Navy’s Chief Learning Officer, new OPNAV N7 visit NPS for strategic discussions

By MC2 Nathan K. Serpico

Pressing forward on the Sea Service’s comprehensive effort to advance education at all levels, maximizing the intellectual capital and warfighting competence of the force, the DON’s Chief Learning Officer (CLO) John Kroger and Vice Adm. Stuart Munsch, newly-established Deputy Chief of Naval Operations for Warfighting Development (OPNAV N7), paid a visit to the Naval Postgraduate School (NPS) campus, Feb. 19-21, for a series of discussions with leadership and faculty, focused on further implementation of the Education for Seapower (E4S) study and report.

Kroger, a former enlisted Marine and Harvard-trained lawyer with extensive academic teaching and leadership credentials, is the Navy’s first CLO, bringing a vision to strengthen and unify the Navy’s educational institutions to support this strategic initiative. Munsch serves as strategic leader and sole resource sponsor for naval education responsible for directing and resourcing naval education initiatives.

“Having the CLO and the N7 here at NPS together talking about our curricula, our resources, and all of the opportunities and capabilities on our campus is essential for our institution to be able to support the critical strategic initiatives of the Naval education strategy.”

— NPS President retired Vice Adm. Ann E. Rondeau

Between discussions, Kroger received a first-hand look at how NPS is taking steps into the technological future by touring NPS’ flexible learning experience (FLEx) spaces, and engaged with students as well about their various thesis projects. Kroger then provided a glimpse into the future of naval education and the impacts it will have on NPS during a faculty and staff town hall meeting.

“The E4S report calls out that we need to resource our educational institutions and our educational system more effectively,” said Kroger. “We need to have a quicker tempo and a higher percentage of officers going into rigorous graduate education programs. Many of the areas that we’ve outlined as key priorities for increasing our capabilities, like engineering, technology, resource management, acquisition and information technology, are core areas of expertise here [at NPS].”

Kroger explained additional initiatives between NPS and the Naval War College to create a working group to explore creating new online classes directly related to warfighting advantage and effectiveness, and professional competence.

Ultimately, the Navy and Marine Corps see an opportunity to increase the number of leaders impacted by advanced education, which as Kroger notes, should lead to more students on campus.

“I am hopeful through this overall strategy that we will see an increased number of students here at NPS,” said Kroger. “I think it will boost the impact NPS will have on the Navy, and it will make the essential character of this institution more evident.”
A team of NPS researchers is partnering with local research institutions to explore some of the latest technology in acoustics sensors, investigating a challenge the Navy has struggled with for generations.

NPS Department of Physics Chair Kevin B. Smith, along with Research Associate Paul Leary and Department of Oceanography Research Associate John Joseph are leading a team of researchers to test the next-generation of acoustic vector sensors with the capability to provide accurate directionality for tracking a range of targets, from merchant vessels to hostile submarines to marine mammals.

"Acoustic vector sensors are the latest technology for underwater detection," Smith noted. "Unlike traditional towed arrays, a single sensor package has the capability to provide bearing estimates [or directionality] in order to better detect, classify or track a signal of interest."

"A single sensor system can say 'yes, we heard that and it's coming from that direction,' so we don't need a big array anymore to obtain estimates of the bearing," he added.

Historically, underwater detection has been a bulky and ambiguous endeavor dating back to the first World War, when Navy physicist Harvey Hayes first developed his "Electric Eel" to detect submarines. "Because the towed arrays are symmetrical, all you are measuring is time difference of arrival along the array," Smith explained. "You don't know if something's coming from 45 degrees that way or 45 degrees the other, whether it's to port or starboard. You have to maneuver to resolve this 'left-right ambiguity', and that takes time."

Acoustic vector sensors eliminate this ambiguity. Not only do they measure pressure changes in the sound waves as traditional sensors do, but orthogonal accelerometers are able to discern minute changes in the movement of the water itself to directly provide a specific measure of bearing.

