



NPS IN THE NEWS

Weekly Media Report – June 8-14, 2021

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SECNAV NOMINEE:

1. [Biden to pick Cuban-born US veteran to be Navy secretary](#)

(Finger Lakes Times 11 June 21) ... Andrew Clevenger

President Joe Biden announced Friday he plans to tap Carlos Del Toro, a Navy veteran and CEO of a technology company, to be the next Navy secretary... In addition to his degree in electrical engineering from the Naval Academy, Del Toro earned master's degrees in space systems engineering, national security and strategic studies, and legislative affairs from the **Naval Postgraduate School**, the Naval War College, and George Washington University, respectively.

RESEARCH:

2. [Xerox, NPS Collaboration on 3D Printing Already Impacting Supply Chain Thinking](#) [Video: Xerox & NPS: Leveraging 3D Printing to Solve Supply Chain Points](#)

(Xerox 14 June 21)

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3. [Project Trident Call for Articles: Emerging Technology](#)

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4. [Problems Solved Here: Central Coast Tech Bridge, Innovation Accelerator Foundation to collaborate on technology solutions](#)

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5. Evaluating Artificial Intelligence: NPS Researchers Seek to Improve Acquisition of AI Systems

(*NPS.edu 10 June 21*) ... Mass Communication Specialist 3rd Class James Norket

A team of Naval Postgraduate School (NPS) researchers have developed a set of tools to support the acquisition of organically-developed AI systems. By using already-developed equations in concert, they can help determine the potential worth of technology emerging from start-up companies around the world.

6. NPS Team Earns Design Inspiration Award at HACKtheMACHINE Competition

(*Navy.mil 10 June 21*) ... Mass Communication Specialist 3rd Class Lenny Weston

For this year's HACKtheMACHINE (HtM) Navy digital competition, NavalX implemented "Heavy Metal," an additive manufacturing challenge to use metallic 3D printing for fabricating shipboard parts to withstand specific environmental conditions.

FACULTY:

7. Indo-Pacific: The front line of US and China next-gen submarines

(*Nikkei Asia 9 June 21*) ... Ken Moriyasu

Life on a nuclear-powered ballistic missile submarine, or SSBN, can be dreary... "CubeSats now provide high-resolution imagery on a daily basis of the entire planet -- this type of imagery, combined with appropriate search algorithms, might reveal SSBN operational signatures that have so far remained unobserved," wrote James Wirtz, dean of the School of International Graduate Studies at the **Naval Postgraduate School** in California.

8. Former Middletown Librarian Named as Middletown Days Pioneer

(*Lake County Bloom 7 June 21*) ... Charise Reynolds

Gehlen Palmer, longtime resident and former Middletown Librarian is this year's Middletown Days Pioneer award recipient. Palmer didn't set out to be a librarian, he originally wanted to go into science, but, "Math," he says, "was the issue." Born in 1947 in San Francisco, his formative years were spent around his father's family who were readers and former teachers. He recalls driving his grandmother nuts by asking her to read Ferdinand, and Dr. Seuss's Bartholomew and the Oobleck over and over again... Next, he headed off to Tampa and General Telephone and Electronics Services where he was a technical writer for 2 years before heading back to California, specifically, Monterey. In 1975 he began what he calls "working in the book business." He was a book clerk at the Navy Exchange bookstore at the **Naval Postgraduate School** by day and worked for the Pacifica Grove Public Library in the evening. One day, he saw an ad for a bookstore manager in Astoria, Oregon and he packed up and moved. He held that job for the next three years before deciding to run his own bookstore. He had the store for 11 years, but when his mother died in 1993 (his dad having passed in 1978), he moved back to Middletown.

9. US government recovered millions of dollars paid in Colonial Pipeline hack ransom

(*GazetteXtra 7 June 21*) ... Del Quentin Wilber

The Justice Department recovered \$2.3 million in cryptocurrency ransom that Colonial Pipeline paid to hackers whose cyberattack last month shut down its major East Coast pipeline, leading to gas shortages up and down the East Coast, authorities said... "This is a big deal," said Scott Jasper, a lecturer at the **Naval Postgraduate School** and author of "Russian Cyber Operations: Coding the Boundaries of Conflict." "The question is: Will this be big enough to change the behavior of DarkSide or of other cyber actors? It's too early to tell. It's a slow game, a long-term game. This is a significant, big business. This is a big enterprise."

10. Marine fog comes under focus in new five-year study

(*EurekAlert 9 June 21*)

Researchers at the University of Notre Dame will lead a five-year study to improve the fundamental understanding, detection and predictability of marine sea fog... The \$7.5 million study is funded by the U.S. Department of Defense's Multidisciplinary University Research Initiative. Co-principal investigators include Qing Wang at the **Naval Postgraduate School**, Clive Dorman at the University of California San Diego and Scripps Institution of Oceanography, Eric Pardyjak at the University of Utah and Lian Shen at the University of Minnesota. For the fiscal year 2021 Multidisciplinary University Research Initiative competition, the DOD solicited proposals in 26 topic areas important to DOD and the military services. From a merit-based review of the 298 proposals received, a panel of experts narrowed the proposals to a subset from which the 25 finalists were selected.



11. China's nuclear threat to US grows, mainly in the risk of a mishap, experts say

(ABS CBN 11 June 21) ... Mark Magnier

China's nuclear arsenal is a growing threat to US security, less in its absolute size than in the growing risk of a mishap as Washington and Beijing butt heads over Taiwan and many other issues, experts told a US Congressional commission on Thursday... "If we rely on missile defence as a primary component to how we are going to address the growing Chinese threat, we're going to be in a losing game with an economy that has continued to outgrow our own, and has the ability to spend considerably more on military priorities than they are currently doing," said Christopher Twomey, associate professor at the **Naval Postgraduate School**.

ALUMNI:

12. Former Marine, Actor, Pastor to Keynote HLGU Booster Banquet

(KHMO Radio 10 June 21) ... Harold Smith

A former Marine, actor and minister will be the keynote speaker for the 2021 Hannibal-LaGrange University Booster Banquet... Bevel is a graduate of the University of Memphis with a Bachelor of Science degree in computer engineering technology and a graduate of the **Naval Postgraduate School** with a Masters of Business Administration in logistics management.

13. East Lansing fire chief, former Lansing chief Randy Talifarro retires

(Lansing State Journal 10 June 21) ... Sarah Lehr

East Lansing Fire Chief Randy Talifarro is retiring after leading the department for 20 years... Talifarro graduated from the University of Michigan with a bachelor's degree in public administration and completed a Master of Arts Homeland Security Program through the **Naval Postgraduate School** Center for Homeland Defense and Security.

14. The Chief's Desk – June 11th

(Signals AZ 11 June 21) ... Chief Scott Freitag

I have been attending my final week-long session of the Executive Leaders Program (ELP) via Zoom. Super not fun taking part virtually, but better than being in California at the moment... At least, as of today, I am a Graduate of the **Naval Postgraduate School's** Executive Leaders Program (ELP)! So, now what? Can't stop learning, so I'm thinking I will apply for their graduate program in Homeland Security... I'm helping to set the bar for senior staff.

15. Surviving the big one at school

(Newport News Times 11 June 21) ... Kenneth Lipp

A major seismic event at the Cascadia Subduction Zone could strand most Pacific Northwest coast residents for weeks wherever they are when the earthquake and tsunami hit... Graves holds a master's degree in security studies from the **Naval Postgraduate School**, and in her off time from the district, she contracts with other entities as an expert consultant. She recently authored an "Earthquake and Tsunami Community Disaster Cache Planning Guide" for the Oregon Department of Geology and Mineral Industries.

