guard Cutter Midgett conducted a broad spectrum of operations with the Japan Maritime Self Defense Force Ship Izumo, the USS Chafee, USS Gridley, French Navy Frigate FS Prairial, and Peruvian Navy BAP Guise. The combined team of Midgett, William Hart, Izumo and USS Essex completed RIMPAC’s first mass rescue operation, successfully partnering to find, recover and provide medical assistance to 10 simulated people in the water.

Following RIMPAC, Midgett’s crew will depart on a western Pacific patrol to build on the regional partnerships demonstrated here and conduct international training and fisheries law enforcement. William Hart’s crew will conduct necessary maintenance, complete training, and resume their role as a standby search-and-rescue asset for vessels in distress in the waters around Hawaii, a role it shares with the other two fast response cutters in Honolulu, Cutter Joseph Gerczak and Cutter Oliver Berry.

This year’s RIMPAC featured the first Coast Guard-led humanitarian assistance and disaster relief exercise. The exercise tested reopening a harbor that had been struck by a simulated hurricane. A boat crew from Coast Guard MSST Honolulu partnered with underwater survey teams from the U.S. and Royal Australian Navies to conduct underwater scans of Honolulu Harbor to identify hidden hazards. After that, divers from the Coast Guard Pacific Dive Locker collaborated with divers from the U.S. Army and Republic of Korea Navy to remove the hazards and practice maintaining aids to navigation underwater.

Following RIMPAC, the Pacific Diver Locker will focus on training and preparations for annual safety inspections and provide support to local Coast Guard assets and aids to

navigation missions.

“This was an incredible opportunity to work alongside our partners in the Blue Pacific to strengthen our relationships,” said Coast Guard 14th District Commander Rear Adm. Michael Day. “Our ability to come together for RIMPAC 22, in person, has helped reconnect within and beyond the region. It is through those connections and relationships that we will move forward to bolster impactful engagement opportunities.”

Q&A: Rear Admiral Ronald J. Piret, Commander, Naval Meteorology and Oceanography Command



Rear Adm. Ronald J. Piret. *U.S. NAVY*

Rear Adm. Ronald J. Piret is a native of Chico, California, and graduated in 1993 from the U.S. Naval Academy with a Bachelor of Science in Physical Oceanography. He holds master's degrees in oceanography and meteorology from the Naval Postgraduate School and national security and strategic

studies from the Naval War College, where he graduated with distinction.

Upon commissioning, Piret served in various operational positions, most notably aboard the Royal Navy's HMS Herald as the Operations Officer, and the USS Abraham Lincoln (CVN 72), where he served as the Meteorologist and Oceanographer during a deployment in the Western Pacific.

Ashore, he served as forecast duty officer at Naval European Meteorology and Oceanography Center, Rota, Spain; tactical hydrographic and meteorological officer at the Royal Navy School of Maritime Operations, HMS Dryad, Southwick, England; associate chairman of the Oceanography Department at the U.S. Naval Academy; deputy director of Operations for Expeditionary Warfare, Naval Oceanography Operations Command; executive officer, Naval Oceanography Operations Command; deputy assistant chief of staff for Requirements, Programs and Assessments, Commander, Naval Meteorology and Oceanography Command; Arctic affairs officer for the Oceanographer of the Navy onboard the Chief of Naval Operations Staff; fellow to the Naval Command College Class of 2017, Naval War College's Senior Officer International Program; executive officer, Naval Oceanographic Office; and chief of staff, Naval Meteorology and Oceanography Command.

Piret commanded the Provincial Reconstruction Team Uruzgan in southern Afghanistan working alongside multinational and interagency partners in support of Operation Enduring Freedom. Additionally, Piret commanded the Naval Oceanographic Office at Stennis Space Center, Mississippi overseeing the operation of the Navy's six T-AGS survey vessels.

Piret assumed command of Naval Meteorology and Oceanography Command and simultaneously became the Oceanographer of the Navy, Navigator of the Navy, and Hydrographer of the Navy in July of 2021.

Piret discussed the missions of Naval Meteorology and Oceanography Command with Senior Editor Richard R. Burgess. Excerpts follow.