Towed arrays outfitted with vector sensors may operate at significantly improved efficiency and accuracy without needing to maneuver a vessel. Tiny sensors may now conceivably be swiftly dipped into the water by a hovering drone, and/or unmanned underwater vehicles (UUVs) may efficiently establish impromptu distributed sensor networks for sensing and tracking communications.

"A lot of people around the country and around the world are starting to look at this technology and figure it out," Smith observed. "We can learn a lot from this research in how better to detect, classify or track something, even if it's marine mammals being detected where the Navy has an ongoing exercise."

Identifying and tracking marine life is what brought the nearby Monterey Bay Aquarium Research Institute (MBARI) to the table.

It was MBARI’s research vessel, the Rachel Carson, that helped Smith and the research team deploy the device in the Monterey Bay canyon, one of the largest underwater canyons in the world. With the assistance of a Remotely Operated Vehicle (ROV), the team lowered the unit 891 meters below the surface and connected it to MBARI’s Monterey Accelerated Research System (MARS).

Originally deployed in 2008 as the first deep-sea cabled observatory offshore the continental U.S., MARS has been supplying NPS continuous data, and should continue doing so for months before maintenance is required.

"The MARS cabled observatory is a big junction box down at the bottom of the ocean that has ports to plug into, providing power and Ethernet connectivity," explained Navy Lt. Benjamin Carpenter, one of Smith’s graduate students that worked on the project to explore its use in mobile systems. "We can use this stationary observatory to detect and track short-range surface craft and possibly submerged vessels."

The underwater acoustic vector sensor results have thus far proven successful, according to Smith.

"We’ve already shown that we can track merchant vessels out in the shipping lane 40 kilometers away from the Big Sur shelf. From this MARS node location, I’m expecting to be able to hear merchant vessels at least 50 if not 100 kilometers away," he said.

Since its placement, the data provided to partnering institutions has proved to be quite valuable. NPS is now providing processed directional data in frequency bands of interest to MBARI researchers to support their studies of marine mammal migrations.
NPS colloquium to expand horizons of maritime air and missile defense

By Matthew Schehl

Naval Postgraduate School (NPS) students and faculty have an unparalleled opportunity to join a provocative conversation with U.S. and international leaders in the rapidly evolving sphere of maritime air and missile defense.

In collaboration with the Maritime Theater Missile Defense Forum (MTMD-F), NPS will host the Integrated Air and Missile Defense (IAMD) Colloquium, March 4, to engage some of the field’s most pressing issues. Following thought-provoking presentations of current problem sets and panel discussions, the NPS community is invited to exchange views with MTMD-F leadership.

The colloquium is more about generating provocative ideas than tidy answers to these issues, which touch on areas of interest for many students and faculty at NPS, noted retired Navy Capt. John Hammerer, NPS’ Chair of Integrated Air and Missile Defense.

“If you think about how broad NPS’ curricula are and the range of programs we have here, this colloquium is an excellent way to expand understanding of IAMD for everyone,” he said. “Whether you’ve had no experience with [MTMD-F] nations and how they do their operations, or if you’re an engineer and you don’t know much about strategy and policy, or if you’re a strategist and don’t understand how we put ordnance on target, it’s a great place to be.”

Founded in 1999, MTMD-F is a group of 11 member nations continually fostering interoperability in all aspects of maritime air and missile defense, from all things granular and technical to systems integration and interface standards; from tactics, techniques and procedures to strategic doctrine.

It’s not only theoretical, however: MTMD-F also provides testing opportunities to ensure these are a ‘Go’ across the board. In 2015, for example, the guided missile destroyer USS Ross (DDG-71) successfully shot down an incoming missile out of space in the first intercept of a ballistic missile threat in the European theater. The missile had been launched from the Hebrides Range in the United Kingdom, along with four other ballistic missiles, 11 cruise missiles and nine surface-to-air missiles.

The high degree of coordination between ten nations, many moving parts and 5.7 million square miles of tactical data link for this at-sea demonstration validated a baseline for interoperability between the participants, which has only been expanded upon since.