UPCOMING NEWS & EVENTS:

June 18: [Spring Quarter Graduation Ceremony](#)

June 20: Reporting Date (International Students)

June 22-25, 2021: [Strategic Planning for Execution: Assessment and Risk \(SPEAR\) workshop](#)

June 28: Reporting Date (U.S. Students)

June 29-Jul 2, 2021: [Strategic Communication Workshop \(SCW\)](#)

July 4: Independence Day (Observed July 5)



SECNAV NOMINEE:

Biden to pick Cuban-born US veteran to be Navy secretary

(Finger Lakes Times 11 June 21) ... Andrew Clevenger

(Roll Call 11 June 21) ... Andrew Clevenger

President Joe Biden announced Friday he plans to tap Carlos Del Toro, a Navy veteran and CEO of a technology company, to be the next Navy secretary.

Born in Cuba, Del Toro is a 1983 graduate of the Naval Academy who spent more than two decades in the Navy, including serving as the commanding officer of the USS Bulkeley, an Arleigh Burke-class destroyer.

In 2004, Del Toro founded SBG Technology Solutions and has served as the firm's CEO ever since.

"Carlos rose through the ranks of the Navy with a distinguished record of service, leadership, and innovation," Senate Armed Services Chairman Jack Reed, D-R.I., said in a statement Friday. "As a Naval Officer, a White House Fellow, entrepreneur, and a tech CEO he's had success at every step of his career in both the military and private sector."

In addition to serving on a variety of surface ships during his naval career, Del Toro was a White House fellow at the Office of Management and Budget during the Obama administration, according to his Naval Academy bio. He was also the senior military assistant to the director of defense programs analysis and evaluation in the Office of the Secretary of Defense.

Del Toro may face a barrage of pointed questions at his confirmation hearing. Earlier this month, acting Navy Secretary Thomas Harker, a holdover from the Trump administration, sent an internal memo calling for eliminating funding for development efforts for a sea-launched nuclear cruise missile in fiscal 2023.

Harker's memo also suggested that the Navy cannot afford to simultaneously develop the next generation of fighter jets, guided-missile destroyers and attack submarines in 2023, and recommended prioritizing one program and "rephrasing" the others.

Multiple Republican lawmakers brought up Harker's memo Thursday when Defense Secretary Lloyd J. Austin III and Gen. Mark Milley, the Joint Chiefs chairman, testified before the Senate Armed Services Committee.

"I find it very concerning that an acting service secretary who hasn't been confirmed by the Senate is making a decision like this," Nebraska Republican Deb Fischer said. "I don't think this is the right way to make decisions about nuclear policy."

Austin and Milley said it was a pre-decisional, internal Navy memo, and they had not seen it or been consulted about its contents.

"I am not familiar with the memo, nor was I consulted," Milley told Fischer. "But as soon as we are done here, I will go find that memo and get consulted."

In addition to his degree in electrical engineering from the Naval Academy, Del Toro earned master's degrees in space systems engineering, national security and strategic studies, and legislative affairs from the **Naval Postgraduate School**, the Naval War College, and George Washington University, respectively.

Almost five months into the Biden administration, only one service secretary has been confirmed.

Last month, the Senate confirmed Christine Wormuth as Army secretary. On Thursday, the Senate Armed Services panel advanced the nomination of former Pentagon acquisition chief Frank Kendall to be Air Force secretary.

[Biden to pick Cuban-born US veteran to be Navy secretary | Nation | fltimes.com](#)

[Biden to pick Cuban-born Navy veteran to be Navy secretary - Roll Call](#)

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RESEARCH:

Xerox, NPS Collaboration on 3D Printing Already Impacting Supply Chain Thinking

[Video: Xerox & NPS: Leveraging 3D Printing to Solve Supply Chain Points](#)

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It's been a few months since Xerox and the Naval Postgraduate School (NPS) announced a collaboration on additive manufacturing to figure out new ways to solve supply chain issues. Just in time, too.

Supply chain problems, like a ship getting stuck have taken center stage in 2021. Leaders are trying to solve these difficulties amid more complexities raised by COVID.

But that's where the NPS-Xerox collaboration makes the most sense. Remove one of the main supply chain challenges with a production-grade printer like the Xerox® ElemX™ that can replace parts one would normally need to order and stock.

“That’s what the 3D printer from Xerox is allowing us to do,” says Colonel Todd Lyons (Retired), Vice President of NPS Foundation & Alumni Association. “To print things at a size and scale that actually can make a difference out on the battlefield of the future or the navy ship of the future.”

Students and faculty at NPS have spent these past months testing parts and iterating on their processes. Even as COVID has impacted their usual class structure and setting, it hasn't dampened their ingenuity or enthusiasm when it comes learning how to best utilize 3D printing.

After all, it's not every day that you get to shape the future.

“The reason we connected really well with NPS is we share the forward thinking and same long-term vision about how to leverage 3D printing to solve supply chain pain points,” says Tali Rosman, Xerox Vice President and General Manager, 3D printing.

That connection has not only cemented NPS's decision to embrace additive manufacturing, but it also ensures there's a trusted collaborator going forward.

“They're so open, and so engaging with us,” says Rosman. “and we're excited about the partnership we've been building together.”

<https://www.xerox.com/en-us/innovation/insights/solving-supply-chain-issues?cmp=smo-na21or&aud=gc&site=li>

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Project Trident Call for Articles: Emerging Technology

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CIMSEC is proud to partner with Lockheed Martin and the U.S. **Naval Postgraduate School's Naval Warfare Studies Institute** on the final topic of Project Trident: Emerging Technologies. Lockheed Martin is a global security and aerospace company responsible for many Defense Department programs of record. The Naval Warfare Studies Institute (NWSI) coordinates NPS inter-disciplinary research and education to accelerate and enhance the development of capabilities and warfighting concepts.

The modern world is shaped by few forces as powerful as rapid technological change. As the world becomes ever more advanced, technological change cuts across and interconnects areas as diverse as healthcare, public infrastructure, and security policy. With respect to national security, new technology is presenting opportunities for novel warfighting capabilities, ever more powerful iterations of familiar weapons systems, and unexpected avenues for threats. The maritime community must attentively explore how new and emerging technologies will impact maritime security and naval capabilities.

Computing power, connectivity, data analytics, and machine learning are poised to undergo exponential growth in ways once consigned to the realms of science fiction. What implications do specific technologies like augmented reality, artificial intelligence, or 5G have for maritime security and navies? Which emerging technologies have potential for significant security impacts yet remain underrated? How



can a government, a navy, or a shipping company keep pace with global information flows that update in near-real time? How do maritime actors stay abreast of these changes while leveraging them for competitive advantage and avoiding the risks of over-reliance? The spectrum of civil and military emerging technologies have salient overlaps that will present complex challenges to maritime security.

Authors are encouraged to address these questions and more as we contemplate the promise and pitfalls of emerging technologies on maritime security.

[Project Trident Call for Articles: Emerging Technology | Center for International Maritime Security \(cimsec.org\)](#)

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Problems Solved Here: Central Coast Tech Bridge, Innovation Accelerator Foundation to collaborate on technology solutions

(DVIDS 7 June 21)

The NavalX Central Coast (C2) Tech Bridge is partnering with Innovation Accelerator Foundation (IAF) to expand collaboration between the **Naval Postgraduate School (NPS)** and public sector innovation organizations to include small to medium-sized American enterprises and universities.

The C2 Tech Bridge serves as an innovation hub connecting private, government and defense innovation centers to accelerate development of capabilities related to defense. The goal of C2 is to connect **NPS** faculty and student researchers to industry engineers and entrepreneurs focused on advancing technology solutions. According to C2 leaders, the IAF, a private 501c3 non-profit organization in Tulsa, Okla., is an ideal partner for **NPS** as it tracks current research projects focused on tackling tough problems in areas including artificial intelligence, cyber security, quantum technologies, machine learning and advanced aerial mobility, all research thrusts of the university.

According to C2 Director Chris Manuel, C2 is the front door for entrepreneurs to work with the Navy and DOD on technology solutions, and can facilitate growth of public/private partnerships and dual-use technologies.

“The partnership* with IAF strengthens the Central Coast Tech Bridge’s ability to connect NPS to start-ups, academia, corporations, small businesses, non-profits, and private capital with a single-entry point,” Manuel says. “Our partnership with the **Naval Postgraduate School** provides access to expert faculty and experienced military students who understand operational challenges and are eager to work with business to solve research challenges.”