With the change in fighting land wars in Southwest Asia to the competition with Russia and China, how does that shift affect focus of the Naval Meteorology and Oceanography Command?

PIRET: Naval Oceanography operates simultaneously at the strategic, operational and tactical levels of warfare in every theater around the globe. We pride ourselves in our ability to characterize the battle space and then predict changes in the environment over time. As part of information warfare, we can analyze where the potential hot spots will occur and position assets accordingly. Certainly, wherever the fleet goes, we go. But often have already been there. In terms of fleet operations, whether it be in the Western Pacific or in the North Atlantic, we're an integral part of every warfighting kill chain, whether it is the submarine force, the surface force, special warfare forces or the aviation force.

With current events, we do see some uptick in requests for operational support, and we are making sure that those carrier strike groups or those combatant commanders have the best understanding of the battlespace's environmental conditions so they can best posture or employ their assigned forces.

Are the Distributed Maritime Operations and Expeditionary Advanced Base Operations concepts changing the focus and missions of Commander, Naval Meteorology and Oceanography Command?

PIRET: We've been thinking about Distributed Maritime Operations for a while now and adjusting our own alignment to better deliver meteorological and oceanographic effects to the fleet. We recently invested in and realigned some of our Sailors to stand up two commands, Strike Group Oceanography Team Norfolk and San Diego. Those commands deploy Sailors

ready to meet DMO requirements.

With this realignment, Naval Oceanography is well positioned for distributed naval operations. Our teams of Sailors complete workups with carrier strike groups and amphibious ready groups, and they deploy with those forces. At the same time, we embed Mobile Environmental Teams on independent deployers to deliver specialized environmental information. Whether full SGOT teams onboard aircraft carriers or small teams onboard independent deployers, our Sailors serve as the onboard subject matter experts who work within the planning process and leverage our reach-back capability and the deep knowledge base we have at the Naval Oceanography Operations Command (Anti-Submarine Warfare Reach-back Cell and the Electromagnetic Maneuver Warfare Reach-back Cell). Naval Oceanography's Reach-back Cells enable the deployed teams to bring full weight at what naval oceanography to the fight.

CNMOC supports groups such as explosive ordnance disposal (EOD), mine countermeasures and special operations forces. What kind of support do you provide them?

PIRET: When it comes to the expeditionary warfare – whether that be mine-countermeasures, EOD or special operations – we're really talking about assured access and ability to maneuver ingress and egress. We have a deep understanding of the nature of those missions, and our Sailors and Officers are well-trained and deliver critical information to assure success. It's really important to those forces to understand the conditions in which they're operating. They also need to understand what changes will occur during their mission and how to egress safely.

We have a wide variety of deployable Sailors who work alongside the special warfare, EOD and the mine-countermeasures groups. We have Sailors who are specifically trained in those missions and have a deep understanding of those mission requirements. We also have reach-back capability

with our team in the Warfighting Support Center at Stennis Space Center where remote-sensing capabilities are leveraged with other partners within the information warfare community to highlight and mitigate challenges in various areas of operation.

It's not well known that we have the only operational geology lab in the Navy. We're experts in analyzing bottom sediment and how that sediment moves, which is critically important when it comes to understanding how a mine on the seafloor would be best detected if it's been buried.

Additionally, our Sailors are trained in the operational employment and piloting of unmanned underwater vehicles with side-scan sonar onboard, and able to map the ocean floor or in harbors as well and identify objects. Our Sailors can also access a robust historical database, and utilizing change detection algorithms, they can direct EOD units to areas where new objects can be investigated, and if needed, neutralized.



Piret discusses maritime strategy and cooperation with Denmark

Rear Adm. Martin la Cour-Anderson, Commander, Joint Arctic Command, at "The Geostrategic Importance of the Arctic" panel during the Sea-Air-Space Exposition. *U.S. NAVY / Mass Communication Specialist 2nd Class Kyleigh Williams*

The change in the Arctic with the ice melting and the interest by the Navy in doing more operations up there, is that changing your tasking a lot, or is it something you pretty much always done?