“Notice the MTMD-F name: it’s not a treaty, it’s not a coalition, it’s not even a partnership,” said Hammerer. “It’s just a forum: a practical way for nations that have the capability and interest to cooperate and collaborate in a very collegial way, and it works marvelously.”

The MTMD-F regularly meets to hold working groups and ensure the broad spectrum of its activities are on track. The forum has convened in Paris, London, Bergen, Rome, and now Monterey, Calif.

Over three weeks, MTMD-F will conduct classified and unclassified meetings across the range of the group’s activities. Many of these meetings are open to NPS faculty and staff.

“It’s very significant that MTMD-F is coming here to NPS as it highlights our operational and warfighting relevance of NPS,” said Hammerer. “It opens the doors for engagement between MTMD-F and NPS students and faculty who have much to add to the forum.

“It also introduces NPS to a relatively large cross-section of foreign allies and partners,” he continued. “The NPOCs and representatives can perhaps influence their navies and defense departments, saying, ‘You know what? NPS is really not a bad place at all if we want to learn how to do the things that are necessary for theater missile defense.’”

The colloquium is slated to begin at 3:00 p.m. on March 4 in the Mechanical and Aerospace Engineering Auditorium, and end at Herrmann Hall’s renown Trident Room.

Ballistic missile defense systems tested off Scottish coast. (Courtesy photo)

NPS will host a new lecture series in conjunction with research leaders from many of the warfare centers under the Naval Sea Systems Command (NAVSEA) beginning Feb. 26.

NAVSEA’s primary objective is to engineer, build and support the U.S. Navy’s fleet of ship and combat systems. A significant activity inside NAVSEA is the Warfare Center, which represents 30 percent of the Navy’s overall engineering and science expertise.

“It’s one of our strategic initiatives in the NPS strategic plan to strengthen our ties to the Navy’s Warfare Centers and laboratories,” said Dr. Jeff Paduan, NPS Dean of Research.

The partnership between NPS and NAVSEA will give students better real-world experiences and practical knowledge, and allow NPS to access NAVSEA’s state of the art laboratories and research facilities.

The lectures will include many of the projects that NAVSEA is already undertaking. Some of the work going on at NPS may directly impact their work and vice versa.

“Doing an academic seminar type series here fits into our culture,” said Paduan. “If we get representatives from the labs here, then they have the opportunity to meet our very diverse faculty at NPS. The seminar series itself is a way to introduce each other.”

The NAVSEA S&T Lecture Series kicks-off Wednesday, Feb. 26, at noon with a “NAVSEA Warfare Center Overview” with Dr. Vittorio Ricci, Chief Technology Officer in Mechanical and Aerospace Engineering Auditorium.

Have a story to share? Public Affairs is constantly seeking interesting news and stories for Update NPS. Send your tips to pao@nps.edu.
Naval War College President explores NWC Monterey during visit to NPS

By Javier Chagoya

U.S. Naval War College (NWC) President Rear Adm. Shoshana Chatfield visited the Naval Postgraduate School (NPS) to get an up-close look at the NWC Monterey program on the NPS campus, Jan. 29-30. During her visit, she met with NWC faculty and students, explored NPS’ Wargaming Activity Hub, and looked at various innovations in classroom and distance learning technologies.

A key topic of conversation during the engagement was the Navy’s soon-to-be released Education for Seapower strategy, and the role the small cohort of expert NWC faculty play in preparing officers across the DOD to advance warfighter effectiveness, in the most efficient means possible. Recently completing two decades of service, the NWC Monterey program has provided more than 5,500 NPS students with the very same Joint Professional Military Education credit that they would receive in Newport.

“I value life-long learning,” Chatfield said during a meeting with NWC faculty. She recalled how, as a pilot, her focus was constantly on operations, on being in the cockpit. With the E4S study and report, she said, the Navy is placing a high value on education and intellectual development. That is the space of the War College and NPS, she noted, to tailor educational programs that “continue to develop innovation and intellectual ability.”