IAF Founder and Director John Pyrovolakis views innovation as a national security priority.

“Our country is the world’s most innovative, and our non-profit affords a single point of visibility into a broad swathe of it – especially parts generated by non-traditional sources,” says Pyrovolakis, “Whatever country emerges as dominant in quantum information science or in hypersonics or in cybersecurity – there’s a number of these fields – will go a long way in defining what country is in charge of the future. We are grateful to the George Kaiser Family Foundation and Tulsa Innovation Labs for the support address this opportunity in Tulsa.”

Manuel and Pyrovolakis believe this partnership will lead to new relationships between universities and research enterprises, and could permeate to the other Tech Bridges around the nation.

*The partnership does not imply endorsement of Innovation Accelerator Foundation, its platforms, or activities by the **Naval Postgraduate School**, the Department of the Navy, or the Department of Defense.

[DVIDS - News - Problems Solved Here: Central Coast Tech Bridge, Innovation Accelerator Foundation to collaborate on technology solutions \(dvidshub.net\)](#)

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Evaluating Artificial Intelligence: NPS Researchers Seek to Improve Acquisition of AI Systems

(NPS.edu 10 June 21) ... Mass Communication Specialist 3rd Class James Norket

A team of Naval Postgraduate School (NPS) researchers have developed a set of tools to support the acquisition of organically-developed AI systems. By using already-developed equations in concert, they can help determine the potential worth of technology emerging from start-up companies around the world.

A challenge in defense acquisition can be the ability to keep up with the speed of innovation in emerging technology, but specifically, the acquisition of Artificial Intelligence (AI) systems can pose a unique challenge, especially if the technology comes from relatively new start-up companies.

Often these companies can be at the leading edge of technology. So a team of researchers at the Naval Postgraduate School (NPS) have focused their efforts to develop a set of tools to support the acquisition of organically-developed AI systems.

NPS' Information Science Professor of Research, Dr. Johnathan Mun, who teaches quantitative research methodologies and decision analytics, says that acquisition research is a key factor in keeping the United States ahead in the era of Great Power Competition. Mun notes that companies like Lockheed Martin or Northrop Grumman have a proven track record with the Department of Defense (DOD) in making high-quality products, however, the acquisition of AI technology by start-ups makes things a little more complex.

“Major innovations have happened before with two guys in a garage coming up with some really cool, potentially game changing, revolutionary, and disruptive technology,” said Mun. “There is a huge potential for high-risk failures in this field because this is brand new technology. When a couple of really smart people in a garage somewhere invent a new algorithm we have to determine if it’s worth our time and money.”

When the DOD discovers these new start-up companies and products, they have to rely on acquisition research to determine the risks of pursuing the company.

“So, how do you analyze AI?” asks Mun.

Mun’s team, comprised of three other NPS researchers, have provided an answer to that question. By using already-developed equations in concert, they can help determine the potential worth of technology emerging from start-up companies around the world.

“In the analysis, we need to apply 80 percent advanced decision analytics approaches and 20 percent qualitative intangible factors,” said Mun. “80 percent is math because no matter what, one plus one equals two. The other 20 percent depends on things like what timeline we are working on or how confident we are that the technology will make our jobs easier or more capable. We also look at how would this technology hurt us if it got into the wrong hands, or if we could add it to an already existing program.”

Defense acquisition actually requires input from multiple different sources. The warfighter has a need, the decision makers have a budget, and the engineers have to be able to address those needs and then the DOD has to acquire those solutions.

“Acquisitions is a very complicated topic,” said Mun. “You need to have different experts from multiple fields.” Mun added that it all comes down to a cost benefit analysis and understanding the risk associated with the acquisition of technology, and understanding its long term value.

According to one of the team’s other researchers, NPS Information Science Professor Dr. Tom Housel, another thing that sets these start-up companies apart is the pace at which they are being created and the pace at which they are innovating. He says that this new “industrial revolution” is moving at a very fast pace.

“We have to be able to screen through these new technologies at a fast and accurate pace,” said Housel. “If you show me a model and tell me what it does, then we can tell you how much value it adds.”

Mun noted that the interdisciplinary aspect of acquisition is what makes NPS the perfect place for this research.



“We have these great professors who have experience in AI and information technology and acquisition,” said Mun. “But we also have these great students who are the warfighters and will ultimately be using the product. We are able to collaborate together to determine the best path forward.”

When it comes to acquisition research processes, there is no standard way to assess every situation.

Mun noted, “At the end of the day, our job is to provide actionable intelligence to the senior leadership and decision makers to help make the acquisition process easier.”

[Evaluating Artificial Intelligence: NPS Researchers Seek to Improve Acquisition of AI Systems - Naval Postgraduate School](#)

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NPS Team Earns Design Inspiration Award at HACKtheMACHINE Competition

(Navy.mil 10 June 21) ... Mass Communication Specialist 3rd Class Lenny Weston

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For this year’s HACKtheMACHINE (HtM) Navy digital competition, NavalX implemented “Heavy Metal,” an additive manufacturing challenge to use metallic 3D printing for fabricating shipboard parts to withstand specific environmental conditions.

A team of eight faculty and one student from the Naval Postgraduate School took on the challenge back in March using the on-campus Xerox ElemX Liquid Metal Printer to design and fabricate a shipboard light fixture able to withstand rigorous shocks and vibrations of a navy ship, a feat that earned the team the competition’s Design Inspiration Award, an honorary award for teams using a unique and practical approach to producing a part. As a control, every team in this challenge had to produce the light fixture bracket, but the judges decided it was the NPS team’s innovation in materials, manufacturing process and also the part’s durability that earned them the award.

Now in its sixth iteration, and sponsored by the Office of Naval Research, HtM was hosted virtually at the NavalX facility in Alexandria and brought together people from across the Navy Research and Development Enterprise, government, academia and industry to tackle some of the Navy’s most complex problems. This year’s HtM focused on three tracks: data science [public health related], metal 3D printing as it relates to shipbuilding, and maritime cybersecurity – its signature challenge track.

The “Heavy Metal” track challenge called for teams to accelerate the adoption of Advanced Manufacturing (AM) using metallic 3D printing in the U.S. Navy. The track underscores how the Navy will be looking to metallic 3D printing capabilities to enable ships and shipyards to produce key components with the effect of shortening supply chains and meeting critical mission timelines.

The award-winning NPS team, led by Research Associate Professor Dr. Walter Smith, comprised of members from three different academic areas: Mechanical and Aerospace Engineering (MAE), Computer Science, and NPS’ Energy Academic Group.

Smith noted the goal of the competition was three-fold.

"For the team members, it is about growth and learning about new fields and technology. For students, it is going through an entire design cycle with the faculty and seeing what that involves and how much they can achieve in their other work. For the school, it provides a level of visibility to the Navy on the capabilities and depth and breadth of knowledge that resides here at NPS."

For MAE Research Associate David Dausen, collaboration is the main focus in these types of events.

"Everyone sees the challenge or problem in a different way and they come up with a solution together," said Dausen. "The participants are looking for that "Aha" moment which will define the work they are trying to achieve."

Recently installed on campus in February, the [Xerox ElemX](#) provided the team with the capability to make a competitive product for HtM. The ElemX uses aluminum wire rather than hazardous powders making the ElemX a much safer choice for users in shipboard environments. By heating up aluminum wire, which is melted to liquid form, the printer can then disperse the liquid metal by creating jet droplets that layer on top of each other repeatedly to make a product.



NPS student U.S. Navy Lt. William Kimberl, whose thesis research is in material science focusing on the fractography of the aluminum used in the ElemX, noted the team printed the bracket as a collective while he performed destructive testing of the initial light bracket validating the part had all mechanical properties, strength and durability they desired.

“The NPS community is comprised of many faculty and students with diverse backgrounds experiences,” said Kimberl. “Each person was able to contribute to the project in different, meaningful ways which led to a successful product.”

