



NPS IN THE NEWS

Weekly Media Report – Apr. 27-May 3, 2021

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COMMENTARY:

1. [Into the Gray: Priorities for the Next SecNav](#)

(*USNI Apr 21*) ... Honorable Thomas B. Modley, former Acting Secretary of the Navy

Every four years, the Pentagon experiences a dramatic leadership turnover, as civilian appointees resign to return to civilian life or move to more senior jobs for an administration's second term. This places significant pressure on the new team in the Department of Defense (DoD) to form quickly to meet the persistent national security challenges. We must realize that the world broadly is getting more complex, and with it so is the national security environment that U.S. defense leaders must address—and de-risk. How this environment will evolve is unpredictable, but I contend we should expect a future in which the most aggressive of our global adversaries, namely, China, Russia, Iran, and North Korea will continue to push against U.S. influence and the global promotion of liberty, free commerce, and human rights to advance their interests and to fulfill their own national visions... Then, the Naval Community College, as well as the four academic institutions that make up the crux of the Department's educational system—the Naval War College, **Naval Postgraduate School**, Marine Corps University, and U.S. Naval Academy—must be fully funded and incentivized to work more closely together in the development and delivery of their respective curricula. These curricula need to place a greater emphasis on history, geopolitics, and strategy, leadership and ethics, and the new realms of cyber and space-based security studies. All this will give our Navy-Marine Corps team a better understanding of the world and the adversaries who inhabit it and create adaptable leaders prepared for times of rapid change and unpredictability.

EDUCATION:

2. [VCNO Explores Warfighting Research at the Naval Postgraduate School](#)

(*Navy.mil 28 Apr 21*) ... Mass Communication Specialist 2nd Class Nathan K. Serpico

(*NPS.edu 28 Apr 21*) ... Mass Communication Specialist 2nd Class Nathan K. Serpico

Vice Chief of Naval Operations (VCNO) Adm. Bill Lescher made a brief visit to the Naval Postgraduate School (NPS), April 28, touring several key research labs and speaking with senior leadership about NPS' consequential work and its impact on the Navy.

SGL:

3. [Missile Defense Agency Chief Discusses Technology, Education, Mission During Virtual SGL](#)

(*NPS.edu 29 Apr 21*) ... Mass Communication Specialist 2nd Class Taylor Vencill

Naval Postgraduate School (NPS) distinguished alumnus and current [Missile Defense Agency \(MDA\)](#) Director Vice Adm. Jon A. Hill spoke virtually to NPS faculty, staff and students on the topic of "Missile Defense and Technology Warriors" during the latest edition of the [Secretary of the Navy Guest Lecture](#) (SGL) series, April 13.



4. [Pentagon’s Senior Climate Advisor Delivers Talk on Security, Climate Change in Latest SGL](#)

(NPS.edu 30 Apr 21) ... Mass Communication Specialist 3rd Class James Norket

Mr. Joseph Bryan, Senior Advisor on Climate to the U.S. Secretary of Defense spoke virtually to Naval Postgraduate School (NPS) students, faculty and staff about “[The Security Implications of Climate Change](#),” and how the United States military and the world can benefit from reducing carbon emissions during the latest [Secretary of the Navy Guest Lecture](#) (SGL), April 27.

RESEARCH:

5. [Naval Warfare Studies Institute: Innovation through Collaboration](#)

(Georgetown Security Studies Review 26 Apr 21) ... Joshua O’Day

The Department of Defense is seeking new, innovative ways to maintain a military advantage over its adversaries and perceived threats. On March 10, 2020, the Department of Defense reported that “near-peer threats are at the highest point since the Cold War.” China and Russia are seen as the closest military competitors to the U.S., with China making huge strides over the last decade to bolster its naval fleet. CNN reported that China may have the largest Navy in the world, surpassing the U.S. in recent months. The U.S. military is searching for new ways to tackle the rising challenge of China, as well as Russian regional aggression. Innovative thinking about the complex problems posed by China and Russia is paramount. The **Naval Postgraduate School** (NPS), an institution that has worked to solve complex national security problems since its inception, took another step towards helping the U.S. maintain a military advantage by founding the Wayne P. Hughes Jr. Naval Warfare Studies Institute (NWSI) in December 2020.

6. [Design Challenge Seeks to Advance Prototype for “Athena” Collaboration Tool](#)

(Navy.mil 28 Apr 21) ... Mass Communication Specialist 3rd Class James Norket

(NPS.edu 28 Apr 21) ... Mass Communication Specialist 3rd Class James Norket

In an effort to modernize the way that research is conducted and shared, the Naval Postgraduate School (NPS) hosted a design challenge workshop for students, faculty and staff to further develop Athena, a collaborative research tool, April 17.

7. [NPS Professor, Students Explore Innovative Ways to Power the Navy](#)

(Navy.mil 28 Apr 21) ... Rebecca Hoag

(NPS.edu 28 Apr 21) ... Rebecca Hoag

Imagine a machine that collected water from the air, broke the water down into hydrogen and oxygen, then used hydrogen as a power source. That’s the goal of Dr. Anthony Gannon, associate professor at the Naval Postgraduate School’s Mechanical and Aerospace Engineering (MAE) school, and his rotating group of thesis students, who are applying their interdisciplinary education and research to support developing these new capabilities. Gannon has been working with students towards this goal since 2016.

8. [NSWC Dahlgren's Innovation Expands Wargaming And Simulation Horizons](#)

(The Bay Net 2 May 21)

Naval Surface Warfare Center Dahlgren Division (NSWCDD) engineers have designed and patented a new modeling and simulation tool – a new framework allowing scientists, warfighters and college students to model ideas and develop wargaming scenarios seamlessly... Besides military exercises, the Dahlgren team applied MAST and the military version of OSM to simulations while collaborating with customers from the Marine Corps to the **Naval Postgraduate School** (NPS) on wargaming. During one such collaboration, NPS provided myriad techniques to enhance the tool, including a new implementation in their experimental plugin that is now used by analysts all over the country.

9. [Workforce 4.0: Americans Tackle Artificial Intelligence](#)

(Forbes 3 May 21) ... Swathi Young

According to a recent World Economic Forum report, 50% of all employees will need reskilling by 2025. In the U.S. government alone, 18.2% of the federal government retired in 2020. Another 34% will be eligible for retirement by the fiscal year 2023. Our workforce demands are urgent... In anticipation of this major workforce pivot, federal government leaders collaborated with Harvard, Johns Hopkins, the **Naval Postgraduate School**,



NavalX and hundreds of industry and government stewards. Through the American Council for Technology and Industry Advisory Council (ATC-IAC), the AI Working Group met for the last two years to develop the following frameworks to help U.S. government agencies adopt, implement and educate AI technologies as well as evaluate ethical outcomes of AI.

FACULTY:

10. NPS' Peter Denning Adds Computer Pioneer Award to Long List of Honors

(Navy.mil 28 Apr 21) ... Mass Communication Specialist 3rd Class MC3 Leonard Weston

(NPS.edu 28 Apr 21) ... Mass Communication Specialist 3rd Class MC3 Leonard Weston

The list of accolades and awards for Naval Postgraduate School (NPS) Distinguished Professor Peter Denning continues to get longer. The Institute of Electrical and Electrical Engineers (IEEE), which recently renamed its Computer Pioneer Award to the IEEE Computer Society Women of Electronic Numerical Integrator and Computer (ENIAC) Award, recognized Denning for significant contributions in virtual memory, Internet development, infrastructure, and computing education on Feb. 2, 2021.

11. Iran Is More Than Persia: Ethnic Politics in the Islamic Republic [Video Interview]

(FDD.org 28 Apr 21)

When discussing and analyzing Iran, researchers and journalists often don't look beyond Tehran. But outside of Iran's Persian heartland, lives a complex mosaic of ethnic groups. Western assessments of the clerical regime's stability could benefit markedly from a better grasp of the ethnic factor and developments in Iran's border regions. Who are these ethnic minority groups? How does the regime in Iran treat them? What are their views on today's most pressing issues from neighboring disputes to sanctions and normalization? What may their role be in the future of Iran?... Brenda Shaffer is a Senior Advisor for Energy at FDD. A foreign policy and international energy specialist, she focuses on global energy trends and policies, politics and energy in the South Caucasus and greater Caspian and Black Sea regions, Iranian natural gas exports, ethnic politics in Iran, and Eastern Mediterranean energy. She is a research faculty member at the U.S. **Naval Postgraduate School**.

ALUMNI:

12. Michelle Glenn Young Seeking Election to State College Area School Board

(StateCollege.com 26 Apr 21)

Michelle Glenn Young, a retired U.S. Navy commander and a mother of three sons, is seeking election to the State College Area School Board this year... She received a bachelor's degree in political science from the University of California, San Diego and earned two master's degrees from the **Naval Postgraduate School** and the U.S. Marine Corps University.

13. The Navy Re-Focuses on the High-End Fight: What Implications for the Navy Reserves?

(SLDinfo.com 26 Apr 21) ... Robbin Laird and Ed Timperlake

In working on our book for USNI press, we have focused on how the U.S. Navy is reworking its approaches to shape new capabilities for the high-end fight. Obviously, a refocus from a two-decade primary role in supporting land wars to a return to blue water expeditionary operations is a significant one. And clearly one which affects the Navy's reserve forces as well... Vice Admiral John Mustin is a native of Alexandria, Virginia. He is a graduate of the United States Naval Academy, where he earned a Bachelor of Science in Weapons and Systems Engineering and was commissioned in 1990. He holds a Master of Science in Operations Research from the **Naval Postgraduate School** in Monterey, California, and a Master of Business Administration (cum laude) in Finance and Management from the F. W. Olin Graduate School of Business at Babson College. He earned his Joint Professional Military Education from the Air University's Air Command and Staff College at Maxwell Air Force Base.

14. Victor Glover: NASA astronaut and SpaceX Crew Dragon pilot

(Space.com 27 Apr 21) ... Vicky Stein

Victor J. Glover, Jr. is a NASA astronaut and Naval Aviator. In his first spaceflight mission, he served as the pilot on the Crew-1 flight of SpaceX's Crew Dragon capsule, which launched on Nov. 15, 2020. Crew-1 was the first operational commercial crewed mission to the International Space Station and the second such flight overall after SpaceX's Demo-2 test mission, which launched in May 2020... Between 2007 and 2010, he earned three



master's degrees from three different institutions: a Master of Science in Flight Test Engineering from Air University at Edwards Air Force Base in California; a Master of Science in Systems Engineering at the **Naval Postgraduate School** in Monterey, California; and a Master of Military Operational Art and Science at Air University in Montgomery, Alabama.

15. Manistee Catholic Central alumna becomes first female to lead FEMA

(Manistee News 28 Apr 21) ... Ken Grabowski

The Manistee and Free Soil communities watched with pride this week when Deanne (Bennett) Criswell was sworn in as the administrator of the Federal Emergency Management Agency (FEMA) in Washington D.C... The new FEMA administrator is a graduate of Colorado State University with a Bachelor of Science in Technology Education and Training and holds a Masters of Public Administration from the University of Colorado and a Master of Arts in Security Studies from the **Naval Postgraduate School**, Center for Homeland Defense and Security.

16. Forcepoint Announces New Appointments to Board of Directors

(inForney 29 Apr 21)

Forcepoint, the global leader in cybersecurity solutions that protect the critical data and networks of thousands of customers throughout the world, today announced the appointment of three new members to the company's Board of Directors, effective April 28, 2021. The new board members include BeyondTrust CEO Matt Dircks, Teleo Capital Operating Partner John McCormack, and Redhorse Corporation President Dr. John Zangardi... Zangardi began his career in government service with the U.S. Navy. He retired as a Naval Flight Officer after serving as a squadron commander. Zangardi earned a Master of Science degree from the **Naval Postgraduate School** and a Doctor of Philosophy degree from George Mason University.

17. The Artificial Intelligence Era: What will the future look like? [Video Interview]

(The Bulletin 28 Apr 21) ... Halley Posner

In this conversation, you'll hear about the National Security Commission on Artificial Intelligence's Final Report and how AI can negatively amplify existing threats while simultaneously offering a path forward to international stability, if used wisely... Mary (Missy) Cummings received her B.S. in Mathematics from the US Naval Academy in 1988, her M.S. in Space Systems Engineering from the **Naval Postgraduate School** in 1994, and her Ph.D. in Systems Engineering from the University of Virginia in 2004. A naval pilot from 1988-1999, she was one of the U.S. Navy's first female fighter pilots. She is currently a Professor in the Duke University Electrical and Computer Engineering Department and the Director of the Humans and Autonomy Laboratory. She is an AIAA Fellow and a member of the Veoneer, Inc. Board of Directors.