PIRET: As an Arctic Nation, the Navy has maintained a consistent presence in this challenging battlespace. Our presence and capability are regularly demonstrated at the bi-annual exercise, run by the Arctic Submarine Laboratory called Ice Exercise, or ICEX. We completed the most recent ICEX in March 2022.

Often with change, comes new opportunity and risk. The Arctic is no different. As ice in the high latitudes recede, opportunities to access natural resources, fisheries and more expeditious trade routes are starting to become the new normal. Part of the Navy's mission is to maintain freedom of the seas, which includes the Arctic.

At the forefront of monitoring and tracking worldwide ice conditions is the National and Naval Ice Center [USNIC]. In partnership with NOAA [the National Oceanic and Atmospheric Administration] and the National Weather Service, specifically the Ice Services Branch of the Ocean Prediction Center, USNIC observes, analyzes and forecasts ice for the better part of the last 65 years. This highly skilled team provides commanders the information they require to successfully operate in the harshest environment on Earth.

With eight Arctic nations in the world and a global economy, maintaining a peaceful and free Arctic that conforms to international rules-based order is not possible without our domestic and international partnerships. Internally, we partner with the US Coast Guard, NOAA/NWS operating in the

Arctic in order to better understand this environment. Internationally, we have strong partnerships with the Canadian Ice Service, Danish Meteorological Institute, Sweden, Norway, Finland, Denmark, Canada, and New Zealand and others through organizations such as the North American Ice Service, the International Ice Charting Working Group and the International Cooperative Engagement Program for Polar Research. These organizations, amongst others, are key to setting and maintaining international standards, collaborating to best understand this complex and rapidly changing environment, and creating the most effective conditions for mariners to safely operate.

CNMOC is one of the largest operators of unmanned undersea and unmanned surface vehicles in the world. How many of those vehicles do you operate and what do you do with them?

PIRET: Naval Oceanography maintains and operates an inventory of nearly 200 unmanned underwater vehicles. These unmanned vehicles range from deep sea 6,000-meter vehicles to ocean gliders that collect data within the water column to remotely operated surface vessels, but they all aid in enhancing safety of navigation for our fleet.

Our team has developed deep expertise in unmanned operations over the last two decades. We've been using unmanned systems not only to sense the ocean and collect data, such as conductivity, temperature, and depth – which we can then turn into sound propagation models in the ocean – to surveying the ocean floor collecting boundary conditions, not only for navigation purposes, but also to use in modeling ocean dynamics for safe fleet operations. And then, of course, we have some experience in unmanned aerial vehicles as well, but not to the extent we have in unmanned surface and underwater vehicles. The Fleet Survey Team uses some unmanned surface vehicles to then chart harbors and bays in shallow water.

Many of the UUV systems we actually command and control from

our Glider Operations Center headquartered at the Naval Oceanographic Office at Stennis Space Center. One of the lessons we have learned over time, of course, is with unmanned vehicles, you really need to understand the environment to operate them successfully. That is something that we've been able to help the broader Navy implement in their operations as well.

You're adding another Pathfinder-class T-AGS oceanographic survey ship to the fleet. Some of those are around 20 years old. Do you see any need to recapitalize the T-AGS fleet in the foreseeable future?

PIRET: Certainly, the Chief of Naval Operations has highlighted the requirement for T-AGS vessels in his testimony. We are looking at what does the next class of survey vessels need to meet current and future fleet requirements.

Our current Pathfinder-class vessels remain world-class military survey ships. We have reinvested in them throughout their service lives. They have state-of-the-art survey equipment ranging from deep-water multi-beams to sub-bottom profilers and moving vessel profilers, so they can do a broad range work. But we are looking at, what does the next class of ship need to address to encompass, to be more versatile and better integrate unmanned systems into those vessels?

One of the requirements that we're looking at in the next class is optionally manned hydrographic survey launches. We need the ability to operate fully manned hydrographic survey launches deployed from a T-AGS vessel and then shift to remotely operated survey launches capable of full spectrum surveys from deep-water to littoral.

Through experience, we've also refined our ability smoothly shift from a deep-water bathymetry mission to operating unmanned underwater vehicles in ports in a relatively quick

fashion as well.