For students like Kimberl, this competition offers them a chance to apply their research into real world applications on a national playing field.

According to Dr. Amela Sadagic, Co-director of NPS’ Center for Additive Manufacturing, this effort was very typical for any interdisciplinary endeavor at NPS, whereas each person enriched their understanding of a technological domain.

“Once students graduate from NPS they will then become part of the adoption and application of additive manufacturing across the Naval domain,” noted Sadagic. “This award is a great recognition of the combined effort and input that everyone brought to this project. We hope that next year NPS will have several teams in all tracks of HtM Navy digital experience furthering innovative solutions for the Navy.”

[NPS Team Earns Design Inspiration Award at HACKtheMACHINE Competition > United States Navy > News-Stories](#)

[NPS Team Earns Design Inspiration Award at HACKtheMACHINE Competition - Naval Postgraduate School](#)

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FACULTY:

Indo-Pacific: The front line of US and China next-gen submarines

Nikkei Asia 9 June 21) ... Ken Moriyasu

Life on a nuclear-powered ballistic missile submarine, or SSBN, can be dreary.

"There's no Wi-Fi, no TV, no radio or anything like that. When I first joined, everybody got very excited when the Navy's movie service sent you a new box of videotapes or DVDs," former submariner Tom Shugart, who served on three vessels, including as commander of the nuclear-powered fast-attack sub USS Olympia, told Nikkei Asia.

But besides the inherent challenges from the isolation of conducting missions underwater, there is another aspect to many submarine operations: secrecy.

Unlike a fast-attack submarine carrying conventional weapons, the U.S. Navy's Ohio-class SSBNs cannot make foreign port calls easily due to the 20 Trident D-5 ballistic missiles they carry. "Boomers," as SSBNs are called in the Navy, have one mission: to hide in the world's deepest oceans waiting for an order to launch a nuclear strike.

For the six decades since the world's first operational SSBN took to the high sea, that order has never come.

Meanwhile the world's major powers are quietly building their undersea deterrence capabilities. In the Indo-Pacific, the U.S., China, Russia and India operate SSBNs, while Pakistan and North Korea also are exploring submarine-launched nuclear firepower, albeit on diesel-electric subs.

The \$15 Billion Boomer

The Pentagon, in its recently released 2022 budget request, allocated \$5 billion for procurement of the Columbia-class SSBN, which is to replace the Ohio class in 2031. Many in the defense community criticized the overall budget request as not growing enough to meet the great power competition with China, but the Columbia program stood out as one of the few items that went unscathed.



American naval officials have stated for the past several years that the Columbia-class sub is the Navy's top priority program.

"This means, among other things, that from the Navy's perspective, the Columbia-class program will be funded, even if that comes at the expense of funding for other Navy programs," a Congressional Research Service report on the Columbia program noted, adding the italics for emphasis.

The aging 14 Ohio-class SSBNs are to be replaced with 12 Columbia-class vessels. Unlike the Ohio class, which all need to undergo a lengthy midlife upgrade for nuclear refueling -- like getting a fresh tank of gas -- the Columbia class is designed to have one reactor core for its entire life and never needs to be refueled. That configuration lets the Navy operate 10 SSBNs at all times, meeting the requirement from the combatant commander of U.S. Strategic Command, the section of the U.S. military in charge of nuclear weapons.

But keeping 10 nuclear subs at sea is expensive and cost estimates keep growing. The procurement cost for the 12-boat program totals \$109 billion, as of the May 12 CRS report. On Monday, USNI News reported that the estimated price of the lead boat of the Columbia class grew by \$637 million over the last year to \$15.03 billion.

"Nuclear deterrence is what underpins the rest of the conventional deterrence," said Shugart, now an adjunct senior fellow at the Center for a New American Security. "If you don't have a reliable, survivable nuclear deterrent, then all the rest of what you're doing may not matter. That makes the program the No. 1 priority."

The three components of American nuclear strategy are the land-based intercontinental ballistic missiles, the air-based strategic bombers and the submarine-launched ballistic missiles. Of the three, the sea-based SSBN is considered the most survivable because the vessels are virtually undetectable once in a deep ocean.

Other Sharks in the Sea

But the U.S. is not the only power honing its undersea deterrence.

In a February 2020 study by the National Security College at the Australian National University titled, "The Future of the Undersea Deterrent: A Global Survey," scholars from around the world analyzed the SSBN plans of China, Russia, India, France and the U.K., as well as the diesel-electric ambitions of Pakistan and North Korea.

Rory Medcalf, head of the National Security College, wrote that one credible explanation for Beijing's campaign of building and militarizing islands in the South China Sea is its wish to make that area a bastion where the country's SSBN fleet can operate in relative safety from detection or attack by U.S. and allied forces.

China is thought to possess six Jin-class SSBNs (Type 094), of which the latest, the Long March 18, was delivered in April. The submarine carries 12 JL-2 ballistic missiles with an estimated range of 7,200 km. That range could let Jin-class subs attack targets in Alaska from protected bastions near China, targets in Hawaii from locations south of Japan and even targets in the western U.S. mainland from mid-ocean locations west of Hawaii, the CRS estimates.

But to hit Washington, Chinese submarines would have to travel east of Hawaii, navigating hostile waters.

China's biggest obstacle to SSBN operations is its geography, surrounded by shallow waters and having to pass choke points before entering the deep waters of the Pacific.

"Whereas the SSBNs of the United States, France, Britain, India and Pakistan have direct access to the world's ocean basins, those of China do not," Stephan Fruehling, associate dean of the ANU College of Asia and the Pacific, wrote in the university's report.

Shugart agrees. "China's military advancement has eroded the U.S. advantage in so many areas. But one area that the U.S. still has a significant advantage is in undersea warfare," the ex-submariner said.

Yet if future Chinese missiles have a longer range, then Beijing potentially could keep its SSBNs in the South China Sea and still target the U.S. The distance from its fortified base at Hainan to San Francisco is around 11,600 km, while it would be 13,500 km to Washington.



"Over a time span of several decades, it seems likely that the Chinese could produce a sea-based missile with sufficient range to reach anywhere in the United States from the South China Sea," American naval analyst Norman Friedman wrote in the report.

New Delhi commissioned its maiden SSBN, the INS Arihant, in 2016, making India the first country outside the five permanent members of the United Nations Security Council to build such a vessel. Its second SSBN, an upgraded INS Arighat, is to be commissioned later this year.

The older Arihant carries 12 short-range K-15 ballistic missiles with a range of 700 to 1,000 km, but could be modified to launch four K-4 ballistic missiles that can travel 3,000 to 3,500 km. Either way, the Arihant's current area of operations appears limited to the Bay of Bengal, from where it could target Pakistan or China if ordered.

But down the road, "Like the United States, India has geographic advantages for SSBNs to go on open ocean patrol, once they field long-range" submarine-launched ballistic missiles, retired Rear Adm. Sudarshan Shrikhande, the former head of Indian Naval Intelligence, wrote in the same report.

"We need to move beyond bastions where an enemy's offensive [anti-submarine warfare] is effective," he added.

Pakistan's sea-launched cruise missile capability, meanwhile, remains "far from operational," according to Sadia Tasleem, a lecturer at Islamabad's Quaid-i-Azam University.

"Most defense analysts claim that Pakistan will likely use the three Agosta-90B diesel-electric submarines purchased from France in 1999, 2003 and 2006," she wrote.

The breakthrough for Pakistan will likely come through the assistance of China. China has agreed to provide eight modified Type 093 and Type 041 Yuan-class diesel-electric submarines to Pakistan, with the first batch comprising four submarines arriving in 2023 and the last four to be assembled in Karachi by 2028.

"The addition of these Chinese submarines will tremendously boost Pakistan's ability to defend its coastal areas as well as sea lines of communication," Tasleem wrote in the report.