18. StealthPath President Russ Berkoff Promoted to CEO

(Inside Nova 30 Apr 21)

StealthPath LLC, a leader in innovative cybersecurity solutions, announced that President Russ Berkoff will also serve as Chief Executive Officer. Company founder and former CEO Andrew Gordon will continue as Chairman of the Board... A graduate of the U.S. Military Academy at West Point and the U.S. Army Command and General Staff College. He holds master's degrees from the **Naval Postgraduate School** and Loyola University Maryland.

19. Science, technology and experiments, oh my!

(DVIDS 30 Apr 21) ... Cpl. Thomas Spencer

When most people think about the Marine Corps they think of an elite warfighting organization. What most do not think about is how the Marine Corps fits into the information age and ever evolving operational environment of science and technology... Geldmacher joined the Marine Corps as an Intelligence Officer, but was selected for the Commandant's Career Level Education Board (CCLEB). This allowed him to attend and receive a master's degree from the **Naval Postgraduate School** in Monterey, California.

20. Michael Allers Joins Gunderson Dettmer's Leading Growth Equity Practice

(Globe News Wire 3 May 21) ... Gunderson Dettmer

Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, a more than 350-attorney law firm focused on the global venture capital, growth equity and emerging companies ecosystem, announces the addition of Michael Allers



as a corporate partner in the San Francisco office. He joins the firm from Kirkland & Ellis where he was a partner in the San Francisco office... Allers earned his J.D. from the University of Michigan Law School, a Master's degree from the **Naval Postgraduate School**, and a B.A. from Cornell University. He also served as an officer in the US Navy. Prior to Kirkland & Ellis, Allers was an associate at other leading international law firms.

UPCOMING NEWS & EVENTS:

May 11–13: [18th Annual Acquisition Research Symposium](#)

May 14: [NPS Students' Big Idea Exchange 2021 \(BIX21\)](#)

May 24-28: [JIFX 21-3](#)



COMMENTARY:

Into the Gray: Priorities for the Next SecNav

(USNI Apr 21) ... Honorable Thomas B. Modley, former Acting Secretary of the Navy

Every four years, the Pentagon experiences a dramatic leadership turnover, as civilian appointees resign to return to civilian life or move to more senior jobs for an administration's second term. This places significant pressure on the new team in the Department of Defense (DoD) to form quickly to meet the persistent national security challenges. We must realize that the world broadly is getting more complex, and with it so is the national security environment that U.S. defense leaders must address—and de-risk. How this environment will evolve is unpredictable, but I contend we should expect a future in which the most aggressive of our global adversaries, namely, China, Russia, Iran, and North Korea will continue to push against U.S. influence and the global promotion of liberty, free commerce, and human rights to advance their interests and to fulfill their own national visions.

There is no more important institution to secure the nation and push back on this advance than the U.S. Navy–Marine Corps team. Having had the opportunity to lead these amazing organizations as both Acting Secretary of the Navy and Under Secretary of the Navy and Chief Management Officer, I offer three priorities for consideration by the next Secretary: Gray Hulls, Gray Matter, and Gray Zones.

Priority 1: GRAY HULLS

The United States needs a well-articulated maritime and ship construction strategy that defines a newer, larger, more innovative, more cyber-focused, and more integrated Navy and Marine Corps force structure. This strategy will require the broad support of the citizens our sailors and Marines are asked to protect. It must be reliably funded by their representatives in Congress and faithfully implemented by the executive branch, without annual budget endgames that sacrifice ships and capability on the altar of other priorities.

The force structure must exceed 355 traditional “gray hull” ships and be more agile and distributed, at a lower cost per hull, and incorporate unmanned systems and robust cyber defenses. Funding must be stable and predictable, so the Navy and its industrial partners can plan effectively, drive down costs, and build reliable and secure supply chains to support the new force.

The future integrated naval force structure must be accomplished within a strategically relevant timeframe of ten years or less, and its mix of ships and the integration of new technologies must be continually iterated.

Developing this strategy and structure should be the top priority of the new Secretary of the Navy. The choice cannot be between a larger fleet or one with advanced capabilities. The nation needs both. Therefore, the new Secretary must fight for a bigger share of the defense budget for the Department of the Navy. No services are better suited to address the security challenges of the future than the Navy and Marine Corps. Combined, they provide the nation with continual global presence and the ability to deploy and react at a moment's notice with light and adaptable forces. This capability must be protected and enhanced, particularly as the nation faces growing threats to its commercial interests on and beneath the seas and expanded military competition in the maritime, cyber, and space domains that threatens freedom of navigation in the Pacific, North Atlantic, and Arctic.

In fall 2019, work began on the concept of a truly integrated Navy and Marine Corps force structure that would more directly inform the shipbuilding plan. As Under Secretary of the Navy, I wrote a memo for the Defense Secretary's signature directing the Commandant of the Marine Corps and the Chief of Naval Operations to build the shipbuilding plan together for the first time. The 2019 Integrated Naval Force Structure Assessment was the first product developed through this process. Unfortunately, the effort was derailed when the Secretary directed a Navy force study to be led by the Office of the Secretary of Defense. This took another nine months to complete, with results not substantially dissimilar to what the INSFA had developed long before.

The next Secretary must reassert the Department of the Navy's ownership of and intellectual influence on the force structure plan. The shipbuilding strategy, and the numbers of ships in each class it



recommends, should be less definitive in terms of final numbers, and instead suggest ranges within each category that will provide the basis for iteration informed by modeling, experimentation, and technological innovations. The Deputy Chief of Naval Operations for Warfighting Requirements and Capabilities and the Marine Corps Deputy Commandant for Combat Development and Integration—the team that developed the first INSFA—should form a permanent office, jointly led, to coordinate this effort under the direction of the Chief of Naval Operations, Commandant of the Marine Corps, and Secretary of the Navy.

This group should report findings quarterly, aligned with key budget decision-making milestones. In addition, it should collaborate with industry to help better determine industrial feasibility, as well as with a select group of congressional staff for the purposes of transparency and building advocacy.

These steps will not guarantee a perfect force structure; however, they will allow for the structure to adjust and adapt more rapidly as technology and the national security environment evolve unpredictably over time. The Secretary of the Navy must take ownership of the development and execution of the plans this process produces. He or she must be the biggest advocate inside and outside the Pentagon for the future naval force structure and the shipbuilding strategy it directs. The Secretary of the Navy must know it cold—and believe in it.

Priority 2: GRAY MATTER

The landmark 2018 Education for Seapower (E4S) report recognized that the intellectual capability of the Navy and Marine Corps team and a lifelong passion for continuous learning are the foundation of any credible deterrent to war. In the two years after the report's release, the Department of the Navy moved quickly to introduce sweeping changes in the prioritization, integration, and resourcing of naval education—including hiring the first Chief Learning Officer (CLO), with a direct reporting relationship to the Secretary of Navy. The CLO was given the authority to unite the Naval Education Enterprise, to better take advantage of intellectual capital and budget resources and to move it into the future. A new Warfighter Development Directorate (N7) was created to work closely with the Marine Corps Deputy Commandant for Combat Development and Integration to ensure educational strategies were aligned with the Marine Corps and with long-term strategies for integrated Navy-Marine Corps operations.

Perhaps the most significant initiative was the establishment of the Naval Community College (NCC), which was met with great enthusiasm from enlisted Sailors and Marines. The NCC was created to provide opportunities for continuous education through a series of partnerships with community colleges, colleges, and universities across the country, to provide online and in-person course offerings that could lead to associates degrees and beyond. Such opportunities tend to elude Sailors and Marines because of their work and deployment schedules, but they are critical for their professional development—both during their naval service and when they return to civilian life.

Despite all its obvious benefits, the E4S initiative has lost momentum. The first CLO resigned abruptly, and the Navy has not moved with urgency to fill the position. Further, the Secretary of Navy moved the CLO position to a subordinate role under the Assistant Secretary of the Navy for Manpower and Reserve Affairs—relegating it to the “functional” rather than “enterprise/strategic” level. This sent a terrible signal about the strategic value of education for the Department's people.

The next Secretary of the Navy should read, own, and implement the Education for Seapower report and Naval Education Strategy 2020. To deter future conflicts and to win those it cannot avoid, the Navy–Marine Corps team must operate at its full intellectual potential. The only way to reach that level is through education, creating an ever-increasing level of intellectual agility. In an increasingly complex and unpredictable world, Sailors and Marines need to know *how* to think, not merely *what* to think. If this is not a priority for the Secretary of the Navy, it won't be for anyone else in the Department.

The next Secretary should hire a new, innovative CLO from outside the bureaucracy to reignite the momentum of E4S. The CLO should be a direct report to the Secretary of the Navy as originally conceived. In addition, this new CLO must commit to serve for at least three years, to provide leadership continuity.



Then, the Naval Community College, as well as the four academic institutions that make up the crux of the Department’s educational system—the Naval War College, **Naval Postgraduate School**, Marine Corps University, and U.S. Naval Academy—must be fully funded and incentivized to work more closely together in the development and delivery of their respective curricula. These curricula need to place a greater emphasis on history, geopolitics, and strategy, leadership and ethics, and the new realms of cyber and space-based security studies. All this will give our Navy–Marine Corps team a better understanding of the world and the adversaries who inhabit it and create adaptable leaders prepared for times of rapid change and unpredictability.

Priority 3: GRAY ZONES

Here, the term “gray zones” refers to the many things that happen behind the scenes, deep within the Department’s bureaucracy, that can either enable or inhibit the execution of the naval mission. These gray zones encompass a wide range of business and human capital management challenges that must evolve to meet emerging requirements. The new Secretary should prioritize three in particular: digital transformation, financial management and audit, and supply chain modernization.

Digital Transformation

Of the three priorities, this is perhaps the most urgent. Society is advancing in the digital era at a rapid and accelerating pace, and the Department of the Navy is not keeping up. Basic business and communication systems and platforms in the Navy are a decade or more behind the times. Cybersecurity is also woefully inadequate and has created vulnerabilities that can be exploited by adversaries.

The Cyber Security Strategic Study commissioned by former Secretary of the Navy Richard Spencer identified a litany of deficiencies in this regard. The findings were not controversial, or debatable, so the new Secretary must continue the efforts to address these deficiencies. He or she must elevate the digital and information management function to the secretary level—making the Chief Information Officer (CIO) a direct report—and actively support the CIO to remove barriers to change and fully fund this mission.

The highest priority should be modernizing the Department’s network and office suite software. Again, results cannot be achieved overnight. Elevation of the CIO function is a good first step, but the implementation of strategy must be sustained, which will require the full engagement of the Secretary of the Navy. He or she must provide top cover for the CIO with respect to delegated authority and budget control over all IT spending.

Financial Management and Audit

After years of earnest efforts, the Department is making progress in improving financial accountability, but problems persist. Audit and improved financial management are not solely the responsibility of the Department’s financial management professionals. They are enterprise-level responsibilities. The Secretary should continue to hold the Under Secretary of the Navy, not just the Department’s Chief Financial Officer and Comptroller, responsible for progress in this area and take an active interest in the audit findings.

The Secretary should require the Under Secretary to continue to develop mechanisms to hold commanders responsible for key areas such as inventory management. The Department’s inability to account for its assets must be corrected, but this will happen only if the Secretary gets engaged in solving the problem.

Supply Chain Modernization

The supply chain our Sailors and Marines rely on for all manner of parts and materials is a complex mix of organizations that seems to have been elegantly designed to avoid accountability for failures. The Secretary should immediately direct a study to examine how to consolidate the leadership and organization of the current structure into something that more closely resembles a world-class commercial supply chain operation.



In late 2020, we assembled a group of the Navy’s most senior supply chain leaders to do just that. We introduced them to civilian supply chain leaders from some of the top industrial enterprises in the nation. These civilian professionals were astounded that the Department of the Navy did not have a single leader at the head of—and accountable for—the supply and logistics chain. This must be corrected and that leader must be tasked with developing a vision and strategy for a new, more accountable, and more efficient supply chain organization for the future of the integrated naval service.