According to Fred Drake, NWC Monterey Chair, Chatfield expressed keen interest in how NPS is focused on educational effectiveness, using enhanced instructional design, integrating technology, and researching new teaching methodologies that may be directly applied while maintaining the quality of the education.

“Rear Adm. Chatfield is whole heartedly looking to pull teaching programs into the 21st century, especially those in NWC’s College of Distance Education,” said Drake. “Due to the timing of her visit, Chatfield was able to see and discuss new innovations in classroom environments being introduced on a small scale here at NPS.”

In addition to classroom innovations, Chatfield toured the campus receiving briefs from various departments, including the Common Operational Research Environment Laboratory, the Executive Master’s in Business Administration program, and the cyber operations degree programs.

NPS experts help Boy Scout troops earn STEM-based merit badges during campus visit

By MC2 Nathan K. Serpico

Seven Boy Scouts of America (BSA) Troops consisting of 67 young men and women in khaki shirts and green pants populated the campus to receive merit badge instruction from NPS faculty and military professionals, Jan. 25-26.

BSA Troops from around the Monterey Peninsula had the chance to learn from NPS’ world-class experts, some of whom are local scoutmasters, on merit badge topics related to Science, Technology, Engineering and Mathematics (STEM), such as weather, electronics, oceanography, robotics, electricity, programming, radio, and digital technology.

“The idea is to expose the scouts to careers and opportunities so they understand something about them when figure out what they want to do when they get older,” said U.S. Navy Capt. C. Clark Bone, NPS Information Warfare Chair. “For example, we had a weather [Meteorology and Operational Oceanography] officer from the Navy, who’s been responsible for making recommendations to a fleet commander how to proceed with combat operations with impending weather, talking to these kids about the real-world applications of learning about weather.”

The Scouts got hands-on experiences by exploring NPS’ robotics lab, network server farm and physics labs.

U.S. Marine Corps Capt. Matthew Caspers, right, instructs a Boy Scout from the Boy Scouts of America how to solder electronic components onto a circuit board during a STEM-based merit badge event held on the Naval Postgraduate School campus. (U.S. Navy photo by MC2 Nathan K. Serpico)
NPS, SOCPAC co-host Trans-Regional Resistance Working Group with Indo-Pacific partners

By MC2 Tom Tonthat

Designed to create an open discussion environment for the U.S. and its Indo-Pacific partners, the Naval Postgraduate School (NPS) and Special Operations Command, Pacific co-hosted a Trans-Regional Resistance Working Group (TRWG) on the NPS campus to talk about how resiliency and resistance play a role in national sovereignty in the Indo-Pacific region, Feb 4-6.

Academics, warriors and representatives from the U.S., Asia and Europe, as well as faculty and subject matter experts from NPS’ Defense Analysis and National Security Affairs departments, U.S. Naval War College, National Defense University and Joint Special Operations University converged to hear keynote speakers, panel discussions and engage with one another about resilience and resistance strategies for strengthening sovereignty amid other rising powers.

“Resilience and resistance in the era of Great Power Competition is part of our National Security Strategy,” said Dr. Doug Borer, Associate Professor and academic co-chair for TRWG. “These themes are driven by the idea that many of our international partners and allies, and many of their neighbors, are dealing with how to confront, deter or think through the problems of aggression. A nation’s level of resilience and resistance can raise an aggressor’s cost calculus and can have potential for deterrence.”

During the talks and engagements, speakers and panelists expressed ideas, concepts and strategies for resilience and resistance in topic areas such as territory control, information campaigns via mass and social media, and cyber warfare.

According to Dr. Patricia Blocksome, an NPS assistant professor for National Security Affairs, resilience and resistance are not new concepts, and their implementation in this current era is likely to focus on different domains and methods than were used by other adversaries or in other eras of competition.

“Finding answers to today’s challenging strategic environment is a difficult endeavor,” says Blocksome. “This event provided participants with an improved understanding of how to think about the questions of strategy in great power competition, as well as raised new questions that will need to be answered as these nations move forward.”