An unmanned aerial vehicle delivers a payload to the Ohio-class ballistic-missile submarine USS Henry M. Jackson (SSBN 730) near the Hawaiian Islands. (Photo courtesy of the U.S. Navy)

All Drones on Deck

For years, SSBNs have engaged in games of hide-and-seek with the latest anti-submarine warfare capabilities. Much has been made of technological advancements that could make oceans more transparent, thus eroding the survivability of SSBNs. These include swarms of underwater drones capable of big data analysis and new sensing technologies.

"CubeSats now provide high-resolution imagery on a daily basis of the entire planet -- this type of imagery, combined with appropriate search algorithms, might reveal SSBN operational signatures that have so far remained unobserved," wrote James Wirtz, dean of the School of International Graduate Studies at the **Naval Postgraduate School** in California.

But the ocean is vast. Retired U.K. Rear Adm. John Gower calculated that covering just the open-ocean segments of the North Atlantic and Norwegian Sea could require nearly 4 million unmanned underwater vehicles.

"That would pose a currently unimaginable command, control and communications challenge for these UUVs," he wrote.

But till the robots take over, SSBNs likely will continue to prowl the world's cold ocean depths undetected.

[Indo-Pacific: The front line of US and China next-gen submarines - Nikkei Asia](#)

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Former Middletown Librarian Named as Middletown Days Pioneer

(Lake County Bloom 7 June 21) ... Charise Reynolds

Gehlen Palmer, longtime resident and former Middletown Librarian is this year's Middletown Days Pioneer award recipient. Palmer didn't set out to be a librarian, he originally wanted to go into science, but, "Math," he says, "was the issue." Born in 1947 in San Francisco, his formative years were spent around his father's family who were readers and former teachers. He recalls driving his grandmother nuts by asking her to read Ferdinand, and Dr. Seuss's Bartholomew and the Oobleck over and over again.

The family moved to Middletown in June of 1953, right after he finished Kindergarten. His mom, Dorothy Rees, was a housewife and charter member of the Lioness Club. His father, Reis "Finney" Palmer, was a charter member of the Lion's Club. He was also the milk man and owned the Golden State Foremost Dairy which is now known as Clover Dairy.

Palmer attended Middletown Elementary which at the time was located on Hwy 175; and Middletown High back with the middle school and high school were still one. His favorite teacher was Dave Robertson, the English teacher. They talked about books. The high school had just gotten a new library on campus. Palmer recalls typing up the check out cards during Study Hall.

After graduating high school in 1965, he headed to Humboldt State to study Liberal Arts. Then in 1967, in order to avoid being drafted and having to go to Vietnam, he joined the Coast Guard. He was eventually sent to Indianapolis where he attended the Defense Department Journalism School. His last duty station was Governors Island in the middle of New York Harbor where the USO would give service men free tickets to Broadway shows. He ended his time with the Coast Guard 5 years later as an E5 Second Class Journalist.

Next, he headed off to Tampa and General Telephone and Electronics Services where he was a technical writer for 2 years before heading back to California, specifically, Monterey. In 1975 he began what he calls "working in the book business." He was a book clerk at the Navy Exchange bookstore at the **Naval Postgraduate School** by day and worked for the Pacifica Grove Public Library in the evening. One day, he saw an ad for a bookstore manager in Astoria, Oregon and he packed up and moved. He held that job for the next three years before deciding to run his own bookstore. He had the store for 11 years, but when his mother died in 1993 (his dad having passed in 1978), he moved back to Middletown.

He gave himself 6 months to find a job. One day he went into the local library and overheard the librarian lamenting that she only had two days left; hadn't received very many applications; and, of those received, not many were qualified. Palmer put in his application and three weeks later he was the new librarian. At that time, the position was considered Extra Help and only 15 hours a week.

The old Middletown Library used to be housed across the street from the current library in what is now the Gibson Museum. If you had ever visited prior to construction of the new one, you know just how crowded it eventually became. There were stacks and stacks of books behind the counter because there was nowhere else to put them. In addition to his librarian duties, Palmer, the sole employee, also served as janitor and grounds keeper for many years. He says he enjoyed the position and there was lots of work to be done, so he stayed to do it. In 2000, as part of a class and comp study by the county, he was rewarded for his efforts. He received the largest raise of anyone in the county based on all the jobs he was covering. His hours were also increased. He said that he gave himself a "small raise" and put the rest away for retirement.

That same year a grant from the Bill & Melinda Gates Foundation allowed the library to offer public access computers. That resulted in a conversion of an empty room into a Children's Room. The responsibility was left to Palmer who partnered with the local Lioness Club to fundraise and to paint it. They also helped with the forming of the Friends of the Library.

Even with all the upgrades, the Gibson building eventually became too small to meet the needs. Planning for the new library actually began back in 1997 under Supervisor Ed Robey. The RFP (Request for Proposal) didn't actually go out until around 2010. Palmer thinks it was under Supervisor Jim Comstock. The County Librarian, Susan Clayton, gave Palmer leeway to work in helping to plan the new building. Palmer also helped to relay requests from library patrons as to what they would like in the new building. "That got us the donation of the Circulation Desk from Calpine (the reception desk in the



Visitor's Center) and the transfer of custom shelving from the Gibson Children's Room to the new library." Palmer credits many individuals with help planning.

In April of 2013, the efforts of so many came to fruition and the new library was opened. Palmer got to enjoy the new building until he retired in November of 2018. It should be noted that when he retired the position was still not full time at just 30 hours a week. Which, he says, gave him more time at home and to do the things he wanted to do.

These days, he still has lots to do around his house as he is one of the folks who lost his home in the Valley Fire. He is enjoying his retirement and his new home, especially the back porch which has a great view of Cobb Mountain. He calls the porch a "terrible distraction."

Palmer will be featured at the Middletown Days Parade this year which starts at 10 am on Saturday, June 19th. He will also be honored for his contributions to the community with a plaque, immediately following the parade, at the celebration near the arena at Central Park.

[Former Middletown Librarian Named as Middletown Days Pioneer – The Lake County Bloom](#)

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US government recovered millions of dollars paid in Colonial Pipeline hack ransom

(GazetteXtra 7 June 21) ... Del Quentin Wilber

The Justice Department recovered \$2.3 million in cryptocurrency ransom that Colonial Pipeline paid to hackers whose cyberattack last month shut down its major East Coast pipeline, leading to gas shortages up and down the East Coast, authorities said.

Deputy Attorney General Lisa Monaco said the FBI on Monday seized the majority of the ransom that Colonial Pipeline paid to hackers who used malware developed by DarkSide, a Russia-linked hacking group, to encrypt and lock up the company's computer systems. The company, which Monaco credited with quickly alerting the FBI to the attack, said it paid the hackers \$4.4 million in Bitcoin to regain access to its systems.

"Today we turned the tables on DarkSide," Monaco said, calling such ransomware attacks an "epidemic" that poses a "national security and economic threat" to the U.S. "This was an attack against some of our most critical infrastructure."

Though the malware did not affect systems that operate the company's pipelines, which stretch from New Jersey to Texas, Colonial discovered the hack on May 7 and closed its spigots for five days in an abundance of caution. The pipeline supplies about 45% of the jet fuel, gasoline and heating oil consumed on the East Coast, and the shutdown sparked panic from drivers, who raced to top off tanks, leading gas stations to run out of fuel.

The Justice Department did not disclose how much Colonial paid in ransom, but the company's chief executive told The Wall Street Journal last month that it made a \$4.4-million payment in Bitcoin. Colonial CEO Joseph Blount said the company paid the extortion demand because he was concerned a prolonged disruption of the pipeline would hurt the nation. "I know that's a highly controversial decision," Blount told the newspaper. "I didn't make it lightly. I will admit that I wasn't comfortable seeing money go out the door to people like this."

Ransomware hackers typically trick unwitting employees into opening an email and clicking on an attachment or a link, which then infects computer servers with malware that encrypts data and locks the systems. Victims must pay a ransom to the hackers to obtain a decryption key to unlock and recover the information. DarkSide's malware poses a double whammy — it can also siphon out information, giving hackers more leverage because they can threaten to disclose sensitive data if they are not paid.