All Ahead Flank

The next Secretary of the Navy will face an overwhelming number of long-term challenges during his or her tenure. A focus on these three “gray areas” will help that tenure be distinguished by lasting accomplishments. Nonetheless, time will always be the Secretary’s number 1 enemy—and the greatest ally of those who resist change. He or she must not be satisfied with phrases such as “This is just the way we do things in the Navy”—a phrase I heard many times as justification for accepting the status quo. On the first day in office, the Secretary must be prepared to challenge those “ways” and to set sail, at flank speed, into the gray.

<https://www.usni.org/magazines/proceedings/2021/april/gray-priorities-next-secnav>

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EDUCATION:

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Lescher visited one of NPS’ additive manufacturing (AM) labs, the Center for Cybersecurity and Cyber Operations, and the Center for Autonomous Vehicle Research (CAVR) where NPS students briefed their ongoing research that aims to solve key operational problems.

In February, NPS was the first to receive delivery of Xerox’s ElemX Liquid Metal Printer, which Lescher got to see firsthand. Through a Collaborative Research and Development Agreement with Xerox, NPS faculty and students use the cutting-edge technology to conduct applied AM research aiming to reduce reliance on logistics chains, and give underway ships the ability to 3-D print replacement parts or tools.

Lescher also met with students in NPS’ Cyber Battle Lab and CAVR Lab, receiving insight from students about their immersive research in the fields of artificial intelligence and autonomy.

“[Talking with Lescher] was a great experience,” said NPS student U.S. Navy Lt. Timothy Howarth. “I think [his visit] is important because it gives him an opportunity to see not only what my research is capable of and how it can impact the Fleet, but how our students, in general, provide very real solutions for today and even tomorrow’s challenges.”

Another key engagement for Lescher was a visit with the recently established Wayne P. Hughes, Jr. Naval Warfare Studies Institute (NWSI). The goal of NWSI is to expedite the Navy’s ability to access the university’s immense talent and resources in taking on its most complex warfighting issues. Leaders and faculty from NWSI explained how interdisciplinary studies, research, wargaming and experimentation can come together here to provide solutions to the fleet.



“NPS is developing the leaders the Navy needs for the future force,” said Lescher. “I saw students who are developing tangible solutions to key operational problems, which are needed in the Fleet.

It’s the hands-on, research-based education they get here at NPS which builds the competencies we need for an increasingly technical all-domain naval force as called for in the Tri-Service Maritime Strategy.”

According to NWSI Director retired Navy Capt. Jeff Kline, it was not just a privilege to inform the VCNO on relevant education and research, but also to see NPS students presenting on how they’ve applied their education to warfighting challenges.

“[Lescher] certainly witnessed our officers applying their education to their profession,” said Kline. “NPS is at its best when our student-officers are the primary presenters. Today, he saw NPS at its best.”

[VCNO Explores Warfighting Research at the Naval Postgraduate School > United States Navy > News-Stories](#)

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SGL:

Missile Defense Agency Chief Discusses Technology, Education, Mission During Virtual SGL

(NPS.edu 29 Apr 21) ... Mass Communication Specialist 2nd Class Taylor Vencill

Naval Postgraduate School (NPS) distinguished alumnus and current [Missile Defense Agency \(MDA\)](#) Director Vice Adm. Jon A. Hill spoke virtually to NPS faculty, staff and students on the topic of “Missile Defense and Technology Warriors” during the latest edition of the [Secretary of the Navy Guest Lecture](#) (SGL) series, April 13.

Hill talked about the MDA and his role in overseeing the agency’s mission to develop, deliver and sustain layered capabilities to defend the United States, deployed forces, allies and friends against missile attacks in all phases of flight. A graduate of NPS’ [Applied Physics](#) and Ordnance Engineering curriculum, Hill stressed the role of the evolving threat in driving continuous improvement across the system.

“You have to have a credible missile defense to be a credible missile deterrent,” stated Hill. “As you walk into the evolution of the threat, we are well geared to take on and grow in the areas of hypersonic missile defense. We’re working to integrate all of these different pieces into our defense systems because the adversary is integrating their ballistic cruise missiles and unmanned air vehicles and trying to make me nervous. However, I’m not nervous because I believe we’ve got the best defenses on the planet.”

Through all of MDA’s development and innovation, along with collaboration with partners and allies, Hill made clear that the warfighter is at the forefront of his mind.

“I’m going to take care of the warfighter first,” he said. “I’m going to make sure we’re producing and getting things to the field. We’re going to be deploying capabilities, assessing the threat, and bringing in technology and working on hardcore developments so that we can continue to support and defend the nation.”

Part of his effort to take care of the warfighter, Hill explained that the foundation of all past, present and future defense systems is education. He quoted Chief of Naval Operations (CNO) Adm. Michael M. Gilday, in saying, ‘Learning, the ultimate warfare enabler, and the intellectual development of our Sailors is the most critical warfighting capability.’

“[CNO] is pointing towards education as a foundational aspect to what you are as a naval officer and what we will do as we progress through our careers, because it’s not going to get easier,” said Hill. “The threat is constantly evolving.”



Following his prepared remarks, Hill spent time answering questions from NPS students in the Meyer Scholar Program, named for the Father of the AEGIS Combat System retired Navy Rear Adm. Wayne E. Meyer. The objective of the Meyer Scholar program is to develop officers who are exceptionally well-educated in the science and engineering disciplines associated with Integrated Air and Missile Defense (IAMMD). The students asked Hill about the future of the MDA, evolving threats, and how officers can be more technically prepared to fulfill missile defense roles.

U.S. Navy Lt. James Kornowski, for example, asked about the most significant future challenge to the Missile Defense Agency and its mission.

Hill swiftly replied, "It's the continuously evolving threat. Nothing is static. The threats that were present early in my career have evolved and continue to evolve."

Referencing the [CNO NAVPLAN 2021](#), U.S. Navy Cmdr. Doug Jones asked, "In your opinion and from the MDA perspective, what transformation within the Naval Education Enterprise is required in order to compete, deter and win in the future?"

Hill addressed the complexities that are involved with that answer ... "We need to know how these systems work so that we can adequately employ them. I think that is the key thinking that will drive reform in education because it is becoming more technical and more connected and that means it's also more challenging."

Recognizing the role NPS played in his own career trajectory, Hill said that graduate education and research opportunities for DOD officers are paramount. From his own experience, it wasn't about the direct application of the physics concepts he learned. Rather, it was about the development of his own analytical mind, and being able to break down complex problems.

For the development of that skillset, he said, "NPS is one of the most important institutions on the planet."

Watch [Hill's full lecture](#) on the [NPS YouTube channel](#).
<https://nps.edu/-/missile-defense-agency-chief-discusses-technology-education-mission-during-virtual-sgl>

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Pentagon's Senior Climate Advisor Delivers Talk on Security, Climate Change in Latest SGL

(NPS.edu 30 Apr 21) ... Mass Communication Specialist 3rd Class James Norket

Mr. Joseph Bryan, Senior Advisor on Climate to the U.S. Secretary of Defense spoke virtually to Naval Postgraduate School (NPS) students, faculty and staff about "The Security Implications of Climate Change," and how the United States military and the world can benefit from reducing carbon emissions during the latest Secretary of the Navy Guest Lecture (SGL), April 27.

Bryan is an internationally-recognized expert on energy policy and clean energy, serving as Deputy Assistant Secretary of the Navy for Energy during the Obama Administration.

Quoting Secretary of Defense Lloyd Austin, Bryan began the lecture by saying, "There is little about what the Department [of Defense] does to defend the American people that is not affected by climate change."

"That couldn't be more true," he said. "Climate change has an impact on the DOD in terms of supply and demand, and climate is driving both of these lines in the wrong direction. Mission demands from climate are going up, and more severe weather impacts our ability to respond."

Bryan named a few examples of how mission demand will increase, pointing to incidents around the world that are affected by climate change and have a direct impact on the United States military. He mentioned how the Arctic is warming at twice the rate of the rest of the planet, causing multiple countries to compete for newly-available resources and influence. He spoke about how warmer temperatures and drought in the Middle East contribute to instability and challenge for local governments.

He talked about how hurricanes, wildfires, power outages and extreme temperatures in regions where U.S. forces conduct training all directly impact the ability for the U.S. to effectively prepare and conduct



missions. He also talked about vulnerabilities caused by dependence on energy sources whose production is dominated by peer adversaries. Lithium ion batteries, for example, are used in countless systems used by the U.S. military. China's dominance in the supply chain of these batteries, from mining through production, is a serious vulnerability, he explained.

"It is important for us to look at not only the effects that climate change has on the world, but the impact it has on the mission," Bryan stressed. "Because they are inextricably linked."

After his prepared remarks, Bryan opened the floor to NPS students, posing questions on everything from the DOD's plans to reduce its carbon footprint, to the short- and long-term effects of a successful transition to clean energy.

U.S. Navy Lt. Monica Killoran for example asked, "How might climate change facilitate opportunities for increased international cooperation?"

Bryan replied, "This is not a problem the United States can solve on its own, and so we need to work with the world community to address carbon reductions to transform our economies. I think there's going to be tremendous international cooperation required."

U.S. Navy Lt. Cmdr. Kellen Jones, a Ph.D. candidate in Meteorology, asked, "Does the DOD plan to invest in research and development for alternative carbon-neutral fuels?"

Bryan responded by saying, "We're going to need to figure out how to address that part of our portfolio. We also are going to start thinking about new platforms. I think at some point we're going to be thinking about what comes next, both on the fuel side and what comes next on the platform side. I know there's some great research happening in both the Navy and in the other services around that."

[Pentagon's Senior Climate Advisor Delivers Talk on Security, Climate Change in Latest SGL - Naval Postgraduate School \(nps.edu\)](#)

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RESEARCH:

Naval Warfare Studies Institute: Innovation through Collaboration

(Georgetown Security Studies Review 26 Apr 21) ... Joshua O'Day

The Department of Defense is seeking new, innovative ways to maintain a military advantage over its adversaries and perceived threats. On March 10, 2020, the Department of Defense reported that "near-peer threats are at the highest point since the Cold War." China and Russia are seen as the closest military competitors to the U.S., with China making huge strides over the last decade to bolster its naval fleet. CNN reported that China may have the largest Navy in the world, surpassing the U.S. in recent months. The U.S. military is searching for new ways to tackle the rising challenge of China, as well as Russian regional aggression. Innovative thinking about the complex problems posed by China and Russia is paramount. The **Naval Postgraduate School (NPS)**, an institution that has worked to solve complex national security problems since its inception, took another step towards helping the U.S. maintain a military advantage by founding the Wayne P. Hughes Jr. Naval Warfare Studies Institute (NWSI) in December 2020.

NWSI is uniquely designed to address current and future national security issues by building relationships between six key stakeholder groups: the Naval Education Enterprise, the Naval Research and Development Establishment, the Service headquarters and supporting establishment, industry, academia, and the Sailors and Marines of the Fleet/Fleet Marine Force. Together, these stakeholders will "coordinate NPS inter-disciplinary research and education to accelerate and enhance warfare concept and capability development."

One way NPS is fostering inter-disciplinary dialogue is by ensuring all NWSI members are aware of and focused on emerging concepts and capabilities through a series of "Seapower Conversations" events. The first event was held on February 9, 2021 and featured contributors to the Tri-Service Maritime Strategy entitled "Advantage at Sea." The Navy, Marine, and Coast Guard representatives



explained how the strategy focuses on “China and Russia, the two most significant threats to this era of global peace and prosperity,” and also how the strategy outlines a plan for the next decade along five themes: generate Integrated All-Domain Naval Power, strengthen our alliances and partnerships, prevail in day-to-day competition, control the seas, and boldly modernize the future naval force. During the event, the moderators and presenters discussed the diverse challenges China and Russia pose for the U.S., and described how the Tri-Service Strategy prescribes an effective, unified solution for addressing strategic problems. The strategy is a testament to the knowledge and experience of the authors, as it displays creativity and ingenuity in addressing how the U.S. can best counter efforts by both China and Russia. NWSI helps ensure, first, that every NWSI member is aware of the strategy, and second, helps coordinate the collective planning, designing, and capability development necessary for strategy execution.

The innovative Tri-Service Strategy captures what can be produced through inter-service collaboration, as well as how NWSI can draw on its highly-talented and diverse membership to support its realization. As global challenges mount for the military, NWSI can be a hub for devising unique solutions and thinking creatively about concepts and capabilities. Sharing new approaches for complex strategic and operational problems between internal service stakeholders, key industry partners, and academia will play a crucial role in strengthening U.S. national defense. This collective effort to bolster U.S. national defense, with NWSI as a critical coordinator, is necessary for countering current and future threats posed by near-peer adversaries.