Piret congratulates AGC Megan Morehouse following the 2021 U.S. Navy Chiefs pinning ceremony at the Naval Construction Battalion Center in Gulfport, Mississippi, Nov. 19, 2021. *NAVAL METEOROLOGY AND OCEANOGRAPHY COMMAND / Lt. Bobby Dixon*
The latest Pathfinder T-AGS, USNS Maury, and the next one being built have moon pools for UUV operations. Is that working out well?

PIRET: Yes. We've learned a lot of lessons with the development of the Maury and we're continuing to improve on that design. With the new T-AGS 67, we're looking at what that deployment system needs to achieve, as some UUVs have gotten a little bigger and we've increased their mission time and been able to integrate more types of sensors. That seems to be ever evolving but there's a lot of potential there.

How does CNMOC and NOAA divide up oceanographic work between the two organizations?

PIRET: NOAA is charged with the hydrographic surveys for the

nation in U.S. territorial waters. The Navy is charged with the military surveys and produce charts in in partnership with the National Geospatial-Intelligence Agency in satisfying the Defense Department's global safety-of-navigation requirement. Those are the different roles and responsibilities between NOAA and the Navy, but we really do have a tight working relationship in terms of the survey standards, so when it's appropriate, data as well as improvements in technology can be shared. Also, we cooperate in the international venues and we're part of a number of commissions to help build capacity with partners across the globe.

But that's not where our partnership with NOAA ends. We've actually had a longstanding partnership in terms of data exchanges that extends to our work in atmospheric modeling as well as unmanned systems. Over the past several years, we've actually been collaborating in the deployment of gliders to measure heat content in the ocean and do a better job in modeling hurricane intensification along the U.S. East Coast as well as the Gulf Coast. That's really been a fantastic relationship.

CNMOC and your warfare specialty have been part of the information warfare community more than a decade now. Has that integration gone well, and do you see it having a multiplying effect on the service you give to the fleet?

PIRET: Integrating the information warfare skills sets has improved the lethality of the fleet. Frankly, with better understanding the battlespace, we reduce uncertainty and enhance the fleet's ability to maneuver effectively in the physical environment. And so, we're really increasing the effectiveness of those independent Information Warfare capabilities by bringing them together to more accurately and completely define the state of the battlespace and predict how it will evolve over time. This predictive capability improves weapons system employment our can better assess an adversary's weapons systems ability to effectively operate below, on, and

above the sea. This is where information warfare can increase our fleets' lethality.

Integrating information warfare teams further left in the Navy kill chains, we effectively reduce uncertainty in the combatant commanders' decision space regarding when, where and how they may most effectively employ forces.

Q&A: Rear Adm. Joseph A. DiGuardo Jr., Commander, Navy Expeditionary Combat Command



Rear Adm. Joseph A. DiGuardo Jr. U.S. NAVY

Rear Adm. Joseph A. DiGuardo Jr. serves as commander, Navy Expeditionary Combat Command. A native of Fallston, Maryland, he received his commission and graduated from the U.S. Naval Academy in 1991 with a Bachelor of Science in history. He commenced explosive ordnance disposal training in February

1995. He also holds a Master of Science in national security strategy from the National War College. He is a designated EOD officer with qualifications as a special operations officer, master EOD technician, surface warfare officer, naval parachutist, basic diving officer and combat craft patrol officer.

DiGuardo's sea duty and operational assignments include officer in charge, Special Boat Unit 12; auxiliary and electrical officer, USS Frederick (LST 1184); OIC, EOD Mobile Unit 8 Detachment, Bahrain; special projects officer, Joint Special Operations Command; executive officer, EOD Mobile Unit 2; deputy director, Counter Improvised Explosive Devices Task Force, U.S. Central Command; commanding officer, EOD Mobile Unit 11; and commodore, Navy Expeditionary Combat Forces Central, Task Force 56, where he was made an honorary chief petty officer. He has completed eight combat deployments in support of Operations Enduring Freedom, Iraqi Freedom and commander, U.S. 5th Fleet.