FBI Deputy Director Paul Abbate said DarkSide produces ransomware that it sells to hackers who conduct cyberattacks and share a percentage of their proceeds with the malware's developers. DarkSide's product is one of about 100 ransomware variants the FBI is investigating, Abbate said.

The bureau has been investigating DarkSide since last year, Abbate said, and has identified more than 90 victims of its ransomware in manufacturing, legal, insurance and health care industries. Working with



other U.S. government agencies, the FBI identified “a virtual currency wallet” that the DarkSide hackers were using to collect payment from a victim, Abbate said.

The Justice Department then obtained a warrant to seize those Bitcoins, officials said.

“The old adage ‘follow the money’ still applies,” Monaco, the deputy attorney general, said. “That’s exactly what we do.”

The Colonial Pipeline attack was the latest in a series of ransomware assaults that has crippled government agencies, hospitals and businesses, including a major meat producer that was forced last week to idle plants, sparking concerns about potential increases in meat prices and shortages. A task force of more than 60 experts from industry, government and nonprofits issued a report in April that called ransomware “a flourishing criminal industry that not only risks the personal and financial security of individuals, but also threatens national security and human life.”

The report, published by the nonprofit Institute for Security and Technology, estimated that nearly 2,400 governments, health care facilities and schools were victims of ransomware attacks last year. Ransom payments rose to \$350 million last year, a 300% increase over 2019, the report said. The average such payment topped \$300,000.

Cybersecurity experts and former federal prosecutors and agents blamed several trends for the spike. The rise of difficult-to-trace cryptocurrency has made it far easier for criminal gangs to collect payments, the experts said. Cybercriminals have also begun to increasingly operate within the borders of U.S. adversaries, particularly Russia. The Kremlin, for example, allows hackers to operate with impunity if they do not target Russian businesses or citizens and focus their energy on sowing chaos and confusion in the West.

The Biden administration is seeking to find ways to combat the rise. Biden said he will discuss ransomware attacks this week with U.S. allies during a European trip, and bring up the subject during a June 16 meeting with Russian President Vladimir Putin. The Justice Department has launched a task force to better coordinate its approach to the crime wave. Justice Department officials said the Colonial Pipeline ransom seizure was the first ransom recovery by the task force. Justice Department officials could not say how many other ransoms they have recovered.

“This is a big deal,” said Scott Jasper, a lecturer at the **Naval Postgraduate School** and author of “Russian Cyber Operations: Coding the Boundaries of Conflict.” “The question is: Will this be big enough to change the behavior of DarkSide or of other cyber actors? It’s too early to tell. It’s a slow game, a long-term game. This is a significant, big business. This is a big enterprise.”

[US government recovered millions of dollars paid in Colonial Pipeline hack ransom | Nation/World | gazettextra.com](https://www.nps.edu/newsroom/US-government-recovered-millions-of-dollars-paid-in-Colonial-Pipeline-hack-ransom-Nation/World-gazettextra.com)

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Marine fog comes under focus in new five-year study

(EurekAlert 9 June 21)

Researchers at the University of Notre Dame will lead a five-year study to improve the fundamental understanding, detection and predictability of marine sea fog.

Harindra Joseph Fernando, the Wayne and Diana Murdy Endowed Professor in the Departments of Civil and Environmental Engineering and Earth Sciences and Aerospace and Mechanical Engineering, will serve as principal investigator of the project called Fog and Turbulence Interactions in the Marine Atmosphere (FATIMA).

"The general familiarity with fog is its disruption of societal functions such as transportation, delaying travel and causing hazardous conditions for commuters," said Fernando. "Fog can also impede communications and interfere with high-energy laser, free-space optics and remote detection applications that are critical to government and security operations -- and yet, it remains one of the most poorly studied aspects of meteorology."



FATIMA will consist of two 30-day field campaigns, one to be conducted on Sable Island in the Canadian Atlantic and one off the coast of South Korea in the Yellow Sea. An additional ice-fog experiment will be conducted in Barrow, Alaska.

Fernando's team at Notre Dame will lead the study including FATIMA's field campaigns and theoretical studies. The project's emphasis on marine fog will seek to gain fundamental understanding of how fog -- which consists of water droplets and/or ice crystals in the lower atmosphere -- forms over shallow seas. The team will also look at the dynamics of coastal ice fog.

Taking a multidisciplinary approach, researchers will deploy leading-edge instrumentation during each field campaign; capture atmospheric turbulence down to its smallest scales, temperature and moisture fluctuation readings; and conduct theoretical and numerical analysis to learn more about how fog is generated and identify the differences between fog and low-level cloud cover. The ultimate goal is to improve sea fog predictability.

The \$7.5 million study is funded by the U.S. Department of Defense's Multidisciplinary University Research Initiative. Co-principal investigators include Qing Wang at the **Naval Postgraduate School**, Clive Dorman at the University of California San Diego and Scripps Institution of Oceanography, Eric Pardyjak at the University of Utah and Lian Shen at the University of Minnesota. For the fiscal year 2021 Multidisciplinary University Research Initiative competition, the DOD solicited proposals in 26 topic areas important to DOD and the military services. From a merit-based review of the 298 proposals received, a panel of experts narrowed the proposals to a subset from which the 25 finalists were selected.

Fernando is an affiliated member of Notre Dame's Environmental Change Initiative and Notre Dame Energy.

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China's nuclear threat to US grows, mainly in the risk of a mishap, experts say

(ABS CBN 11 June 21) ... Mark Magnier

China's nuclear arsenal is a growing threat to US security, less in its absolute size than in the growing risk of a mishap as Washington and Beijing butt heads over Taiwan and many other issues, experts told a US Congressional commission on Thursday.

"Have the risks changed? Yes, it's a more competitive US-China relationship, and the chances of a conflict over Taiwan - while I don't believe they're high right now, they certainly have increased," said Phillip Saunders, director of the Centre for the Study of Chinese Military Affairs at the National Defence University. "Something might go wrong."

As Moscow and Washington engaged over decades in a high-stakes nuclear arms race, China traditionally remained on the sidelines.

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Since its first nuclear weapon test in 1964, it has repeatedly laid out a no first-strike, minimal deterrence policy, viewing its relatively modest arsenal as a way to "deter other countries from using nuclear weapons against China", as outlined in a 2013 white paper published by Beijing.

But China's growing economic, military and political might, its technology ambitions and the successful lobbying by its navy and air force to have their own nuclear forces have altered the equation.

A particular concern is that Beijing may edge or be pushed toward a policy - advocated by some in the People's Liberation Army (PLA) - of launching weapons at the first sign of a possible attack, increasing the risk of unintended consequences.

Also troubling, witnesses added, is the broader geopolitical context. This includes growing trans-Pacific suspicion; China's more aggressive stance under President Xi Jinping; China's territorial disputes



with its neighbours; Beijing's heavy-handed crackdowns in Hong Kong and Xinjiang; and the end of unofficial term limits that could see an assertive Xi remain the nation's leader for decades.

Experts cited a variety of scenarios on how a skirmish, most likely over Taiwan, could spin out of control: the Xi administration could find itself losing on multiple fronts, threatening Communist Party control.

Alternately, the Pentagon could find itself struggling to prevail using conventional weapons or, conceivably, attack a Chinese military base that doubles as a nuclear facility, eliciting retaliation.

"There are reasons to think a conventional war may not stay conventional," said Caitlin Talmadge, associate professor of security studies at Georgetown University's School of Foreign Service.

On the one hand, commercial satellites, open-source internet research and even hacked Chinese cellphones are providing much more of a window into China's nuclear activities, experts testified before the United States-China Economic and Security Review Commission, an independent panel that advises Congress.

At the same time, despite its no-first strike policy, Beijing has eschewed transparency, avoided detailing its nuclear ambitions even as its global reputation has eroded, as seen in public opinion surveys.

"They also at one point assured the world that they would not militarise the islands they occupy in the South China Seas," Alex Wong, a commission member and a senior fellow at the Hudson Institute, said.

"Given the catastrophic dangers of nuclear war, it may not just be prudent to question their motives and actions, but imperative."