<https://georgetownsecuritystudiesreview.org/2021/04/26/naval-warfare-studies-institute-innovation-through-collaboration/>

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Design Challenge Seeks to Advance Prototype for “Athena” Collaboration Tool

(Navy.mil 28 Apr 21) ... Mass Communication Specialist 3rd Class James Norket

(NPS.edu 28 Apr 21) ... Mass Communication Specialist 3rd Class James Norket

In an effort to modernize the way that research is conducted and shared, the Naval Postgraduate School (NPS) hosted a design challenge workshop for students, faculty and staff to further develop Athena, a collaborative research tool, April 17.

Athena is currently a prototype tool that demonstrates what it might be like if NPS researchers were able to seamlessly share current research, all past research and even find sponsors for future research opportunities. Ultimately, developers hope Athena will be a research collaboration portal that encourages diverse, but like-minded teams to tackle Navy and Marine Corps challenges and support the rapid iteration of solutions that support the fleet and force.

In its final form, anybody in the DOD with a challenge could access Athena. They would login, use keyword search functions to see if anyone experienced similar challenges, and explore existing research related to the problem. If the search returns no results, the person can then utilize Athena to submit a thesis topic for future investigation by students at NPS.

“Athena has true potential to change the way that we do business in the United States military,” said NPS student U.S. Marine Corps Capt. Ben Cohen.

Cohen is leading the development for Athena, and believes that the program will make years of research available at the click of a button.

“Anybody in the fleet Marine Force or Navy is able to come to Athena and search for information in a problem they are facing, and maybe there's already a solution in place,” said Cohen. “If the answer is not there, you can present the problem to students and faculty who can conduct the research as part of their thesis.”

Helping conduct the design challenge workshop were facilitators from the Center for Adaptive Warfighting (CAW), an organization that trains Sailors and Marines on the best practices for complex problem-solving and ideation.



According to U.S. Marine Corps Capt. Michael Troncoso, a volunteer at CAW and an NPS alumnus, they all came together to brainstorm concepts and ideas to solve issues and problems associated with collaborating across our defense system. Troncoso noted that this collaboration is necessary to take a prototype such as Athena and make it a better platform useful for an enterprise such as the entire DoD.

U.S. Marine Corps Lt. Col. David Forbell, the NPS Deputy Senior Marine Representative expressed that students often approach him with a yearning to solve real-life problems with their research.

“The students are chomping at the bit to solve these problems, but they don't always know what the problems are or where to go or who to ask,” continued Forbell. “That’s where Athena brings everything together. It brings the research demand and the research supply together.”

[Design Challenge Seeks to Advance Prototype for “Athena” Collaboration Tool > United States Navy > News-Stories](#)

[Design Challenge Seeks to Advance Prototype for “Athena” Collaboration Tool - Naval Postgraduate School \(nps.edu\)](#)

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NPS Professor, Students Explore Innovative Ways to Power the Navy

(Navy.mil 28 Apr 21) ... Rebecca Hoag

(NPS.edu 28 Apr 21) ... Rebecca Hoag

Imagine a machine that collected water from the air, broke the water down into hydrogen and oxygen, then used hydrogen as a power source. That’s the goal of Dr. Anthony Gannon, associate professor at the Naval Postgraduate School’s Mechanical and Aerospace Engineering (MAE) school, and his rotating group of thesis students, who are applying their interdisciplinary education and research to support developing these new capabilities. Gannon has been working with students towards this goal since 2016.

The original idea was just the first part, collecting moisture from the atmosphere, but then MAE Chair Dr. Garth Hobson pushed Gannon to go further.

“When he saw what we’ve done there, he said, ‘You’ve got electricity and you’ve got water, so you might as well make hydrogen,’” Gannon says, recalling the conversation between him and Hobson.

Being able to get energy from moist air would reduce challenges in transporting fossil fuels to bases in deployment locations. Hydrogen is also lighter than other forms of fuel, which would be advantageous for running small devices off submarines, hypothetically fueling drones from the surrounding water instead of going up to be refueled. Finally, hydrogen power can be used as a method of storing excess energy produced by renewable sources.

Gannon proposed the idea to the Office of Naval Research (ONR), who now funds the research. Since then, he’s found a number of students interested in helping at each part of the energy generation. They are only using technology that is commercially available for practical reasons.

Automatically compressing hydrogen

Hydrogen is traditionally produced as a byproduct during natural gas reforming when natural gas is hit by high pressure steam. The hydrogen is then usually transported in bottles on trucks or via pipeline. With economical or environmental considerations in mind, U.S. Navy Lt. Joshua Lewis is looking to produce a small, compact and mobile system that captures hydrogen from the air.

“If I create a mobile system that runs on renewable sources, I can drop this thing anywhere in the world and start producing hydrogen gas,” Lewis explains.

He envisions using this method of hydrogen energy production to power drones, like a commercial medical drone that currently runs on batteries. It would decrease the turnaround time for these systems because the operator would no longer have to wait for the batteries to charge.

His system involves a dehumidifier to take moisture out of the surrounding air, an electrolyzer to separate the hydrogen from the water collected, and a compressor to compress the hydrogen. All these systems would be solar-powered. Navy Ensign Charles Heaton has been working closely with Lewis to power hydrogen generation on solar and to automate the whole process.

From fossil-power to hydrogen-power



Navy Lt. Emille Nicholas Perez is working to convert a small industrial engine to run on gas. Traditionally, these engine runs on a kerosene and synthetic oil mixture for both fuel and lubrication. Perez wants to create a baseline for the engine to run on gas, and then another student can pick up where Perez leaves off to shift the engine from running on gas to hydrogen.

Meanwhile, Ensign Ethan Hardt is picking up where a previous master's student Ensign Brianna Kaufman left off, converting a natural gas and propane-powered turbine to run on hydrogen power instead. His predecessor developed the hydrogen supply system and was able to run the retrofitted system for a short period of time.

In addition to all these individual projects, the team is working to run a quadcopter on a hydrogen fuel cell. While current copter designs are not optimized for being run on hydrogen, Gannon says that running it on hydrogen could increase the run time from 20-30 minutes to up to 180 minutes.

Ultimately, Gannon and his students are working to optimize energy access in difficult operational environments – environments that his students know very well with their operational experience providing real-time recognition of exactly what an operator needs.

In addition to their research, Gannon says his students, Gannon says, have NPS students are known to be excellent translators of operational needs into solutions.

“They’re very keen and very bright, and some of the guys who have been on tour, they have practical insight,” Gannon says. “Once we bring them up-to-speed on the analysis side, they are powerful because they can bring the analytical tools and experience together.”

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NSWC Dahlgren's Innovation Expands Wargaming And Simulation Horizons

(The Bay Net 2 May 21)

Naval Surface Warfare Center Dahlgren Division (NSWCDD) engineers have designed and patented a new modeling and simulation tool – a new framework allowing scientists, warfighters and college students to model ideas and develop wargaming scenarios seamlessly.

“OSM” stands for Orchestrated Simulation through Modeling and its impact on major military exercises, technical programs and wargames is “awesome” indeed.

When NSWCDD engineers Clint Winfrey and Mike Maldonado discuss OSM – a framework that defines utilities and interfaces for domain-agnostic modeling and simulation – they also describe the Modeling and Simulation Toolbox (MAST) architecture built on OSM.

“The opportunities and possibilities for analysis using OSM and MAST are unlimited,” said Maldonado, NSWCDD Modeling and Simulation Branch deputy program manager. “The framework is built for speed and provides anyone with the capability to model and test an idea quickly – in minutes – to see if it’s going in the right direction. That is a huge advantage because we understand that many of our customers have low fidelity ideas and hypothesis that need to be modeled. They need to see if they are on the right track, and the tool provides our users with that capability.”

MAST is an agent-based modeling and simulation application with which analysts create models from building blocks for any branch of the Department of Defense (DoD). MAST executes the building blocks against each other thousands of times and analyzes the results. These building blocks are coded at a low resolution in order to reduce execution time for effects-based, system-of-systems studies.

The earliest version of MAST – used for analysis with custom OSM plugins – was initially built for the Missile Defense Agency (MDA).

“It started when we were making a simulation for MDA that allowed a high run count modeling application,” said Winfrey, a Dahlgren software developer who created the OSM prototype in 2012 with



input and design decisions from his NSWCDD colleagues, Ben Baldwin, a physicist and Dr. Mary Ann Cummings, the project lead.

“Ben was designing and making the models,” Winfrey recounted. “I was coding the framework. People loved the application, but the approach we came up with to do it was what really made it special.”

A patent was awarded to Winfrey, Cummings and Baldwin for the OSM framework in 2016.

“Once it was awarded, we finished formal development and released the developer toolkit so that others could make plugins for the framework,” said Winfrey. “The MAST team continued making plugins specific to our users, and the tools kept growing to include additional plugins to meet the needs of new users. We started making upgrades to the framework itself about two years ago. This coming year, we are making a new and improved developer toolkit.”

The most important feature of OSM is its definition of the plugin types – graphical user interface elements and Discrete Event System Specification (DEVS) frames.

There are three DEVS framework plugin types – model, simulator and experiment – matching the formalism defined by Dr. Bernard Ziegler, University of Arizona emeritus professor, who invented DEVS in 1976. Graphical user interface, model, simulator and experiment plugins can be developed separately by different organizations and joined together with no additional coordination other than meeting the OSM standard.

“MAST is specific to the military domain, and so an additional framework portion called OSMil was built on top of OSM,” said Maldonado. “OSMil defines military-specific interfaces and utilities in addition to two new plugin types: state and trigger.”

With the state and trigger plugin definitions, developers can create the building blocks analysts need to create complex state machines.

“We have the capability to work with anyone who has an idea, including concepts with a wargaming component, to actually build a scenario along with the ships and assets required – just click, drop and touch the screen,” said Maldonado. “It provides that option to a member of a community who says, ‘I want to create a scenario or an event quickly. Time is a big challenge, so if you can create a rapid simulation and not rely on somebody to help you put it together – that is a huge accomplishment.’”

Moreover, MAST offers a human-in-the-loop wargaming capability that positively impacted and adjudicated live events, war-games and military exercises such as Valiant Shield and Northern Edge.

Exercise Valiant Shield – one of the largest war-games held in the Pacific Ocean – focuses on cooperation among military branches and on the detection, tracking, and engagement of units at sea, in the air, and on land in response to a wide range of missions. Northern Edge is Alaska’s largest biannual joint-military training exercise that prepares thousands of joint service members to respond to crises in the Indo-Pacific.

Besides military exercises, the Dahlgren team applied MAST and the military version of OSM to simulations while collaborating with customers from the Marine Corps to the **Naval Postgraduate School (NPS)** on wargaming. During one such collaboration, NPS provided myriad techniques to enhance the tool, including a new implementation in their experimental plugin that is now used by analysts all over the country.

“In the future, we expect similar collaborations with other tools and a continuation of a rapidly growing user base,” said Maldonado, adding that the OSM-MAST combination is also used to perform fast-executing and high-run-count studies, which highlight the possibilities for a given scenario.

Any time a new capability is added to MAST, the problem is compartmentalized to a given plugin – GUI, model, simulator, experiment, state or trigger. When an analyst finds that a task cannot be completed with the existing plugin building blocks, a developer is called to modify one or create a new building block.

“We expect the wargaming piece to get further traction for use in wargaming events across sites,” said Maldonado. “At this point, we have over 100 users who are focused on solving problems for the Navy. Some of them are paying customers, and that means they get to determine what types of plugins are made.”

Customers who need a component that is not available in the OSM and MAST libraries can create their own plugins. The libraries define standards that allow plugins to be developed separately and

combined as an application. For example, users can build products for a new ship or radar and make it available in the system for future users.

“MAST provides an open source programming capability where people can customize the models to their own needs by leveraging items they already have while contributing to our programming database model,” said Maldonado.

NSWCDD Mission Engineering and Analysis Division analysts are also available to help users develop and analyze complicated scenarios. “When a lower fidelity analysis is necessary to test out scenarios quickly, our analysts can take advantage of plugins that have been created and assist with rapid turn-around analysis that keeps a project on track while providing essential insight,” said Jennifer Boyd, NSWCDD Digital Modeling Division head.