His shore assignments include OIC, Navy Counter IED Center of Excellence, Joint IED Defeat Organization; director, Navy Warfare Group, OPNAV N515; branch head, Navy Expeditionary Combat, OPNAV N957; vice deputy director, Global Operations (J39), Joint Chiefs of Staff; and director, Countering Weapons of Mass Destruction Fusion Cell, U.S. Special Operations Command.

DiGuardo responded to questions from Senior Editor Richard R. Burgess.

How is NECC affected by the end of U.S. participation in the war in Afghanistan and reduction of presence in Iraq and Syria?

DIGUARDO: There are really two sides to this coin. First, for things like force design and force employment, we're taking a look across the entirety of NECC to ensure we're adjusting our

force as necessary to continue operating in support of integrated all-domain American naval power. Adaptability has always been a key component of our expeditionary forces, and it's one of the main reasons our men and women are so good at what they do. As the big picture shifts and our mission sets change, we're being very calculated and deliberate in how we build in timing, scalability, tempo and flexibility to ultimately deliver a more agile force for our Navy and the joint force and a more capable, less predictable one to our adversaries.

The other side of that coin is that while we understand the need to adjust to the new mission priorities, we cannot forget that many of our men and women had vital roles in places like Iraq and Afghanistan over the past two decades. It's always going to be a part of them. It's essential that we remind them that just because our role in a conflict has ended, it doesn't mean the work they did to get there was done in vain. I wrote a letter to our force reminding them of that fact shortly after the withdrawal from Afghanistan.

It said we believe oppression and tyranny must always be fought against, because their defeat, whether it lasts two weeks or 20 years, is a worthwhile endeavor. That is what we saw in Iraq and Afghanistan, where we were joined by a coalition of more than 40 other nations – all in pursuit of freedom – for us and for others.

How is NECC affected by the new emphasis on high-end capabilities to counter China and Russia?

DIGUARDO: Our “what and why” have not changed ... the “where and how” is evolving based on the environment and changes to Navy strategy.

Navy Expeditionary Combat Forces exist to conduct and support fleet operations by dominating in the littorals and reinforcing maritime lethality. NECF will clear the

battlespace of hazards; secure critical maritime terrain, sea lines of communication and resources; build infrastructure, awareness, logistics chains and partnerships; and protect the fleet, facilities and joint, allied and partner forces.

The Maritime Sustainment Vector model aligns the logistics enterprise with standing and developing naval concepts related to DMO [distributed maritime operations]. These vectors are core activities which provide a framework to inform the development of a more agile and resilient logistics force – one that better enables the Navy to compete in ways that are sustainable and integrated with the joint force, allies and partners in a high-end maritime conflict. NECF employs smaller, less detectable, less expensive and more risk-tolerant logistics platforms to enable the transfer of sustainment from afloat and shore based expeditionary nodes to warfighting forces in the contested environment.

NECF performs the “Rs” required for effective DMO in contested and austere areas enabling integrated American naval power to keep the fight forward.

Refuel: Fuel fleet units to ensure agility in force projection through distributed maritime operations.

Rearm: Rearm fleet units to ensure persistent lethality in the distributed maritime fight.

Resupply: Sustain fleet units to keep them on station in the distributed maritime fight.

Repair: Rapidly repair battle damage to fleet units and critical infrastructure to return them to the fight.

Revive: Sustain force end-strength preventing injury and illness through Force Health Protection measures and rapidly triage, diagnose, treat and evacuate or return medical casualties to the force.

Rebuild: Replace or reinforce infrastructure for Expeditionary Advanced Base Operations.

How do the new Expeditionary Advance Base Operations and Distributed Maritime Operations concepts affect the roles of NECC?

DIGUARDO: The chief of naval operations' NAVPLAN says there are six critical elements for successful DMO. They are repair, resupply, refuel, rearm, revive and rebuild. The NECF has a significant role in delivering each of these in the austere environments of the ANB [advance naval base] and EAB [expeditionary advance base].

Our ability to integrate with our Marine Corps teammates and provide essential support and expertise to the EABO model has been on display a lot in the last year through a variety of exercises and experiments.