Expert opinions differ on the size and expected growth of Beijing's nuclear arsenal, which remains a Chinese state secret. Estimates place it from 200 to 350 weapons with plans to double or even triple that figure within the next decade.

The PLA has advanced rapidly with its medium-range missiles, both in accuracy and capability, and expanded its use of single missiles carrying multiple warheads. Less advanced are its submarine and bomber nuclear forces.

But experts noted that each side has lots of reasons to misinterpret the other's intentions, fuelling instability.

China's shift to a nuclear triad - including hardened land-based silos, shipborne missiles and ballistic bombers - from a mobile system may stem more from inter-service rivalry and the logistical challenges of weapons rattling around on trains than a ramped-up nuclear strategy.

"All you need is a flat tire for that launcher to be out of commission," said Hans Kristensen, nuclear research director at the Federation of American Scientists.

Moreover, the US is hardly blameless, witnesses said, and China, by some accounts, has been remarkably restrained. Despite an economy that is 70 per cent the size of its US counterpart and a population four times larger than America's, Beijing's nuclear stockpile is just 5 per cent the size of the US arsenal. Even a doubling would leave a massive gap, they added.

"The US has a role to play here too," said Talmadge. "Almost all of the discussions to this point have really highlighted how interactive the two sides' perceptions and capabilities are."

Finding creative ways to cooperate, focusing on crisis management and engaging a reluctant Beijing in discussions on arms control - admittedly a tough sell after Washington pulled out of arms-reduction negotiations with Moscow during the Trump administration - has far more potential than a continued nuclear showdown, witnesses said.

"If we rely on missile defence as a primary component to how we are going to address the growing Chinese threat, we're going to be in a losing game with an economy that has continued to outgrow our own, and has the ability to spend considerably more on military priorities than they are currently doing," said Christopher Twomey, associate professor at the **Naval Postgraduate School**.

"Finding ways to reduce pressure in that regard should be a high priority," added Twomey, organiser of an unofficial "track 1.5" US-China nuclear dialogue with China that was suspended during the Trump years.

[China's nuclear threat to US grows, mainly in the risk of a mishap, experts say | ABS-CBN News](#)

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ALUMNI:

Former Marine, Actor, Pastor to Keynote HLGU Booster Banquet

(KHMO Radio 10 June 21) ... Harold Smith

A former Marine, actor and minister will be the keynote speaker for the 2021 Hannibal-LaGrange University Booster Banquet.

Officials with HLGU have announced that Ken Bevel will be the featured speaker for the 80th annual Booster Banquet, which will take place November 19th of 2021.

Bevel is perhaps best known for his roles as Lieutenant Michael Simmons in the 2008 movie "Fireproof" and as Nathan Hayes in the 2011 movie "Courageous." He is also a 20-year veteran of the United State Marine Corps and currently is pastor of Membership and Local Missions at Sherwood Baptist Church in Albany, Georgia.

Bevel is a graduate of the University of Memphis with a Bachelor of Science degree in computer engineering technology and a graduate of the **Naval Postgraduate School** with a Masters of Business Administration in logistics management.

Bevel is married to his wife, Lauana and they have two children, Kyra and Kaleb.

[Former Marine, Actor, Pastor to Keynote HLGU Booster Banquet \(khemoradio.com\)](http://khemoradio.com)

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East Lansing fire chief, former Lansing chief Randy Talifarro retires

(Lansing State Journal 10 June 21) ... Sarah Lehr

East Lansing Fire Chief Randy Talifarro is retiring after leading the department for 20 years.

Talifarro's last day will be June 11. Deputy Chief Dawn Carson will serve as interim chief until the city finds a replacement, according to a news release.

"We are grateful for Chief Talifarro's leadership in East Lansing, the knowledge and expertise that he brought with him to the role and for his continued support, particularly over the last year as he has led us through the emergency management of a public health crisis," East Lansing City Manager George Lahanas said in a statement.

Talifarro began his firefighting career more than three decades ago and worked for the city of Flint before becoming East Lansing's fire chief in 2001. In 2012, Talifarro began serving as the fire chief for both Lansing and East Lansing under an agreement between the two cities.

At the time, some officials hoped sharing a chief could pave the way for a joint fire district in which the two fire departments merged to cut down on costs. The merger never materialized, however.

Talifarro resigned from his Lansing role in 2018 while continuing to work as East Lansing's chief. In an open letter, Talifarro said Lansing Mayor Andy Schor hadn't done enough to promote racial diversity in the fire department and had created an "unhealthy culture." In 2020, Talifarro joined a host of current and former Lansing employees in suing the city for racial discrimination.

Talifarro graduated from the University of Michigan with a bachelor's degree in public administration and completed a Master of Arts Homeland Security Program through the **Naval Postgraduate School** Center for Homeland Defense and Security.

Talifarro's annual salary with East Lansing is \$120,735.

[East Lansing to search for new fire chief after Talifarro retires \(lansingstatejournal.com\)](http://lansingstatejournal.com)

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The Chief's Desk – June 11th

(Signals AZ 11 June 21) ... Chief Scott Freitag

I have been attending my final week-long session of the Executive Leaders Program (ELP) via Zoom. Super not fun taking part virtually, but better than being in California at the moment.

As part of this week's class preparation, we read a book by Michele Wucker, *The Gray Rhino: How to Recognize and Act on the Obvious Dangers we Ignore*. Michele also served as a presenter for our Wednesday session. I find the topic of risk assessment fascinating. Not from the standpoint of simply assessing risk, but the idea of actually identifying, addressing, and dealing with it.

Michele coined the metaphor 'Gray Rhino' to describe the challenges we see in the distance, but often do nothing to avoid. A 'Black Swan' event is defined as something that no one could have predicted. In contrast, a Gray Rhino is not only predictable, it is easily identifiable. Below, I'll cover three of the most basic ways people deal with Gray Rhinos.

The first is that they ignore the threat completely. It's not an issue of tunnel vision, rather, an issue of ignorance, or a feeling of, "It's not my problem." These individuals do not even attempt to get out of the way.

The second is called muddling. Muddling refers to making small moves to side-step the Rhino, but not doing anything substantive enough to actually get out of the way. People may use a muddling approach for a couple different reasons; one, to make it look like they're doing something, though they really do not have the intestinal fortitude, or ability, to make the necessary changes. Second, it may be that the problem is simply so large that only small steps can be taken to limit the impact.

The third way people may deal with a Gray Rhino is to identify, assess, shift resources, and immediately act to cut the Rhino off before it can charge. This method not only takes vision, but also takes resources and possibly a bit of courage.

So, you might ask – Chief, how does this relate to us and why are you boring us with this crap? Valid question – I needed a topic for this week. Actually, no, I'd like to talk about two examples of Gray Rhinos we're currently facing as an organization and how we are working to address them.

The first CAFMA example relates to PSPRS, or our pension debt. One could describe what we've done over the last five or six years as muddling. I think that would be a fair characterization of the steps we've taken given the complexity of the issue. PSPRS is a ginormous financial avalanche that has been gaining speed for years. Like a snowball, with each rotation it gets bigger and gains momentum as it races to crush us – a Gray Rhino. The issue has not been with identifying the threat, that's easy. Our challenge has been getting a handle on what the PSPRS system is doing, how they are applying their assumptions, and the lack of financial tools/options available for us to address the problem.

Staff has met numerous times over the years with PSPRS representatives in an effort to understand their calculations, amortization schedules, investments, and their strategy – which they didn't have until more recently. What we did not want to do is throw additional revenues into the abyss.

It took a wholesale change in management and staff at PSPRS to finally get the answers we needed. Armed with the answers, we now had to determine the best strategy for our organization to start managing the inevitable increases in our unfunded liability. How do you address a financial debt? You have to have the financial resources to pay it down. To that end, we were armed with answers, but nothing else. As a fire district, we have strict taxing limits, and, up until the last couple of months, we had zero financial tools available for addressing pension debt. Our only option had been to increase the tax rate to unsustainable levels, which by the way would not go over well with our constituents, nor would it generate enough money to pay down the debt.