What’s more, the NSWCDD Modeling and Simulation Branch’s military and civilian customers can access the newest models in the MAST portfolio such as the Naval Air Systems Command-developed Next Generation Threat System (NGTS) and the Dahlgren-developed High Power Microwave.

NGTS – a synthetic environment generator used to support training, testing, analysis, research and development – consists of three main components: the simulation engine, which models platforms, weapons and subsystems; the battle monitor, which displays entities in the synthetic environment and controls the system’s entities; and the database, which contains parametric data for platforms, weapons and subsystems.

“We would like to empower the modeling community to use OSM and MAST for developing scenarios,” said Aaron Anderson, NSWCDD Modeling and Simulation Branch head. “Our vision is to grow the user community for the tool because it’s extremely flexible.”

In terms of a classified project, many simulation tools lack flexibility to develop unclassified portions in an unclassified environment. All development must take place on base in a classified environment. The majority of actual code written by the Navy would largely be unclassified if this decoupling pattern were expanded further.

“We do not have that limitation, and since everything is plugin-based, we can still do most of our work remotely on the unclassified side,” said Maldonado. “The increased telework has been a revelation for us. Our team has maintained productivity levels, and we continue to maintain our resolve during these difficult times. We keep in close contact with each other via daily standups and regular team meetings. We call and message each other constantly.”

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Workforce 4.0: Americans Tackle Artificial Intelligence

(Forbes 3 May 21) ... Swathi Young

According to a recent World Economic Forum report, 50% of all employees will need reskilling by 2025. In the U.S. government alone, 18.2% of the federal government retired in 2020. Another 34% will be eligible for retirement by the fiscal year 2023. Our workforce demands are urgent.

Emerging technologies such as artificial intelligence (AI) and machine learning (ML) are increasingly adopted even without our knowledge. Their potential seems limitless. Jobs in AI range from data scientists and subject matter experts to data engineers and data analysts to economists, technical writers and ethicists. With this new frontier and the fact that these tools touch every aspect of our lives, leaders across the workforce spectrum see this as an all-hands moment.

Emerging Challenges

The pandemic of 2020 has hastened the dependence on technology. Workforce transition, discontinuity and the wholesale embrace of emerging technologies are co-occurring. With change universally at hand, opportunities for workforce reskilling and upskilling are bountiful.



In anticipation of this major workforce pivot, federal government leaders collaborated with Harvard, Johns Hopkins, the **Naval Postgraduate School**, NavalX and hundreds of industry and government stewards. Through the American Council for Technology and Industry Advisory Council (ATC-IAC), the AI Working Group met for the last two years to develop the following frameworks to help U.S. government agencies adopt, implement and educate AI technologies as well as evaluate ethical outcomes of AI.

At every stage, it is necessary to question everything relating to the consumption of AI. These four guides serve as valuable tools to help lead government and industry on bias, fairness, transparency, responsibility and interpretability of AI.

1. AI Primer

The AI primer introduces artificial intelligence technology and outlines the various terminologies associated with AI and ML. It also involves an overview of the key concepts intended to help agencies better understand this emerging technology and its growing impact.

2. AI Playbook

The AI playbook follows the AI primer as a companion process with a series of phases to support the U.S. government in its understanding and application of AI for its mission. It has five phases. It also enables collaboration across multiple divisions and agencies to provide more effective and efficient services to citizens.

3. Ethical AI Framework

No one is without bias. However, AI can perpetuate human biases to create unfair outcomes. This framework can help evaluate and provide indicators across the five important aspects — bias, fairness, transparency, responsibility and interpretability — to evaluate data, algorithms and ethical outcomes of AI.

AI is becoming an influential cornerstone of the digital future and is increasingly relied on to support and inform the world. As organizations become more dependent on AI, there is a need to determine how much confidence and trust to place in them. The ethical AI framework helps with determining the outcomes of the AI systems and building social trust.

4. AI Workforce Certification

To improve the workforce, a robust conversation regarding training and certification of AI knowledge and skills is essential. This program allows for AI certification and uniform verification of a level of knowledge and necessary skills to develop the next generation workforce.

AI knowledge and digital competencies will equip more federal employees with the ability to make decisions by applying AI to solve agency mission goals as appropriate.

Unified Approach

It is paramount for all to understand how the U.S. government is preparing for the digital disruption caused by the Fourth Industrial Revolution. Several initiatives have been launched by the U.S. government in collaboration with the private sector and academia.

It is refreshing to know that forward-thinking U.S. federal agencies are championing these frameworks. However, their recognition of the importance of transparent development, deployment and monitoring of ethical AI is just the beginning.

With the largest patient population in the United States, the Veteran Administration's National Artificial Intelligence Institute (NAII) recognizes both the potential and the risks associated with AI. Leaders recognize that while developing and deploying one-off applications that address immediate needs demonstrate ingenuity and gusto, shadow services can leave veterans exposed.

It seems ironic to squelch innovation. Yet, the VA recognized the ethical imperative of uniform development, deployment and monitoring frameworks for emerging technologies such as AI. Moreover, the VA recognized there is not enough skilled labor in AI and other emerging technologies. Practically



speaking, the United States and the free world must deploy a uniform talent, recruitment, education and a mentoring system.

In concert and certainly contrast, the United States Consumer Protection Safety Commission is embracing the adoption of ethical AI and suggests that there is something for everyone who is looking to capitalize on these emerging technologies. The skills required pay well and vary greatly. All require the recognition that the ethical development of these technologies go hand in glove with any workforce education and retention initiative.

Strengthening federal agencies' AI knowledge could have a direct impact on the government's ability to fulfill its mission. While making certain that there is a minimum standard of AI understanding within the U.S. government, the next communal step would be to think of the possibilities found in identifying, training and mentoring the future workforce today.

[Workforce 4.0: Americans Tackle Artificial Intelligence \(forbes.com\)](#)

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FACULTY:

NPS' Peter Denning Adds Computer Pioneer Award to Long List of Honors

(Navy.mil 28 Apr 21) ... Mass Communication Specialist 3rd Class MC3 Leonard Weston

(NPS.edu 28 Apr 21) ... Mass Communication Specialist 3rd Class MC3 Leonard Weston

The list of accolades and awards for Naval Postgraduate School (NPS) Distinguished Professor Peter Denning continues to get longer. The Institute of Electrical and Electrical Engineers (IEEE), which recently renamed its Computer Pioneer Award to the IEEE Computer Society Women of Electronic Numerical Integrator and Computer (ENIAC) Award, recognized Denning for significant contributions in virtual memory, Internet development, infrastructure, and computing education on Feb. 2, 2021.

Since 1981, the society has recognized and honored the vision of those who aided the computer industry and presented the award to individuals who in at least 15 years prior contributed to the creation, concepts, and development of the computer field.

"I'm glad that other people appreciate the contributions that I made, and I certainly don't profess to be the only one who made them," said Denning. "When somebody says you were a pioneer and something that they're looking back into the distant past, it made me remember that I worked on those things but am no longer working on them and now I'm working on new things that matter in today's world."

Denning's early work helped contribute to the creation of the network that connects the world – the Internet. He began his work with the Advanced Research Projects Agency Network (ARPANET), today known as Defense Advanced Research Projects Agency (DARPA). His work on these networks allowed a project, Computer Science Network (CSNET), to be funded by the National Science Foundation (NSF), which helped develop a network only available to DoD personnel before being opened to the public.

"He has, throughout a long career, been renowned for continually introducing fresh perspectives," added NPS Distinguished Professor of Defense Analysis Dr. John Arquilla. "NPS has benefited tremendously from Prof. Denning's presence in the classroom and from his body of work that has tremendous implications for the Navy and the Department of Defense."

Denning noted that his work in virtual memory, done as a student at the Massachusetts Institute of Technology (MIT), helped figure out flaws that were slowing down the computers of that age and with his work he was able to increase the speed at which a computer could "think."

"I think at that time, if we hadn't been able to solve those performance problems, this great invention might not have succeeded," noted Denning. "It would have just faded away."

His expertise in these fields eventually led to developing a curriculum that blended the "flavor" of computing in math and science with the electrical engineering side by running task forces and committees.



"The National Science Foundation decided that it wanted to create a network connecting the supercomputing centers that had been established, and so it took all the graduates of our network and they designed the so-called NSF-net," recalled Denning. "Connecting all the supercomputers and that, before very long, became the backbone of what we call the modern Internet."

"This was very successful and brought the two major computing societies at the time, IEEE and the Association for Computing Machinery (ACM), into partnership," he continued. "Ever since that time, they've worked to issue periodic updates to the computing curriculum."

Denning's expertise adds to the education of NPS students who are figuring out leading ways to advance our nation and military by allowing them to learn from a figure who has been there from the beginning of the technology that everyone in the world is using today.

Denning continued, "I think the students find that stuff interesting, to find out that it didn't exist at some point in the past, had to be invented and then it had to grow up into usable technology. I'm an eyewitness to many of those events."

Denning is the second NPS professor to receive this award, the 33rd significant awards of his prestigious career. He is placed among 106 other awardees and 32 charter recipients of the award, one of which was notable NPS Professor Emeritus Dr. Richard Hamming.

"It has been one of the great privileges of my professional life to work with Peter Denning," said Arquilla. "He is one of the great minds of our time and I am delighted to see that this Computer Pioneer Award is now added to the long list of honors that have recognized his trailblazing contributions."

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Iran Is More Than Persia: Ethnic Politics in the Islamic Republic [Video Interview]

(FDD.org 28 Apr 21)

When discussing and analyzing Iran, researchers and journalists often don't look beyond Tehran. But outside of Iran's Persian heartland, lives a complex mosaic of ethnic groups. Western assessments of the clerical regime's stability could benefit markedly from a better grasp of the ethnic factor and developments in Iran's border regions. Who are these ethnic minority groups? How does the regime in Iran treat them? What are their views on today's most pressing issues from neighboring disputes to sanctions and normalization? What may their role be in the future of Iran?

To answer these and related questions, FDD released a new monograph *Iran Is More Than Persia: Ethnic Politics in the Islamic Republic*. To mark its release, the monograph's author Dr. Brenda Shaffer joins former intelligence analysts and leading experts and journalists for a discussion on Iran's demographic composition, how the regime in Iran treats their minority populations, and why understanding this complex landscape should matter to the West.

Speakers

BRENDA SHAFFER

Brenda Shaffer is a Senior Advisor for Energy at FDD. A foreign policy and international energy specialist, she focuses on global energy trends and policies, politics and energy in the South Caucasus and greater Caspian and Black Sea regions, Iranian natural gas exports, ethnic politics in Iran, and Eastern Mediterranean energy. She is a research faculty member at the U.S. **Naval Postgraduate School**. She is currently researching and writing a book on ethnic politics in Iran. She is the author of several books: *Energy Politics* (University of Pennsylvania Press, 2009), *Borders and Brethren: Iran and the Challenge of Azerbaijani Identity* (MIT Press, 2002) and *Partners in Need: The Strategic Relationship of*



Russia and Iran (Washington Institute for Near East Policy, 2001). Energy Politics is used as a text book in over 200 university courses around the globe. She has also served as the editor for Beyond the Resource Curse (University of Pennsylvania Press, 2012) and Limits of Culture: Islam and Foreign Policy (MIT Press, 2006). Brenda has held a variety of academic appointments, including tenured professor at the University of Haifa, and visiting professor at Bifrost University in Iceland, and at the Azerbaijan Diplomatic Academy. She previously served as the Research Director for the Caspian Studies Program at Harvard University. She frequently provides research and expert counsel to international institutions, governments, energy companies, and regional security organizations. She has given testimony to several committees of the US Congress, including the Senate Foreign Relations Committee, and to the European Parliament. She frequently appears on Bloomberg TV and in major news outlets worldwide to provide insight on developments in the global oil market.

REUEL MARC GERECHT

Reuel Marc Gerecht is a senior fellow at FDD where he focuses on Iran, Iraq, Afghanistan, terrorism, and intelligence. He was previously a resident fellow at the American Enterprise Institute and the director of the Middle East Initiative at the Project for the New American Century. Earlier, he served as a Middle Eastern specialist at the CIA's Directorate of Operations. He is the author of *The Wave: Man, God, and the Ballot Box in the Middle East* (Hoover Institution Press, 2011), *Know Thine Enemy: A Spy's Journey into Revolutionary Iran* (Farrar, Straus & Giroux, 1997) and *The Islamic Paradox: Shiite Clerics, Sunni Fundamentalists, and the Coming of Arab Democracy* (AEI Press, 2004). He is a contributing editor for *The Weekly Standard* and has been a correspondent for *The Atlantic Monthly*, as well as a frequent contributor to *The Wall Street Journal*, *The New York Times*, and other publications.