Rear Admiral Joseph DiGuardo, commander Navy Expeditionary Combat Command talks with Marines at the Expeditionary Advanced Base entry control point during Fleet Battle Problem (FBP) 22-1. *U.S. NAVY / Chief Mass Communication Specialist Kim Martinez*

What changes, if any, are affecting the Naval Construction Battalions and the Naval Expeditionary Logistics Force?

DIGUARDO: Across the board, we're making the force more lethal, resilient, sustainable, survivable, agile and responsive as 2022 National Defense Strategy describes and CNO NAVPLAN implements.

As EABO and ANB continues to evolve, it's becoming clearer to those operating in the battlespace just how essential NECF is in reinforcing DMO lethality.

Our role at the last tactical mile, ensuring logistics nodes are sustained through things like airfield damage repair and port damage repair efforts, is where our support of the fleet and joint force is so important. Our ability to adapt to complex and austere environments, scale the size of our necessary forces and remain agile to evolving mission requirements is something consistent across our force.

Our Seabees within the Naval Construction Forces and logistics experts at Navy Expeditionary Logistics Support Group are essential to building the infrastructure necessary to enable and sustain operations forward.

In recent wars, EOD provided critical support to operations on land. Is that focus changing more in the direction of maritime operations?

DIGUARDO: We're always going to adapt to any new requirement, and today with strategic competition driving a greater need for emphasis in the maritime environment, that's where we're putting a lot of our focus.

Maritime traffic is increasing, new sea lanes are opening and

with our adversaries getting more creative and autonomous in how they can disrupt that environment, the need for Navy EOD is greater than ever.

Operating in the maritime arena, and all the nuances and complexities that come with it, though, are nothing new to us. That's what sets Navy EOD apart – we are uniquely qualified to understand those challenges, overcome them and do our part to reinforce maritime lethality.

Our expeditionary mine countermeasures capability is increasingly important to the fleet and provides a fast, scalable and adaptable option for clearing threats away from our ships and forces. This is one area where this particular skillset allows us to use the enduring EOD knowledge to remove old threats in the maritime arena, but learn about, develop and introduce emerging technologies that will better equip us in the high-end fight ahead.

All that said, the Navy still owns a role as the Joint Service EOD executive agent, so we have responsibilities across the entirety of Department of Defense. We are also mindful not to forget the hard lessons learned while operating in Iraq and Afghanistan. While much of our focus for Navy EOD may be in the maritime environment for the foreseeable future, we have a responsibility to ensure proficiencies across the full spectrum of operations.

How is the new 40-foot patrol boat an improvement over the boats it is replacing? How many are being procured?

DIGUARDO: The current platform was a speed to fleet procurement that was not fully suited for the missions performed and has reached end of useful service life.

When looking at a replacement, there was a need for a platform specifically designed to meet the needs of our mission requirements.

These boats and our operators serve a significant role for our force and for the fleet in operating at sea, in harbors, rivers, bays and across the littorals while conducting maritime expeditionary security operations across all phases of military operations.

They defend and protect high value units, critical maritime infrastructure, ports, and harbors both inland and on coastal waters against enemies as well as conduct operational plan level missions and sustained day-to-day security in all force protection threat levels. The initial contract is for 56 boats, which could grow to 120 over the next 10 years.

Why does the Navy plan to remove its Mark VI patrol boats from service?

DIGUARDO: The Navy analyzed the Mark VI's ability to compete against a near-peer adversary as part of the strategic alignment analysis that is the beginning of the POM [program objective memorandum] process for every fiscal year. Navy ship procurement focuses on a force structure that aligns with the demands of the National Defense Strategy, and the Navy determined the savings from divesting of Mark VI could be better invested in higher priority platforms better suited for competition with a near-peer adversary.

Why did the Navy retire its riverine boat force?

DIGUARDO: Like many of the other topics we've discussed, this was just part of the ongoing refinement of our Navy Expeditionary Combat Force to maximize the efficiency of our warriors and their ability to deliver in the high-end fight.