Between keynote speakers and panel discussions, participants entered into groups discussions where face-to-face dialogues allowed representatives and warriors to share their experiences and their challenges.

“One of the key takeaways was that there are other countries to learn from,” said Borer. “Sweden, Finland, and Norway have historical knowledge and experience from past aggressors, and even though what worked for them may not necessarily work today in the Indo-Pacific region, but one country could learn from another and adapt those lessons for their own context.”

Borer asserted that NPS’ trusted international network was a key element to the success of the TRWG, while Blocksome pointed out the breadth of research and expertise brought together on the NPS campus, both historical and contemporary, were key components in this exchange.

“A distinct benefit of this event was that our partners from the Indo-Pacific were able to interact with our partners from Europe. Both regions are experiencing great power competition, so the ability to provide an opportunity for cross-regional dialogue on a spectrum of issues related to resistance and resilience was highly valued by our partners.”


Graduates earning “with Distinction” honors by completing the JPME program in the top 15 percent of their class are Army Majs. Jonathan Baker, Jonathan Denton, Austin Liu, and Trisha Wyman; Navy Lts. Brian Gureck, Joseph Jablonski, Chris Lealah, Mark Lindle, William Race, Marcos Rodriguez, Michael Sjoholmsierchio, Samuel Strelkoff, Kevin Touw, and Ryan Wisz.


Through the NPS-NWC partnership, a total of 5,544 officers have earned their Joint Professional Military Education (JPME) Phase I certification since the program’s inception in September 1999.
NWDC/NPS strategic comms collaboration focuses warfighting capability

By Dr. Michael A. Brown Sr., NWDC Public Affairs

Today's Navy and Marine Corps team is transforming to focus on emerging joint warfighting imperatives, and strategic communication is a vital capability to achieve success. Navy Warfare Development Command (NWDC) addressed this need, Feb. 5-7, with a strategic communication workshop led by visiting professors from the Naval Postgraduate School (NPS).

The Navy’s transformation requires all commands, to continuously self-assess value the organization provides to Navy warfighting while communicating capability and opportunities to stakeholders. NWDC’s self-assessment came in a three-day, team-based Strategic Communication Workshop at the Jean MacArthur Research Center in Norfolk.

NWDC Commander Rear Adm. John Meier and his leadership team worked with NPS’ Center for Executive Education (CEE), to build and strengthen the internal communication strategy within the command and messaging to their external customers. The teaching team included NPS faculty and partners from the University of Southern California’s Annenberg School for Communication and Journalism (USC-ASCJ).

In group discussions and exercises, the professors applied the latest research and lessons learned from across the Department of Defense (DOD) and industry. The workshop allowed NWDC to conduct an organizational communication strengths, weaknesses, opportunities, and threats (SWOT) analysis.

NWDC is an integrator, applying unique capabilities in operational-level concept generation, warfighting development, and cross-domain integration. All of these elements are key to strengthening U.S. Navy warfighting.

“This workshop allowed my team to analyze our communication capabilities and provide a roadmap for strengthening communication as it relates to the successful achievement of our strategic initiatives,” Meier said. “My team is now focused to relate our goals to our stakeholders and to develop communication metrics that track desired effects.”

Through a series of conversations, faculty pushed NWDC members to identify communication inconsistencies and shore up ‘say-do’ gaps. Using that knowledge, they engaged in a message mapping process to find ways to improve communication with their customers. Finally, they discussed key metrics that measure effectiveness. Workshop participants walked away with a new way of thinking about strategic communication, models, tools, and process maps that help them better focus their efforts toward Navy warfighting needs.

Chris Raney, war game director, said, “This workshop doubled as an educational series as well as a team-building exercise which improved our overall awareness of strategic communication as a critical lever. We did some relatively simple exercises in customer mapping that emphasized the importance of themes and messages with a target audience. As we generate war game communications in the future, that map will be validated and used to ensure our message is communicated accurately to achieve desired outcomes.”