AHMAD OBALI

Ahmad Obali is the founder of Gunaz TV, a broadcasting company based in Chicago that reaches millions of people in Iran, promoting human rights, ethnic rights, and freedom of information. The TV station operates in the Azerbaijani and Persian languages. Ahmad escaped from Iran in 1982 and immigrated to the United States in 1985. He has worked with various human rights organizations.

NORMAN ROULE

Norman T. Roule served for 34-years in the Central Intelligence Agency, managing significant programs relating to the Middle East. His service in the CIA's Directorate of Operations included roles as Division Chief, Deputy Division Chief and Chief of Station. He has held multiple senior assignments in Washington as well as during more than 15 years of overseas work. He served as the National Intelligence Manager for Iran (NIM-I) at the Office of the Director of National Intelligence from November 2008 until September 2017. As NIM-I, he was the principal Intelligence Community (IC) official responsible for overseeing national intelligence policy and activities related to Iran and Iran-related issues, to include IC engagement on these topics with senior policymakers in the National Security Council, the Department of State and Congress. He received multiple awards during his career. He works as a business consultant on Middle East-related political, security, economic, telecommunications, and energy issues. He also serves as Senior Adviser to the Counter Extremism Project, United Against Nuclear Iran, the Nuclear Threat Initiative and as a member of the Advisory Board of the Arabia Foundation.

JONATHAN SCHANZER

Dr. Jonathan Schanzer is senior vice president for research at FDD, where he oversees the work of the organization's experts and scholars. He is also on the leadership team of FDD's Center on Economic and Financial Power, a project on the use of financial and economic power as a tool of statecraft. Jonathan previously worked as a terrorism finance analyst at the U.S. Department of the Treasury, where he played an integral role in the designation of numerous terrorist financiers. He has held previous think tank research positions at the Washington Institute for Near East Policy and the Middle East Forum. Jonathan has written hundreds of articles on the Middle East, including *State of Failure: Yasser Arafat, Mahmoud Abbas, and the Unmaking of the Palestinian State* and *Hamas vs. Fatah: The Struggle for Palestine*, along



with more than a dozen monographs and chapters for edited volumes. He testifies often before Congress and publishes widely in the American and international media. He has appeared on American television channels such as Fox News and CNN, and Arabic language television channels such as Al-Arabiya and Al-Jazeera.

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ALUMNI:

Michelle Glenn Young Seeking Election to State College Area School Board

(StateCollege.com 26 Apr 21)

Michelle Glenn Young, a retired U.S. Navy commander and a mother of three sons, is seeking election to the State College Area School Board this year.

She is cross-filed on the Democratic and Republican ballots for the May 18 primary election.

Young, who was born in Taiwan into a military family with American and Chinese roots, served 22 years in the Navy before retiring in 2015 and moving to State College area with her family. After being commissioned in 1993, she served tours of duty on two aircraft carriers making deployments in the Persian Gulf and Western Pacific. Young completed several tours ashore at various headquarters, managing programs with budgets of \$995 million and supervising more than 400 people, according to a press release.

“As a career Naval officer and leader, I feel it is important to put programs and policies in place that encourage our children to learn and engage in logic-based critical thinking, creativity and positive interpersonal collaboration; all with the intent to improve problem solving skills,” she said.

She received a bachelor’s degree in political science from the University of California, San Diego and earned two master’s degrees from the **Naval Postgraduate School** and the U.S. Marine Corps University.

Young now lives in Ferguson Township with her husband, also a retired Navy officer, and three sons, two of whom attend Delta Middle School and one of whom is a student at Ferguson Township Elementary.

She said her second career as a stay-at-home mother and volunteer with the district and youth sports gives her a unique perspective.

“I believe the best predictor of a child’s success is the extent to which families encourage all learning and involve themselves in their children’s academic and personal development,” she said.

Young has served on the Ferguson Township Elementary PTO executive board for the last five years and substitutes as a paraprofessional in the district. She is a parent advisor for the Delta Middle Student Advisory Council and chairs the SCASD Citizens Advisory Committee for Technology.

She added that she is “experienced in navigating SCASD special education and gifted policies and procedures taking specific interest in helping fellow special needs parents navigate the SCASD system.”

Young also provides support for State College Youth Wrestling, State College Lions Youth Football and State College Little League.

She said her ability to identify with many people of varying backgrounds will help her “represent different groups in our community and ensure that others have a voice in the SCASD decision-making process to close achievement and opportunity gaps.”

Young added that her experience managing multi-million dollar programs “can help influence the fiscal health of the district and how taxpayer money is spent,” and that her communication and listening skills will help “facilitate stronger ties between the school board and other community stakeholders.”

“I am committed to fostering the intellectual and personal growth of students, inspiring them to lead a purposeful life,” she said. “We accomplish this by instilling in them strong moral characteristics such as integrity, courage, fortitude, work ethic, and gratitude so they are able to flourish in an ever-changing global society.”



Young is one of seven candidates seeking four State College Area School Board seats up for election this year. She is joined by Deborah Anderson, Peter Buck, Carline Crevecoeur Jackie Huff, David Hutchinson and Dawn Lorenz. Each candidate is cross-filed on both primary ballots.

<https://www.statecollege.com/michelle-glenn-young-seeking-election-to-state-college-area-school-board/>

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The Navy Re-Focuses on the High-End Fight: What Implications for the Navy Reserves?

(SLDInfo.com 26 Apr 21) ... Robbin Laird and Ed Timperlake

In working on our book for USNI press, we have focused on how the U.S. Navy is reworking its approaches to shape new capabilities for the high-end fight. Obviously, a refocus from a two-decade primary role in supporting land wars to a return to blue water expeditionary operations is a significant one. And clearly one which affects the Navy's reserve forces as well.

Recently, we had the privilege to talk with Vice Admiral John Mustin, Chief of Navy Reserve, N095, to find out how he was working the way ahead to make sure the reserves integrate into full spectrum crisis management which if deterrence fails will lead to a high-end US and Allied Air/Sea combat campaign.

The key point which he made in the guidance he released last Fall on the way ahead for the Navy reserves is visionary: "... the changing geopolitical environment forces us to modernize our thinking, our force structure, our training and our operations to address the realities of a future conflict. Simply said, we cannot assume tomorrow's war will look like yesterdays. Hence my Theory of the Fight includes accelerating our transformation to ensure we get, and remain, 'future-ready.'"

Vice Admiral Mustin went on insightfully to state: "The reserve force today is optimized perfectly to support the global war on terror. Many of our processes, our unit structures, billets, training procedures, even the way that we mobilize sailors do a fantastic job meeting the specific requirements of a counterinsurgency, counterterrorism, non-maritime, land-based conflict, particularly in CENTCOM and the horn of Africa.

"My comment in my commander's guidance was that is not likely to be effective to address the next conflict, and if I am reading the tea leaves properly in this era of great power competition, we're going to need very different skills.

"The Navy has recognized this, and the Navy is transforming. And I did not feel that the reserve force was working quickly enough to reflect that transformation in our reserve-specific force structure, processes, and procedures.

"We are working very closely with the fleet commanders. We are focusing on answering their needs. 'What is it that you need and value?'" And equally important; "What does the reserve team do for you today that you don't value?"

"My job has been to take fleet feedback and then shape the future structure of the reserve force, to address those specific needs. For the numbered Fleets there are several capabilities that leap to the fore, specifically emphasis on their maritime operations centers, both capacity and capability. Related but not explicitly tied to the maritime ops center is expeditionary logistics that are explicitly tied to our distributed maritime concept of operations. And one echelon down is a focus on expeditionary advanced base operations.

"Everything I just described is ripe for reserve force contribution. We've begun the process now to determine where we have elements of the reserve force that are relatively low value as it relates to CNO and fleet priorities. How can I harvest some of the current existing units and billets to meet priority needs, and how can I take our sailors out of low value jobs and create new high value jobs given the strategic shift to the high-end fight?"

"That's an initiative underway right now, and I'm happy to report there's a number of things that I'm able to do in this fiscal year. There are also certainly things that are on the roadmap for fiscal year 22 and



some for 23 and 24 and beyond. But I want to move out now because I just don't know that we're going to have a lot of time to make those changes when the shooting starts."

In World War II a well-respected historian Max Hastings in a seminal work, "Inferno" determined that after a difficult start the US Navy was at the end of the war the most effective fighting force of all combatant forces of all nations. Admiral Mustin took pride in that historical example but correctly observed that today the U.S. Sea Services may not have the luxury of time. They must be trained and equipped to win the fight and get it right, right now.

Question: We are focused on the strategic shift and how that demands significant change in warfighting and escalation dominance.

A different set of skill sets are clearly required.

Clearly, we have seen at Second Fleet, that a key priority is C2 for a distributed integrated fleet.

This requires different skill sets as well.

There is a whole new generation of digital warriors in our society as well.

How are you focusing on re-shaping the reserves to harvest the opportunities in civil society and to focus on the critical skill sets for the "new" Navy, so to speak?

Vice Admiral Mustin: "That's a perfect scene setter. I completely agree that what made us successful over the last 20 years, post 9/11 is not what's going to make us successful into the next few decades.

"Working with Vice Admiral Lewis has been important as well. As Second Fleet Commander, he clearly understands that we need to shape a new approach. When I was in High School in the 80's, my father was Second Fleet Commander, so I can legitimately say that "The new Second Fleet is not your father's Second Fleet.

"What he wants and what we are offering started with a clean sheet of paper as it relates to the design of the reserve force for C2F.

"I've looked at every other numbered fleet to determine which model works best for us. And then, perhaps not surprisingly, I recognized the reserve design supporting each fleet was different. What that tells me is that there is a need for us to establish a template where we can get at 80% of the core competencies, the missions, functions, and tasks associated with the C2 in the maritime element. And then there's certainly some peripheral amount, call it 20% hypothetically, tailored to the region, the AOR, the theater. Shaping a template for C2 is a key element around which we can shape fleet design going forward, as well as shaping the skills required to support that design.

"If you go on the second fleet watch floor right now, there will be a handful of reserve officers and sailors that are standing watch. And early in my tenure I mentioned to Vice Admiral Lewis, that rather than build a team that shows up a weekend a month, two weeks a year during exercise support requirements, why don't we build a team that's fully integrated so that they work with their chiefs of staff, their division directors, their N codes as we call them, their department heads by function. And let's have them plugged in every day, not just on weekends.

"And I don't mean 365 days, but if an average sailor can do roughly 38 days a year — that's just the sum of a weekend a month, and two weeks a year. There's nothing that says it has to be a weekend a month and two weeks a year, I could do 30 days consecutively and then not see them again for six months, or we could do groups of five days or 10 days., We can be as flexible as we want.

"If we invest time upfront to training them to their watch station, then we get production time out of them by having them show up and actually stand the watch. And that's good for second fleet as well as for the reserve sailors, because they earn a credential that is permeable and enduring. So they can then take a billet at their next job at another fleet. That means that the skills that we've invested in them are permeable and they can plug in immediately to another fleet.

"Admiral Lewis was very receptive to the idea and frankly, after hearing it said, "Okay, this isn't a course of action. This is your tasking, make it happen." He has been very receptive to saying, let's build full integration. I don't want there to be a distinction. And I told him if we do this right, no one will ever know the difference between a reserve and an active sailor. You're just a sailor. And you're a sailor that's



contributing to the requirements of second fleet, whether that's at an expeditionary environment or operating at the headquarters building.”

Question: The reserves bring significant experience to the active-duty force.

This has been a key to navy success in the past, how do you see this going forward?

Vice Admiral Mustin: “The focus on fleet ops is critically important to me. I just had a conversation with CNO today about the strategic imperative to restore seagoing ratings to the reserve force. Right now, we do a fine job in staff headquarters, but when it comes to getting folks on the waterfront, it's more of a challenge. For every sailor that says I've got the time and the inclination, we can get them afloat, so that's a goal of mine.