This particular mission set with the riverine force was generated to support Marine Corps operations as part of Operation Iraqi Freedom, and as that requirement wound down, we took those proficiencies, the lessons we learned from it, and applied them in a way that was more relevant to battlespace we were transitioning into.

Our Maritime Expeditionary Security Forces continue to play an essential role every day in anti-terrorism/force protection operations across the globe and in support of our fleets.

What would be needed to reconstitute the riverine force if needed?

DIGUARDO: If ever asked to reconstitute a riverine mission, it would require the equipment, training, and methods we used to generate the Riverine force for Iraq. We have done so before and could do so again. However, we do not anticipate this and remain focused on our MESF core missions.

How are unmanned systems being used by NECC?

DIGUARDO: We are increasingly utilizing unmanned systems across our force. This is done to modernize the technology that our warfighters are familiar with, but also to enhance their capabilities they bring to the fight.

Clearing the battlespace of explosive, physical and security hazards is one of our main lines of operation. Unmanned technology extends our organic sensor range, increases our area coverage and improves our detect-to-engage sequences at the front of those efforts, while mitigating risk to our operators.

Much of our effort has been in in the underwater realm in support of expeditionary mine countermeasure operations with things like UUVs [unmanned underwater vehicles] and ROVs [remotely operated vehicles], but we continue to explore platforms outside of that and other mission areas for application of that technology.



Master Chief Culinary Specialist Dexter Baird, senior enlisted leader assigned to Maritime Expeditionary Security Squadron 11 (MSRON-11), Commander, Task Group 68.6, currently deployed to Camp Lemonnier, says goodbye to members of the Djiboutian navy following a six-week professional maritime orientation course, Oct. 14, 2021. The course, initiated by MSRON-11, was designed around basic line handling, man overboard, engineering, seamanship, lifesaving, and nautical terminology. *U.S. NAVY / Mass Communication Specialist 2nd Class Jonathan Word*

With that said, we're always exploring opportunities to experiment with and identify potential areas of unmanned aerial and surface technology that would effectively integrate into our force.

What role, if any, does NECC have in training foreign forces in operation of patrol boats, EOD operations and other expertise?

DIGUARDO: One of SECNAV's enduring priorities is for us to strengthen strategic partnerships, and we're certainly doing that.

Although the Navy divested from the Maritime Civil Affairs and Security Training Command in the early part of the last decade, and even without a specific command coordinating those efforts within NECC, our men and women continue to build partner capacity through subject matter expertise exchanges and exercises with partner nation forces around the world.

These exchanges are effective, and the relationships and partnerships that result are truly authentic. There's a photo from late last year where we had Maritime

Expeditionary Security Squadron 11 conducting a six-week professional maritime orientation course to the Djiboutian navy, and the photo shows one of their guys hugging our master chief at the end of it. There was gratitude and joy, but more importantly, a relationship.

That photo is validation of the importance of those types of exchanges. Not only that, but now there are 15 more Djiboutian sailors with a better level of technical aptitude in an extremely critical part of the world.

And our EOD take advantage of some of those same training and interoperability opportunities to continue our partnership initiatives and the long-term benefits that come from doing them.

What aspect of NECC do people find the most surprising?

DIGUARDO: NECC's relevancy to current fight. It is not all about carriers, submarines and airplanes. Those are essential components of American naval power, but for NECC, our people are our weapons system. Much of what they do is in support of those larger platforms, but NECF do so through operations forward, in austere environments, while integrated with the joint force, allies and partners, or in concert with our Marine and Coast Guard teammates.

The fleet needs our Navy Expeditionary Combat Forces to close

the last tactical mile so those vital platforms never run out of fuel, ammunition or other needed supplies. They need us to clear, secure, build and protect across the spectrum of operations.

We're already doing that, but what might come as a surprise is how widespread that support is. In 2021

alone, we had more than 5,300 NECF Sailors deployed forward to 55 countries, supporting 64 requirements generated by six geographic and two functional combatant commands. That is enabling DMO lethality.

Our forces clear, secure, build and protect for the fleet and joint force. NECC is uniquely qualified to deliver at the time and point of need, often exclusive capabilities, to support integrated American naval power.