Now that Certificates of Participation (COPs) are an option, we finally have one tool available that allows us to maneuver into a position to deal with the debt without crushing our taxpayers. Issuing COPs will allow us to refinance our current debt at a much-reduced interest rate, e.g. drop from 7.3% to 3% or less. Refinancing the debt does not increase the tax rate because we're using the monies we're already paying to PSPRS to pay the financiers. However, just like when you finance a house, we are paying far more in principal, which saves us money over the life of the loan. The estimates at this time indicate a savings to taxpayers between \$19 and \$22 million.



If we do nothing more than we are currently, i.e. do not utilize the COP option, our annual PSPRS contribution is projected to top \$8 – \$10 million in the next 10 years – our current annual payment is approximately \$4.5 million. That level of annual contribution is simply not sustainable. Given our inherent distrust of PSPRS, we invested in our own actuarial software. Based on the program we use, and actual historical data, our estimates for future payments are far higher than what PSPRS has projected. In my opinion, the actual dollar amount is likely somewhere in between the two, which is irrelevant because we cannot afford either one.

The COPs are projected to cap our annual contributions to PSPRS and the COP holders at \$5.5 million per year for the life of the loans. That is a good thing, and makes planning much easier. Are the COPs the be-all end-all? No, there is some level of risk as we have to use some of our properties to collateralize the loan. As long as we make the payments, the lease backs are not an issue. In my opinion, it is an acceptable risk. Not getting out of the way of this charging Gray Rhino is a much bigger risk for our community and organization.

Another Gray Rhino for us is recruitment and retention over the next five-to-ten years. We have identified a significant number of potential retirements which will open a number of positions. Retirements are just part of the equation. Given the growth in our area and increase in call volume, we will need to expand services in the coming years, which will require hiring beyond just replacing our retirees. Filling seats is not that hard, hiring and promoting the right people is the challenge. Yes, we are looking at better avenues to advertise and promote employment with our organization.

We hope our efforts will provide a larger pool of candidates. Why a larger pool vs. focusing on a smaller pool with greater talent? Because there really isn't a way to say we want a small pool of candidates, but only quality candidates may apply. For ease of comparison, let's assume that generally 10% of our applicants are hireable. That would mean that out of 30 applicants, three would be deemed worthy of hire. However, if we have 100 applicants, we would likely have 10 that are a good fit for the organization.

We all understand that the 10% estimate is a WAG at best. In reality, there are times when we end up with a number of people we want to hire, but not enough positions. Other times, we have more positions than we have good candidates. We are currently accepting applications for new firefighters. There are between 7-8 positions open, and we know that we are already short-staffed so we need to get people hired. However, if we go through the process and only find four applicants that we feel fit our organization, then we will only hire four and will run another process the first part of 2022.

If we hire for “butts in seats” rather than the right people with the right character, where does that leave the organization in 10 or 20 years? We have to be mindful that the decisions we make today have both short and long-term impacts to the Agency and our community. It is not our intention to create yet another Gray Rhino, rather it is to deal with the one that exists and avoid creating a secondary issue.

Obviously, there are more Gray Rhino examples than just these two. If we really wanted to go in depth, we would visit the topic of behavioral health. We will, just not this week, in this venue.

Remember, Gray Rhinos can be both organizational and personal. Looking at the future for you and your family, what do you see? If you see something charging at you, even if it seems a ways off, don't ignore it, start planning to address it. You never know, you may just create additional opportunities as a result of dealing with challenges head-on. For you newer folks, think of retirement as a Gray Rhino and start planning for it today. This career goes faster than you think.

At least, as of today, I am a Graduate of the **Naval Postgraduate School's** Executive Leaders Program (ELP)! So, now what? Can't stop learning, so I'm thinking I will apply for their graduate program in Homeland Security... I'm helping to set the bar for senior staff.

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Surviving the big one at school

(*Newport News Times 11 June 21*) ... Kenneth Lipp

A major seismic event at the Cascadia Subduction Zone could strand most Pacific Northwest coast residents for weeks wherever they are when the earthquake and tsunami hit.

At about 9 p.m. on Jan. 26, 1700, an estimated magnitude 8.7 to 9.2 earthquake rippled the Earth through coastal villages from northern California to Washington. The offshore quake resulted in a tsunami, bringing a series of flooding waves to the coast throughout the night, which caused the most significant damage and loss of life.

Scientists have determined that such events historically occur in the Pacific Northwest every 500 years, on average, with smaller magnitude 8 events every 200-300 years. According to the Pacific Northwest Seismic Network, “the odds over the next 50 years range from about one in three for a magnitude 8 in southern Oregon to about one in eight for a magnitude 9 spanning the entire subduction zone.”

“We don’t know when it’s going to happen, but we know it’s going to happen eventually,” Sue Graves, safety coordinator for the Lincoln County School District, said. If it happens when students and staff are at school, they’ll be faced with the same challenge as people in homes and businesses — surviving for an extended period of time on whatever is there. Because of the anticipated damage to roads inland, it will probably be weeks before outside help arrives to the coast, and local damage could isolate residents by neighborhood and block.

“We can really expect that basic services and basic needs are going to be really difficult. Roads will be closed, water systems won’t work, communications won’t work, we’re not going to be able to go to the store to buy food,” Graves said.

Graves holds a master’s degree in security studies from the **Naval Postgraduate School**, and in her off time from the district, she contracts with other entities as an expert consultant. She recently authored an “Earthquake and Tsunami Community Disaster Cache Planning Guide” for the Oregon Department of Geology and Mineral Industries.

The text is an exhaustive treatment of what to store and how to store it to prepare for a disaster, best practices Graves has been implementing at local schools for the past eight years.

In 2013, the Lincoln County Board of Commissioners amended its qualifications for county disaster preparedness grants at Graves’ request, allowing schools to apply. She used the \$2,500 grant to establish the school disaster caches, one in each region at first, and now there’s one near almost every school in the district. A new cache was added this year at Yaquina View Elementary School.

Graves said the survival troves are a collaborative effort between schools and the fire departments, police departments, and cities where they are located. They held a work party in early May with North Lincoln County Fire and Rescue, Lincoln City and Oregon Coast Community College to stock and refresh the caches at the Taft schools.

Supplies are stored in 20-foot steel Conex containers, stocked according to the number of staff and students at each school. They’re not all uniformly equipped, as funding for the project has varied over the years, and Graves said they are still working to meet some supply-level goals.

The caches contain everything to meet immediate human needs — medical supplies, Mylar blankets, search and rescue kits, warm garments, tents and tarps, food (meals ready to eat and survival bars), hygiene products and water.

The latter, Graves said, is the most critical and the most difficult to store in adequate quantities. The Federal Emergency Management Agency recommends coastal residents keep two weeks worth of water in their homes to prepare for a Cascadia event, though the agency believes only a small majority have even a three-day supply.

“Water is hard to cache,” Graves said. “We store it in 55-gallon barrels, add a purifier that makes it last for five years, and we aim to have about three days worth for every person.” At Oceanlake Elementary, for example, they have 16 55-gallon barrels, about four days worth of drinking water for the school’s 450 staff and students.

To supplement that supply, they also have individual water filter straws for each person. The straws are about the size of a finger and can be used to safely drink from a natural source like a stream (not one



contaminated by a tsunami) or rainwater. Graves said they also hoped to be able to salvage pots from school kitchens to boil water for safe drinking, and they will soon purchase a gravity fed Lifestraw Community filter, which can filter large quantities of water without electricity.

Graves lauded the contribution of local emergency agencies and municipalities, noting that the caches are a potential lifeline for everyone. “If school isn’t in session, emergency agencies can access those supplies for the community’s needs,” she said.

The county disaster preparedness grant remains the core funding for the project, though they have added other sources as well as benefited from the generosity of community members. When one woman learned the Newport caches were in need of hats, she offered to knit them and asked Graves how many were needed. She was undaunted by the answer — 2,000 — and organized a group that completed the task over the course of a year.

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