Focus On... Leidos LIVE’s first national stop at NPS

Housed in an 18-wheeled tractor trailer, the Leidos LIVE mobile technology display consisting of virtual and interactive workstations showing the Leidos Corporation’s current developments in various defense-related fields arrived on campus for a demonstration to faculty and students, Feb 18.

As NPS students and faculty took a virtual trek to Antarctica, disarmed mines to protect a military convoy, deployed unmanned surface vehicles (USVs) to crisis zones at sea, and drove a virtual Humvee, they had the opportunity to experience how Leidos technology could potentially align with their research or help develop thesis topics.

“It was really interesting to hear more detail about how [Leidos] is implementing cybersecurity, especially with USVs,” said Lt. Cmdr. Amanda Eckert, an NPS student studying Cyber Systems and Operations. “We’re looking at cyber challenges for the Navy, so it was interesting to see and hear what they had today.”

According to U.S. Navy Capt. Chuck Good, NPS’ Surface Warfare Chair, this demonstration also allowed NPS to perform an information exchange with a potential industry partner which could promote discussions or efforts regarding parallel lines of research at NPS.

NPS marked the first stop in the company’s cross-country “Leidos LIVE” 2020 tour as it plans to stop at colleges and events across the country.

U.S. Marine Corps Capt. Steven Gore, left, and Capt. Max Schlesel operate an interactive display on the Leidos LIVE mobile technology truck during the company’s visit to the Naval Postgraduate School campus, Feb. 18. (U.S. Navy photo by MC2 Tom Tonthat)
Any Day at NPS

Marine Corps Maj. Julia Weber, center, a Naval Postgraduate School Operations Research student, engages with Sarah Sallee, left, and Audrey Avelino, right, who are part of the Speaker Curation Team at Santa Catalina School, an all-girls college prep boarding and day school in Monterey, Calif., during the school’s TEDx speaking event where Weber delivered remarks regarding her experience while working at the U.S. Embassy in Islamabad, Pakistan, Feb. 12. (U.S. Navy photo by Javier Chagoya)

Lt. j.g. Brian Pajarillo, USN

NPS Colleagues,

The President’s Board for Student Affairs (PBSA) spent February testing out some new ways to connect the NPS campus across the various schools. The first monthly PBSA Town Hall meeting was held at the start of February. On the first Thursday of every month, the PBSA would be outside at the Academic quad lunch tables open to questions, comments, and concerns about NPS student life. The PBSA is hoping to make communication between students and NPS leadership as easy as possible.

If you’re looking for new things to do in the Monterey area, PBSA also now posts some local events such as special wine tastings and pop up restaurants in the first floor library monitors. Posts may also come on the NPS Yammer page, so look out on there for some fun events!

With Warm Regards,

Brian Pajarillo

Don’t hesitate to contact us at PBSA@nps.edu

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Public Affairs is constantly seeking interesting news and stories for Update NPS. Send your tips to pao@nps.edu.
We like to show off some of the interesting finds we run across while digitizing NPS “historical” collections. This month we feature the story of the library’s own INTELL collection, the result of a gift by a remarkable donor. Described in an interview as the very model of “Q”, the high-tech wizard who designed buttonhole microphones and exploding pens for James Bond, Lt. Serge “Peter” Karlow had been a former OSS and CIA technological support and insertion/psychological operations expert and a member of General “Wild Bill” Donovan’s OSS “Brain Trust”. Experience taught Karlow the value of applying sound academic principles to the work of Intelligence, and when the time came to find a home for his personal book collection, he wanted it before the eyes of Naval Postgraduate School researchers. The INTELL collection was born.

Here we see Karlow with the landmark War Report of the OSS, which he collated and edited with Kermit Roosevelt, Jr. (1916–2000), grandson of President Theodore Roosevelt and another top OSS/CIA member. With him is librarian Greta Marlatt (today’s head of Library Outreach and Collection Development).

Historical Highlights are provided by the Dudley Knox Library.