“A key problem we face is not having a lot of time to mobilize in the face of significant conflict. With regard to our reserve component, there are two kinds of readiness. There is mobilization readiness, and there's warfighting readiness. Mobilization readiness is the cost of being a reserve sailor. You need to maintain your readiness to mobilize when asked. And that means you've done your dental checks and your medical checks, and you've done your physical fitness assessments and your general military training. That's kind of the standard stuff that title 10 pays for in the number of days, the weekend a month and the two weeks a year, and that's up to you.

“You don't get a Navy Achievement Medal for being mobilization ready. In fact, if our sailors can't maintain mobilization readiness, I will ask them to leave the service because it's a privilege to serve, not a jobs program.

“The more challenging side is the warfighting readiness piece. And that's where I'm investing a lot of time and effort to understand the training pipelines, the timelines, the costs, the billets, the units, et cetera, because my assumption is we need to be ready on day one of a conflict. I'm also working very diligently to improve the processes to mass mobilize our people.

“And I've committed to the CNO that in January of 2022, we will be able to mobilize 49,000 sailors in 30 days, which is about 15 times the throughput capacity we had when I took office here.

“We need to be ready to go because we're not going to have five years to ramp up, to get good at our jobs like we did in World War Two. We have to be good at our jobs now. I want to use every penny of training dollars and every iota of time when we have our precious sailors in uniform, and get them training to be good at their billets, because I just don't feel like we've got the luxury frankly, of waiting.

“And that said, I will tell you, I'm thrilled that we just celebrated our hundred- and six-year anniversary as a reserve force. And though we have contributed in every significant conflict in our nation's history, post-World War I, we've never been caught by surprise in mobilizing the reserve force.

“What does that mean? Well, I told you, we have to be ready because it's likely to be short notice. This means having the reserves as a key contributor to the active-duty force, particularly as it builds out for conflict, and that means having the kind of experienced reserve sailors that you referred to as key players in the process.”

Question: Do you see the transition of the technological revolution embodied by people being involved with the Navy as reserves as having value added?

Vice Admiral Mustin: “I absolutely do. And you hit the nail on the head. I can write a book on the countless stories of folks who have a unique set of civilian skills, that are ready to serve the nation in uniform.

“There are a wide variety of critical skills that the reserve force brings to bear: think big data and analytics, data visualization, predictive analytics, 3D manufacturing, space, cyber, unmanned and autonomous systems. We've got folks who work in all of those program areas as civilians, and also in units that support the operations or the concepts of employment.

“We've got Silicon Valley folks, we've got venture capitalists, private equity players who understand what's happening in the technology sector and areas where we can take advantage and apply their skills and insights to what we do in uniform. The challenge I wrestle with frankly, is how do you scale that?”

In short, we focus in our forthcoming book on the evolution of the Navy as it is reshaped into a distributed, integrated force, which we see operating through kill web. What we learned from Vice Admiral Mustin is that the reserve force that he is involved in building will give the Navy a unique



capability to staff out such a force. What we learned is that the reserve force that is being shaped going forward, we'll be able to empower the fleet to operate that way.

Vice Admiral John Mustin

Vice Admiral John Mustin is a native of Alexandria, Virginia. He is a graduate of the United States Naval Academy, where he earned a Bachelor of Science in Weapons and Systems Engineering and was commissioned in 1990. He holds a Master of Science in Operations Research from the **Naval Postgraduate School** in Monterey, California, and a Master of Business Administration (cum laude) in Finance and Management from the F. W. Olin Graduate School of Business at Babson College. He earned his Joint Professional Military Education from the Air University's Air Command and Staff College at Maxwell Air Force Base.

Mustin's sea duty assignments include command of Expeditionary Strike Group 2/Task Force 29; commissioning operations officer on USS Donald Cook (DDG 75), and aboard USS Vincennes (CG 49), where he served as combat information center officer, navigator and the air warfare commander of the Independence (CV 62) Battle Group.

Affiliating with the Navy Reserve in 2001, Mustin served at Navy Reserve (NR) Carrier Strike Group 2 / USS George Washington (CVN 73) Strike Group during Operation Enduring Freedom. Other staff assignments include NR Chief of Naval Operations for Operations, Plans and Strategy (N3N5) at the Pentagon Navy Command Center; Maritime Expeditionary Security Squadron 14; NR Carrier Strike Group 10 / USS Harry S Truman (CVN 75) Strike Group; and Personnel Mobilization Team 101. Additionally, he served as the inaugural Littoral Combat Ship (LCS) Navy Reserve Enterprise Director, responsible for the reserve manning, training and equipping of the 1000-billet LCS surface reserve force.

Other command tours include NR Joint Staff South; NR U.S. Fleet Forces Command Maritime Operations Center, Greensboro; NR Maritime Expeditionary Security Squadron 6; and Inshore Boat Unit 22, including a mobilization to Kuwait during Operations Enduring Freedom and Iraqi Freedom. His other flag assignments include deputy commander of Naval Surface Forces, spanning the Surface Type Commanders of the U.S. Pacific and Atlantic fleets; as a plankowner and the deputy commander of the re-established U.S. Second Fleet; and as vice commander, U.S. Fleet Forces Command.

Mustin became the 15th Chief of Navy Reserve on 7 August 2020. As Commander, Navy Reserve Force, he leads approximately 59,000 Reserve Component personnel who support the Navy, Marine Corps and joint forces.

His awards include the Defense Superior Service Medal, Legion of Merit, Meritorious Service Medal, Navy Commendation Medal, Navy Achievement Medal, Navy Battle Efficiency 'E', Military Outstanding Volunteer Service Medal and various service, expeditionary, unit and campaign awards.

[The Navy Re-Focuses on the High-End Fight: What Implications for the Navy Reserves? - Second Line of Defense \(sldinfo.com\)](#)

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Victor Glover: NASA astronaut and SpaceX Crew Dragon pilot

(Space.com 27 Apr 21) ... Vicky Stein

Victor J. Glover, Jr. is a NASA astronaut and Naval Aviator. In his first spaceflight mission, he served as the pilot on the Crew-1 flight of SpaceX's Crew Dragon capsule, which launched on Nov. 15, 2020. Crew-1 was the first operational commercial crewed mission to the International Space Station and the second such flight overall after SpaceX's Demo-2 test mission, which launched in May 2020.

On Crew-1, Glover became the 15th Black astronaut in space and the first Black astronaut to stay for an extended period on the ISS, where he is expected to spend nearly six months in orbit as part of Expedition 64.



EARLY YEARS

Glover was born in Pomona, California, according to his NASA biography. In 1994, he graduated from Ontario High School in Ontario, California, continuing his education by pursuing an engineering degree at California Polytechnic State University in San Luis Obispo, from which he graduated in 1999.

Earning his "wings of gold" as a commissioned officer in the Navy in 2001, Glover piloted aircraft in the U.S., Italy, Japan and the Middle East. According to NASA, Glover completed 3,000 flight hours in more than 40 different aircraft, as well as over 400 landings on aircraft carriers. He also participated in 24 combat missions.

Between 2007 and 2010, he earned three master's degrees from three different institutions: a Master of Science in Flight Test Engineering from Air University at Edwards Air Force Base in California; a Master of Science in Systems Engineering at the **Naval Postgraduate School** in Monterey, California; and a Master of Military Operational Art and Science at Air University in Montgomery, Alabama.

In 2012, Glover was selected for the Legislative Fellowship, a year-long full-time assignment to the office of a member of the U.S. House of Representatives or the Senate. During his time as a Legislative Fellow, Glover was chosen to become a NASA astronaut.

WHEN DID VICTOR GLOVER BECOME AN ASTRONAUT?

Glover was selected in 2013 as one of eight members of the 21st NASA astronaut class, from an overall pool of more than 6,100 applicants. He completed Astronaut Candidate Training in 2015.

During the application process, Glover spoke about composing a limerick, which he used to joke about medical procedures that astronauts must undergo for spaceflight. (Sample lines: "This is all dizzying to me / Because I gave so much blood and pee.")

On Nov. 15, 2020, Glover left Earth as pilot and second-in-command of Crew-1, SpaceX's first contracted, fully operational astronaut mission to the ISS. Upon his arrival at the space station on Nov. 17, 2020, he became the first Black astronaut to stay for an extended mission in orbit.

WHY SHOULDN'T ASTRONAUTS JUST "STICK TO SPACE?"

Glover's preparations for Crew-1 in the summer of 2020 coincided with a global pandemic and widespread political protests about racial injustice. At the time, he spoke out on social media about the need to not just "stick to space," Space.com previously reported.

"Remember who is doing space. People are," he wrote on June 6. "As we address extreme weather and pandemic disease, we will understand and overcome racism and bigotry so we can safely and together do space. Thanks for asking."

Glover, a pilot and engineer to the core, followed his initial tweet by comparing social justice to basic physics equations.

"Force = Mass x Acceleration (the people x the movement)," one tweet read. "Work = Force x Displacement / (people x movement x direction&magnitude)," read another.

"If we apply force in every direction, no work gets done, or at least the net sum is zero. We don't have to agree on every detail, but we need to agree on an end state," Glover wrote later in the thread. "Plenty of history and data to help us clarify where to put our energy. ... So, let's unify, clarify, and work!"

[Victor Glover: NASA astronaut and SpaceX Crew Dragon pilot | Space](#)

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Manistee Catholic Central alumna becomes first female to lead FEMA

(Manistee News 28 Apr 21) ... Ken Grabowski

The Manistee and Free Soil communities watched with pride this week when Deanne (Bennett) Criswell was sworn in as the administrator of the Federal Emergency Management Agency (FEMA) in Washington D.C.



Criswell has deep roots in this area growing up in the Manistee and Free Soil communities and is a 1984 graduate of Manistee Catholic Central.

Her mother Geri Morong resides in Manistee and has been waiting for this moment ever since President Joe Biden selected her daughter to be the new FEMA administrator on Jan. 15. The new administrator becomes the first woman to serve in that position since it was created in 1979.

Criswell had to undergo the confirmation process of being questioned by the committee members from the U.S. Senate. Following the conclusion of that confirmation process, the Senate voted to confirm her nomination on April 22.

Morong said it has been an extremely busy time for her daughter since Secretary of Homeland Security Alejandro N. Mayorkas delivered the oath of office to Criswell.

"She has been so busy the past few days that I haven't even had the chance to talk with her, as everything is so new in starting this position," said Morong. "I am just so proud of her and what she has accomplished."

Morong said that she looks forward to her daughter doing well as the new FEMA administrator.

"I am totally excited about it as this a great opportunity for her," said Morong.

Prior to administering the oath of office, Mayorkas praised what Criswell has accomplished over her career and her dedication to the country.

"Deanne's career is one of commitment and service to our nation," said Mayorkas. "That commitment now rises to the next level of leading the dedicated people of FEMA as they continue working to meet unprecedented challenges."

Mayorkas commented that he feels Criswell will do well in her new position.

"I have full confidence in her ability to lead FEMA with compassion, fairness, integrity and respect as she works to fulfill the agency's ever-important mission: helping people before, during and after disasters," said Mayorkas.

He pointed out that Criswell has the experience to hit the road running.

"Deanne is a proven leader on issues related to climate change, emergency management and disaster response," he said. "She brings nearly six years of prior FEMA experience to this role. I look forward to working together to confront our most urgent challenges."

Those attending the swearing in ceremony were her partner, Patrick Murphy; Senior Official Performing the Duties of Deputy Secretary, David Pekoske; former FEMA Acting Administrator Bob Fenton; and FEMA Acting Deputy Administrator Mary Ann Tierney.

Criswell brings an impressive resume to the position and has served since June 2019 as New York City's emergency management commissioner. She also has experience with FEMA as the leader of one of the agency's National Incident Management Assistance Teams and as a federal coordinating officer.

During her time in New York, she coordinated the city's emergency response to the COVID-19 pandemic. Her background also includes more than 25 years of experience in federal, military and local government response to complex incidents and disasters, including six years of service at FEMA during the Obama administration.

The new FEMA administrator is a graduate of Colorado State University with a Bachelor of Science in Technology Education and Training and holds a Masters of Public Administration from the University of Colorado and a Master of Arts in Security Studies from the **Naval Postgraduate School**, Center for Homeland Defense and Security.

When Criswell was nominated to the position in January her uncle, Dave Dufon who resides in Free Soil, said his niece's success didn't surprise him. He said it was a real honor for the whole area.

"Deanne is a go-getter and she worked for FEMA a few years ago and that was when she first met Joe Biden when he was vice president," said Dufon. "I thought it was pretty cool to have one of our own from west Michigan in Manistee and Free Soil to become the first female FEMA administrator."

[Manistee Catholic Central alumna becomes first female to lead FEMA \(manisteenews.com\)](https://www.manisteenews.com)

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Forcepoint Announces New Appointments to Board of Directors

(inForney 29 Apr 21)

Forcepoint, the global leader in cybersecurity solutions that protect the critical data and networks of thousands of customers throughout the world, today announced the appointment of three new members to the company's Board of Directors, effective April 28, 2021. The new board members include BeyondTrust CEO Matt Dircks, Teleo Capital Operating Partner John McCormack, and Redhorse Corporation President Dr. John Zangardi.

"We are pleased to welcome these three transformational business leaders as new independent directors to the Forcepoint board. They join Forcepoint at an exciting time as we grow the company and make investments towards our Data-first SASE vision that modernizes the cybersecurity approach for the new realities of today's distributed work environment," said Manny Ravelo, Forcepoint CEO and Board Member.

"The addition of these directors complements our board of directors' skills and experiences, and we are confident they will provide valuable perspectives as we continue to execute our strategy, deliver better user experiences and security outcomes, and enhance value for all of Forcepoint's global customers and partners. We look forward to their valued contributions in the months and years ahead," continued Ravelo.

About Forcepoint's new board members:

Matt Dircks has more than 25 years of experience in the software industry including business and product leadership roles with global technology brands including BMC Software, Quest Software, NetIQ Corp. and Citrix Systems. He is currently Chief Executive Officer of BeyondTrust leading the company's long-term market and product strategy and day-to-day operations. He also guides BeyondTrust's unique culture centered on integrity, transparency, respect and innovation.

Prior to BeyondTrust, he was the Vice President and General Manager of Service Support Products at BMC Software. Dircks has also served as General Manager of the Server Virtualization Business at Quest Software, Senior Vice President of Products & Markets at NetIQ Corp, and General Manager for the Web Products Group and Director of Worldwide Product Management at Citrix Systems. He holds a Bachelor of Business Administration from the University of Iowa.

John McCormack has more than 25 years of experience as an executive in the cybersecurity and internet infrastructure industries. He currently serves on the Ping Identity Board of Directors (NYSE:PING), a role he has held since 2016. During his tenure, McCormack helped conduct the successful IPO of Ping Identity in September 2019. He also serves on the Board of NeuShield, an innovative ransomware solution, and as Operating Partner to Teleo Capital where he advises on acquisitions and value creation strategy.

McCormack previously served as CEO of Forcepoint (formerly Raytheon / Websense), where he led the transition of the company from a \$180M web filtering business to a global cybersecurity brand with revenues of over \$600M. He has also held executive roles at Cisco Systems leading the cybersecurity and internet infrastructure solutions business, and Symantec where he led the endpoint enterprise security business after the company's acquisition of Sygate Technologies where he served as executive of products and strategy.

McCormack earned a B.S. degree in Computer Science from the University of New Hampshire and an M.S. degree in Information Management from George Washington University.

John Zangardi, PhD is a nationally recognized information technology (IT) leader in both the private and public sectors including a distinguished career in government service spanning more than thirty years. Currently, Zangardi is President at Redhorse Corporation which helps clients address the challenges government faces today by utilizing sophisticated data science tools with artificial intelligence and machine learning to find new insights that accelerate decision-making. He previously served as Senior Vice President of business initiatives and strategic partnerships with Leidos Civil Group.

Prior to his private sector executive roles, Zangardi served as Chief Information Officer (CIO) for the Department of Homeland Security (DHS), a presidential appointment. While at DHS, his work garnered recognition by Federal Computer Week for transforming DHS into, "one of the federal government's top IT performers." He also served as Acting Chief Information Officer for the Department of Defense (DoD)



and as Deputy Assistant Secretary of the Navy for Command, Control, Communications, Computers, Intelligence, Information Operations, and Space (DASN C4I, IO, and Space).

Zangardi began his career in government service with the U.S. Navy. He retired as a Naval Flight Officer after serving as a squadron commander. Zangardi earned a Master of Science degree from the **Naval Postgraduate School** and a Doctor of Philosophy degree from George Mason University.

[Forcepoint Announces New Appointments to Board of Directors | Texas News | inforney.com](#)

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The Artificial Intelligence Era: What will the future look like? [Video Interview]

(The Bulletin 28 Apr 21) ... Halley Posner

In this conversation, you'll hear about the National Security Commission on Artificial Intelligence's Final Report and how AI can negatively amplify existing threats while simultaneously offering a path forward to international stability, if used wisely.

Mary (Missy) Cummings received her B.S. in Mathematics from the US Naval Academy in 1988, her M.S. in Space Systems Engineering from the **Naval Postgraduate School** in 1994, and her Ph.D. in Systems Engineering from the University of Virginia in 2004. A naval pilot from 1988-1999, she was one of the U.S. Navy's first female fighter pilots. She is currently a Professor in the Duke University Electrical and Computer Engineering Department and the Director of the Humans and Autonomy Laboratory. She is an AIAA Fellow and a member of the Veoneer, Inc. Board of Directors.

Eric Horvitz is a technical fellow at Microsoft, where he serves as the company's first Chief Scientific Officer. Dr. Horvitz provides cross-company leadership and perspectives on advances and trends on scientific matters, and on issues and opportunities rising at the intersection of technology, people, and society. He is recognized for his research on challenges and opportunities with uses of AI technologies amidst the complexities of the open world. Dr. Horvitz serves as a commissioner for the National Security Commission on AI and chairs the line of effort on ethical and responsible AI and is a member of the Bulletin's Board of Sponsors.

Nadya Bliss is the Executive Director of the Global Security Initiative at Arizona State University. In that capacity, she leads a pan-university organization advancing research, education, and other programming in support of national and global security. She has proven expertise in growing mission-focused research organizations; deep knowledge of the technology transition pipeline; and significant experience identifying advanced research capabilities to address mission needs with almost two decades specifically in defense and security sectors. Dr. Bliss is actively involved in national service, including currently as an Executive Committee member of the Computing Community Consortium and the Vice Chair of the DARPA ISAT (Information Science and Technology) study group.

[Watch now—The Artificial Intelligence Era: What will the future look like? - Bulletin of the Atomic Scientists \(thebulletin.org\)](#)

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StealthPath President Russ Berkoff Promoted to CEO

(Inside Nova 30 Apr 21)

StealthPath LLC, a leader in innovative cybersecurity solutions, announced that President Russ Berkoff will also serve as Chief Executive Officer. Company founder and former CEO Andrew Gordon will continue as Chairman of the Board.

Since joining the company in February 2019, Berkoff has led the commercialization of StealthPath's patented zero trust offerings, extending capabilities from a highly secure device-level solution to a staged series of products enabling easier adoption. Development is driven by the firm's Zero Trust Capability



and Maturity Model, detailing organizational and network controls necessary to implement strict identification and policy authorization parameters throughout the enterprise network. This methodology is currently in use in critical infrastructure activities by Department of Defense clients. StealthPath is also an innovator in using AI to develop and monitor access rules.

Berkoff is a seasoned senior executive, leader, and strategist with extensive experience in the government and commercial sectors. Prior to joining StealthPath LLC, Berkoff was Senior Vice President for Cybersecurity, Intelligence, and Global Investigation Services for Nuix, Inc., an e-Discovery and Information Governance company. Previous experience includes senior executive and consultancy roles at A.T. Kearney, The PTR Group, and Dell Computers, where he led sales and strategy for the \$383 million U.S. Special Operations Command Specialty Services Program. He started his business career at Pricewaterhouse Coopers.

Mr. Berkoff is a retired U.S. Army Green Beret Officer. He returned to government service after 9/11, joining the National Security Agency (NSA) to provide strategic planning and forecasting for the Global War on Terrorism to the Joint Chiefs of Staff, the Director of National Intelligence, and the Undersecretary for Defense for Intelligence. He continues to provide insight on national security and cybersecurity issues through the RAND Corporation initiatives and others.

A graduate of the U.S. Military Academy at West Point and the U.S. Army Command and General Staff College. He holds master's degrees from the **Naval Postgraduate School** and Loyola University Maryland.

[StealthPath President Russ Berkoff Promoted to CEO | State | insidenova.com](#)

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Science, technology and experiments, oh my!

(DVIDS 30 Apr 21) ... Cpl. Thomas Spencer

When most people think about the Marine Corps they think of an elite warfighting organization. What most do not think about is how the Marine Corps fits into the information age and ever evolving operational environment of science and technology.

Capt. John Geldmacher, the Technical Information Operations officer at I Marine Expeditionary Force Information Group (MIG), also holds the collateral billet of Science, Technology and Experimentation officer.

Geldmacher joined the Marine Corps as an Intelligence Officer, but was selected for the Commandant's Career Level Education Board (CCLEB). This allowed him to attend and receive a master's degree from the **Naval Postgraduate School** in Monterey, California.

As the Technical Information Operations Officer, Geldmacher makes connections between the technical specialists, information related capabilities and subject matter experts.

"I am a connecting point in a constellation of organizations such as academia, industry, and research and development warfare centers," said Geldmacher.

One of the ways IMIG enables these collaborations is with the Pete Ellis Innovation Node. This is an environment that was created in order to work on projects, organize classes and invent new ways to stop potential threats. This allows Geldmacher to make connections with individuals who can fill the gaps in any potential shortfalls IMIG may have.

"Having these connections and knowing enough about everyone's job is what makes me dangerous," said Geldmacher.

As the Science, Technology and Experimentation Officer, Geldmacher is also able to initiate tests using commercial equipment in a tactical environment. In doing this, he is able to analyze their capabilities and quickly obtain assets that would be needed for potentially dangerous situations.

In his role within an operational command, Geldmacher is able to get eyes on what research, new developments and commercial products are being utilized and the possible potential this technology could



have within the IMIG. He also strives to quickly integrate these new technologies in the most economical way.

“Staying engaged with new and interesting challenges. There is always something different than what I have worked with in the past. It requires critical thinking, and that part I enjoy the most,” said Geldmacher.

Geldmacher is a valuable asset to IMIG. He continues to innovate and constantly strives to push the boundaries of technology when and wherever possible.

[DVIDS - News - Science, technology and experiments, oh my! \(dvidshub.net\)](#)

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Michael Allers Joins Gunderson Dettmer’s Leading Growth Equity Practice

(Globe News Wire 3 May 21) ... Gunderson Dettmer

Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, a more than 350-attorney law firm focused on the global venture capital, growth equity and emerging companies ecosystem, announces the addition of Michael Allers as a corporate partner in the San Francisco office. He joins the firm from Kirkland & Ellis where he was a partner in the San Francisco office.

“Mike will add to our already impressive practice representing marquee growth equity funds in their investments,” said Ivan Gaviria, Gunderson Dettmer’s Northern California regional leader. “Since 2015, Gunderson Dettmer has represented clients in more than 650 growth financings raising over \$245 billion for the world’s most innovative companies. Mike brings his own strong track record to the practice and is a welcome addition to the firm.”

Allers has significant experience representing growth equity and private equity funds in equity financings, mergers, acquisitions and divestitures, among other strategic transactions. With many years of experience in domestic and cross-border investment transactions, he also understands the complexity and bespoke nature of innovative growth equity financings. While he has a well-rounded practice across a variety of industries, he has particular experience with investment in the financial technology, biotechnology and software industries.

“Mike will be a great addition to our rapidly expanding growth equity practice – with core team members in New York, San Francisco, Singapore, Beijing and Boston,” said Steve Baglio, a leader in the firm’s international growth equity practice. “Especially during a time when growth equity and venture capital firms are making huge strides, he brings the agility and ingenuity our clients have come to expect from Gunderson Dettmer.”

“It is exciting to join a firm with such an exemplary reputation in this ecosystem and a single-minded commitment to the same types of clients I am focused on,” said Allers. “Gunderson Dettmer has always stayed one step ahead of the market and brings the right business-minded approach to supporting funds making complex growth equity investments around the world.”

Allers earned his J.D. from the University of Michigan Law School, a Master’s degree from the **Naval Postgraduate School**, and a B.A. from Cornell University. He also served as an officer in the US Navy. Prior to Kirkland & Ellis, Allers was an associate at other leading international law firms.

[Michael Allers Joins Gunderson Dettmer’s Leading Growth \(globenewswire.com\)](#)

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